

## BRITISH MEDICAL JOURNAL

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## THE CAMBRIDGE MEETING

As the two Annual Meetings before the last two wars were held at Aberdeen, it was fitting that the first normal post-war Meeting should again be held at Cambridge after a lapse now of twenty-eight years. Those who planned the Meeting were a short time ago worried lest present pre-occupations with the National Health Service, difficulties of travel by car, food rationing, shortage of accommodation, and a host of other inconveniences would discourage members from attending. The President of the Meeting, Sir Lionel Whitby, who himself did so much preparatory work for it, must have been reassured by the crowds that thronged the reception he gave in the Old Schools on Tuesday, June 29. In the past town and gown have had their differences of opinion, but to-day the old conflicts are but a memory, and Sir Lionel's efforts were energetically backed up by Councillor G F Hickson, M A, the Mayor of Cambridge, who welcomed the B M A on the first day. The task of organizing a large Meeting was difficult enough in the lush days of peace. This year hitches might have been expected, not only because of the obvious hindrances but also because the President and his helpers from the Cambridge and Huntingdon Branch had not had the opportunity of being coached at the Meeting normally held the previous year. But many with long experience of Meetings commented on the remarkably efficient organization of this the 116th Annual Meeting of the B M A. That it was so successfully conducted, and so happily concluded, was due to the wise leadership, unflagging energy, and unfailing courtesy of Sir Lionel Whitby, who put us still deeper in his debt by delivering in the Senate House on the evening of his reception a Presidential Address that made the occasion an inspiration. In this Address, delivered on the eve of the appointed day for the National Health Service Act, Sir Lionel hoped there would "always be elbow room for a man to work out his own ideas, to be outspoken in criticism and debate, and to be free from unnecessary restrictions, regulations, and regimentation." "Let us hope also," he added, "that men may still be inspired to undertake work for the love of it." These were suitable words to be addressed to men and women meeting in a university which has for centuries enabled men of genius to follow the argument wherever it should lead.

During the eight days between June 25 and July 2 the familiar pattern of an Annual Meeting was followed—a pattern which now almost has the quality of a ritual. The first three and a half days were taken up with the debates of the Annual Representative Meeting. These concluded, the Annual General Meeting was held, and the retiring President, Sir Hugh Lett, invested Sir Lionel Whitby with the Presidential Badge of Office, prefacing this act with a delightful speech in which he informed the Meeting of

some of the outstanding facts in their new President's career. The Meeting, too, was told that the President for next year is to be Dr C W Curtis Bain, physician to the Harrogate General Hospital. This concluded the business on Tuesday—a day given to the principal ceremonies which divide the business from the scientific side of the eight days conference. In the afternoon medical men and women in their gowns and robes walked in procession to Great St Mary's Church for the official religious service. This was followed by the reception at Christ's College held by the Vice Chancellor, Canon C E Raven to whom the Meeting was indebted for the gracious welcome given to it by the University. The last three days were devoted to the proceedings of the nineteen scientific Sections in one of the most instructive programmes yet drawn up for an annual meeting. The papers read will be published in a special volume of Proceedings, and it is hoped as well to print a few of them in the much restricted pages of this *Journal*. Many of the discussions are reported in this week's issue. This is not the place to enumerate the many interesting themes presented by men speaking with authority, but it will not be thought invidious if we refer in particular to the generosity of that doyen of medical science, Sir Henry Dale, O M, who not only opened the discussions at two Section meetings but also on Friday night gave the popular lecture, which entranced his listeners.

Our hosts at Cambridge have set a standard for Annual Meetings which we hope will serve as a model for future years. Few places, indeed, can offer to medical men the rich and varied attractions of an ancient university town. But Cambridge has shown that dignity and learning are not incompatible with enjoyment and grace of living as exemplified in such delightful fashion throughout the meeting by Sir Lionel and Lady Whitby. In Cambridge tradition is a living force which is an inspiration to those working in advanced fields of science. Very many of its students are supported out of public funds, as in part is the University itself. Yet both preserve that intellectual freedom so essential to the advancement of knowledge. Here is a pattern which the world of Medicine may try to follow in the coming years.

## SOME POINTS OF DEBATE

The report of the Annual Representative Meeting was published in last week's *Supplement* and is concluded this week. Once more 372 Representatives were provided with an annual occasion to be "outspoken in criticism and debate." At the start there was a motion from the Metropolitan Counties Branch condemning the method of block voting for elections of the Council and Standing Committees. This brought into the open a grouse that has for some years been voiced in those informal conversations that are such an attractive part of a large conference. The motion was carried by 124 votes to 90 and it may be presumed that block voting will disappear at next year's A R M. There was a further move to criticize the Council for the conduct of the profession's case during the past twelve months. It could not, of course, be expected that



such a vast change in the life of the profession as is inevitable under the National Health Service Act should be introduced without feelings of anxiety and discontent among medical men. To set up a committee of inquiry, as was moved, would at the best have been a waste of time, but it is nevertheless better that such criticism should come into the open rather than be left to rankle unheard. Indeed, the fact that there was so little support for the motion moved by Dr Breach showed that the Representative Body, reflecting opinion in the profession generally, has sustained its desire for a comprehensive medical service for the whole community in a scheme which we believe gives doctors "elbow room for a man to work out his own ideas."

The two matters which stood out in the A R M debates were the Association's plans for the organization of consultants and specialists and the question of trade union status. The discussion on these two important matters was fully reported in the *Supplement* of last week. The plan for the first of these was most ably presented by Mr A. M. A. Moore, Chairman of the Consultants and Specialists Committee, and appointed at the Meeting as the Treasurer for 1948-51. The Representatives agreed to the important proposal that in the B M A's scheme consultants and specialists should have complete autonomy, and when Mr Ross Smith brought forward a motion to this effect Dr H. Guy Dain, the Chairman of Council, said that this was acceptable to the Council of the B M A. The second point stressed by Mr Moore was on the proportions of teachers and non-teachers on the Central Committee. In the discussions that had taken place the provincial teaching hospital staffs had felt that they would be out-voted on the new Central Committee. In view of this the Non-undergraduate Teaching Association and the Provincial Teachers Association had agreed to equal representation—a most satisfactory outcome.

Under the heading of "Future Organization of the Association" on the agenda paper were a number of motions on the theme of the first—"that the British Medical Association explore the possibility of setting up a body equivalent to a trade union." After some discussion on this it was agreed to refer the matter to Council. The merits of the case will have to be gone into with great care before the matter is once more presented to the Representative Body, but it is as well to reflect that the strength and influence of the B M A reside largely in the fact that it is a voluntary organization, and that in the future the appeal to its members of a voluntary body will in a planned society be even stronger than it has been in the past.

### RETIREMENT FROM OFFICE

Last week two of the principal officers of the British Medical Association relinquished the responsible posts which they have for many years held with much distinction and ability, years of testing and trial that have greatly added to the burden of responsibility which those in high office must always carry. Dr J. B. Miller, who is succeeded by Dr E. A. Gregg, has been Chairman of the Representative Body for three strenuous years, during which no fewer than seven Representative Meetings have been held. During the forty years of its history the Representative Body has had no more exacting time than the past three. In an atmosphere often tense with political uncertainties it has

had to make momentous decisions affecting the future of the medical profession. That it has acquitted itself of its hard task with decorum and wisdom has been in large measure due to the firm but tolerant conduct of its debates by Dr Miller, who has known when to use his gift of humorous interjection as a solvent of tension. It is safe to say that during his stormy years of office he has made many friends and no enemies, no mean tribute to his sterling character. Dr John W. Bone had made known his wish to retire from the office of Treasurer, and is succeeded by Mr A. M. A. Moore. Recognition of his long years of devoted service to the B M A, and especially of his nine years' treasurership, was made at the Meeting last week by the award to him of the Gold Medal of the Association—the highest honour it can bestow. Dr Bone's remarkable grasp of the business of any meeting, whether of committee or of Council, admirably fitted him for the control of the complex finances of a large organization. And he has had to exercise this control during the difficult war years. Under his pertinacious and skilful guidance the financial position of the Association has been greatly strengthened, and he hands on to his successor a clean balance-sheet.

It is well to record that the two distinguished officers of the Association who now retire have given it without stint long years of hard work without monetary reward. Their service has been voluntary, and their reward, we may be sure, the satisfaction of work well done and the high esteem in which they are held by their professional colleagues.

### HEALTH OF ARC WELDERS

Since Doig and McLaughlin<sup>1</sup> drew attention in 1936 to siderosis in arc welders much has been written on the subject. First Enzer and Sander<sup>2</sup> reported the histological findings in the lungs of an arc welder exhumed eighteen months after death; they showed that the radiological shadows were caused by deposits of iron in the peri-bronchial and periarterial lymph spaces and that there was no fibrosis in the lung. Enzer, Simonsen, and Evans<sup>3</sup> then showed that the deposits caused no demonstrable disability or reduction in vital capacity. This year the original authors<sup>4</sup> have followed up their cases and found that the iron has been got rid of and that the radiological shadows have become less evident. Our knowledge of arc welders' siderosis, apart from its morbid anatomy, now seems to be fairly complete, but it is remarkable that in these twelve years no pathologist has been able to describe the findings at a recent necropsy on an arc welder.

Arc welding became very important during the war, and the United States Public Health Service<sup>5</sup> has recently issued a report on the health of arc welders in steel-ship construction. This is based on a survey carried out in 1944 on 4,650 men and women working in seven shipyards on the Atlantic, the Mexican Gulf, and the Pacific coasts. The fume to which the workers were exposed was analysed. As might be expected, it was highest in the most confined welding spaces, but it contained more than 30 mg of ferric oxide per cubic metre of air for all welding locations and more than 15 mg of zinc oxide per cubic metre in several. The fume consists mostly of ferric oxide 50%, titanium dioxide 15%, silica 8%, and a mixture of acid-soluble metals such as magnesium, calcium, aluminium, manganese, chromium, copper, and sodium. More than half the samples of gas were found to contain fewer than 5 parts per million of nitrogen oxides.

<sup>1</sup> *Lancet* 1936 1 771

<sup>2</sup> *J. industr. Hyg.* 1938 20 333

<sup>3</sup> *Ibid.* 1945 27 147

<sup>4</sup> *Lancet* 1948 1 789

<sup>5</sup> *Public Health Bulletin* No 298, U.S. Public Health Service

Diseases other than welders' siderosis found in the group included metal-fume fever—chiefly among men working on galvanized metal and piping. Conjunctival irritation was prevalent, and though actinic conjunctivitis ("flashed eyes") was found infrequently many workers reported having been affected at some time in the past. Nasal congestion, pharyngitis, and upper respiratory symptoms were more prevalent among welders who used tobacco than among those in a control group. There were 371 (81%) shipyard workers who showed evidence of calcified primary tuberculosis, while the incidence of reinfectious tuberculosis was 1.3%. Possibly a selective influence kept people with tuberculosis away from welding. Rheumatic heart disease was found in 1.6% of the male shipyard workers, and the incidence of arteriosclerotic hypertensive heart disease was 5.4% in white male welders, compared with 17.9% in a similar group of non-welders. As welding fumes may potentially produce anaemia, full blood examinations were carried out, but the results showed no difference between welders and non-welders. However, there was some evidence to suggest that men welding galvanized metal and exposed to zinc fumes are more likely to have abnormal sedimentation rates than those not so exposed. This sign may be a prodrome of zinc chill.

Slag burns or scars were characteristic occupational stigmata. They were most commonly observed on the antero-lateral aspect of the elbow just lateral to the cubital fossa. Right-handed welders showed the lesion on the left arm and left-handed welders on the right arm. They were also found around the ankles, along the belt line of the abdomen, and in the episternal region. The burns were often in a stage of indolent ulceration showing a dirty granulating base. A recent small burn often looked rather like a doughnut, for the lesion was a ring of vesiculation enclosing a tiny area of scared skin. Dressings were not often applied, and severe secondary infection was rare. These burns were commonest in the most experienced welders doing overhead work.

### FOOD PRESERVATION

With the growth of cities more and more people are depending on food that has been kept, and because of the scarcity of food throughout the world and of the special nutritive value of perishable food it has become essential to preserve the surpluses produced in glut periods for use later. Methods of preservation must be based on a knowledge of the composition of foodstuffs and of the changes that take place when they are kept or processed. Research on these problems is undertaken by the Food Investigation Board, and a report on the Board's work during the years 1940-1946 has been published by the Department of Scientific and Industrial Research<sup>1</sup>.

The preservation of food in good condition does not depend only on killing off micro organisms or on preventing their growth and activity, since fresh foods are not wholly dead. Meat and vegetables contain enzymes, while complicated metabolic changes occur in fruit. In preservation either of two lines may be followed: the foodstuff may be completely killed by heat and its condition fixed, as is done when fruit is canned, or the metabolic processes may be controlled in order that the food may remain palatable. In dehydration, which was the chief study of the Food Board during the war, the first line must be taken, without the preliminary scalding dehydrated vegetables are tough and of poor quality, and their ascorbic acid is destroyed by oxidase. Dried milk keeps much better if the milk is pasteurized at a higher temperature than normal before drying.

Killing micro-organisms and enzymes is not enough to prevent deterioration. Unless the water content is reduced to below 5% vegetables lose their colour and ascorbic acid. For prolonged storage oxygen must be removed, otherwise the carotene of vegetables and the fats of dried milk are oxidized. Each foodstuff presents its special problems. The biological value of the proteins of dried milk falls on keeping. This is due to the combination of free amino groups, mainly lysine, with reducing sugars. The production of "off colour" in dried carrots is due to the presence of heavy metal salts. The deterioration of spray-dried egg is mainly due to the presence of glucose, the glucose can be removed by fermentation with yeast.

Cold instead of heat can be used to stop metabolism and the growth of micro organisms in fish. The use of quick freezing at all the main ports should give a constant flow of supplies to consumers. One firm is planning to freeze fish at sea, so that the whole catch will be landed fresh however long the voyage.

To preserve fruit the control of metabolic processes may be necessary. The functional disease of apples known as "scald" is related to the concentration of volatile compounds produced, at present the practical method of controlling this disease is to wrap the fruit in paper impregnated with mineral oil. Temperature influences the metabolism of stored fruit. Cox's Orange Pippins after the skin has been coated with oil keep best at 40° F (4.4° C). Low temperatures upset the metabolism of plums, peaches, bananas, and tomatoes. Storage at 31° F (-0.6° C) for longer than 3 weeks causes "internal browning" of Victoria plums. But if the cold storage is broken by a period of 2 or 3 days at 65° F (18.4° C) the plums can be kept for 35 to 40 days. The ripening mechanism of immature tomatoes is damaged by exposure to temperatures below 50-55° F (10-13° C).

New methods of conservation will cut down waste and give us wholesome foodstuffs of good quality, but those who remember food as it was in small market towns 50 years ago will view the changes with mixed feelings. The standardized butter of to-day is better than the average butter made under insanitary conditions by farmers' wives of varying skill, but it will not compare with the best butter of those days, with its slight flavour of wood smoke. Shop eggs are much worse than they were then, for with two markets a week no egg was over a week old. Now the majority are unable to buy new-laid eggs by honest means, and egg powder, however skilfully preserved, is no substitute for fresh eggs. There is a danger that the new methods may lead to loss of variety and to acceptance of a standardized second best.

### ROSS JUBILEE

In the *British Medical Journal* of Dec 18, 1897, Surgeon-Major Ronald Ross, I.M.S., contributed an article entitled "On Some Peculiar Pigmented Cells found in Two Mosquitoes fed on Malarial Blood," in which he described how he found "certain remarkable and suspicious cells containing pigment identical in appearance to that of the parasite of malaria." Ross forwarded his preparations to the Editor of the *Journal* who submitted them for examination to Dr. Thin, Mr. Blind Sutton, and Dr. Patrick Manson. Manson, in a note to Ross's article, wrote, "There can be no question that these cells contain a pigment optically indistinguishable from the pigment which is so characteristic a feature in the malaria parasite. I am inclined to think that Ross may have found the extracorporeal phase of malaria. If this be the case, then he has made a discovery of the first importance." In the *Journal* of June 11, 1898 Dr. Patrick Manson contributed an article on Ross

<sup>1</sup> Food Investigation 1940 to 1946. London, 1948. H.M.S.O. Price 9d net.

investigations, in order, as he put it, "First, again to call the attention of workers in malaria to this promising field for investigation, secondly, to place on record Ross's claims to priority in discovery, and lastly, to vindicate myself from the charge of unscientific and unwarrantable speculation" Manson had recorded his "speculation" in the Goulstonian lectures printed in this *Journal* in 1896. This week the London School of Hygiene and Tropical Medicine, and the Ross Institute of Tropical Hygiene, celebrated the Jubilee of Ross's discovery.

### CANCER CELLS IN SPUTUM AND URINE

The increasing use of the biopsy has proved to pathologists how valuable their contribution can be to the problem of the early diagnosis of malignancy, in spite of the fact that the material submitted for examination is of necessity often very poor in quality and very small in quantity. Yet even the smallest specimens, including those taken by the needle and syringe, may yield surprisingly good results. Is it sound pathology to take a further step and consider the possibility of diagnosing malignant disease by discovering a few isolated clusters, each perhaps composed of 20 to 30 cells, in films of the sputum or urinary deposit?

The first serious attempt to answer this question was made at St Thomas's Hospital in 1935 by Dudgeon and Wrigley,<sup>1</sup> who were able to demonstrate malignant cells in the sputum in 68% of patients with proved bronchogenic carcinoma (in a series of 58 cases). Barrett<sup>2</sup> and Gower<sup>3</sup> reported positive results in 68% and 64% respectively. A very complete study was published by Wandall,<sup>4</sup> of Copenhagen, in 1944, out of 100 proved cases positive results were obtained in 84. In this series 82 of the patients were examined by bronchoscopy, it is significant that a positive diagnosis as a result of examination of biopsy specimens could be made in only 55%. By combining both methods Wandall was able to make a correct diagnosis of malignancy in 94% of proved cases. The percentage of false positives in a series of 193 sputum examinations was 3.1. Herbut and Clerf<sup>5</sup> examined the bronchial secretion removed by bronchoscope in 57 proved cases of bronchogenic cancer, and found cancer cells in 82.4%, examination of biopsy specimens gave positive results in only 42%, but a combination of both methods provided a positive diagnosis in 92.5%. It seems probable that bronchial secretion may prove to be more suitable material than sputum, it has the added advantage that if the biopsy material is a poor sample, or if for various reasons material is not removed, the growth can often be accurately localized.

The work has been carried a stage further by Woolner and McDonald<sup>6</sup> at the Mayo Clinic. They point out that negative results are to be expected in the small group of patients in whom the growth is peripheral, especially if it has not opened into the airways, and also in the very large majority of cases of bronchial adenoma and cylindroma. Diagnosis from sputum examination is rather more difficult in the mucus-secreting adenocarcinomata, but is of great value in tumours arising in a large, upper-lobe bronchus out of reach of the bronchoscope.

"False positives" are recorded in from 1 to 3% of sputum examinations. A few of these were obtained in cases of chronic pulmonary infection with incomplete resolution and squamous metaplasia of the bronchial epithelium but the majority are most probably due to lack of experience with the method. The investigation must be conducted by a morbid histologist. It demands not only an intimate knowledge of the cytology of malig-

nant growths in general and of the perplexing variations in structure which are encountered in bronchial cancer, but also a period of apprenticeship in the study of the finer cytology of the sputum in non-malignant pulmonary disease and the appearances of malignant cells in film preparations made from the surface of all varieties of primary bronchial neoplasms. The specimen must be examined without delay, if this is unavoidable it should be collected in 10 ml of absolute alcohol. A minimum of five films from one specimen must be made. If clinical evidence is sufficiently in favour of neoplasm several specimens of sputum should be examined. All those who have had experience in the method agree that a positive diagnosis must rest on finding several clusters of malignant cells in the specimen. The clusters must be composed of cells which are fresh enough to show nuclear detail, so that the chromatin network and nucleoli are clearly displayed. The clusters must also be large enough for variations in nuclear shape, size, and depth of staining to be visible.

Accompanying Woolner and McDonald's paper are two others on the identification of malignant cells in urinary sediment. The first, by Daut and McDonald,<sup>7</sup> records an investigation of forty consecutive cases of genito-urinary disease. In nineteen of these, subsequently proved to be suffering from malignant disease, carcinoma cells were found in the urinary deposit. In the second paper Ludden and McDonald<sup>8</sup> describe the appearance of malignant cells in smears of sediment from the urine of patients with malignant disease of the kidney. Neither of these papers is convincing enough to justify the routine use of the method, but both are sufficiently encouraging to stimulate further investigation.

### THE EXCRETION OF ANTIMONY

There has hitherto been little precise information about the excretion of antimony compounds, which are widely used in the treatment of schistosomiasis. In this disease tartar emetic or an organic antimonial compound is injected intravenously. To be effective a course of injections, commonly on alternate days, must be given. Antimony compounds differ in this respect from an arsenic compound such as neoarsphenamine, which is given once a week, but resemble mapharside, which is often given daily. It is known that mapharside is much more rapidly excreted than neoarsphenamine, as is to be expected from the smaller size of its molecule. It might be assumed, therefore, that antimony compounds are rapidly excreted.

Recently Bartter and his colleagues<sup>1</sup> have investigated the excretion of tartar emetic in which radioactive antimony was incorporated. Antimony metal was bombarded with deuterons to produce radioactive isotopes. In this process the naturally occurring isotopes Sb<sup>121</sup> and Sb<sup>123</sup> are transformed into Sb<sup>124</sup> and Sb<sup>122</sup> respectively. The radioactive antimony was then synthesized into tartar emetic. Early work was carried out on dogs, and the authors had no reason to expect untoward results from the administration of the radioactive material to human beings. The quantity of antimony administered to one patient during 24 days was a total of 640 mg but they do not record what proportion of this was radioactive. Sb<sup>124</sup> has a half-life of 60 days, so that presumably ill effects would have shown soon. None were observed.

After a single intravenous injection the amount of antimony in the blood fell rapidly—from 0.15 mg per 100 ml immediately after injection to one-third of that amount in one hour, and to 0.01 mg per 100 ml in twelve hours.

<sup>1</sup> *J. Larv.* 1935 50 752.

<sup>2</sup> *J. thorac. Surg.* 1938 8 169.

<sup>3</sup> *Brit. J. Surg.* 1943 30 191.

<sup>4</sup> *Acta chir. scand.* (Suppl. 93) 1944 19 1.

<sup>5</sup> *Med. Clin. N. Amer.* 1946 30 1384.

<sup>6</sup> *Proc. Mayo Clin.* 1947 22, 369.

<sup>7</sup> *Ibid.* 1947 22, 382.

<sup>8</sup> *Ibid.* 1947 22 386.

<sup>1</sup> *Amer. J. trop. Med.* 1947 27 403.

<sup>2</sup> *Ind. J. med. Res.* 1929 17 94.

<sup>3</sup> *Biochem. J.* 1943 37 198.

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### CANCER CELLS IN SPUTUM AND URINE

The increasing use of the biopsy has proved to pathologists how valuable their contribution can be to the problem of the early diagnosis of malignancy, in spite of the fact that the material submitted for examination is of necessity often very poor in quality and very small in quantity. Yet even the smallest specimens, including those taken by the needle and syringe, may yield surprisingly good results. Is it sound pathology to take a further step and consider the possibility of diagnosing malignant disease by discovering a few isolated clusters, each perhaps composed of 20 to 30 cells, in films of the sputum or urinary deposit?

The first serious attempt to answer this question was made at St Thomas's Hospital in 1935 by Dudgeon and Wrigley,<sup>1</sup> who were able to demonstrate malignant cells in the sputum in 68% of patients with proved bronchogenic carcinoma (in a series of 58 cases). Barrett<sup>2</sup> and Gowar<sup>3</sup> reported positive results in 68% and 64% respectively. A very complete study was published by Wandall,<sup>4</sup> of Copenhagen, in 1944, out of 100 proved cases positive results were obtained in 84. In this series 82 of the patients were examined by bronchoscopy, it is significant that a positive diagnosis as a result of examination of biopsy specimens could be made in only 55%. By combining both methods Wandall was able to make a correct diagnosis of malignancy in 94% of proved cases. The percentage of false positives in a series of 193 sputum examinations was 3.1. Herbut and Clerf<sup>5</sup> examined the bronchial secretion removed by bronchoscope in 57 proved cases of bronchogenic cancer, and found cancer cells in 82.4%, examination of biopsy specimens gave positive results in only 42%, but a combination of both methods provided a positive diagnosis in 92.5%. It seems probable that bronchial secretion may prove to be more suitable material than sputum, it has the added advantage that if the biopsy material is a poor sample, or if for various reasons material is not removed, the growth can often be accurately localized.

The work has been carried a stage further by Woolner and McDonald<sup>6</sup> at the Mayo Clinic. They point out that negative results are to be expected in the small group of patients in whom the growth is peripheral especially if it has not opened into the airways, and also in the very large majority of cases of bronchial adenoma and cylindroma. Diagnosis from sputum examination is rather more difficult in the mucus-secreting adenocarcinoma, but is of great value in tumours arising in a large, upper-lobe bronchus out of reach of the bronchoscope.

"False positives" are recorded in from 1 to 3% of sputum examinations. A few of these were obtained in cases of chronic pulmonary infection with incomplete resolution and squamous metaplasia of the bronchial epithelium but the majority are most probably due to lack of experience with the method. The investigation must be conducted by a morbid histologist. It demands not only an intimate knowledge of the cytology of malig-

nant growths in general and of the perplexing variations in structure which are encountered in bronchial cancer, but also a period of apprenticeship in the study of the finer cytology of the sputum in non-malignant pulmonary disease and the appearances of malignant cells in film preparations made from the surface of all varieties of primary bronchial neoplasms. The specimen must be examined without delay, if this is unavoidable it should be collected in 10 ml of absolute alcohol. A minimum of five films from one specimen must be made. If clinical evidence is sufficiently in favour of neoplasm several specimens of sputum should be examined. All those who have had experience in the method agree that a positive diagnosis must rest on finding several clusters of malignant cells in the specimen. The clusters must be composed of cells which are fresh enough to show nuclear detail, so that the chromatin network and nucleoli are clearly displayed. The clusters must also be large enough for variations in nuclear shape, size, and depth of staining to be visible.

Accompanying Woolner and McDonald's paper are two others on the identification of malignant cells in urinary sediment. The first, by Daut and McDonald<sup>7</sup> records an investigation of forty consecutive cases of genito-urinary disease. In nineteen of these subsequently proved to be suffering from malignant disease carcinoma cells were found in the urinary deposit. In the second paper Ludden and McDonald<sup>8</sup> describe the appearance of malignant cells in smears of sediment from the urine of patients with malignant disease of the kidney. Neither of these papers is convincing enough to justify the routine use of the method, but both are sufficiently encouraging to stimulate further investigation.

### THE EXCRETION OF ANTIMONY

There has hitherto been little precise information about the excretion of antimony compounds which are widely used in the treatment of schistosomiasis. In this disease tartar emetic or an organic antimonial compound is injected intravenously. To be effective a course of injections, commonly on alternate days must be given. Antimony compounds differ in this respect from an arsenic compound such as neoarsphenamine, which is given once a week but resemble mapharside, which is often given daily. It is known that mapharside is much more rapidly excreted than neoarsphenamine, as is to be expected from the smaller size of its molecule. It might be assumed, therefore, that antimony compounds are rapidly excreted.

Recently Bartter and his colleagues<sup>1</sup> have investigated the excretion of tartar emetic in which radioactive antimony was incorporated. Antimony metal was bombarded with deuterons to produce radioactive isotopes. In this process the naturally occurring isotopes  $Sb^{121}$  and  $Sb^{123}$  are transformed into  $Sb^{124}$  and  $Sb^{122}$  respectively. The radioactive antimony was then synthesized into tartar emetic. Early work was carried out on dogs and the authors had no reason to expect untoward results from the administration of the radioactive material to human beings. The quantity of antimony administered to one patient during 24 days was a total of 640 mg but they do not record what proportion of this was radioactive  $Sb^{124}$  has a half-life of 60 days, so that presumably all effects would have shown soon. None were observed.

After a single intravenous injection the amount of antimony in the blood fell rapidly—from 0.15 mg per 100 ml immediately after injection to one-third of that amount in one hour, and to 0.01 mg per 100 ml in twelve hours.

<sup>1</sup> *J. Laryng.* 1935 50 752.

<sup>2</sup> *J. thorac. Surg.* 1938 8 169.

<sup>3</sup> *Brit. J. Surg.* 1943 30 191.

<sup>4</sup> *Acta chir. scand.* (Suppl. 93) 1944 19 1.

<sup>5</sup> *Med. Clin. N. Amer.* 1946 30 1384.

<sup>6</sup> *Proc. Mayo Clin.* 1947 22 369.

<sup>7</sup> *Ibid.* 1947 22 382.

<sup>8</sup> *Ibid.* 1947 22 386.

<sup>1</sup> *Amer. J. trop. Med.* 1947 27 403.

<sup>2</sup> *Ind. J. med. Res.* 1929 17, 94.

<sup>3</sup> *Biochem. J.* 1943 37 198.

<sup>4</sup> *Lancet* 1946 1 9.

Some antimony was found in the urine after 30 minutes. The drug was excreted in both the urine and faeces, in 7 days about 30% of the dose given had been excreted, and in 27 days about 70%. Four times as much was excreted in the urine as in the faeces. In the case of one patient who vomited 30 minutes after receiving the tartar emetic intravenously as much as 1.2% of the dose injected was recovered from the vomit. Presumably the tartar emetic was excreted into the stomach and produced emesis just as if it had been given by mouth. These results may be compared with those of Boyd and Roy,<sup>2</sup> who found that the total urinary excretion of sodium antimonyl tartrate during three days after intravenous injection was 4%, in the experiments of Bartter *et al.* the corresponding figure was around 16%. On the other hand, after giving a single dose of "fouadin" Goodwin and Page<sup>3</sup> found that 18-35% of the drug was excreted in 24 hours.

The results are surprising because they show that the rate of excretion of antimony, when given as tartar emetic, is less than would be expected. It cannot be said that a substance of which only 30% is excreted in seven days is rapidly excreted, and it is therefore puzzling that it is necessary to give injections at comparatively short intervals. Yet frequent injections are necessary, for the most successful clinical results are those of Alves and Blair,<sup>4</sup> who treated patients by giving three injections of sodium antimonyl tartrate on each of two successive days. One hundred patients were treated, and no viable eggs were discovered in the excreta of any of them immediately after treatment was completed, or in fifty-three patients examined three months later. Alves and Blair attempted to give antimony as an intravenous drip in the same way as mapharside, but found that it caused intense pain in the veins. In observations on the rate of excretion they also found it to be relatively slow, for at the end of three days 70-80% remained in the body.

### STRUCTURE OF VACCINIA VIRUS

A number of plant viruses have been prepared in crystalline form and the shape and size of their particles examined by electron microscopy, but considerably less has been discovered about animal viruses. The first electron micrographs to provide satisfactory evidence of structure in the vaccinia virus have now been obtained by Drs I. M. Dawson and A. S. McFarlane<sup>1</sup> at the National Institute for Medical Research, using a sufficient variety of techniques to place their main conclusions beyond reasonable doubt. Omitting details of purification, which included the confirmation of biological activity, the virus particles were in all cases "fixed" with osmic acid before examination. This is equivalent in electron microscopy to visual staining. The difference is that with the electron microscope differential scattering power depends on variations in density. The usefulness of osmic acid in particular is due primarily to the fact that osmium is one of the heaviest of the chemical elements.

For the investigation of surface structure the further method of gold-shadowing was employed. This consists in the deposition of a fine layer of gold, a few atoms thick, projected at a small angle to the surface so that a shadowing effect is produced. Particles thus prepared give an appearance which, apart from the difference in scale, is not unlike that of a lump of sugar. The surface granules are believed to represent individual macromolecules. In some cases chains of these smaller particles can be seen in the neighbourhood of the main virus particles, as if accidentally detached from them, but there is no evidence of corresponding surface scars on the main virus particles. Micro-

graphs obtained with similar osmic acid fixation or staining, but without gold-shadowing, confirm the existence of a central body, first seen in outline by Green, Anderson, and Smadel in 1942.

A further series of micrographs were obtained after treatment with minute quantities of crystalline pepsin. This is known to be a useful agent for the removal of nucleic acid from vaccinia. Its effect, as now seen in the micrographs, is to leave the central body apparently untouched while removing most or all of the material from the remainder of the virus particles, except for a presumed outer layer which resembles a membrane. The latter appears to collapse, being in general longer, narrower, and less regular in shape than in the intact particles. Further—and this is particularly well seen in micrographs of the pepsin-treated virus prepared by the gold-shadowing method—there are clear indications of folding such as would naturally be expected in a collapsed membrane. It is believed that the chains of detached macromolecules already mentioned come from this perinuclear material. On the other hand the bulk of the phosphorus and desoxyribo-nucleic acid is retained in the residue, thus appearing to be connected with the central body. To that extent, therefore, there is an indication of chemical similarity between the central body of these virus particles and a normal cell nucleus. It should be noted, however, that the virus particles are of an altogether lower order of size, and, while the term nucleus can be legitimately used in its simple physical sense to describe the observed central bodies, the cytological connotation could be misleading.

Finally, there is a suggestion based on the manner of contraction of the virus particles under different conditions of drying that there may be a supporting internal network which would permit of a concertina-like movement. What has in any case been established is that the structure of even a comparatively small animal virus is definitely more complex than that of the fully crystalline plant viruses. It also appears likely that the animal viruses can be regarded as providing a link between the bacteria, looked upon as organisms in the accepted sense, and the plant viruses, to which the term organism can scarcely be applied.

At its first meeting on June 30 the new Council unanimously elected Dr H. Guy Dain as its Chairman for the coming year. Dr Dain has been Chairman of Council since September, 1943.

At the last meeting of the "old" Council on June 28 it was decided to award to Dr John W. Bone, the retiring Treasurer, the Gold Medal of the Association. In announcing this to the Representative Body, which greeted the award with applause, the Chairman of Council said that the Association's Gold Medal was awarded to anyone "who shall have conspicuously raised the character of the profession by scientific work, by extraordinary special service, or by services rendered to the British Medical Association."

One of the first actions of the Representative Body last week was to elect as Vice-Presidents of the B.M.A. Dr Peter Macdonald, of York, and Prof R. M. F. Picken, of Cardiff. Dr Peter Macdonald has given long years of service to the Association and was from 1942 to 1945 Chairman of the Representative Body. Prof Picken, who is Provost of the Welsh School of Medicine, was outstanding as the Chairman of the Public Health Committee, and for fifteen years exerted his thoughtful influence on the Council of the Association, acting temporarily as its Chairman during the absence in India of Mr H. S. Souttar, who was Chairman at that time.

<sup>1</sup>Dawson I. M. and McFarlane A. S. *Nature Lond.* 1948 161, 464.

<sup>2</sup>Green R. H., Anderson T. F. and Smadel J. E. 1942 75, 651.



## UROLOGICAL SURGEONS IN CONFERENCE

The British Association of Urological Surgeons held a meeting in London, under the presidency of Mr Clifford Morson, from June 24 to 26. The principal subjects of discussion were the surgery of urethral stricture and the aetiology and treatment of renal and uterine calculi, but many miscellaneous papers were read and films shown, and operating sessions and demonstrations were arranged at ten London hospitals.

### Surgery of Urethral Stricture

The visitors were the guests of the Section of Urology of the Royal Society of Medicine for a discussion on the surgery of urethral stricture. It was opened by Mr H L Attwater, who referred to the slow onset of such strictures. The initial causes might be forgotten long before the stricture made itself manifest. It had been calculated that only 5% of cases appeared for treatment within five years of the initial lesion. From time immemorial man had dealt with strictures by dilatation. Attempts had been made to shorten the tedium of the process, but even to-day the melancholy conclusion must be reached that no form of treatment had yet produced a certain cure. All operations on the urethra were themselves traumatic procedures, and might be precursors of stricture, and "once a stricture always a stricture".

The first indication for surgical intervention was failure to achieve reasonable results by dilatation. The surgical measures to be employed depended largely on the particular case. The onset of urgent symptoms might call for immediate intervention, and special care was necessary if the renal function was poor. Patients with chronically distended bladders due to stricture were in much the same position as men with enlarged prostates. When surgical intervention had to be undertaken some form of deliberate approach must be adopted according to the requirements of the particular case. Operation should cause the least possible trauma to the urethra. For a long time external urethrotomy was the only approach to this problem. Internal urethrotomy had a limited application, and unfortunately far too often failed to produce a lasting result. But there were occasions when it might be useful, including those in which for some reason it was necessary to have a quick restoration of the urethra. Mr Attwater then described the various surgical procedures, including complete excision of the stricture.

Mr Terence Millin said that internal urethrotomy performed in the usual manner was a completely blind procedure, and did not fit in with the essential pathology. He described how a complete excision of the stricture was carried out, taking away as much as 6 cm of the urethra. Radical surgery had a place in treatment, especially in traumatic strictures, but it must be truly radical, and anastomosis must be obtained without tension. The results could be wellnigh permanent. He referred to one such case in which 17 operations had been done, 7 of them external urethrotomies. Then a complete excision was carried out, with an entirely satisfactory result. This result had been maintained now for six months, 11½ years after the start of the trouble. A high incidence of sexual dysfunction followed rupture of the urethra, but several of the cases on which he had operated were normal sexually, despite the loss of 6 cm of urethra.

Dr Leander (Stockholm) said that the 'pillars of wisdom' in perineal excision were (1) as complete excision as possible of all cicatricial tissue, (2) mobilization of the urethral stumps so that they could be sutured without tension, and (3) avoidance of cavities between the sutured urethra and the perineal section. He described six cases, two in boys and the others in older persons, in which these principles had been followed and a urinary stream of normal size had resulted, although in some cases more than 5 cm of urethra was removed. In one of the cases there was slight incontinence for two years, but that was the only unfavourable result.

Mr W S Mack said that he had noticed an increasing incidence of urethral stricture. Unfortunately, in the clinics, while information was available on the incidence of gonorrhoea, none was forthcoming concerning non-specific urethritis, but it was his impression that there were more cases nowadays, following the advent of sulphonamide and penicillin treatment, in which

stricture was associated with that condition. He was very much against operation for urethral stricture if it could be avoided, but in many instances operation was necessary. In spite of what Mr Millin had said, he had found certain advantages in internal urethrotomy. Mr Stewart mentioned the difficulty of treating the constricted penile urethra, and described a method of dividing the penis along the ventral surface and using the scrotal skin and foreskin in the reconstruction of the urethra.

### Renal and Vesical Calculi

Mr J M Ridley Thomas, of Norwich, gave an account of vesical calculus as found in Norfolk. He mentioned that in the first half of the eighteenth century almost every small town in Norfolk appeared to have a man skilled in lithotomy. "Stone in Norfolk" was the subject of the Address in Surgery at the Annual Meeting of the British Medical Association in 1874. But vesical calculus almost entirely disappeared between the years 1910 and 1930, the disappearance coinciding with the rising standard of living. Recognition of the importance of an adequate and balanced diet for children, and the change to mixed farming in a county which for many years was a grain-producing area had brought about this alteration. He gave certain figures relating to hospital admissions for the years 1929-38 and 1943-7. Cases of stone complicating enlarged prostate numbered 16 in the first period, 13 in the second, cases of stone following prostatectomy numbered respectively 10 and 3, stricture of urethra, diverticuli, etc., 12 and 8, and primary stone 38 and 3. Thus in the first of these periods about 50% of calculi appeared to have no obvious underlying urinary pathology, whereas in the second period only about 10% could not be accounted for by a pre-existing lesion. Prostatic obstruction was the commonest cause of stone in older patients due in most cases to the presence of residual urine. In 1929-38, out of 76 patients 14 died, whereas in 1943-7 among 27 patients there were no deaths. Of these 27 patients, 20 were treated by lithotomy, 5 by lithotomy and 2 by other methods. For many years the lithotrite had been a popular instrument in Norfolk, but recently the number of cases suitable for its use had diminished considerably. Norfolk could no longer be considered an area where vesical calculus was common. In children it had now become very rare.

Mr L N Pyrah of Leeds, spoke on calcification of the kidney in pyloric stenosis and other conditions. He drew attention to the conditions under which calcification in the tubules of the kidney could occur. It was mainly the result of two causative factors probably operating in different degrees in different cases. The first was a local increase in the concentration of calcium ions within the kidney, brought about either by an elevation of the serum calcium, as in hyperparathyroidism, or by a reduction in the total tissue fluids of the body, as in pyloric stenosis, with vomiting and subsequent dehydration. The second factor was strong alkalinity of the reaction in the kidney tissue fluids or glomerular filtrate, either as a result of generalized alkalosis or of local changes arising from infection, in which case the concentration of calcium salts which would not otherwise be precipitated came down in the renal tubules as calcium phosphate.

In hyperparathyroidism the serum calcium was raised to values varying from 12.5 to 23 mg per 100 ml of blood. The percentage incidence of calcification for this disease was unknown, but when it occurred it was seen in the cells of the tubules in the cortical part of the kidney. Not only did calcification of the renal tubules occur in hyperparathyroidism but also calculus formation in the calices and pelves of the kidney, probably brought about by the same mechanism. Of 11 cases of hyperparathyroidism in which he had successfully removed an adenoma, 4 had renal calculi. In three of these the stones disappeared after removal of the adenoma and the administration of large quantities of fluid, together with an acidogenic diet. In hypervitaminosis D a high blood calcium was the chief operative cause in the production of renal calcification. A few cases had been reported in children of calcification in the tubules of the kidney following an overdose of cod liver oil. It was possible to study the calcification in hypervitaminosis D very readily, using the rat as an experimental animal. A moderate degree of calcification was sometimes found after only two days of an overdose of vitamin D and usually in three days. It occurred first in the tubules of the cells near



the cortex. In rats killed after four or five days of overdose a much heavier degree of calcification was found, and the calcification was less marked in the cortex and more marked in the boundary zone between the medulla and the renal cortex. Rats fed on excessive vitamin D for two or three days only and killed ten or twelve days later were usually free from calcification. It was concluded that the calcareous debris had gone into solution or had been extruded down the collecting tubules. The calcification was therefore a reversible process in its early stages. In such cases there was no evidence of any destruction of the kidney tubules or of deviation from the normal.

After illustrating the second group of conditions, in which alkalosis was the predominant factor, Mr Pyrah concluded that calcification of the tubules of the kidney occurred most commonly where there was a high serum calcium or where there was a profound alkalosis. In some cases, but not in all, it was associated with cell damage. In the early stages the calcification was a reversible process.

#### An Uncommon Bladder Condition

Mr T J D Lane, of Dublin, described an uncommon bladder condition simulating carcinoma. His interest in this subject arose out of a case which he saw in 1943, and which remained a mystery until he came across a paper by Emmett and McDonald on 'Proliferation of Glands of the Urinary Bladder simulating Malignant Neoplasm'. His case fitted in with the "intestinal gland" variety of cystitis glandularis there described. Mr Lane went on to discuss the several possible origins of primary vesical tumours composed of glands with columnar epithelium and also of cystitis glandularis. According to the authors just mentioned there were two types of cystitis glandularis: the intestinal gland type and the subtrigonal gland type. In the former the acini were lined by a simple layer of columnar epithelium which had basically placed nuclei. These cells were filled with mucus and were indistinguishable from goblet cells of the intestinal tract. In the subtrigonal lesion the glands were lined peripherally by multiple layers of cells suggestive of stratified squamous epithelium with a single layer of columnar cells adjacent to the lumen. The mucus produced by this type was thinner, and, unlike the intestinal type, there was a tendency to cyst formation. There were no special symptoms. Painless haematuria might be present alone, or with frequency or dysuria. The whole clinical picture was confused. Biopsy was essential for proof of the presence of cystitis cystica and to differentiate it from cystitis granulosa and follicularis on the one hand and from malignant disease on the other. The resemblance to cancer in some cases had to be seen to be believed. As a rule these glandular lesions yielded to diathermy.

Although in his title Mr Lane had used the word "uncommon," he said in conclusion that the condition was probably not very uncommon. There was little doubt that, if biopsy were resorted to oftener, glandular and other forms of metaplasia would be found much more frequently.

The concluding paper at the conference was by Mr Hamilton Bailey (London) on some urological clinical entities frequently missed. Numbers of patients, he said, with stone in the right ureter bore the scar of a recent appendicectomy. But woe betide the patient with gangrenous appendicitis who passed blood in the urine. Until it was better known that an inflamed appendix lying in juxtaposition to the ureter could give rise to ureteritis causing haematuria lives would be lost. When blood was found in the urine the practitioner invariably ruled out appendicitis, and not infrequently the consultant aided and abetted him by treating the patient for pyelitis. When a differential diagnosis between early acute appendicitis and renal colic was at stake, urgent excretory pyelography should be undertaken. If the pyelogram showed a normal outline of the right renal calices and there was no evidence of a ureteric calculus, appendicectomy must be performed at once. Another observation by Mr Hamilton Bailey was that the reno-renal reflex, where a healthy kidney went "on strike" in sympathy with its fellow that had been subjected to operative trauma, was not a rare phenomenon. He concluded by saying that attention to the precept that a complete urinary investigation should be undertaken for every case of haematuria would result in immediate and dramatic improvement in the prognosis of tumours of the bladder.

## THE GENETICS OF CANCER

### SYMPOSIUM ON MUTATIONS AND INHERITANCE

A two-day symposium on the genetics of cancer opened in London on June 24 under the sponsorship of the Genetical Society of Great Britain and the British Empire Cancer Campaign. Some twenty papers were read, and the contributors included American, Dutch, Danish, French, and Belgian workers. The general themes were the inheritance of cancer in animals and in man and virus and carcinogen-induced mutations. The chairmen of the various sessions were Dr E B Ford, Dr A W Greenwood, Prof A Haddow, and Dr Cuthbert, Dukes.

The opening paper in the discussion on inheritance in animals was given by Dr W E Heston, of the National Cancer Institute, Maryland, who discussed the role of genes and their relationship to extra chromosomal factors in the development of mammary gland tumours in mice. He described the part played by the milk agent in transforming the normal mammary tissue cell into a malignant cell. What happened in such a transformation was still uncertain, but as the alteration was irreversible it must be a change in fundamental cell physiology. Dr Kortweg, of Amsterdam, said that the production of oestrone in female mice enhanced their susceptibility to cancer, though it could not yet be said that the production of oestrone was characteristic of high cancer strains. Susceptibility to oestrone influence was just as marked in the mammary glands of high cancer strain female mice as in those of low cancer strain.

Dr L Dmochowski, of the Department of Experimental Medicine and Cancer Research, Leeds University, spoke of three factors—the milk agent, the genetic factor, and the hormonal factor—in the origin of breast cancer in mice, and in addition other factors, such as metabolic conditions, might be concerned. The ability to transmit the milk factor to low cancer strain mice varied within very wide limits. There were really two sets of genetic factors, one controlling the susceptibility of breast tissue and the other the milk factor, which might have to be considered particularly in low cancer strain mice. In his view an increase in the hormonal factor rather than an increase in the milk factor was responsible for the development of tumours. All three factors played a part in the origin of breast cancer, and it would be imprudent, to say the least, to state which was the most important.

Prof J B S Haldane intervened, protesting that it was logically dubious to separate hormonal factors from genetic ones. It seemed to him that some genes would alter the production of hormones. If that sort of distinction were to be made the correct thing would be to distinguish between hormonal factors due to genetic agencies and, on the other hand, hormonal factors due to environment, which would include forcible breeding, castration, injection of hormones, and so on.

Dr P A Gorer, of Guy's Hospital, spoke of the significance of some studies of transplanted tumours. He said that at one time the question of transplanted tumours dominated the whole field of cancer research. To-day the pendulum had swung in the other direction, and transplants were regarded as not of much use. As a matter of fact, the studies of transplanted tumours had placed genetics "on the map" of experimental medicine. Questions of transplant compatibility were much better tackled with tumours than with normal tissues, if only for technical reasons—namely, that it was often by no means easy to see what happened to a graft of normal tissue, whereas no one could mistake a tumour. The influence of antigen II on tumour inoculation was shown in an experiment with mice. In the presence of antigen II, 28 out of 29 specimens showed a response to tumour, and with antigen II absent, out of 40 specimens 37 showed no response.

The question of virus and carcinogen mutations was presented by Dr L C Strong, of the Department of Anatomy at Yale, who gave a critical evaluation of the present status of the problem. Among other contributions to the subject Prof R D Passey, of Leeds, showed some electron microscope studies of normal and malignant tissues of high and low breast cancer strains of mice, and Dr A W Greenwood, of the Agricultural Research Council, discussed indications of the heritable nature of non-susceptibility to Rous sarcoma in fowls.

### Heredity in Human Cancer

At a later session the subject of heredity in human cancer was introduced by Prof Tage Kemp, of the Human Genetics Institute, Copenhagen. From ancient times, he said, it had been observed that cancer often occurred familiarly. The genetic aspects of the cancer problem had been the subject of extensive systematic studies in human beings during recent decades. In Copenhagen an investigation had been carried out at the Human Genetics Institute in co-operation with the Danish Cancer Registry, the Radium Centre, and numerous hospitals and clinics. Surveys of several hundreds of families picked out at random from the population had been made. So far as investigations on heredity in breast cancer and in leukaemia were concerned, these had already been published, and an investigation on cancer of the oesophagus was proceeding.

Results obtained up to now showed that tumour-causing factors might be endogenous or environmental. The chief endogenous factor was hereditary predisposition, others were somatic mutation and cytoplasmic inheritance. In the field of breast cancer the families of 197 women and 3 men were studied. According to Oluf Jacobsen, a study of these case histories gave no basis for supposing that exogenous factors played any important part in the development of breast cancer. Hereditary predisposition was indicated as the chief factor. The development of the endogenous cancers was probably due to a general hereditary predisposition, and the localization of the tumour was determined by either endogenous or exogenous factors. The general hereditary predisposition was in many pedigrees apparently inherited as a dominant character.

With regard to leukaemia, Videbæk, who had conducted this investigation, was of opinion that leukaemia as such was not inherited, it was a question of inherited predisposition to the disease. The development of leukaemia seemed to depend on various conditions—among others, on a non-specific hereditary predisposition to cancer, which was believed to be present in at least 20% of the population in general. Among the relatives of those with cancer of the body of the uterus the incidence of endogenous cancer was found to be high. In the families of those suffering from cancer of the oesophagus the disease was often found in a close male relative—father or brother. In these families, however, both the patient and the relative were often found to be suffering from chronic alcoholism, and probably it was the tendency to alcoholism and not the tendency to cancer which was inherited, the alcoholism being the cause of the oesophageal cancer.

The experiences of both clinical and experimental investigators confirmed that the probability of mammary cancer and leukaemia developing at an earlier period of life was greater when the genetic conditions were particularly favourable—that is, when there was a demonstrable hereditary taint. On the other hand the possibility of the occurrence of the disease became greater with advancing age. He concluded by saying that the supposition of somatic mutation or cytoplasmic inheritance as a cause of cancer had not been proved in human beings, the results of cytological investigations of human cancer cells were somewhat obscure.

### Family Histories of Breast Cancer Patients

Prof D Smithers, of the Royal Cancer Hospital, reported on the family histories of 459 patients suffering from cancer of the breast which had been investigated during the period 1944–7. Some attempt had been made to confirm the causes of death of relatives by letters to hospitals, doctors, and the Registrar-General's department, but such confirmation could be obtained only in a few cases. The figures, therefore, were subject to the errors of inadequate information and faulty recollection but it was believed that they were an underestimate rather than an overestimate of the incidence of cancer in the families in question. Many people died of cancer without their relations knowing the cause of death, and many patients with cancer of the breast survived for long periods following treatment and ultimately died from some other cause. Comparisons had to be made on the basis of mortality, no adequate morbidity statistics were available, so that it was not possible to include in the figures patients living who had or had had cancer for comparison with the expected incidence in the general population.

Of the 459 families analysed, the patient in 292 of the cases had no knowledge of a family history of cancer. Of the 167 cases in which the patient reported cancer in the family, 76 mentioned cancer of the breast. In 54 of the cases a history of cancer in more than one member of the family was obtained. The 167 patients with a known family history of cancer stated that they knew of this on their mother's side only in 88, on their father's side only in 34, among brothers and sisters in 33 and on both paternal and maternal sides in 12. This gave a maternal side history of 100 cases, compared with a paternal side history in 46. Of the 459 mothers, 30 were known to have died of cancer, but none had had cancer of the breast. The patients had 1,008 sisters, 288 of whom had died, 59 in infancy and another 200 of causes believed to have been other than cancer. Of the 29 known to have died of cancer, 11 had had cancer of the breast, 11 sisters living had also received treatment for breast cancer. Of the 1,059 brothers, 425 had died, 75 in infancy, and another 332 of causes other than cancer. Eighteen had died of cancer, but none of cancer of the breast. One was alive following treatment for cancer.

Analysing these figures, he was unable to confirm the finding of Jacobsen that the age of onset of the disease was lower in those who had a history of cancer in the family, in fact, the age was higher in the cancer family group, though not significantly so. The average age at diagnosis with no history of cancer was 54, and with a cancer history 55.3, though for those with a history of cancer of the breast in the family the figure was 54.1. It was to be expected that patients giving a family history of cancer at the time of diagnosis would tend to have a higher average age than the remainder, because the brothers and sisters of the younger patients were less likely to have reached the cancer age than those of the older subjects. Patients reporting cancer in brothers and sisters were in fact found to be in the older age groups in the series, as compared with those reporting cancer in fathers, mothers, uncles and aunts. The average age of those reporting cancer in brothers and sisters was 59.7 and of those reporting cancer in mothers and fathers 54.6—a significant difference. Those reporting older generation cancer were of an age close to those reporting no cancer history (54).

This information suggested that there was a significantly high death rate from cancer of the breast in the families of patients with that disease, but no higher death rate from other forms of cancer than would be expected in the general population.

Prof Smithers concluded by giving the details of three families taken from the group that he had been discussing. In one case the maternal grandmother of the patient died of carcinoma of the breast. She had five sons and three daughters. All three daughters developed cancer of the breast, the age of onset being between 60 and 65. One of the sons died of carcinoma of the rectum. The eldest of the sisters was the patient's mother. The patient herself developed carcinoma of the breast at the age of 42. One of the other sisters had no children, the other had a son and daughter, neither of whom up to date had developed cancer. The brother with cancer of the rectum had three daughters and three sons, and all three daughters had carcinoma of the breast, the age of onset being between 40 and 50.

### Genetic Study of Mammary Cancer

The final contribution to the symposium was by Prof L S Penrose, of the Galton Laboratory. The study of mammary cancer, he said, formed a most advantageous starting-point for the investigation of the hereditary factors in cancer, because it was more easily recognized and more accurately diagnosed than malignant growths at most other sites. Moreover it produced in the great majority of patients a clearly defined range of pathological conditions, which included spheroidal-celled carcinoma, Paget's disease of the nipple, adenocarcinoma, and the typical scirrhous condition in long-standing cases.

It was still doubtful whether heredity played any significant part aetiological. To try to resolve this uncertainty most investigators in recent years had collected a series of cases, noted the incidence of similar disease among their relatives and compared it with the corresponding incidence among a control group of cases free from the disease and selected at random. But the difficulties in obtaining a satisfactory control group of family histories had been demonstrated repeatedly. Many

workers still considered that there was not enough evidence to prove the reality of familial transmission of mammary cancer or any type of human malignant disease

A survey which Prof Penrose proceeded to describe had been undertaken in an endeavour to remove some of these uncertainties. The material collected began in each instance with a patient attending a clinic after the diagnosis of mammary cancer had been made. The patients were all personally interviewed and hospital records and reports were searched. Altogether 521 histories of cases of mammary cancer were collected. Eleven were set aside as doubtful, and 510 were analysed from different points of view. The mean age at onset was 51.7 years, with a standard deviation of 11.4 years. In 116 pedigrees one or more relatives with mammary cancer were ascertained. The distribution of these 116 familial cases and the mean age of onset (51) were similar to those of the remaining non-familial cases. Of the 510 women 408 were married and 91 of these had no children, the infertility ratio significantly exceeded the value for married women of the same mean age given by the Registrar General in 1938, and supported the view that nulliparity was an aetiological factor.

Prof Penrose discussed various points arising from this investigation and quoted many statistics. Only his conclusions can be given. The evidence from the mothers, sisters, fathers, and brothers strongly suggested that transmission of a specific factor was a major cause of mammary cancer. The hypothesis of inheritance of special organic disposition suggested by Bauer was supported by the homolateral familial findings. The theory, however, implied a significant decrease in the incidence of malignancy of other types in these families, which was not found in Prof Penrose's survey, nor was there any increase in the incidence of cancer generally which might have suggested a general hereditary predisposition to malignancy of any type. The familial incidence of mammary cancer among siblings was not high enough to suggest any Mendelian explanation of its inheritance. The consanguinity test for rare recessive genes gave negative results.

In view of the work of Bittner on mice, a factor derived from maternal cytoplasm, transmitted by milk, colostrum, or by the cytoplasm of the ovum, might be a specific cause. If that were so, maternal relatives should be more frequently affected with mammary cancer than the corresponding paternal relatives. In his series, among maternal aunts there were 29 mammary against 21 other cases of malignant disease, whereas among paternal aunts there were only 16 mammary cases, against 24 of other types. Those figures were suggestive, but not conclusive, evidence of maternal line inheritance. They derived some slight support from the investigation of maternal and paternal grandparents, where a relative excess of mammary cancer among maternal grandmothers was noted. In both the parental and grandparental generations sisters were more often affected than mothers so far as breast cancer was concerned—a fact of some genetical importance. A search for evidence that mammary cancer could be inherited through maternal milk gave entirely negative results, but a more accurately planned study with that point specially in mind might show a different picture.

In closing the meeting Dr E. B. Ford from the chair said that the symposium had shown the study of cancer to be very much more an integral part of the study of biology than he had supposed, and this ought to be taken into account in the general work of the biologist. The genetics of cancer must be considered in the whole field of cancer research work at every level. The general practitioner often felt that genetics had very little to offer him as a guide to his own work, but such researches as Prof Smithers had been carrying out at the Royal Cancer Hospital showed that a family history of cancer might help in diagnosis, it might indicate the possibility of cancer being the source of certain symptoms shown by a patient, and it might in that way lead to an early diagnosis of the disease.

St Thomas's Hospital has now issued the first post-war edition (1948) of the *Alphabetical and Local List of Old Students*. The names and addresses of old students are listed as well as names of the past and present honorary staff, hospital staff, and winners of scholarships and medals. Owing to the high cost of production the book can no longer be distributed free, but copies are obtainable at the cost of 2s. 6d. from the School Beadle.

## BRITISH HOSPITALS ASSOCIATION

### ANNUAL MEETING

The annual meeting of the British Hospitals Association was held in London on June 25, with Sir Bernard Docker presiding. In a telegram expressing regret at his inability to attend, the Duke of Gloucester said that he believed that the voluntary spirit still had a great part to play and that the hospitals would be able to count upon its exercise in the future.

Sir Bernard Docker said that in the development of the voluntary hospitals was enshrined the whole history of the progress of medicine. From two hospitals in the twelfth century their numbers had increased to over 1,100 providing 100,000 beds. Their work had not been limited to caring for the sick; pioneering discoveries in preventive medicine had their origin in the hospitals and their laboratories. The hospitals had been animated by a spirit of service, by independence, and by a continual striving for further improvement. They had set standards which were striven after all over the world. In the last half-century they had treated some 35 million in-patients. The number of out-patient attendances was equal to the population of this country five times over.

Mr R. L. Newell paid a tribute to the Association for the help it had given to the British Medical Association in the very difficult negotiations of recent times. Up and down the country meetings of hospital boards had in his opinion been needlessly funereal about what they should, on the contrary, regard as the finest hour of voluntary effort. At long last the public had become convinced of their duty to maintain the hospital service which would no longer be dependent on charitable bequests. He had been gratified to observe in the various regions how many people wished to serve on hospital boards. He was not one of those who thought that hospitals were best run by medical men. The knowledge and understanding of people of all ranks and professions were needed, so that the new hospitals freed from the menace of insolvency and the stigma of charity might become the prototype for the world to copy. Some of the British Hospitals Association's activities might become redundant, but it would be a great tragedy were the Association to disappear. It might lead to bureaucratic control of hospitals which they all feared. Let voluntary effort, as exemplified in the Association, uphold at all costs the spirit of initiative and humanity which had for so long been the mainstay of voluntary hospitals.

Mr Arnold Walker, chairman of the Central Midwives Board, hoped that in the new National Health Service the lessons of the past would not be ignored. Dealing with the midwives' position, he remarked on the misfortune that, while 1,000 new midwives were needed every year to make up the establishment, less than half of those who qualified with the Board became practising midwives. This and other problems had recently been investigated by a Working Party whose report would soon appear. In the future just as many midwives would be needed as in the past, and they must be highly qualified. It was therefore essential that the training schools, with their long traditions, should be preserved intact and developed to the greatest possible extent. Mr Walker gave statistics showing the high proportion of practising midwives trained by voluntary hospitals. The midwife herself was complementary to the doctor so far as normal cases were concerned, her statutory right to take charge of such cases must be preserved if the present standards of the profession were to be maintained. They would disappear entirely were she reduced to the level of a maternity nurse.

Sir George Aylwen, treasurer of St Bartholomew's, speaking of management and administration, expressed the conviction that the voluntary spirit would be maintained by those who had agreed to serve on hospital management committees and he stressed the importance of guarding against regimentation in the control and administration of the new hospital service. The meeting was also addressed by Miss M. M. Edwards, secretary of the Nursing Recruitment Centre, and Mr J. P. Wetenhall, secretary of the Association. Later the business meeting was held, at which the speakers were Sir George Martin and Sir Bertram Ford, president of the Contributory Schemes Association.

# ONE HUNDRED AND SIXTEENTH ANNUAL MEETING of the British Medical Association

HELD AT CAMBRIDGE, JUNE, 1948

## THE SECTIONS

### SUMMARY OF PROCEEDINGS

*In subsequent issues there will be printed in the BRITISH MEDICAL JOURNAL a few of the opening papers read at the Scientific Sections. All the papers will be published in full in a separate volume of Proceedings. The reports of the discussions in this and successive issues are intended to give members who were not present a general idea of the proceedings.*

#### SECTION OF MEDICINE

Wednesday June 30

##### Thiouracil in Thyrotoxicosis

With the president, Dr Leslie B Cole (Cambridge), in the chair Prof H P Himsworth (London) opened a discussion on the use of thiouracil in the treatment of thyrotoxicosis. Prof Himsworth's paper is printed elsewhere in this issue (p 61).

Mr Charles Donald (London) stressed the variability of the disease, functional symptoms difficult to assess were often added. He thought it was impossible to differentiate between diffuse and adenomatous goitres. The drawback to thiouracil was that it produced a damping down rather than a complete cure of the condition, patients often thought they were cured, but after thyroidectomy discovered that this had not been the case. The period of treatment by thiouracil was always being increased, and natural remission was not common in this disease. A complication of treatment with thiouracil which was not often mentioned was thrombosis. The results of surgery were quick, and the mortality in good hands was as low as 1%. The patient was soon able to return to full work and relapse was uncommon.

Dr D Verel (Aberdeen) described 61 cases under treatment with thiouracil for six months to three and a half years. Of these cases 9 had had auricular fibrillation, which could be treated first with quinidine and then thiouracil. There had been 8 cases of neutropenia, with no deaths. This should not occur if the dangers were explained to the patient and the drug stopped. There were 3 pregnancies in this series, one infant was born with a goitre, but in the other two cases the drug had been stopped before the thirtieth week and in one iodine was substituted. Koilonychia occurred in 7 cases, and while the anaemia did not respond to thiouracil the nail changes improved.

Dr L W Hale (Camborne) said that in Cornwall, an endemic goitre area, their experience was preponderantly of secondary thyrotoxicosis. Thiouracil complications had been mild and occasioned minimal interference with medical treatment, but he had yet to be reassured about the prognosis of fully developed agranulocytosis. In his cases tachycardia and fibrillation had been the most difficult features to control. Remission of symptoms following thiouracil was transient, and he felt that the emotional tone of the thiouracil-controlled patient was often not wholly satisfactory. Specialist surgical treatment might give better results than thiouracil but the latter was preferable to surgery which was in any way short of that standard.

Dr Russell Fraser (London) thought it important to consider the problems of the technique of thiouracil treatment. The greatest risk was that of goitrogenesis rather than toxicity.

He described patients who on large doses had developed a large goitre, eye signs, diplopia, and thiouracil-resistance. He thought, therefore, that it was necessary to get quickly on to the maintenance dose.

Dr H Cookson (Bournemouth) described 120 cases, many over the age of 50 treated with methyl thiouracil. He thought the drug was good in young patients with a smooth diffuse goitre and in old patients who were poor risks for surgery. In the large intermediate group surgery was the better treatment after premedication with the drug.

Dr L C Martin (Cambridge) said that thiouracil had two clear advantages. First, in the preparation of patients for operation, particularly those with rheumatic heart disease, it widened the time over which the operation could be safely performed. Secondly, in exophthalmic ophthalmoplegia it happened often that surgery made the patient worse. If thiouracil did this, it was known that surgery was contra-indicated.

Dr J N Milnes (Ipswich) gave an account of 60 cases and thought the drug was good as a pre-operative measure, but dangerous if the patient was not under personal observation.

The president thought the kernel of the problem was how far thiouracil would prevent thyrotoxic heart disease. In this he had come to the conclusion that it was not as good as surgery.

#### SECTION OF SURGERY

Wednesday, June 30

##### Tuberculous Adenitis

With the president, Mr Vernon C Pennell (Cambridge) in the chair, Mr Denis Browne (London) opened a discussion on tuberculous adenitis restricting his remarks to cervical lymph-nodes. Among the portals of entry to the 'culture media' at the upper end of the respiratory tract he regarded the adenoids as especially important, and had found tuberculosis present in 3 out of 15 groups of adenoids removed at operation. Differentiation between tuberculous and streptococcal cervical lymphadenitis depended upon observation of the course of the disease. Tuberculous lymph nodes grew progressively over a period to reach a more or less final size at which necrosis occurred, while in streptococcal adenitis the lymph nodes waxed and waned in size from time to time, finally recovering without necrosis. In mixed infections the nodes behaved in a rather varied way. Calcification occurred only in tuberculous lymph-nodes.

The treatment of streptococcal lymphadenitis was expectant until suppuration occurred, when pus was expelled by gentle pressure through an incision in a skin fold which was left open but not drained. In the treatment of tuberculous adenitis Mr Browne had found no advantage in x rays, sea air, general measures ultra-violet light, splinting, and aspiration. Incision and curettage was inaccurate but occasionally effective. Excision and suture was disappointing for several reasons. It was not in fact, as had sometimes been claimed, finally curative. It left a scar, it flattened the neck, it injured important structures, including nerves, it was dangerous, and it could not be combined with tonsillectomy. Incision and forcible digital expression was regarded as the treatment of choice, applicable as soon as pus had formed and when the skin had just become adherent. Digital expression was repeated some twelve or fifteen times until only pure blood was expressed. The resultant wound was fomented and tonsillectomy was performed.

Mr Hugh Reid (Liverpool) was concerned chiefly with tuberculous adenitis in sites other than the neck. Tuberculous mediastinal lymph-nodes were often responsible for bronchitis, atelectasis, pneumonia, and in childhood even bronchiectasis. He regarded human sputum as the infecting agent in mediastinal as in pulmonary tuberculosis and believed a Ghon focus in the lung to be the portal of entry.

Mr Ronald Reid (Colchester) reviewed 300 personal cases of tuberculous cervical adenitis treated in an Essex sanatorium and followed for an average period of three years. The upper deep cervical group of glands were affected in 196 of 223 successive cases, the nodes in the posterior triangle in 23, and the supraclavicular nodes in 4. The tonsils, adenoids, and

affected nodes were together believed to constitute a Ghon focus which showed three clinical stages: activity with matting, subsidence with discrete mobility, and resolution with fibrosis and calcification. The patient was treated by sanatorium measures for an average period of sixteen weeks and the tonsils were then removed and any caseous glands were dissected out; soft and gelatinous lymph-nodes were not interfered with. After this management, and a post-operative convalescence of three weeks on the average, 298 patients remained in good general health for 2 months to 8 years (average 3 years). A recurrence at the old site developed in 11 patients. The cosmetic result was regarded as good in 276 bad in 11, and indifferent in 15. Two patients subsequently suffered from pulmonary and one from meningeal tuberculosis.

Mr R R M Porter (Southport) agreed with Mr Browne that the results of gland excision were unsatisfactory. He covered the gland out gently with a spoon. Mr K Watson (Redhill) questioned whether a lymph-node could be squeezed out completely by digital pressure; he sometimes found a deep gland still present at subsequent dissection. Mr J Scholefield (Isleworth) suggested that the popularity of ultra-violet radiation in these cases was due to the difficulty of finding sanatorium accommodation.

Mr A S Till (Oxford) inquired whether Mr Browne's method gave a more permanent result than excision. Mr F E Stock (Liverpool) expressed satisfaction with the results of radical excision, performed even in the presence of an abscess. Mr A Duff (Salisbury) said that a combination of sharp spoon and discretion had all the advantages, and greater certainty, than Mr Browne's squeezing method. Mr W M Dennison (Glasgow) reported that a method not dissimilar to Mr Browne's had been used in Glasgow for many years, with the addition of curettage for the extraction of deeply placed lymph-nodes. Excision of skin, glands, and fascia after the method of Mr Hamilton Bailey had been employed with advantage in the same city for upwards of twenty-five years in late disease with wide skin-involvement.

Mr Denis Browne replied briefly to the discussion.

## SECTION OF OBSTETRICS AND GYNAECOLOGY

Wednesday June 30

### The Problem of Infertility

With the president Dr J R Campbell Canney (Cambridge) in the chair, Dr Bethel Solomons (Dublin) opened a discussion on the problem of infertility and its treatment. He said that he regarded sterility and impaired fertility as synonymous terms, and he suggested that fertility tests should be done on prospective mates. Sex education should be given in schools and by parents and the married couple desirous of having children should obtain advice about sex in general from the gynaecologist. Dr Solomons considered a marriage as sterile if there was no pregnancy after two years. He thought that male infertility was responsible for this in about 50% of cases. In the woman anatomical abnormalities should be corrected. While the cervical mucus might be an important factor in sterility, various operations on the cervix did not prevent a woman conceiving. A plea was made for the recording of fatalities due to tubal insufflation, and three such cases were described. However, the method was so useful that it should still be carried out, the use of opaque fluids in diagnosis and treatment was advocated. No fatality had resulted from their injection in a large series of cases. The results of operations on the Fallopian tubes were disappointing, about 10% success being all that could be achieved. Hormone therapy was discussed. Finally the use of contraceptives by the newly wed couple was deprecated. Donor insemination was discussed and condemned.

Mr Albert Sharman (Glasgow) reviewed the literature on fatalities following tubal insufflation, and described experimental work on rabbits. While there were many records of deaths due to the use of air or oxygen, there was so far no record of a death when carbon dioxide had been employed. Taking one minute to inject air into a rabbit's vein, death ensued after the injection of 3 ml, in the case of oxygen, death occurred after 4 ml, and when carbon dioxide was used, after

15 ml or more. Physiologists had stated that the occurrence of embolism due to carbon dioxide was almost impossible because of its rapid absorption. Mr Sharman said that he had now done about 3 000 cases at the Royal Samaritan Hospital, Glasgow, and there had been no death as a result of tubal insufflation with carbon dioxide. There had been three cases of pelvic infection, two of which were severe but not fatal.

Mr Kenneth Walker (London) devoted his remarks to a consideration of the means by which the sperms were transported to the ovum. He stressed that the husband was almost entirely responsible for the success or failure of the sperms to reach their goal. The three important factors were ejaculation, motility of the sperms, and penetration, or the condition of the cervical plug. It should never be assumed that ejaculation was satisfactory until careful inquiries had been made. Faults in the ejaculatory phase of coitus, though much less apparent, were almost as frequent as faults in the preceding phases. Ejaculation praecox was not of great importance in considering childlessness. Absence of ejaculation was much more important, and had not received the attention it merited; it occurred, for example, in the man of low sexuality who suffered from latent homosexuality, fetichism, sadism, and so on. These cases required prolonged skilled psychotherapy, which even so was not always successful. Another type of male did have an orgasm but did not produce semen, probably because of neuromuscular imbalance, as semen was often found in the urine passed after the act. Mr Walker was of the opinion that oligozoospermia was due to variation in the testicular contribution to the total bulk of the semen. He pointed out that a sheath specimen and a post-coital specimen from the same man might vary considerably. The post-coital test had not been given the prominence its value entitled it to receive. The quality of the sperms was of more importance than their number.

Mr Percy Malpas (Liverpool) said that recurrent abortion was due to a multiplicity of causes, but that in some cases there was clearly a recurrent factor whose nature was unknown. He suggested that in the absence of any discernible disease to account for these cases a reasonable hypothesis would be that they were due to a recurrent failure of the nervous mechanism whereby uterine quiescence was maintained. In this connexion the lightness of the attachment of the placenta to the uterine wall in the early months of pregnancy was emphasized and the evidence in favour of this hypothesis was discussed. Emotional shocks were the most common cause of spontaneous abortion in healthy pregnancy. The analogous behaviour of other hollow pelvic viscera was described, and attention was drawn to the oxytocic effect of various purgatives. It was also important that the rate of growth of the uterus should be equal to the rate of growth of the ovum, otherwise "missed" abortion occurred.

Mr Cecil Binney (Barrister-at-Law, The Temple) said it was plain that the law could not ignore artificial insemination. Artificial insemination *per se* was not a crime and it did not constitute adultery which was important with regard to the law of divorce. The branch of law in which artificial insemination introduced most problems was that concerned with the inheritance of property. Usually it would be necessary for the child to forgo any inheritance. The only solution for this impasse was the abolition of all settled funds. The law of nullity was untouched by artificial insemination. It was most important that any doctor performing this operation should have the written consent of husband and wife.

There was a lengthy discussion to which Dr Bethel Solomons replied. He said that carbon dioxide was the gas of choice for insufflation of the tubes. He was interested in the fact that Mr Sharman had found it safe to insufflate in the premenstrual phase when insufflation could be combined with biopsy of the endometrium. He said that in recurrent abortion, in addition to the drugs usually used, he had prescribed, from the time when he was an assistant antisiphilitic remedies in non-syphilitic cases. He wondered how Mr Malpas could "keep the nervous mechanism quiet." Methods such as the adoption of babies which had psychological effects were important. To keep a patient in bed for months to prevent a miscarriage was not always practicable. Dr Solomons concluded by pointing out that there was no greater proportion of abnormal babies in cured sterility cases than in ordinary pregnancies.



## SECTION OF ANAESTHETICS

Wednesday, June 30

## Anaesthesia for Chest Surgery

The president, Dr Z. Mennell (London) was in the chair and opened the proceedings by pointing out that this was the first meeting of the Section of Anaesthetics since 1933. He was pleased to find that the British Medical Association no longer regarded anaesthesia as a branch of pharmacology.

Dr John Millar (Newcastle upon Tyne) began the discussion on anaesthesia in chest surgery. She stressed that new methods of anaesthesia, resuscitation and teamwork were largely responsible for the progress in thoracic surgery. The anaesthetist must be a good bronchoscopist and must have a practical knowledge and experience of the special problems. The actual agent used was of less importance. Careful pre-operative preparation and assessment of the respiratory and cardiac function of patients were necessary and for this purpose differential spirometric recordings were occasionally of value. She advocated local analgesia for endoscopies, drainage of empyema and lung abscesses and in the surgery of pulmonary tuberculosis. In thoracoplasties it was advisable to examine the patient radiologically on the day of operation to detect any unsuspected spread of the disease. After premedication with amorphon and scopolamine brachial plexus and paravertebral nerve blocks were performed and the subscapular region infiltrated. A unilateral vagal block at the base of the skull was useful in extrapleural apicectomy to ensure freedom from persistent coughing. In the subsequent stages of thoracoplasty the anaesthetist might have to be helped out by light chloroform anaesthesia. For lung resections general anaesthesia was advised. The wet case was best controlled by bronchial tamponade. Endobronchial anaesthesia was less certain and more difficult. The respiration must be controlled or assisted to prevent paradoxical movement and mediastinal flap. While the use of curare offered many advantages there was always a danger of residual post-operative weakness and reduced tidal exchange which predisposed to post-operative collapse. The anaesthetic methods for operations on the oesophagus, heart and great vessels were described. During heart surgery cardiac irregularities had been controlled by the application of procaine to the epicardium or by the intravenous injection of 2 ml of 2% procaine. The necessity for the complete restoration of normal respiratory physiology at the close of every operation was stressed; there must be no hesitation in performing a bronchoscopic aspiration if necessary. Post-operative x-ray examinations were important to detect the presence of a pneumothorax or of atelectasis. Finally it was most important to replace blood as it was lost during the operation and not to wait until a large transfusion had to be given. In the elderly a sudden large transfusion might result in pulmonary oedema.

Dr E. H. Rink (London) followed with a short paper based on his experience of the surgical treatment of 50 cases of congenital pulmonary stenosis. There had been 8 immediate deaths, 3 at the time of operation and 5 within six hours of the operation. One child had died since leaving hospital and 4 cases had been inoperable. Post-operative complications such as atelectasis and pleural effusion were common. The pre-operative condition of these children was poor. They were very cyanotic, and had intense clubbing of the fingers and no exercise tolerance. They were undersized and had no resistance to infection, so that it was often necessary to operate in the presence of respiratory infection. Despite all this they tolerated anaesthesia and operative trauma well. The operation might last five or more hours and no matter how bad the child's condition, hope must not be abandoned until the child was dead. Premedication was by means of oral "nembutal" or rectal thiopentone. A slow induction with cyclopropane or a little ether was followed by the instillation of a few drops of methocaine over the back of the tongue and the insertion of a cuffed endotracheal tube. A plain tube with a prick could be used. Anaesthesia was maintained with cyclopropane or ether, controlled respiration being employed throughout; curare had proved of great value in this respect. The dangerous periods were when the pleura was opened, when the pulmonary artery

was clamped to make the anastomosis and after the anastomosis had been completed when the circulation had some difficulty in adjusting to the new conditions. The excellent result of the operation more than justified it. Dr Rink then described the operation of valvulotomy, for which he had anaesthetized 14 cases with one post-operative death. Adrenaline was the best resuscitant in all these cases.

A lengthy discussion followed in which Dr G. S. W. Orme (London) stated that he regarded local anaesthesia for thoracoplasty as an interesting exercise for the anaesthetist rather than as a procedure with advantages over general anaesthesia. He used a mixture of methocaine 1:2000 with procaine 1:100 and 1:300,000 adrenaline, but ether 1:5000 methocaine worked well. He had never seen bronchial tamponade or endobronchial anaesthesia performed without trauma and for this reason preferred the former as more preferable. He did not think that post-operative atelectasis was related to spill over and considered that there might be some active contraction of the lung. Dr P. I. Wolmer (Bristol) stressed the importance of always having a curare charged and procaine ready to treat cardiac irregularities.

Dr T. Cecil Gray (Liverpool) said that he did not agree that Dr Millar had given any cogent evidence that local analgesia was to be preferred to general anaesthesia in thoracoplasty. It was not a valid argument to say that the cough reflex was maintained during the operation for curare to be effective there must be a fixed element which was not the case during thoracoplasty. Curare appeared to be under suspicion but it enabled the anaesthetist to be carried out under a very light anaesthesia which was a definite advantage at the end of the operation. In heart surgery cyclopropane and ether could be used but were seen to be often if curare was used because deep anaesthesia was required. Under modern conditions post-operative pulmonary oedema probably had little to do with the anaesthesia but it did occur about the fourth day after operation and was frequently associated with an oedema of the lung and pleural membrane.

Dr H. H. Pinkerton (Glasgow) also supported the use of general anaesthesia for thoracoplasty as it was more reliable of the scapula and ensured freedom from brachial plexus and periosteal stripping. In view of these points before the operation too much significance must not be attached to the vital capacity. Thoracoplasty had been successful in cases in which the vital capacity had been as low as 500 c.c.m. provided that the physiotherapist had reported that the patient had good control of their respiration. His experience with white heat had been unfortunate as his three cases had been desperate risks and had ended fatally.

Dr Edith Gilchrist (London) questioned the advisability of intubating tuberculous patients and Dr J. G. Bourne (London) wondered whether the cardiac upset that occasionally followed vagal block might not be due to the adrenaline which would be in the injected local anaesthetic although he did not consider that there had been an intravascular injection in the cases which he had seen. The president wound up the discussion with a query about the method of sterilization of solutions of morphine given intravenously.

In reply Dr John Millar again stressed the arguments in favour of local analgesia for thoracoplasty. The cough was perfectly effective during the operation if the apex of the lung was supported by the surgeon. Answering a question about the best mode of anaesthesia for the repair of congenital tracheo-oesophageal fistulae she considered that it was important for the anaesthetist to keep an eye on the investigations from the beginning. She had seen a great deal of trouble in these cases due to the passage of barium into the air passages. Lipiodol was a better opaque medium. She preferred local anaesthesia and a posterior approach to the mediastinum which did not entail opening the pleural cavity. Oxygen was given under pressure a small blood transfusion was also needed. Dr Rink, replying to Dr G. F. Rawdon Smith (Liverpool) considered that death must be assumed if there was no response to cardiac massage within five minutes. Irreversible cerebral changes consequent upon a period of anoxia must be remembered.

### Abdominal Relaxation

With Dr C H Budd (Cambridge), a vice president, in the chair Dr C B Lewis (London) read a short paper on abdominal relaxation. He defined abdominal relaxation as the attainment of complete muscular flaccidity, complete peritoneal flaccidity, minimal respiratory movements, and contracted viscera. Relaxation was essential in abdominal surgery and was made difficult because the tone of the accessory muscles of respiration persisted even after other muscles had become relaxed, and because the posterior fascial sheaths of the abdominal muscles were adherent to the peritoneum. Further, respiratory movements still caused embarrassing movements of the viscera. Dr Lewis reviewed the main agents and combinations commonly used to achieve abdominal relaxation, and said that spinal analgesia fulfilled perfectly all the desiderata. Contrary to expectations, curare had not replaced other methods, and he described the technique of induction of anaesthesia with thiopentone followed by the intrathecal injection of heavy nupercaine. Endotracheal intubation was performed, and general anaesthesia maintained with a further small dose of thiopentone and it necessary nitrous oxide or cyclopropane. He had experience of 100 cases in which gastrectomy was performed under this method of anaesthesia. Headaches were rare following it, and in the unconscious patient marked falls in blood pressure did not occur. He limited his initial dose of ephedrine to 3/4 gr (50 mg) and emphasized that the results of spinal analgesia depended not on the drug used but on the particular technique and the maintenance of full oxygenation. Ether, although safe was being infrequently used because of the disturbed convalescence which followed and cyclopropane alone gave poor relaxation. Curare he considered a great advance, but it was too easy to give, and once it had been given the anaesthetist had lost control. He considered its use to be contraindicated in heavily built patients when the Trendelenburg position was to be employed. Intubation was a most valuable aid to relaxation, as it ensured a completely free airway. Such accessory aids as flexion of the patient's knees should not be overlooked.

In the discussion which followed, Dr Agnes J Gray (Preston) considered that the supplementary agents alone used by Dr Lewis were sufficient for abdominal surgery without a spinal analgesia, especially if curare was used. Dr R F Woolmer (Bristol) deprecated the custom of supporting the patient in the Trendelenburg position only by the knees. Compression of the calves predisposed to post-operative thrombosis, and also in that position the pelvis was tilted at an angle, putting the rectus abdominis muscle on the stretch and making the attainment of adequate relaxation almost impossible. Dr B Williams (Middlesbrough) said that as a gynaecologist he was interested both in relaxation and in the posture of the patient. He deprecated the use of shoulder rests. He had had a case of brachial plexus palsy, a complication made more likely by the modern tendency for the anaesthetist to keep an arm available for intravenous injections. He had found bromethol a useful basal narcotic and felt it facilitated subsequent relaxation.

Dr H R Youngman (Cambridge) had used 'myanesis' with some success especially in anal operations, when stretching of the anus produced deep respiration but did not result in any troublesome reflex laryngeal responses. It might be that the solvent at present employed for this substance contraindicated its use. Dr R W Cope (London) stressed the dangers of tragic sequelae following spinal analgesia with heavy damages being awarded later against the hospital surgeon, and anaesthetist. For these reasons he had turned to curare with thankfulness. Dr R Jarman (London) had experience of spinal analgesia in 18 000 cases, and said that the late Dr Sebrechts, of Bruges had employed it in no fewer than 30 000 cases. It would be folly to condemn such a useful method too lightly. The results were invariably better when an endotracheal tube was passed

### Caudal Extradural Block

Dr G C Steel (London) said that caudal extradural block had been employed for assessing the outcome of sympathectomy in cases of hypertension. 'Metycaine' 1.2% was used and the segmental level of the resulting analgesia checked against the fall in blood pressure. This method gave a more accurate forecast of the likely results of operation than the usual tests

including high spinal analgesia, which caused complete loss of muscle tone and consequently impaired the venous return.

Paravertebral lumbar sympathetic block gave good results in the treatment of phlegmasia alba dolens, but so did caudal block. Sympathetic vasoconstrictor impulses caused spasm of the arterioles and venules in this condition, and the caudal block released this spasm and restored the normal fluid exchange. This method had also been applied successfully in the treatment of a case of glomerulonephritis with hypertension and pulmonary oedema and in cases of anuria. Convulsions in cases of eclampsia could be controlled in this way but it was essential that the patient should be closely observed for any circulatory collapse which might be dangerous in this condition. Caudal analgesia was a useful alternative to spinal block in surgery and had been tried in many pelvic operations. It was especially useful in vaginal hysterectomy because of the good perineal relaxation and relatively avascular field. He recommended it, too, for analgesia for the termination of pregnancy in cases of pulmonary tuberculosis. Finally, as a nerve block for the relief of the pain of pelvic carcinoma it had proved of great value. In these cases 40 to 60 ml of 'proctocaine' was usually given although to obtain complete relief intrathecal injections of alcohol might be required.

Dr A R Hunter (Manchester) pointed out that the results of sepsis following sacral block were as disastrous as the meningo myelitis which might follow intrathecal injections, and Dr H J Brennan (Manchester) stated that collapse was not uncommon after caudal anaesthesia. Dr T Cecil Gray (Liverpool) objected to the procedure because of its complete unpredictability. The block often went too high resulting in a severe fall in blood pressure and collapse of the patient.

### Intubation in Infants

This meeting of the Section ended with a short discussion opened by Dr R W Cope (London), on 'When to intubate in babies and children'. After reviewing the anatomy of the infantile larynx and stressing the deep anaesthesia required for intubation, he warned against the possibility of passing the endotracheal tube into the right main bronchus. The criticism that the thickness of the tube diminished the air entry did not seem valid except when it was obstructed by drops of mucus. Trauma with subsequent laryngeal oedema was a very real danger. He considered that babies and children should be intubated (a) in the treatment of asphyxia neonatorum and for any surgical operations on the newborn (b) for abdominal operations such as those performed for congenital pyloric stenosis, duodenal atresia or intussusception during the first few weeks of life and (c) for operations during the first months of life for cleft lip and cleft palate. In the latter cases a tube made of a coiled spring was safest and most certain.

A discussion followed in the course of which Dr R F Woolmer (Bristol) asked whether topical analgesia of the larynx was advisable in children, and whether the apparatus described by Humby and Hawksley was still in use for cleft palate. Dr Agnes J Gray (Preston) advocated the preliminary swabbing of throats to detect the presence of streptococci and urged the usefulness of intubation by touch in the newborn, not every maternity department had a laryngoscope ready. Dr G S W Organe (Westminster) questioned the wisdom of intubating babies more often than was absolutely necessary and deprecated the use of an endotracheal tube to maintain the airway when other methods would suffice. Dr J N Fell (Colchester) urged the value of endotracheal intubation for tonsillectomy in children, pointing out that this was the only method by which a patient could be kept lightly anaesthetized for this operation.

Dr R W Cope in reply, felt that careful positioning of the patient for tonsillectomy was a better solution than intubation. As the latter procedure would have to be performed nasally it might cause bleeding and create difficulties when the adenoids had to be removed subsequently. He had urged intubation during anaesthesia for Ramstedt's operation because this might not be a short procedure, and the presence of a tube allowed the anaesthesia to be lightened from time to time. He did not use topical analgesia in children because of the danger of toxic reactions, and did not consider that Humby and Hawksley's device was safe, not infrequently the metal parts were of the wrong curvature and the rubber tube became detached from them.



With cases of exstrophic heart disease, it is not possible to know when in operation was desirable for the child, and so much greater and the prognosis is more serious. It was probably as easy to make a diagnosis that would tell more or less feasible. Talbot's territory was the common exception and it could be helped by the Blalock-Taussig operation. However, had not been noted in the first 18 months of life it is unlikely that there could have been much doubt about the diagnosis and that diagnosis was therefore unlikely. The exstrophic murmur suggested some complication than the normal, but a patent ductus helps the circulation of the lungs. The most critical evidence was that there should be a high degree of distention of the pulmonary artery and this is not possible in its branches on radiography because this is not possible. The circulation of the lungs is the only adequate method for the purpose of the operation was to increase the blood flow to the lungs.

The usual operation was an end to side subclavian pulmonary anastomosis on the side *opposite* to the aortic arch. In successful cases the results were excellent, and a patient who could do nothing might quickly walk a mile or more and remain a normal colour, except on an especially cold day or after heavier exertion. In his series of patients rather less than one sixth had died, and in one sixth an anastomosis had not been found possible or the improvement was only slight to moderate. In two thirds of the patients the results had been extremely good, and except for a little increase in the size of the heart in most of them there seemed to be no drawback to the artificial patent ductus. A direct attack had been made on the pulmonary valve by Mr Brock, and this operation held out considerable hope.

Mr T Holmes Sellors (London) believed that the uncomplicated case of patent ductus arteriosus was a surgical matter. The danger of infective endocarditis was very real, and heart failure was certainly not unknown. Marked relief was obtained on removal of the turbulence. Cardiac invalidism was a condition to be deplored. In children under 5 their small size and the occasional spontaneous closure of the ductus contraindicated operation. Healthy and symptom-free adults might reasonably elect to await events. If any cyanosis was present the ductus should probably not be occluded. The results of ligation or division of the ductus were highly satisfactory. One death in 71 cases had occurred. Many of the so-called recanalizations were probably instances of an additional cardiac lesion. With one exception he had used a simple ligation with non-absorbable material in the form of a Ballance stay-knot.

The indications for surgery in cases of coarctation of the aorta were still being evolved. He had advised operation only where the symptoms of hypertension, such as headache and dizziness, had been really marked.

In cases of pulmonary stenosis the results of the operation evolved by Taussig and Blalock were excellent in a number of patients. At the very least it provided some years of more than tolerable life. The Potts operation was appealing. Both Holmes Sellors and Brock had described an operation for stenosis in the pulmonary valve.

In the discussion Mr R C Brock said that he believed there was a large measure of agreement between physician and surgeon that cases of patent ductus should be operated upon. In coarctation of the aorta more information was needed about the indications for operation. The results of the Blalock operation had been good. It was difficult to reconcile closing a patent ductus in one type of case and making a patent ductus in another type of case. Valvulotomy might have possibilities. Dr A Rae Gilchrist (Edinburgh) said that 7 years was the optimum age for operation on patent ductus or on coarctation of the aorta with symptoms.

Mr G A Mason said that the risk of recanalization must be small if the patent ductus was adequately ligated. Tape seemed rather uncertain. He used four double ligatures of linen thread, size 20. He had had no recurrences, although his series was small because of his reluctance to do the operation in uncomplicated cases. His own preference in cases of pulmonary stenosis was for the Potts type of operation, the aortic pulmonary anastomosis being much simpler than the Blalock operation.

## SECTION OF ORTHOPAEDICS

Wednesday June 30

### Lesions of the Intervertebral Disk

With the president, Professor T P McMurray (Liverpool), in the chair, an introductory paper by Prof Norman M Dott on the neurosurgical aspects of intervertebral disk lesions was read by Mr G L Alexander (Edinburgh). One of the penalties of modern civilized life was man's liability to develop spinal weaknesses, one of the most important of which was the protrusion of intervertebral disk substances. Although this took place commonly in front and at the sides of the vertebral bodies, it was chiefly important as a crippling problem when occurring posteriorly into the spinal canal or vertebral foraminae. The incidence of such lesions was considered to be approximately 300 new cases per million population per annum, insurance statistics

tended to show that this was a conservative estimate. In the aetiology the sudden assumption of violent activity either in the form of military training or athletic pursuit in people of otherwise sedentary habit seemed to be of particular significance. The importance of a national "keep-fit policy" in youth was very great. Local trauma, particularly under conditions of surprise, was perhaps the most common story. Trauma of all kinds was of significance in at least half of the cases studied. Males were involved twice as often as females, in whom pregnancy increased the liability to such lesions, and the age incidence was chiefly between 20 and 50, though the youngest patient operated upon was 15 and the oldest 72. The commonest syndrome was the association of lumbago and sciatica with a history of remissions, paraesthesiae and paresis. Lumbago or sciatica might be found alone. Scoliosis was common and particularly a tendency to assume a pronograde stoop. In half of the cases radiological narrowing of the disk was found, and in a similar proportion there was a significant rise in the protein content of the cerebrospinal fluid. Bilateral syndromes might be produced by a single disk protrusion or by a double lesion of the same disk or by single lesions of two disks. In some cases multiple disk lesions were discovered. The protrusion might be so marked and so affect the cauda equina that the case might become a surgical emergency. Skeletal peculiarities of congenital origin sometimes caused difficulty in localization but otherwise were not of significance in relation to treatment. There were a variety of pathologically different protrusions of nuclear substance. Some formed only a small lateral nodule, others dissected relatively far from the disk, others were seen as necrotic masses which penetrated the dura and produced a considerable granulation-tissue reaction. Yet others might escape detection in the posture most usual for operative exposures.

At operation precise haemostasis was necessary, complete removal of all nuclear tissue was performed aided by special gouges and nibblers copied respectively from those used by the dental surgeon and the otolaryngologist. In disk lesions associated with spondylolisthesis the loose neural arch was removed, the prominent edge of the lower vertebra smoothed off, and after the disk had been removed bone chips were put in its place and tibial grafts inserted posteriorly.

In diagnosis the particular conditions to be differentiated were various forms of epiduritis, tuberculosis involving the disk, primary radiculitis, and conditions simulating disk protrusion, nuclear granulomas, and other tumours. Diagnosis localizing the affected disk was correct in 93% of cases, errors were generally due to the presence of multiple protrusions and second interventions were necessary in 2% of cases. At Edinburgh they were prejudiced against the use of opaque myelography, but now that innocuous materials were again available it was an open question.

Operative results showed no mortality and 85% of the patients were fit for their former or equivalent jobs. Fusion operations were not necessary. Forceful manipulation was dangerous and epidural injection did not help. The chief question posed was that of the part which rest should play in conservative treatment.

Mr Norman Capener (Exeter) emphasized the importance of lesions of the intervertebral disks other than posterior protrusion. The assumption that practically every patient suffering from lumbago and sciatica was "a disk lesion" was dangerous. There were no unmistakable signs clinically or radiologically of posterior protrusions. Disk protrusions were associated with underlying physical and psychological defects and caused local disturbances and, sometimes more important, a widespread physiological disintegration—all of which indicated the overwhelming need for thoroughly efficient conservative treatment. In advocating the use of the plaster jacket for achieving physiological control, reinforced where necessary by traction upon the pelvis in recumbency, the speaker stated that not only was it the best method for all three elements of the problem but it also enabled the separation of the group likely to require operation. Operation should rarely be required. Statistics were given which showed that, if such treatment and an efficient programme of after care were applied early, the end-results were at least as good as those in some published groups of cases in which operative treatment had been practically the only method of approach.

Mr R H Young (London) who had had experience of 791 laminectomies done before August 1947, relied upon the history

of backache or sciatica or both, this was recurrent, with complete freedom from pain between attacks. With such a history, if forward bending was restricted and sideways bending free, if straight-leg raising was limited and radiological examination negative for other conditions, then the patient had a disk lesion. In the first attack rest in bed in the position of greatest comfort was advised. In the less severe cases the patients would get better whatever was done so long as physiotherapy was avoided. In operative treatment he performed a complete laminectomy with exploration of the last two lumbar disks. Protrusions at both levels were found in 12% of cases.

Col D. McVicker (Belfast) felt that manipulative treatment which was not forcible had an important place in early treatment. A great deal could be done without anaesthesia and without hurting the patient to relieve spasm. Many men could be got back to work within a few days. Surely this was better than doing nothing for two months and then operating.

Dr Rowland Hill (London) discussing brachial neuritis, in which nowadays mechanical lesions of the cervical intervertebral disks were considered important, said that the pendulum had swung too far from the infective factors and that in sciatic pain also they would do well to keep in mind such infective factors whatever mechanical lesion might also be present.

Mr A. L. Eyre-Brook (Bristol), although favouring conservative treatment, did not believe that it should be persisted in too long. If after four weeks in a typical case relief was not forthcoming, operation should be undertaken. Mr J. Hardman (Sheffield), while appreciating the importance of conservative treatment, thought that it was not fair to compare results with those of neurosurgical operations, which were usually performed for cases in which orthopaedic treatment had failed. Nevertheless out of 200 cases operated upon and studied by an independent observer two-thirds were improved though half of the cases operated on had some persistent weakness or aching in the back. This latter point was also noted by Mr H. H. Langston (Southampton). He made a plea for the use of epidural saline injections for recurrent attacks not of severe degree. This technique probably relieved by separating adhesions between the nerve roots and the protrusion.

Mr N. Ross Smith (Bournemouth) mentioned the urgent need for impartial investigation and the publication of results of operative treatment. He felt much more caution should be exercised in assessing results. More attention should be devoted to other lesions of disks. In all these cases the problem was not one primarily of operation but of the adjustment of posture and physical activity, of physical retraining and occasionally of mechanical support. Major A. Hale, discussing the results of operation in the Army, said that the duration of symptoms made no difference to the results, and that while these were satisfactory in that 80% of patients were back at full work within a year, only 3% were completely free of all symptoms. Mr B. Whitchurch Howell (London) believed that the younger the patient and the greater the pain the sooner should laminectomy be performed, the reverse applied to the older patient.

Mr Bryan McFarland (Liverpool) agreed that intensity of pain was the important criterion but thought that a large proportion of cases were cured by conservative treatment. The president, Professor McMurray, said he had been startled by the briefness of the clinical examination which Mr Young had thought suitable. He mentioned a number of conditions which might be overlooked. He believed manipulative treatment should play an important part in treatment, for many of these problems were in fact due to back strain.

#### Injection Treatment of Osteoarthritis

Mr Grant Waugh (Sunderland) showed a film of his lactic-acid injection treatment, details of which have already been published. The treatment was based upon the observation of alteration in pH which occurred in the haematomata associated with fractures which at a certain stage of healing became relatively acid. In rheumatoid arthritis the joint fluids became relatively alkaline (pH 7.8) and in osteoarthritis more so (pH 8). Injections were given weekly or fortnightly and varied in amount from 1 ml in an interphalangeal joint to 2-4 ml in the wrist and shoulder 5-10 ml in the knee and 10-15 ml in the hip joint. Before injection the joints were aspirated and afterwards

manipulation and frequent active exercises were carried out by the patient. The results in osteoarthritis and in the less active forms of rheumatoid arthritis were most encouraging in the greater mobility achieved and in the relief of pain. A group of patients with bilateral joint lesions had been treated on one side by injection and physical therapy and on the other side by physical therapy alone. The relief on the side injected was such as to cause the patients to clamour for similar treatment on the other side. Radiographic control had shown that, in the speaker's experience, if the lateral approach was used the difficulty of getting the injection into the hip joint had not been great.

#### SECTION OF PATHOLOGY AND BACTERIOLOGY

Wednesday June 30

##### The Rhesus Factor

With the president, Professor H. R. Dean (Cambridge), in the chair Professor D. F. Cappel (Glasgow) opened a discussion on the recent advances in our knowledge of the Rh factor. He surveyed the pioneer work in this field and paid tribute to the original work done by the Cambridge workers in the president's department. He pointed out that the haemolytic diseases of the newborn which resulted from the iso-immunization of an Rh-negative mother were increased enormously when she had been additionally immunized by an incompatible Rh blood transfusion. The dangers of such a transfusion to women of child-bearing age could not be too strongly stressed. Pregnancy heterospecific in the ABO groups rarely caused haemolytic disease, and in fact the iso-immunization of Rh-negative mothers in heterospecific ABO pregnancy was significantly less than when mother and child belonged to the same ABO group. Prof. Cappel then discussed the difference between complete and incomplete antibodies and disagreed with the suggestion that icterus gravis was caused only by the complete antibody. After reviewing the terminology he went on to show that anti-C and anti-D sera reacted differently in large surveys and there had now been demonstrated variants  $C^w$ ,  $C^u$ , and  $C^v$ , D and  $D^u$ , which could not be separated. Several case histories of families with homozygous and heterozygous fathers were described, including one in which the 18th child was the first affected. He refuted the suggestion that Rh incompatibility could cause mental deficiency apart from kernicterus or diffuse cortical staining.

Dr P. L. Mollison (London) stressed the importance of the direct Coombs' test in the diagnosis of haemolytic disease of the newborn, supplemented by accurate serial estimations of haemoglobin, bilirubin estimations, and examinations of a blood film for the degree of erythroblastæmia. Most cases showed a correlated degree of anaemia, hyperbilirubinaemia and erythroblastæmia in the cord blood. He regarded 3 mg of bilirubin per 100 ml as the borderline of abnormality, and showed that most cases had more than 10 nucleated RBC per 100 leucocytes. If the blood was examined a few hours after birth the findings were altered by the rise in haemoglobin values that occurred in all infants who were allowed to recover their placental blood and by the rise in bilirubin concentration which always took place in the neonatal period. Haemolytic disease caused death at four stages: (1) *in utero* at any time after the 24th week of pregnancy; (2) at delivery or within 12 hours of it (They were both associated with severe anaemia and death from cardiac failure occurred); (3) 2-4 days after birth—then infants had involvement of the central nervous system and were deeply jaundiced; (4) 7-14 days after birth—these were more frequently the result of poor production rather than excessive blood destruction. Dr Mollison then described the technique of exchange transfusion after premature termination of pregnancy, which he called the most rational treatment for this disease. The proportion of Rh-positive cells remaining at the end of the transfusion depended on the infant's initial red cell count and the amount of blood exchanged. 400 ml usually sufficed for a 90% exchange if the donor blood had at least 5 million RBC per cu mm. He had an overall mortality on this procedure of 28% with kernicterus in only 6% of the survivors. As methods and prognosis varied so much no comparison of results was yet possible.

Dr R. R. A. Coombs (Cambridge) then described an investigation of haemolytic disease in newborn foals. He had

The usual operation was an end to-side subclavian pulmonary anastomosis on the side *opposite* to the aortic arch. In successful cases the results were excellent and a patient who could do nothing might quickly walk a mile or more and remain a normal colour except on an especially cold day or after heavier exertion. In his series of patients rather less than one-sixth had died, and in one-sixth an anastomosis had not been found possible or the improvement was only slight to moderate. In two thirds of the patients the results had been extremely good, and, except for a little increase in the size of the heart in most of them, there seemed to be no drawback to the artificial patent ductus. A direct attack had been made on the pulmonary valve by Mr Brock, and this operation held out considerable hope.

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Col D McVicker (Belfast) felt that manipulative treatment which was not forcible had an important place in early treatment. A great deal could be done without anaesthesia and without hurting the patient to relieve spasm. Many men could be got back to work within a few days. Surely this was better than doing nothing for two months and then operating.

Dr Rowland Hill (London) discussing brachial neuritis, in which nowadays mechanical lesions of the cervical intervertebral disks were considered important said that the pendulum had swung too far from the infective factors and that in sciatic pain also they would do well to keep in mind such infective factors whatever mechanical lesion might also be present.

Mr A L Eyre-Brook (Bristol), although favouring conservative treatment, did not believe that it should be persisted in too long. If after four weeks in a typical case relief was not forthcoming, operation should be undertaken. Mr J Hardman (Sheffield), while appreciating the importance of conservative treatment, thought that it was not fair to compare results with those of neurosurgical operations, which were usually performed for cases in which orthopaedic treatment had failed. Nevertheless out of 200 cases operated upon and studied by an independent observer two-thirds were improved though half of the cases operated on had some persistent weakness or aching in the back. This latter point was also noted by Mr H H Langston (Southampton). He made a plea for the use of epidural saline injections for recurrent attacks not of severe degree. This technique probably relieved by separating adhesions between the nerve roots and the protrusion.

Mr N Ross Smith (Bournemouth) mentioned the urgent need for impartial investigation and the publication of results of operative treatment. He felt much more caution should be exercised in assessing results. More attention should be devoted to other lesions of disks. In all these cases the problem was not one primarily of operation but of the adjustment of posture and physical activity of physical retraining and occasionally of mechanical support. Major A Hale, discussing the results of operation in the Army, said that the duration of symptoms made no difference to the results, and that while these were satisfactory in that 80% of patients were back at full work within a year, only 3% were completely free of all symptoms. Mr B Whitchurch Howell (London) believed that the younger the patient and the greater the pain the sooner should laminectomy be performed, the reverse applied to the older patient.

Mr Bryan McFarland (Liverpool) agreed that intensity of pain was the important criterion but thought that a large proportion of cases were cured by conservative treatment. The president, Professor McMurray, said he had been startled by the briefness of the clinical examination which Mr Young had thought suitable. He mentioned a number of conditions which might be overlooked. He believed manipulative treatment should play an important part in treatment, for many of these problems were in fact due to back strain.

#### Injection Treatment of Osteoarthritis

Mr Grant Waugh (Sunderland) showed a film of his lactic-acid injection treatment, details of which have already been published. The treatment was based upon the observation of alteration in pH which occurred in the haematomata associated with fractures which at a certain stage of healing became relatively acid. In rheumatoid arthritis the joint fluids became relatively alkaline (pH 7.8) and in osteoarthritis more so (pH 8). Injections were given weekly or fortnightly and varied in amount from 1 ml in an interphalangeal joint to 2-4 ml in the wrist and shoulder, 5-10 ml in the knee, and 10-15 ml in the hip joint. Before injection the joints were aspirated and afterwards

manipulation and frequent active exercises were carried out by the patient. The results in osteoarthritis and in the less active forms of rheumatoid arthritis were most encouraging in the greater mobility achieved and in the relief of pain. A group of patients with bilateral joint lesions had been treated on one side by injection and physical therapy and on the other side by physical therapy alone. The relief on the side injected was such as to cause the patients to clamour for similar treatment on the other side. Radiographic control had shown that, in the speaker's experience, if the lateral approach was used the difficulty of getting the injection into the hip joint had not been great.

## SECTION OF PATHOLOGY AND BACTERIOLOGY

Wednesday June 30

### The Rhesus Factor

With the president, Professor H R Dean (Cambridge), in the chair Professor D F Cappell (Glasgow) opened a discussion on the recent advances in our knowledge of the Rh factor. He surveyed the pioneer work in this field and paid tribute to the original work done by the Cambridge workers in the president's department. He pointed out that the haemolytic diseases of the newborn which resulted from the iso-immunization of an Rh-negative mother were increased enormously when she had been additionally immunized by an incompatible Rh blood transfusion. The dangers of such a transfusion to women of child-bearing age could not be too strongly stressed. Pregnancy heterospecific in the ABO groups rarely caused haemolytic disease, and in fact the iso-immunization of Rh-negative mothers in heterospecific ABO pregnancy was significantly less than when mother and child belonged to the same ABO group. Prof Cappell then discussed the difference between complete and incomplete antibodies and disagreed with the suggestion that icterus gravis was caused only by the complete antibody. After reviewing the terminology he went on to show that anti-C and anti-D sera reacted differently in large surveys and there had now been demonstrated variants  $C^w$ ,  $C^u$ , and  $C^v$ . D and  $D^u$ , which could not be separated. Several case histories of families with homozygous and heterozygous fathers were described, including one in which the 18th child was the first affected. He refuted the suggestion that Rh incompatibility could cause mental deficiency apart from kernicterus or diffuse cortical staining.

Dr P L Mollison (London) stressed the importance of the direct Coombs' test in the diagnosis of haemolytic disease of the newborn, supplemented by accurate serial estimations of haemoglobin, bilirubin estimations, and examinations of a blood film for the degree of erythroblastæmia. Most cases showed a correlated degree of anaemia, hyperbilirubinaemia and erythroblastæmia in the cord blood. He regarded 3 mg of bilirubin per 100 ml as the borderline of abnormality, and showed that most cases had more than 10 nucleated RBC per 100 leucocytes. If the blood was examined a few hours after birth the findings were altered by the rise in haemoglobin values that occurred in all infants who were allowed to recover their placental blood and by the rise in bilirubin concentration which always took place in the neonatal period. Haemolytic disease caused death at four stages: (1) *in utero* at any time after the 24th week of pregnancy, (2) at delivery or within 12 hours of it. (They were both associated with severe anaemia and death from cardiac failure occurred), (3) 2-4 days after birth—then infants had involvement of the central nervous system and were deeply jaundiced, (4) 7-14 days after birth—these were more frequently the result of poor production rather than excessive blood destruction. Dr Mollison then described the technique of exchange transfusion after premature termination of pregnancy, which he called the most rational treatment for this disease. The proportion of Rh-positive cells remaining at the end of the transfusion depended on the infant's initial red cell count and the amount of blood exchanged. 400 ml usually sufficed for a 90% exchange if the donor blood had at least 5 million RBC per cu mm. He had an overall mortality on this procedure of 28% with kernicterus in only 6% of the survivors. As methods and prognosis varied so much no comparison of results was yet possible.

Dr R R A Coombs (Cambridge) then described an investigation of haemolytic disease in newborn foals. He had



investigated six cases in which the symptoms were absent at birth with progressive lethargy, weakness, pallor, and haemoglobinuria. This latter was the first sign in the severe cases. Because of lack of knowledge of blood groups of horses and grouping sera the use of compatible blood in treatment was very difficult. In testing for antibody his direct antiglobulin sensitivity test using rabbit anti-horse-globulin serum was positive in all the cases and negative in all the controls. All the animals affected showed profound anaemia, no erythroblasts were found in any of the cases, and there was no reticulocyte count higher than 0.04%. Histologically there was no evidence of extramedullary erythropoiesis, and this was attributed to the long gestation period of 11 months. His colleague, Dr Herd (Cambridge), had attempted to produce the picture of haemolytic disease of the newborn in rabbits experimentally and had encouraging results.

#### Occasional Papers

With Professor W. G. Barnard (Vice President) in the chair Dr A. B. Bratton (London) discussed the histological findings in the thymuses of 70 cases of myasthenia gravis. These had been removed at operation and had considerably influenced the course of the disease in the majority. Comparison with controls of similar age groups showed that the weight and shape of the gland were the same and did not support the theory of persistence of the gland in myasthenia. There was however, a qualitative difference in that the myasthenic thymuses showed denser concentrations of lymphocytes in the islets with a small number of lymphocytes in the medulla and a structure resembling a germ centre in the cortical nodules. These were present in 66 of the myasthenic glands and in only 3 of non-myasthenic control glands, suggesting that the thymus was reacting rather like lymphoid tissue than like epithelial tissue. Tumours were present in 13 out of 70 cases of myasthenia gravis and these showed a varied picture with different amounts of small cells resembling lymphocytes and large pale foamy cells which were probably epithelial. The tumours could be called lympho-epithelioma of the thymus, and occasionally metastasized.

Dr M. H. Gleeson White (Cambridge) described four cases of *H. influenzae meningitis* treated with streptomycin. Three made uneventful recoveries, but the fourth, after a slow but favourable response became resistant and died in spite of full doses of penicillin and sulphamezathine to which the organism remained fully sensitive throughout.

Dr K. C. Dixon (Cambridge) showed that when the supply of glucose and oxygen was cut off from a cell it used its residual sugar, and when no further energy was available intracellular constituents were liberated into the surrounding tissue. Thus stored red cells liberated their potassium as soon as the available sugar was used up. This potassium being toxic might cause damage to nearby cells early in disease processes. The main effect was produced experimentally by adding 20-30 milliequivalents of potassium. Professor Dorothy Russell (London) thought that if this were true a spherical and perhaps eccentric effect would be seen in the brain when cells were deprived of blood supply whereas in fact a laminar appearance was present parallel to the surface of the brain.

Dr N. H. Martin (London) examined the principles of electrophoresis and demonstrated electrophoretic patterns in normal and abnormal plasma. On physico-chemical data the purified albumin molecule should be the ideal protein for the treatment of shock (unassociated with blood loss) and generalized oedema because of its high solubility, low viscosity, and high osmotic pressure. The globulin fraction when broken down showed a high concentration of antibodies in the  $\gamma$  group, a lipid binding ability in the  $\alpha$  and  $\beta$  globulins, and an iron-binding capacity in a specific member of the  $\beta$ -globulin family.

### SECTION OF PHYSIOLOGY AND BIOCHEMISTRY

Wednesday June 30

#### Recent Work on Proteins

The president of the Section, Professor A. C. Chibnall (Cambridge), opened a discussion on recent work on proteins and its medical applications. At the turn of the century, when the late Sir William Hardy started to develop the colloid chemistry of proteins, only a few workers were interested. In contrast, there were today amino acid analysts, physical chemists, x-ray

crystallographers, and workers in many fields of clinical medicine who were concerned with protein research. Interest was widespread, and the pace of research continued to quicken. Of the many topics which could be discussed that day he mentioned two. Side by side with the work on the differentiation and characterization of the individual proteins of tissues the chemist was gaining some insight into their chemical structure. The overall amino acid composition of many such proteins was now known and efforts were being made to determine the order in which the residues occurred in the peptide chains, the number of such chains in the molecule, and the means whereby the chains were held together. The molecule of insulin, for example, consisted of four chains held together by the S-S linkages of cystine, while the number of chains in the various haemoglobins showed species differences which were paralleled by their immunological specificities. The development of blood transfusion during the war gave a great impetus to work on the plasma proteins, especially in the laboratory of Cohn at Harvard. A new and elaborate scheme of fractionation had made available large amounts of serum albumin in concentrated solution for clinical use. Many fractions representing *inter alia* the blood grouping globulins, complement, gamma-globulins, enzymes, and hormones, were also available in bulk for more extensive study, and certain of these had already been shown to be of clinical value. The present need was for more fundamental research, which would undoubtedly lead to advances in medicine.

Dr J. A. V. Butler said that the great advances in the knowledge of proteins in the last decade were due to improved methods of both isolation and characterization. Now that the conditions of crystallization of proteins were better understood a large number had been obtained in the crystalline state, including enzymes, hormones, serum proteins, toxins, and antitoxins. In order to determine the purity of these products and to investigate their properties powerful physical instruments had been evolved, for example, the ultracentrifuge of Svedberg, the electrophoresis apparatus of Tiselius, and the improved diffusion apparatus of Svensson and Longsworth. These and other methods permitted a fairly full and accurate analysis of the protein constituent of a mixture and enabled the properties of the individual proteins such as molecular weight, size, shape, and charge, to be determined. He gave a brief review of these methods and the results achieved.

#### Plasma and Blood Derivatives in Treatment of Burns

Dr L. Colebrook and Mr P. Dallas Ross presented a paper on the value of serum or plasma transfusions in the treatment of severely burned patients. Dr Colebrook had observed more than 150 cases so treated, many of them children with 10% or more of the body surface burned, the rest adults with 15% or more. In general, the plan adopted had been to forestall haemoconcentration by setting up a drip transfusion as early as possible if the burns were extensive and by keeping it going for twenty to thirty hours. After that time the permeability of the capillaries was getting back to normal, and fluid was being reabsorbed from the tissues. The amount of serum or plasma required for each patient was a matter for careful judgment and constant clinical observation, supplemented by frequent determinations of the degree of haemoconcentration. Transfusion could easily be too timid, on the other hand, it was not difficult, especially with children, to overload the circulation. None of the formulae proposed for regulating the amount necessary should be relied upon. As much as 15 pints had sometimes been required for an adult with extensive burns.

The authors also described experiments bearing upon the value of fibrinogen and thrombin in securing the better adhesion of skin grafts. Grafts of about the size of a sixpence were fixed with dermatome glue on two wooden blocks, and the cut surfaces were then painted with solutions of thrombin and fibrinogen respectively. After opposing these two surfaces, and waiting a few minutes for the clot to join them, the breaking strain was determined with a simple torsion balance. With no glue between the grafts (or a drop of saline) the breaking strength was usually 20 to 30 g, with thrombin and fibrinogen it was usually between 80 and 200 g. One technical point was that a watery solution of thrombin tended to run off the recipient surface before the graft with its fibrinogen could be

placed in position on it. This could be overcome to some extent by using a more viscous solution of thrombin—e.g., in 5% casein. Grafts applied with a glue thus made had taken as well as ordinary grafts. Clinically there appeared to be a definite advantage in the use of a thrombin-fibrinogen glue.

### Protein Hormones

Professor E. C. Dodds gave a brief description of the properties of protein hormones, the first of which to be clearly recognized was insulin. Another important group of protein hormones consisted of those classified under the general term 'gonadotrophins,' obtained either from the pituitary and blood serum or from pregnancy urine. Others less clearly defined chemically were parathormones, the hormones of the parathyroid glands and the other pituitary hormones such as the adrenotropic, pancreatotropic, and so on. An entirely new aspect of biologically active proteins or their derivatives had been opened up by the work of Woolley on streptogenin. Professor Dodds discussed the production of a growth factor for bacteria and animals by the treatment of a protein hormone such as crystalline insulin with proteolytic enzymes.

Professor G. Pickering said it had been known for over a century that there was a close connexion between kidney disease and raised blood pressure. Fifty years ago a protein was discovered in the kidney which on injection into animals raised arterial pressure. This substance, renin, had been shown to be an enzyme (hypertensinogen) which split from a constituent of the plasma globulins a small molecule, hypertensin. Hypertensin was the effective pressor substance. When the renal artery was constricted in animals hypertension resulted, probably from the release of renin into the circulation. The hypothesis that some forms of human hypertension were due to a similar mechanism was attractive, but up to the present unsubstantiated. Renin probably played a part in the regulation of arterial pressure.

The final contribution to this discussion was by Professor N. F. MacLagen, who discussed diagnostic tests based on changes in serum proteins. An important type of change was an increase in gamma-globulin content with or without a fall in albumin. This formed the basis of the flocculation tests, such as the mercuric chloride reaction of Takata and Ara, formol gel, calcium chloride coagulation band (Wetmann), cephalin cholesterol, colloidal gold, thymol turbidity and flocculation, sharlach red, cadmium sulphate and zinc sulphate turbidity tests. He reviewed the physico-chemical background of these tests. From clinical reports the thymol, gold, and cephalin cholesterol tests appeared to be the best for providing easy and rapid methods of demonstrating the type of change mentioned, which was found principally in diseases of the liver and in certain acute and chronic infections. A desirable combination would be thymol plus one other test. A single accepted test for excess of gamma globulin would be the ideal. This work had many possible applications in protein chemistry and in immunology.

## SECTION OF PREVENTIVE MEDICINE

Wednesday, June 30

### Preventive Medicine under the National Health Service Act

With the president, Dr G. F. Buchan (London), in the chair, a symposium on preventive medicine under the National Health Service Act, 1946, was opened by Dr H. Joules (London), who spoke on the role of the hospital. He said that the district hospital must serve the local community and have the closest contact with local health authority services and with health centres. Preventive medicine was needed in midwifery, gynaecology, ear, nose and throat work, in geriatrics, and in tuberculosis work. There must be close liaison between all the groups working on the problems of child health—with the emphasis on health rather than disease. The present system of notifying diseases should be reviewed and notification should be followed by prompt action. The district hospital should be a common meeting-ground for all health workers in the area, with responsibility for the postgraduate instruction of the practitioners who would ultimately serve in the health centre practices.

Dr W. N. Pickles (Aysgarth) said that the public health service began with the general practitioner. A period in general practice should be recommended for all young doctors, especially those destined for this service. Health centres might help to form a bond between general practitioners and the public health service. Child-welfare centres should be there and in certain instances child-welfare and school children examinations could be conducted by general practitioners, and could also be a part of the training of a paediatrician. Antenatal examinations, wherever possible, should be undertaken by a practising obstetrician, whether a general practitioner or a trainee specialist. The Act correlated the work of the general practitioner, the health visitor, and the district nurse. Health talks should be given by general practitioners. The link between medical officers of health and general practitioners in epidemiology should be strengthened.

Dr E. D. Irvine (Dewsbury) said that under the Act the medical officer of health was administratively responsible for social medical work, including health education. General practitioners could be helped by health visitors and other social workers. It was important to realize the functions of health visitors such as health education, social amelioration, "intelligence." Information about sickness should be more freely transferable, and its collation in health departments was necessary. Social care and the after-care of sick persons, including the mentally ill, were important new duties for the medical officer. Health education was the key to the prevention of illness, and mass surveys and measures directed to the problems of ageing might be important.

Mr H. J. McCurrah (Hove) suggested that the casualty department of a teaching hospital provided the most important material for the instruction of undergraduates. It was as difficult to be really efficient in general practice as it was in any specialty. Suitable postgraduate courses were essential. The medical officer of health should be head of a special department of preventive medicine within the walls of the hospital, and should leave the sterilizing atmosphere of the town hall for the more stimulating society of his colleagues.

Dr F. Gray (London) said that the real aim of preventive medicine was to keep people well—not to prevent them from contracting one disease while leaving them to acquire another. General practitioners in the future would require a different education and there would have to be closer co-operation between all sections of the profession.

Prof R. H. Parry (Bristol) spoke of the value of the health centre as a common meeting-ground for all sections of the profession, including ancillary workers. Some overlapping of administration under the National Health Service Act was inevitable, and even desirable.

Dr Jean M. Mackintosh (Birmingham) thought the training of the consultant paediatrician in preventive medicine should take place at the same time as he was obtaining his hospital experience. Local authority medical officers should not merely be given the opportunity of attending hospitals, but should be given responsibility for patients.

Dr J. F. Warin (Leeds) referred to "social priority" in hospital admissions, and the importance of leaving final decisions to the medical officer of health, particularly in maternity cases and in cases of chronic illness and infectious disease.

## SECTION OF DERMATOLOGY

Wednesday, June 30

### Occupational Dermatoses

With the president, Dr C. H. Whittle, in the chair, Dr John T. Ingram (Leeds), opening the discussion, emphasized that the occupational dermatoses should be approached along general medical lines and not regarded as something outside the range of ordinary medical practice. The medico-legal complications which beset industrial affairs, the scientific aspect, and the statistical approach seemed to obscure the essentially human character of these diseases. The whole range of health and activities of the patient both in his home and in his leisure hours as well as at work must come under review. Occupational factors concerned the physical and chemical nature of the materials with which the worker came in contact, but regard



must be paid to prophylactic and cleansing procedures, to the atmospheric and other physical characters of the environment in which the man worked, and to the social, psychological, and economic aspects of his position. There were three groups of occupational dermatoses: first, peculiar affections related to particular trades or processes; secondly, traumatic dermatoses produced by gross irritants which would damage the skin of any normal subject exposed to them; a third group was essentially constitutional in character and related to the susceptibilities and fragilities of the individual who might break down under long-continued wear and tear of the skin or who might develop a peculiar personal sensitiveness, with resulting dermatitis. The importance of a patch test in contact dermatitis was stressed and attention drawn to the necessity for treatment of a simple, bland, and protective character. Consideration should always be given to the general health of the patient and to the circumstances relating to his breakdown. It was important that the patient should have the nature of his disease fully explained to him. Charts showing the incidence and age of onset and water colour illustrations of industrial dermatoses were shown.

Dr Sibyl Horner (London) said that she appreciated Dr Ingram's point of view on the essentially human character of the skin infections due to occupation. It was with this aspect in mind that she had concentrated first and foremost on the prevention of industrial dermatitis and, more recently on the reablement of those who were the unfortunate subjects of this condition. Of the broad divisions—selection, protection, inspection, and cleanliness—into which the preventive measures fell, the one most likely to be overlooked was inspection. This was really the key to the success of the other protective measures and made early treatment with all its advantages possible. More use might be made of the principle of minimal contact with skin irritants; this principle, coupled with graded exposure gradually increasing in amount, had also been applied with success in the war to weed out susceptibles on the manufacture and filling of explosives. Reablement of cases of industrial dermatoses was still in its infancy, but it was clear that only by careful attention to this aspect could the present distress and disappointment to the individual and the economic loss to the nation be avoided.

Dr John C Belisario (Sydney), mentioned a few of the less common conditions encountered in Australia. Solar keratoses and carcinomata were seen particularly in those engaged in outdoor occupations—policemen, seamen, farm workers—and were admitted by insurance companies as industrial hazards. Prophylactic measures related mostly to clothing, but protective agents such as quinine tannate were helpful if used regularly. Dermatitis from mites was seen in those handling figs, dates, cheese, coconuts, and copra. Scrub itch attacked the legs, and mites from grass and soil and from poultry and starlings also gave rise to urticarial rashes. A similar dermatitis from mites might result from the handling of grain, straw, mattresses, and hyacinth bulbs. Dr Belisario also referred to dermatitis from such different types of wool as glass wool, mineral wool, and rock wool.

Dr J Warnock (Leeds) stressed the importance of friction and mechanical injury in provoking dermatitis. He found that only 10% of claims were in fact serious cases of industrial dermatitis and in only 10% of cases was recurrence common. Many men continued at work sometimes for years, in spite of the presence of dermatitis. He regarded seborrhoeic dermatitis as industrial if the sites involved were sites of contact and injury. Many cases of pompholyx were industrial in origin. He did not find that those who recovered from dermatitis in one trade relapsed if they went into a different class of work.

Dr Geoffrey A Hodgson (Cardiff) speaking on adaptation and recovery in occupational dermatitis, said that complete mechanization to eliminate contact and efficient selection to exclude dermatitis prone persons were utopian ideals. The skin had to be exposed to irritants and to wear and tear. A rough assessment from a series of cases showed that 70% of cases of oil-dermatitis occurred after five years' contact, over 50% of miners' traumatic dermatitis of the legs occurred between 50 and 65 years of age, and housewives' dermatitis from soap and cleansers appeared most often between 41 and 50 years of age. The primary factor of resistance was an intact horny layer. A miner's skin broke down from mechanical injuries, and 15% of

oil-dermatitis cases were preceded by skin injuries. The balance between skin breakdown and epidermal re-formation might be upset by trauma, high concentration of irritants (age in miners) and the menopause (in housewives). There was a natural tendency to re-form the horny layer after dermatitis. In the later stages this was called "hardening," which might occur, according to Schwartz, in spite of men continuing at work. 14% of miners had recovered from previous attacks of dermatitis. After clinical cure, time was needed for full hardening. Bad adaptation and unemployment might cause recurrences from anxiety and habitual scratching, which interfered with the natural tendency to repair. As a corollary of full adaptation suitable work with freedom from unsettling economic hardship was necessary. Chronic incapacity was more likely to be produced by long unemployment than by returning to work too early. Hardening might occur in the face of greater external irritation than was at present thought possible. Medical officers in industry should investigate this point. Patients with dermatitis should be encouraged to return to work at the earliest possible moment to allow convalescence and hardening to occur at work; suitable employment must be provided. First-aid measures for dermatitis and for minor skin disorders should be taught in factories.

Dr W J O Donovan (London) said that he had read the first paper on exogenous dermatitis to be reported in the *British Medical Journal*. He wanted to stress, however, other factors demanding attention, and instanced discharge from the Services on psychiatric grounds and the repetition of fears in the patient's recital.

If a rash came and went while the patient was working, and if parts normally covered were affected, work was not likely to be the cause. Cupidity, revenge, and the desire for retribution might be important. Patients were apt to have fantastic ideas about skin sensitivity. Young girls with a dermatitis which persisted quite often had a pronounced mother fixation. Many an honest diagnosis needed retrospective correction. Factory work was habitually labelled dirty and held responsible for dermatitis in the male. The same conditions gave rise in the female to a skin disease termed eczema—an unjustifiable sex distinction. The "patch-test" was very open to influence by suggestion and he had produced positive reactions with human sweat and normal saline.

Dr A Thelwall Jones (Widnes) said that occupational dermatitis was the most important occupational disease. The normal routine clinical examination gave no indication of the workers likely to develop some skin disease. He classified cases of industrial dermatitis into two groups: (1) cases of abrupt onset caused by a known irritant; (2) cases of idiopathic character. Prevention was difficult because of lack of knowledge of the disease process. A clean industry and good environmental conditions were desirable. He put in a plea for more hospital beds for these cases to allow of adequate treatment in the early stages.

Dr R M B MacKenna (London) stressed the importance of rehabilitation. There were two classes of case: (1) early cases, which might affect either "green" or "salted" labour and in which it was desirable to keep the patient at work; (2) relapsing cases, in which fears about security played an important part. Where the affection appeared in "green" labour the opportunity of selection arose. In "salted" labour contact should be avoided and not resumed until the skin had hardened again. Desensitization by limited contact might be tried. In relapsing cases all the resources of rehabilitation therapy, physical and psychological, should be employed. Experience of rehabilitation in relation to dermatosis in the Army was encouraging.

Dr Robert Forbes spoke of the importance of respecting the confidential character of the relations between doctor and patient. He discussed the "medical witness of fact" and the expert witness and suggested the desirability of expert witnesses contributing to the solution of these problems by conference rather than in the Courts. Exaggeration and theorizing were to be avoided in giving evidence.

Others who contributed to the discussion were Drs S W Fisher (London), F F Heller (Leeds), F A E Silcock (Leicester), J E M Wigley (London), I M Scott (London), J B L Tomblinson (Bedford), and E C Dawson (Derby). In the afternoon a number of clinical cases were demonstrated and discussed.

## SECTION OF CHILD HEALTH

Thursday, July 1

## Neonatal Mortality and Neonatal Morbidity

The president, Sir Leonard Parsons (Birmingham), began by drawing attention to the new name of the section as reflecting the widening conception of paediatrics. Dr Agnes R. Macgregor (Edinburgh) then opened the discussion on neonatal mortality and morbidity. She said that the basic cause of neonatal death was related to the mother. Paediatric study of the subject was concerned with the effects on the child of maternal conditions and of the hazards of delivery. Reliable post-mortem examinations and close collaboration between pathologist and clinical worker were essential for successful study.

The majority of neonatal deaths fell into one of four categories—developmental defects, asphyxia, intracranial haemorrhage, and infection. More than one of these might occur in association, and it was sometimes difficult to decide the principal cause of death. Prematurity, when of extreme degree, could be the sole cause of death. On the other hand prematurity was overwhelmingly important as a predisposing factor in almost every other condition causing death in the newborn. Atelectasis was almost always due to asphyxia and was rarely itself the cause of death. Death in cases of asphyxia might follow depression of the respiratory centre, or haemorrhage. Inspiration of foreign material was a common contributory cause of asphyxia. The inhalation of vernix was of particular importance in this connexion.

Fatal haemorrhage might take place within the cranium, in the suprarenals in the lungs, or from the surface of the liver. Intracranial haemorrhage occurred in five forms. Direct trauma gave rise to subdural haemorrhage and extradural haemorrhage, which was rare. Intracerebral, subarachnoid, and intraventricular haemorrhage were usually due to asphyxia. Subarachnoid and subdural haemorrhage of moderate extent could be survived. It was difficult to estimate the severity of intracranial haemorrhage which was incompatible with life. Dr. Macgregor emphasized that haemorrhage was not always present when suspected on clinical grounds.

Most neonatal deaths of infants who survived the immediate risks of birth were due to infection. Premature infants predominated among those dying from infection, and of all deaths from infection 90% were accounted for by pneumonia, thrush, and other infections of the alimentary tract. Fundamental research was required to further the prevention of infections which persisted despite precautions.

Professor L. S. Penrose (London) referred to the emphasis given by statistics to hygienic measures as having had the greatest influence on infant mortality. This influence had been less evident in relation to neonatal mortality. Congenital abnormalities contributed considerably to neonatal mortality and were themselves subject to prenatal influences. Separation of these influences according to whether they were hereditary or environmental was difficult to justify. Factors of heredity and environment were not independent. Developmental events should be considered in relation to the time sequence of potential influences. Malformations might have as their source recessive genes of ancient origin, recent 'point' mutations of single genes, chromosomal disruption, adverse intrauterine environmental influences, or a combination of these factors. Usually it was not possible to determine the different causes from human data.

The problem was to foretell the likelihood of a malformed child being followed by children similarly deformed or malformed in some other way. Professor Penrose had found in an investigation into over 100 children born after the first case of malformation in the sibship that 5% had been similarly malformed and that 6-7% had other types of serious malformation. The pedigree only occasionally gave an important clue. A condition transmitted regularly from parent to child suggested a single dominant gene, and was usually slight in character. Rare recessive genes were sometimes detected as a result of parental consanguinity. A negative family history was not proof of the absence of a genetic factor. Foetal infection and antigenetic factors arising from rhesus incompatibility might prove to give rise to congenital malformation. Study of the subject was complicated by the effects of maternal age in relation

to foetal death. Foetal malformations were common at the extremes of maternal ages.

Dr Winifred Young (Epsom) said that the difficulties of the premature infant immediately after birth and the high mortality from asphyxia and cerebral haemorrhage were related to the immature function of the circulatory, respiratory, and nervous systems. The relationship between immature function and mortality from infection was less clear. Lack of immunity, a tendency to under-nutrition, alimentary intolerance, and low renal function were all of significance. The premature infant was able to digest a diet containing her full nutritional requirements. During the first 7-10 days protein intake should be not less than 4.0 grammes and the food should provide not less than 120 calories per day. Where intake was less than that in infants weighing less than 3½ lb, frank signs of under-nutrition might appear and might increase susceptibility to infection.

Professor N. B. Capon (Liverpool) said that physical and 'biochemical' trauma might follow the process of delivery. Physical trauma of apparently trivial degree called for accurate diagnosis and treatment. Concussion and compression should be considered where the intracranial contents had been subjected to stress. From the paediatric point of view especial importance attached to the times when the membranes ruptured. Obstetric practice was overcoming the risks associated with breech delivery and anaemia. Professor Capon mentioned placenta praevia and maternal analgesia as causes of biochemical trauma. Avoidance of prolonged labour and readier resort to caesarean section were reducing the paediatric risks attached to placenta praevia. The risks to the child did not justify discouragement of maternal anaesthesia except in special circumstances. The risks were small where care was exercised in the choice and administration of analgesics and anaesthetics.

Dr J. L. Henderson (Edinburgh) described infection as clinically the most important cause of death. Institutional care was associated with special risks. Premature infants were particularly exposed to risk on account of their long stay in hospital. Staphylococcal infection was virtually endemic in many hospitals and might assume a variety of clinical forms. Thrush was met with more commonly in hospital than domiciliary practice and could give rise to oesophagitis and fatal gastritis. The condition of the stools was of little help in the early diagnosis of gastro-enteritis. Listlessness and anorexia were early symptoms. Among urgent needs were improved socio-economic circumstances, extended mothercraft training, improved instruction of students, more prompt reporting of infections by nursery staffs, and the dispersal of mothers and babies in small units. The trend towards increased institutional midwifery was not in the interests of the infant.

Dr W. R. F. Collis (Dublin) agreed with Dr Macgregor on the need for pathological studies. At present our knowledge was ahead of our skill in practical management. Dr Beryl D. Corner (Bristol) said that the risk of intracranial injury in premature infants was lessened when episiotomy was employed at the time of delivery. Rapid aspiration of the mouth and pharynx immediately after delivery was of great importance. The procedure was facilitated by using a laryngoscope for suction under direct vision when the infant was premature. Dr W. N. Leak (Winsford) drew attention to the work of the late Prof. Barcroft. Cardiazol-ephedrine given subcutaneously was of value where neonatal asphyxia was present. In staphylococcal skin infections good results were obtained from a fine suspension of sulphathiazole.

## German Children a Nutritional Study

In the afternoon Dr E. M. Widdowson (Cambridge) and Dr Dean (Cambridge) gave a demonstration of the results of a nutritional study carried out over twelve months on children in a German orphanage. The children concerned had had the bread and cereals of their German rations replaced by bread supplied by the investigators in unlimited amounts and the flour of which had been reinforced with calcium and vitamins. The bread provided 75% of the calories given each child, the remaining 25% being mainly in the form of vegetables. Daily bread consumption by older children was in the neighbourhood of 800 g. The total weekly milk consumption of each child ranged from 250 to 500 ml (about 1½ to 1 pint). Children included in the examination were subjected to clinical examinations at intervals and to radiological and biochemical

examinations. There was altogether striking improvement in the general physical condition of the children fed on this diet. Height and weight increased coincidentally with great rapidity. Tissue tone, posture, physical activity all showed amazing betterment. There were no digestive upsets and no alterations in bowel habit. Children showing the results of the investigation were demonstrated.

Professor R. A. McCance (Cambridge) said that this study had demonstrated the possibility of securing excellent growth and health on very little milk and little animal protein.

## SECTION OF OCCUPATIONAL HEALTH

Thursday July 1

### Human Relations in Industry

With the president, Dr Donald Stewart (Birmingham), in the chair, Sir George Schuster (Chairman, Panel on Human Factors, Cabinet Committee on Industrial Productivity) said that there were two dangers, that human relations might be treated as a means to an end, and that the subject might be studied in isolation. The ends of industrial activity were to achieve excellence in production, to provide a satisfying activity as the foundation of a good life, and to fit into a satisfying pattern of human society. Good human relations could only be founded on the treatment of each human being as someone of value, whose welfare must be regarded as an end in itself. Workers must be able to find interest, self-satisfaction, and happiness and something more than a way of earning a living in their work, and this was an essential part of the manager's task in human relations. Efficiency in management, both technical and commercial, was an essential condition of good human relations.

The greatest need of modern industrial society was to make industrial employment something which was seen as an essential part of a satisfactory human life, this would not be obtained unless managements were singlehearted in their pursuit of it and efficient at their own production job. Industrial employment must fit in harmoniously with the worker's social state. There was no single solution, and one must beware of cut-and-dried schemes, for the problem needed fresh effort every day. Here there was a great opportunity for a valuable contribution by the works medical officer, whose aim must be the creation of positive health. A full-time medical officer should be employed wherever possible and he should be treated as a member of the management team, taking part in all management discussions, the medical view should be taken on every point in the total plan of plant, premises, and so on. The fact that a medical officer was a specialist should not exclude him from appointment to the highest administrative post if he desired it and had the necessary abilities and qualities, and he must have broad concepts of his own work. Would it be possible to form a group of industrial medical officers with whom his panel or he himself could personally discuss these problems?

### Human Relations and Occupational Health

Dr Elliot Jaques (London) discussed the reasons why preventive measures were not used effectively on the shop floor. Was it because people were irresponsible? Were they innately incapable of taking care of themselves? In the day-to-day practice of the industrial medical officer it often seemed that working people were not concerned about their own health. How could this phenomenon be explained? How could people be expected to behave responsibly? The medical officer was up against the general situation in industry, and had to accept the attitudes in that community. The attitude of the present time based on history and past experience, was suspicion and mistrust. The attitude to new methods for coping with disease would be determined very much by morale inside the works and would be judged by the way in which the medical officer went about introducing these methods. If any scheme was brought down to the shop floor as a *fait accompli* the medical officer was behaving within the accepted pattern of management and it would be resented. He would not be providing opportunity for the workers to participate in handling their own affairs, and certainly the workers' health was their own affair as well as the management's affair. Recent work in the social centres had implications for industrial medical practice

so far as general principles were concerned. Before a group would cope with a difficulty, the group had to feel the difficulty, it was not easy to introduce health measures into a firm unless the workers desired them. All a physician could hope to do was to help people to help themselves, to clarify the problems for them, and help them find therapeutic measures to improve themselves, and until a working group themselves felt a need for coping with its own health problems the medical officer might just have to sit around until the workers came to him for assistance. It was his responsibility to point out the dangers of, for example, lead poisoning and to make himself available to work with the people concerned to develop methods for overcoming these dangers. In other words it was working with people rather than doing things to them or for them which was crucial.

### Education in Human Relations

Dr R. F. Tredgold (Cambridge) said that to see a thing from the point of view of a speaker one depended on logic, to see it from the point of view of the listener one realized that a certain connexion or quality was required to create an emotional reaction in the mind of the listener. It was difficult to bridge that gap and see both aspects at the same time. The fact had to be accepted that logic was not the only factor, sometimes the acceptance of an idea depended much more on the emotional relationship between the speaker and the listener, whether or not the listener always trusted the speaker, and also in the way in which the idea took shape in the listener's mind. It was a question of perspective, one believed much more firmly in an idea and acted upon it if one was under the impression that it was one's own idea. For an idea to be successful the listener must add something to it on his own, and when trying to teach, the whole thing must not be put at once, the listener must arrive at part of the idea himself. Learning occurred as much as a result of the teacher's attitude and behaviour as of his words. The pattern of inter-personal relationships and inter-group relationships was not based on the religious and philosophical views of the past twenty-five centuries, but much more on the historical facts of the one century since the industrial revolution.

Mr Jerome F. Scott (Harvard, U.S.A.) gave details of a course set up at Harvard to study the way of looking at human situations and problems, and the way a leader should think about them. By cold statistical fact it had been proved that the most effective leader was the one who thought of his people as ends in themselves rather than means to his economic ends. This was not so simple as it might seem. There was the illustration of the incentive system working effectively in one firm and not in another. With the introduction of an incentive there was needed a change of a real sort in the human situation. If the working group did not trust their leader it would be ineffective. Individual behaviour sometimes had to be used as clues—a good example of that was absence from work. A worker when questioned would give the reason which he thought would satisfy his questioner. There might be a variety of reasons contributing to his absence. An important factor was how much he wanted to be at work. If there was a group which had more absences than another it could only be explained by looking at the total situation of the group—morale, working conditions, and medical factors. The absences were but an index of the total situation. If a supervisor could avoid emotional upsets on his own part and looked behind unpleasant words and behaviour with an inquiring mind it was much easier to get to the bottom of the situation. If feelings were straightened out facts would take care of themselves.

Dr W. E. Chiesman (London) stressed the necessity of converting the rank and file of the medical profession to interest themselves in the working environment of their patients and their fitness for it and the necessity of the education of youth for industry. Dr Brian Pringle (Dublin) said that with the suggested incorporation of the industrial medical officer into the management team there was a danger that clinical medicine might be neglected and it was essential that the medical officer should carry on a clinical practice in the factory.

Professor Ronald E. Lane said that the industrial medical officer must receive some special training for this work. Sir George Schuster had drawn attention to the large number of small units which would need medical advice if any national industrial medical service was introduced, and this problem would not be solved without the help of the general practitioner who

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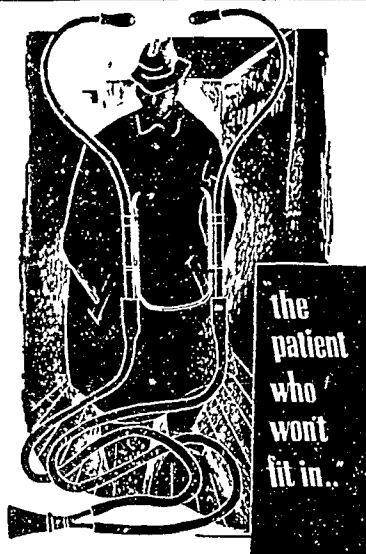
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would need reorientation to be able to do it effectively. It was the duty of the teaching centres to provide this. Mr V. Wilkison (Croydon) suggested that a medical officer could be employed by a group of factories in a similar trade or industry, when he would become conversant with processes, operations, job appraisal, and the fitting of men to the job. Dr J. A. L. Vaughan Jones (Leeds) said that until the management team had the confidence of the worker it would be difficult for the doctor to obtain his true place in industry. The idea of just sitting around was very good once the doctor had the people's confidence, but just sitting around would not gain their confidence.

Sir George Schuster, in reply, said that it was the medical officer's function to give general advice on the way in which industrial processes were carried out taking the medical point of view into account. He should be in close touch with the patients' panel doctor, but unless there was a good industrial atmosphere and complete confidence what he had suggested would break down. He had two major ideas in mind, that industry must be made more industrial-health conscious, and secondly that this industrial society had not evolved a satisfactory pattern of life. This would not come about until industrial leaders had a much greater consciousness of their social responsibilities, and amongst these he put responsibility for the positive health of their employees. The management team should not be regarded as completed unless it included a doctor who really understood the health side. What had been said showed that the conception of the functions of the industrial medical officer required further discussion and clarification. Not nearly enough thought had been given to it, and he hoped it would be possible to carry the discussion further.

## SECTION OF OPHTHALMOLOGY

Thursday, July 1

### Ophthalmic Complications in Obstetrics

With the president, Mr O. Gayer Morgan (London), in the chair, Mr F. A. Juler (London) opened a discussion on ophthalmic complications in obstetrics. He reviewed briefly Wernicke's encephalopathy, puerperal septic infections in the mother and orbital haematoma, facial paralysis and damage to the eyeball by instrumental delivery in the baby. He said that in contrast to these rare affections ecchymoses and retinal haemorrhage in the newborn were common. German measles during the early months of pregnancy was now established as a cause of congenital ocular malformation. In his experience retinal arterial obstruction which he thought might possibly be due to spasm occurred occasionally. In cases of hyperemesis gravidarum occurring in the first trimester Wernicke's encephalopathy with retinal haemorrhage might develop. The late toxæmias of pregnancy gave rise to toxæmic retinopathy, the most important ophthalmic complication of pregnancy.

In the classification of Prof. Browne and Miss Dodds there were four groups of toxæmias: (1) pre-eclamptic toxæmia and eclampsia, (2) hypertension in pregnancy, (3) chronic glomerular nephritis in pregnancy (nephritic toxæmia), (4) recurring toxæmia. In group (1) (Miss Dodds) there had been one instance of retinopathy in 46 cases of eclampsia and another single instance in 144 cases of pre-eclamptic toxæmia. In group (2) there had been 10 instances in 65 cases, and in group (3) 2 instances in 17 cases. In 30 cases of retinopathy he had observed personally, most had developed in the last trimester of pregnancy and 2 shortly after labour. Recently A. V. Hallum had claimed that ophthalmoscopically visible arteriolar spasm was present in all cases of pregnancy when the blood pressure had risen above 150/90. In 11 cases of late toxæmia the speaker had followed up after termination of pregnancy; he had found it difficult to detect spasm or to assess irregularities in the vessels. In the puerperium optic atrophy, from loss of blood and septic endophthalmitis were now rare.

In the newborn local penicillin therapy had proved specific for ophthalmia neonatorum. Its value as a prophylactic was less certain. Silver nitrate appeared to be harmless in the concentrations normally used. With adequate antenatal care and no prophylactic drops were needed. In case of doubt silver nitrate should still be used.

Mr Juler was followed by Mr A. B. Nutt (Sheffield). He defined menstrual headache as that type of headache which was usually migrainous in character (i.e., unilateral, preceded by teichopsia), frequently associated with nausea and vomiting and devoid of ocular cause. It often occurred just before the menstrual flow and tended to disappear during pregnancy and at the completion of the menopause. Swelling of the pituitary body had been regarded as the causal factor, but there was also evidence of a disturbance in the anterior-pituitary-ovarian relationship, as shown by disturbances in the gonadotrophin content of the urine before and during an attack. Retention of sodium chloride with consequent oedema of the tissues within the enclosed cranial cavity had been postulated. Recently Zondek and Bromberg had shown that some of these patients were hypersensitive to the steroid hormones. They had obtained good results by specific desensitization.

Extra-genital bleeding ("vicarious menstruation" of the classical writers) was generally met at the beginning or end of the reproductive period, and was more likely to affect women with unstable vascular or nervous systems. The most usual site was the nasal mucosa, but other mucous membranes, including the conjunctiva, might be involved, when "bloody tears" resulted. Oestrogen deficiency and oestrogen excess had both been blamed. Progesterone had been shown experimentally to produce increased permeability of the capillaries in extra-genital tissues, and the skin capillaries tended to become more spastic as menstruation approached, dilating rapidly soon after the onset of the flow. Disturbances in capillary resistance just before or during menstruation had also been observed. A patient with extra-genital bleeding would therefore seem to have vasospasm and increased permeability of the blood vessels.

In the subsequent discussion the significance of German measles as a cause of congenital ocular defects was discussed by Mr P. M. Moffatt (London), Dr G. G. L. Stening, of Melbourne, Mr J. H. Doggart (London), Mr R. F. Lowe (Melbourne), and Mr A. G. Cross (London). Aspects of hypertensive retinopathy in pregnancy were discussed by Dr Jamma V. Dhurandhar (Bombay), Mr A. N. Fergus (Hindhead), Mr J. Berkson (Liverpool), Dr E. G. Recordon (Cambridge), Mr T. Keith Lyle (London) and Mr I. Spiro (London). Dr J. W. E. Cory (Bury St Edmunds) and Mr A. B. Nutt discussed congenital lacrimal obstruction in the newborn.

### Contact Lenses

In the afternoon session with the president in the chair, Mr A. G. Cross (London) read a paper on "The Present-day Position of Contact Lenses". He said that a great advance had been made in 1933 when Josef Dallos published details of a method for taking moulds of the living eye. In spite of subsequent developments it was still impossible to order a contact lens for a patient and to promise that it could be worn with comfort throughout the day. The two causes of inability to wear lenses for long periods were discomfort, which was sometimes the result of a defective fit, and the development of oedema of the corneal epithelium (Sattler's veil). Of 1,850 patients, some of whom had had their contact lenses some years back, about one-third had ceased to wear them. Of those who continued to wear these lenses about 30% were using them for more than eight hours a day and 60% for four hours or more. Nearly 40% of patients with keratoconus and monocular aphakia wore lenses for more than eight hours a day, while only about 25% of myopes did so. Recent developments had aimed at lessening discomfort and eliminating the Sattler veil. It would appear that fitting by stages, introduced by Dallos, would help to overcome some of the difficulties. There was more promise in the elimination of a Sattler veil by using a perforation in the lumbal region, as described by Dallos, rather than by changes in the pH concentration of the fluid it produced in the contact lens. A fundamental problem which would have to be solved before contact lenses could be widely used, was to shorten the time needed for fitting. The plastic lenses advocated by Frederick Ridley would seem to enable the lens to be prescribed at one sitting for some 75% of cases. Feinbloom since 1945 had advocated a departure from the "glove fit" to conical fitting, so that the contact lens lay tangential to the sclera at a small area of contact. Prismatic and cylindrical corrections could now be introduced.



This paper was discussed by Dr Jamna V Dhurandhar (Bombay), Dr Margaret Dobson (London) Mr J G D Currie (Cheltenham) Mr Arthur Lister (London), and Mr A B Nutt (Sheffield)

In a paper on 'Optical Aids to the Other Man's Job' Mr J G D Currie (Cheltenham) discussed the optical principles underlying a series of optical appliances

Dr B P H Beattie (Norwich) gave a lucid account of Mendelian principles and their application to ophthalmology. He stressed in particular sex-linked inheritance, distinguishing between recessive sex-linkage dominant sex-linkage and partial sex-linkage. His paper was discussed by the president, Dr Jamna V Dhurandhar (Bombay), Mr Arthur Lister (London), and Dr Margaret Dobson (London)

The concluding paper was by Dr Hugh Ryn (London), who spoke on Nutritional Diseases of the Eye. He drew attention to the high metabolic rate and extensive capillary system of the retina. The suggestion made by Stannus that riboflavin deficiency caused disturbance of the capillary bed would therefore have special significance in relation to the retina. It appeared that some 5% of men in prison camps in the Far East suffered from nutritional eye troubles. The symptoms consisted in blurring of vision difficulty in reading, headache, aching eyes and photophobia. They appeared after 8 to 12 months of defective nutrition. In some patients fleeting scotomata and flickering of vision, or the appearance of haloes around lights and monocular diplopia were observed, they were usually worse in the morning. In some reports oedema of the face had been stressed. Objectively the presence of central or para-central scotomata was a constant feature. Under treatment Harold Ridley had observed the central scotomata breaking up to give para-central remnants, that probably accounted for the difference observed in individual cases. Fundus lesions were usually slight, but multiple haemorrhages and generalized retinal oedema had been recorded.

Thiamine and other preparations containing the vitamin-B complex were considered effective treatment by most observers, but the actual fraction of the vitamin-B complex responsible was not yet known. The results of treatment depended largely upon the stage at which it was instituted. Such little pathological material as was available suggested that the underlying lesion was a primary ganglionic degeneration of the retina with a secondary degeneration of the nerve fibres or alternatively a primary nerve-fibre degeneration with a simultaneous, or secondary degeneration of the ganglion cells. Those findings suggested retrobulbar neuritis, though clinically there were differences in the symptoms of retrobulbar neuritis as compared with the condition seen in camps. On the whole the clinical and pathological evidence would be more consistent with a malnutritional retinopathy than with retrobulbar neuritis. In this connexion the capillary system of the retina and choroid helped to explain the symptoms.

## SECTION OF NEUROLOGY AND PSYCHIATRY

*Friday July 2*

### Epilepsy of Late Onset

With the president Professor E D Adrian, O.M., in the chair Sir Charles Symonds (London) opened a discussion on "The Investigation and Treatment of Epilepsy of late Onset". He said that older writers concluded that in 10% of idiopathic epileptics the onset occurred over the age of 30. Recently the opinion had been expressed that in most cases of epilepsy beginning in adult life the cause was cerebral tumour. Of 400 consecutive cases referred for epilepsy and at that time presenting no clinical signs of a nervous lesion responsible for the fits the age of onset was over 30 in 130. In 74 of those, further investigation or observation provided an explanation: in 21 cases cerebral arteriosclerosis, in 13 cases previous migraine, in 11 cases cerebral tumour, and in 10 cases a positive family history were discovered. In 56 cases investigations yielded negative results. Of 13 cases with attacks of a focal nature 12 had been traced: 3 had died probably of cerebral tumour and another of unknown causes. Eight were known to be alive and well from two to fifteen years after the first fit, in two cases cerebral thrombophlebitis might have been responsible. Of 43 patients with generalized attacks three had so far proved to

have cerebral tumours. In 28 others no signs of cerebral disease had appeared, and ten years had elapsed since the first attack in 19 of these. In all cases of epilepsy beginning over the age of 30 for which no adequate explanation could be found an air encephalogram and an EEG should be included in the investigations. In patients with focal epilepsy the encephalogram, if negative, should be repeated at intervals if cases of tumour were to be recognized at an early stage.

Dr Denis Williams, considering late epilepsy in the light of knowledge derived from the EEG, traced the changes which occurred after injury to the brain up to the onset of epilepsy. After simple trauma, primary changes, which were confined to the site of the injury, showed immediately in the EEG. They were completely reversible and resolved. At a later date, usually more than two months, secondary changes appeared in the EEG. They sometimes began at the site of the injury; frequently they were bilateral, symmetrical, and perhaps generalized. They were not related to the initial injury in the same way as the primary changes, and in about 50% of cases they were associated with epileptic fits. It was not yet possible to say how many cases in which secondary changes occurred in the EEG later developed epilepsy. Changes of this nature offered some explanation of the failure of surgery to stop epilepsy when the causal lesion had been removed. The EEG also suggested that in some cases the cerebral scar should be extirpated before the secondary EEG changes had developed and the associated fits had begun. A study of those changes would do much to throw light on the processes which occurred in the brain before late epilepsy developed.

Dr D W C Northfield (London) said that, of a series of 139 patients in whom epilepsy developed after the age of 21 years, there were 99 cases of a space occupying lesion (glioma 53, meningioma 17), 21 of other forms of organic disease, and 19 of "idiopathic epilepsy". In the first group fits had occurred in some instances for very many years before other symptoms, while papilloedema was absent in no fewer than 41. A history of progressive deterioration of the various functions of the brain should arouse suspicion of a focal lesion. Where epilepsy was the only disturbance of function ancillary methods of diagnosis in addition to cerebrospinal fluid examination must be employed. Areas of calcification or abnormal vascular markings demonstrated by x-rays not uncommonly indicated the site and nature of a tumour. In the presence of raised intracranial pressure, ventriculography was preferable to encephalography, though the latter might reveal cortical atrophy. Cerebral arteriography was less dangerous than ventriculography and in some cases a local collection of abnormal vessels indicated not only the site but the nature of a tumour. At little risk reliable information could be obtained about innocence or malignancy. When the nature of a space occupying lesion was uncertain and exploratory craniotomy undesirable, aspiration of a small quantity of the tumour through a hollow needle introduced through a suitably placed burr hole yielded material for histological examination which might suggest appropriate treatment. Of 17 patients with meningioma, epilepsy had ceased entirely in 7, while in 53 patients with glioma it had been abolished in only 3.

With regard to radiological examination, Dr James Bull (London) said that in the majority of cases straight x-ray examination was of little value. Calcification of the pineal gland occurred in 50% of persons over 25, and displacement, if present, was of diagnostic value. The size, shape, and character of pathological intracranial calcification, when seen, would give a clue to the nature of the lesion. The bones of the vault should be studied for signs of meningioma or metastases, and, if no information was obtained from such an examination encephalography or angiography must be undertaken. Particular care must be taken to fill the temporal horns at encephalography; otherwise a tumour might be missed. By the percutaneous method angiography was a simple and reliable procedure. Even if all radiological examination were negative repetition might be desirable later. Dr Macdonald Critchley (London) drew attention to various clinical points in distinguishing idiopathic and symptomatic epilepsy. In the former, petit mal frequently alternated with grand mal and the epileptic personality was usually present. Symptomatic fits often resisted average doses of sedatives. The value of the water-pitressin test should not be forgotten. A personal history of migraine was not a



satisfactory explanation of epilepsy developing in later life. Epilepsy did not occur in healthy old age. Senile fits either had an arteriosclerotic basis or indicated senile dementia. Among symptomatic causes old infantile hemiplegia and the withdrawal of sedatives after prolonged sedation should not be forgotten.

Dr Ronald Jones (Ipswich) drew attention to epilepsy complicating cardiac disorders and mentioned two cases in which fits had followed coronary thrombosis. Dr S. Silverman (Birmingham) said that in a series of 26 cases of epilepsy beginning in the late twenties and onwards, 10 were associated with pregnancy and uterine disorders. Dr J. D. Spillane (Cardiff) stated that idiopathic epilepsy appearing for the first time in a person over the age of 40 was not very uncommon. The attack was frequently of an unusual type without convulsion.

### Senile Deterioration

In the afternoon Dr J. H. Sheldon (Wolverhampton) opened a discussion on 'The Early Recognition and Management of Senile Deterioration'. He surveyed the symptoms as distinct from signs and pathological changes preventing 477 elderly people in a Midland industrial town from living full lives. Prominent among these was limited power of locomotion with a maximum radius of half a mile. Such limitation might be occasioned by arthritis, pain in the feet or dyspnoea, and the incidence of these was constant for each age group over 65, or by vertigo, fear of traffic, lack of desire and general weakness, the incidence of which increased with advancing years. General weakness was the commonest single factor. It was usually first noted around the age of 70 and affected women more than men. Its aetiology was varied, but cardiac weakness played a large part in its production. Difficulty in locomotion in the dark, unexplained liability to falls, vertigo, and increasing deafness were symptoms frequently encountered over the age of 65.

Lack of interest, rambling speech, and suspicion were early signs of senescence, and their percentage incidence increased with age. The frequency of fear, depression and loneliness was constant in each age group. So far as treatment was concerned it was important to retain the old person's interest in life and to maintain as great activity as possible. Old people should be permitted to wear out and not rust out.

Dr Macdonald Critchley (London) said that gerontology was neglected in this country until a decade ago. Recent interest in the subject was due to appreciation of several facts. The percentage of elderly people in the population was increasing. The facilities for the care of the aged were appalling. Compulsory retirement at 65 was depriving the community of a national asset. Research might shed light upon the essential nature of ageing and so conceivably lead to extension of the span of healthy life. Moderate living diminished this risk of early ageing, but abuse of alcohol and tobacco and sustained heavy work after 45 decreased the expectation of life. Indeed the length of life was inversely proportional to the rate of living. Wisdom offset decreased agility, and the elderly should continue in employment for as long as possible.

Mrs A. V. Hill regarded senility as a very loose term embracing (1) Senile dementia. These patients could only be dealt with in a manner suitable to younger insane people. (2) The natural ageing of people of weak intellect. Such patients were usually quiet and inoffensive. (3) The ageing of those often gifted but somewhat unbalanced in their tempers who showed less tolerance and poise in old age. These were the cranks and they found community life difficult. (4) The simple senility of old age. These were ordinary people whose minds and bodies were wearing out unaccompanied by any specific disease. The early signs included forgetfulness, silence, repetition, irritability, and lack of control of bodily functions. Bowel consciousness was a common and unexplained characteristic. Living permanently in bed surrounded by people of similar mentality was always undesirable and in treatment the aim should be the maximum of freedom. The old person should do as much as possible for himself and he should take risks even to the extent of losing his wits.

Dr Trevor H. Howell (Purley) reviewed his findings in a series of healthy Chelsea Pensioners. The range of temperature was wider than in early life, ranging only 96° or 97° F. The pulse rate was variable, ranging between 50 and 100 per minute. Contraction of the pupils to light was present in 64%, and to

accommodation in 44%. Tendon reflexes became increasingly difficult to obtain with age and the ankle jerks were only elicited in 30%. Plantar responses were normal in 95%. Joint position sense was usually normal, but vibration sense showed several variations. Many, though they could behave rationally, had dulled perceptions and slow mental processes. Physical treatment of disabilities should precede other forms of therapy, and general rehabilitation should include remedial exercises, simple games and occupational therapy. Once an old person's self-respect had been restored much had been done to retard the process of mental and physical dissolution. Dr Felix Post (Edinburgh) thought that the early emotional reactions of aged people should be looked for and treated. It was desirable that senescence should be detected before the advent of definite changes and it was feasible to apply ordinary psychological tests even to patients with senile dementia. By placing the patient in a better position emotionally, senile deterioration could be delayed in its onset and mitigated in its manifestations. The aged should be encouraged to take an active part in national life.

Dr H. F. Maudsley (Melbourne, Australia) said that early diagnosis and treatment were rendered difficult by the inability of relatives to recognize early symptoms. Advice was only sought when the patient became difficult to manage at home. Mild injury commonly provoked senile changes, and injury into past history would frequently reveal some prior emotional or personality change. Dr A. Harris (London) stressed the desirability of providing a suitable environment for the elderly.

## SECTION OF NUTRITION

Friday, July 2

### Importance of Proteins in Nutrition

With the president Professor R. A. McCance, F.R.S. (Cambridge), in the chair, Dr D. P. Cuthbertson opened the discussion with a paper which included a review of the nutritional value of proteins, followed by an account of their special significance in convalescence. At present protein usually formed 11-12% of the diet for adults and 13-14% of that for children. American troops included these proportions in their diets when allowed free choice of food in widely different parts of the world. The old dictum still held "If you take care of the calories the protein will take care of itself." Antibody properties were concerned with specific modifications of the globulin molecule, although there was no clear connexion yet between the plane of nutrition and the antibody response. Protein loss occurred in most illnesses and resulted also from trauma and misuse. Adequate dietary protein was therefore most important during convalescence, while debilitated patients who were to undergo operation benefited by a preparatory period on a diet rich in protein.

Dr Harnette Chick (Cambridge) spoke on the supplementary actions between different proteins. In the past individual proteins had been assigned 'biological values' according to their ability to support growth or promote a positive nitrogen balance when given singly in experimental diets. In another system 'chemical scores' had been awarded, in relation to egg protein with a maximum score of 100, by deducting points according to the degree of deficiency of the particular amino-acid most lacking. Recent experience, however, had shown that when two or more proteins were consumed simultaneously the weaknesses of one might be made good by the others. The biological value of a mixture of proteins therefore might greatly exceed the values of any of the components. The time-honoured combination of beef-tea and white bread was found in experiments with rats to provide a good illustration of this phenomenon. Beef extract, although a good source of the amino-acid lysine, was deficient in tryptophane and tyrosine, and could not by itself support growth. Bread being deficient in lysine supported only slow growth. On a combination of bread with beef extract or an equivalent amount of lysine in the form of gelatin, rapid growth was secured. Other examples of supplementary action were found between the proteins of the juice and the solid fraction of potatoes, and between those of cereals and soya-bean meal.

Dr T. Gillman (South Africa) commented that the two preceding communications had emphasized how difficult it was to

predict the effect of various possible supplements intended to improve the nutrition of malnourished native populations. He considered that nutritional diseases might be due largely to peculiarities in metabolism imposed upon the organism by the content of the diet rather than to simple deficiencies. The fact that diseases might be cured by some nutrient could not be taken as proof, therefore, that the disease was originally caused by deficiency of that nutrient. Good growth, moreover, could not always be accepted as an index of good nutrition, since adequate growth seemed to be a prerequisite for the manifestation of many deficiency diseases.

Miss E. M. Widdowson (Cambridge) described investigations on wheat flour of various extractions as a source of protein for growing children. In a German orphanage 150 children aged 5 to 14 years who were much below average weight on account of undernutrition, were kept for a year on diets in which 75% of the calories were supplied as bread. Some children received bread made from whole-wheat flour, for others flour of 85% or 70% extraction was used, while other groups were given bread made from the white 70% flour reinforced with B vitamins to represent 85% or 100% flour. In all groups adequate amounts of calcium and of vitamins A, D, and C were given. The remainder of the diet consisted mainly of vegetables and some jam, but small allowances of milk, meat, fish, and cheese provided a total intake of animal protein of not more than 7-8 g daily. All the children grew rapidly and improved greatly in their general health. Miss Widdowson supported her statements by exhibiting five girls of different ages who had been subsisting on different diets. Although under the particular conditions of this experiment the degree of extraction or reinforcement of the flour had no effect on growth or health it was emphasized that this finding might not necessarily apply under other circumstances. Since the children received only small amounts of sugar and hardly any fat they were able to eat very large amounts of bread, averaging 800 g daily, which corresponded to 65 g of protein.

#### Protein Deficiency and Liver Disease

Dr L. E. Glynn (Taplow) discussed the influence of protein deficiency on liver disease. In experimental animals deficiency of protein had been found to increase the susceptibility to many poisons, including arsenic and carbon tetrachloride. Conversely, resistance to poisoning was increased by raising the protein allowance. The protection afforded by protein supplements appeared to be due to the cystine and methionine which they contained. The fatty infiltration and massive hepatic necrosis that might occur as a result of dietary protein deficiency, even in the absence of exogenous toxins, were also attributable largely to deficiency of the same two amino acids, which were both valuable as sources of labile methyl groups.

#### Agenized Flour

Sir Edward Mellanby, F.R.S., showed his interesting film on canine hysteria produced by flour treated with nitrogen trichloride. He explained that the disease was developed as an unwanted complication in his experimental dogs. Early symptoms were nervousness and difficulty in co-ordination. Later, in typical attacks, the animals rushed round with constant barking, and afterwards developed epileptiform fits and exhaustion. He had traced the cause of the disease to the inclusion in the diet of flour which had been improved by the "agene" process. When the flour was "agenized" to the extent customary in milling flour for human consumption in this country or in the U.S.A. the dogs had hysteria within a few weeks but with very heavily agenized flour the symptoms could be made to appear after only four hours. The toxic agent had been shown to be a component of the protein fraction. No structural abnormalities had been detected in the central nervous systems of the dogs but lesions were commonly present in the intestinal tract.

Dr T. Moran (London) pointed out that in Mellanby's experiments the flour had contributed some 80% of the total calories in the diet. Experiments in America, however, had shown that when dogs were given agenized flour as 30% of their calories, which was about the level of intake in human dietaries, no abnormal symptoms were observed even after six to seven months.

#### Afternoon Programme

During the afternoon the chair was taken by Dr F. Prescott (London). A film on lambing in relation to the feeding of the pregnant ewe was shown by the staff of the Rowett Institute (Aberdeen). Dr Amaro Barreiros E. Santos (Portugal) followed with an occasional paper on "Neuro-endocrine Disturbances and Disorders of Metabolic Balance after Psychic Trauma in the War".

The following demonstrations were given: R. A. McCance and E. M. Widdowson, exhibition of German children; S. R. Sengupta (Aberdeen), resistance of mice on different diets to tuberculosis; E. Lester Smith, K. H. Fantes and L. F. J. Parker, purification of anti-pernicious anaemia factor; C. C. Ungly (Newcastle upon Tyne), clinical trials with anti-pernicious anaemia factor; F. Blakemore and T. Moore (Cambridge), blindness in cattle resulting from vitamin A deficiency; T. Moore, combined deficiency of vitamin E and protein in rats; E. Kodicek (Cambridge) and P. D. F. Murray, the effect of partial vitamin C deficiency on muscles and joints in guinea pigs; K. M. Henry, S. K. Kon (Reading), C. H. Lea (Cambridge) and J. C. D. White (Ayr), lysine in the deterioration of the proteins of dried skim milk on storage; K. M. Henry and S. K. Kon, cystine and methionine as limiting amino-acids in milk; K. M. Henry and S. K. Kon, supplementary relationships between dairy products and other foodstuffs.

The proceedings were concluded by a visit to the Dunn Nutritional Laboratory (Director, Dr L. J. Harris) where methods for the estimation of vitamins were demonstrated.

### MEDICAL PRACTICES COMMITTEE

#### England and Wales

The Minister of Health has appointed the following to be members of the Medical Practices Committee for England and Wales. Their offices will be at Devonshire House, Mayfair Place, Piccadilly, London, W.1. The seven medical men are all general practitioners.

Chairman: Dr W. E. Dornan (Sheffield). Members: Dr J. A. Pridham (Weymouth), Dr Annis C. Gillie (London), Dr J. F. Murphy (London), Dr D. T. MacDonald (Belford, Northumberland), Dr D. B. Evans (Wrexham), Dr P. V. Anderson (Shildon, Co. Durham), Mr H. Lesser (Chairman of London Executive Council), Mr R. Wilberforce (Barrister-at-Law, London).

#### Scotland

The Secretary of State for Scotland has appointed the Scottish Medical Practices Committee under the National Health Service (Scotland) Act, 1947. The Committee's offices are at 12 Carlton Terrace, Edinburgh 7.

The Chairman of the Committee is Dr A. F. Wilkie Millar, of Edinburgh, who is a former chairman of the Scottish Committee of the B.M.A. The members are: Dr I. D. Grant (Glasgow), Dr W. Jope (High Blantyre, Lanarkshire), Dr J. R. Anderson (Fortrose), Sir William Marshall (Chairman, Lanarkshire Executive Council), Mr H. A. Shewan (Advocate, Edinburgh).

Each Medical Practices Committee will consider applications by doctors to undertake general practice under the National Health Service in an Executive Council area. It will also, on request by a medical practitioner, advise whether a proposed transaction concerning a medical practice involves consideration for goodwill.

Problems of the war-handicapped child will be studied by educators and psychologists from nine countries at a conference sponsored by Unesco to be held at Trogen, Switzerland, on July 5-11. Some 24 delegates, including directors of children's villages, will attend the meetings and will exchange views and experiences on the best methods of fitting war-handicapped children for normal life. Each delegate will present a report of his experiences and the combined reports will form the basis of a study of war-handicapped children to be prepared by Unesco. Representative will be present from Belgium, Denmark, France, Greece, Hungary, Italy, the Netherlands, Poland, and the United Kingdom. This will be the first Unesco sponsored conference to which a German expert observer is invited.

## Correspondence

### Cervical Sympathetic Paralysis

SIR—In their interesting historical account of cervical sympathetic paralysis Dr J Donaldson Craig and Mr R C Fuller do not refer to the observations of Jonathan Hutchinson, who in 1875 (*Illustrations of Clinical Surgery* Plate XXXIV p 203, London) noted that the small pupil associated with what was then called vasomotor paralysis was not in a state of spasmodic contraction but unable to dilate when shaded. The upper figure of the plate shows the eyes in full light, the lower one when as much shaded as possible consistently with the artist's convenience. In the former the two pupils are of equal size, in the latter the right pupil is twice the size of the other. The patient had a left cervical sympathetic paralysis together with a flaccid paralysis of the whole upper limb on that side, following a fall on head and shoulder—evidence, as Hutchinson remarks, that in these cases "the nerves give way at their roots and not in any part of their trunks." This paper which contains many interesting observations, deserves mention in any account of the subject—I am, etc

London W 1

C P SYMONDS

SIR—In their article on this subject (June 19, p 1182), Dr J D Craig and Mr R C Fuller describe the details of Horner's syndrome with meticulous care. On two minor points I should like to join issue with them. They state that what might be described as the reverse of a Horner's syndrome—viz, the stage of stimulation of one side of the cervical sympathetic system as described by Nicati—is "rarely," if ever, seen in present clinical practice, but should be borne in mind as a possible source of confusion in diagnosis. In an investigation which I reported in *Brain* (1945, 68 98), I did not find that this condition was the rarity they claim. Indeed I could not collect 50 normal controls to compare with a series of pupillary inequalities investigated without discovering three who had on close inspection slight inequality of the pupils. Some of these inequalities were due to transient causes, and it was impossible to say with confidence that they were not from stimulation of one side of the sympathetic system rather than transient block of the other side. They were not due to any abnormality of the parasympathetic system nor to permanent sympathetic paralysis for the pupils dilated equally well with cocaine and adrenaline drops. At least one case was demonstrably due to sympathetic stimulation, as the side which was affected was known.

Secondly although the authors describe the vascular changes in Horner's syndrome as variable, because "with the passage of time compensatory mechanisms are brought into play," they describe the pupillary changes as constant. This is not the case, unless the term "constant" is taken in a comparative sense. In one of the cases illustrated by photographs in the same paper in *Brain* it is shown that in the pupils too, compensatory mechanisms may develop. This has been recognized before and has been attributed by Magitot and others to an increased sensitivity of the pupil to circulating adrenaline. The affected pupil, however does not enlarge when cocaine and adrenaline drops are applied, and it seems more likely that the mechanism is one of central inhibition of the parasympathetic centre. The true nature of the condition is then shown only by testing with eye drops.

These small points, like the details in the authors' article, are of importance only in so far as they reflect our understanding of the mechanisms involved in pupillary inequality. With the increasing interest in surgery of the sympathetic system and in particular in the phenomenon of recurrence of Raynaud's disease after sympathectomy, it may be that such details are of more than academic importance.

In few sites can the balance of the two opposing forces of the autonomic nervous system be as clearly observed as in the pupils and nature has for good measure, thrown open the curtain of the iris to the winds of man made collyria. Sympathetomists might well turn to the pupil to see demonstrated in two dimensions the problems they are trying to solve—I am, etc

ROBERT L. LACK

ERIC A. TURNER.

### Lower-segment Caesarean Section

SIR—I agree with Mr Bryan C Murless (June 26, p 1234) in his condemnation of Willett's forceps for extracting the foetal head in lower-segment caesarean section. I have known a nasty scalp wound to be caused by this barbarous instrument which subsequently became septic and seriously endangered the infant's life, though thanks to penicillin it recovered. Neither is extraction by the operator's hand or by the single forceps blade satisfactory, especially if the head is deep in the pelvis. Wrigley's forceps are too short and have in my opinion the great disadvantage that they have no screw which can be tightened to keep the blade applied to the head, so that it is liable to slip when traction is made.

Since first performing this operation in 1929 I have used the same method of extraction and found it invariably satisfactory. I use a Haig Ferguson forceps (though I doubt not any other forceps possessing a screw would do equally well). The right blade is applied first on the left side of the mother's pelvis, and with the concavity downwards. The left one is then applied on the other side, the blade locked and the screw adjusted and tightened. All this is done without any hurry, and the head is slowly delivered. Of course, if the head is in the transverse diameter of the pelvis it should be rotated so that it lies antero-posteriorly with either occiput or face presenting in the wound. The blades are then applied, as they always should be, over the ears. The essential point in this procedure is the tightening of the screw before attempting traction. The head is always easily extracted even though it lies deep in the pelvis—I am, etc,

London W 1

F J BROWNE

### Prevention of Tuberculosis

SIR—In the leading article (June 19, p 1189) on the Prophit Survey carried out by the Royal College of Physicians you underline a plea made by the President that further efforts should be made to prevent those suffering from pulmonary tuberculosis from transferring their bacilli to other members of the community. According to your leader writer this problem is an epidemiological and social one and might well form the main future task of medical officers of health who should concentrate their attention on the prevention of this disease. Surely this advice is misdirected and misleading. Medical officers of health have for long been fully aware of this problem and have made continuous efforts to cope with it. Many medical officers of health charged in 1930 with the provision of residential treatment also, were increasing their knowledge of the whole problem in an integrated fashion. Now there is a splitting of responsibility again and it becomes the duty of Regional Hospital Boards to make arrangements for the necessary institutional treatment of tuberculosis.

Before the 1939 war London had approximately four beds for every three deaths annually from tuberculosis (about 4 000 staffed beds in sanatoria and hospitals throughout the country for approximately 3,000 deaths). During the war the available beds declined because of bombing and shortage of staff. Pre-war the accommodation was barely sufficient, but it did enable that bugbear of tuberculosis schemes—the waiting-list—to be virtually abolished. Now the waiting-list is much swollen, and with the probable further loss of beds through those beyond the Home Counties being taken into use locally, and with the merging of the always worse waiting-lists of the counties adjacent to the capital with the London list, the control of tuberculosis in the Metropolis may become more difficult than ever. In these circumstances it seems useless to urge the medical officer of health to do more to prevent the spread of the disease. How is he to proceed in the crowded home when a positive-sputum member of the household waits for months for a vacancy in a sanatorium, and when in another family, or even in the same sufferer with advanced disease cannot be offered segregation in hospital? Surely the main burden of preventing the spread of infection resides primarily with the hospital authority whose duty it is to provide sufficient institutional accommodation.

Regional Hospital Boards are facing one of their gravest problems here, particularly in view of the special difficulties of staffing tuberculosis sanatoria. It is not easy to see where

additional nursing staff is coming from. The best use must be made of our limited resources. Much can be achieved by the efficient organization of tuberculosis arrangements at both regional and hospital level. And it would help immediately and enormously if every large general hospital, both teaching and non-teaching could be induced to open a male and a female tuberculosis ward. No big hospital can avoid having odd cases of phthisis passing through its wards. Better by far to nurse these in wards properly organized for the purpose and thus reduce the chances of infection of staff and possibly other patients. The training of nurses and of medical students would benefit and the great increase in the total number of beds available for the disease would go far towards solving this grave problem—I am, etc.,

London NW 11

F J BENTLEY

### B C G Vaccination

SIR—In their communications (June 12 pp 1126 and 1129) in support of B C G vaccination both Prof Arvid Wallgren and Dr H Malmros quote the investigation by Hyge of an outbreak of tuberculosis in a girls' school, the former citing it as the investigation which perhaps best corresponds to an animal experiment and the latter claiming it as that which would seem to furnish the best evidence hitherto advanced for the efficacy of B C G vaccination.

In 1942, within a month or two of the time that Hyge was vaccinating his school children with B C G, my colleague, Dr J S Paterson, and myself were vaccinating a number of heifers with the vole bacillus and placing them together with unvaccinated controls in a dairy herd which had a bad record under the Tuberculosis Order. From time to time animals were returned to the laboratory in pairs including one from each category, and the last four animals were not slaughtered for examination until the end of 1947 by which time Hyge had concluded and published his observations. For the first two or three years the advantage lay very markedly with the vaccinated animals. No control was free from infection after eighteen months while two of the vaccinated animals were still completely resistant after three and a quarter and three and a half years in the herd. Over the series only 5 out of 11 vaccinated animals were infected, as contrasted with 10 out of 12 controls, but of the 5 infected vaccinated animals 4 were severely affected and in 2 of these the lesions were even more severe than the lesions found in any of the controls.

Our results bore some resemblance to those which Watson reported to the Twelfth International Veterinary Congress in 1934. Vaccinating calves with B C G against the risk of natural infection, he found that when his animals reached maturity the lesions in infected animals were even more severe than in the vaccinated animals than in the unvaccinated animals.

The end results of vaccination are still far from being established. The mortality rate might be reduced in one age group only to be raised again later in life, possibly after an interval of many years. In the meanwhile the morbidity rate based on clinical observations might be deceptive for the fully virulent tubercle bacillus might have gained access to the tissues and be lying in a state of latency. This possibility is no flight of fancy for I have recovered the bovine bacillus from a vaccinated animal in which there was no trace of any visible lesion two years after it had been infected with a massive test dose of bovine bacilli administered by mouth. Perhaps Hyge has arranged to follow the after-history of all his school-children for the next twenty years. If he has not I feel that he should try to do so for the final observations in such an investigation would carry weight—I am, etc.,

Cambridge

JAMES A YOUNG

SIR—B C G vaccination by Wallgren's intracutaneous method, especially when left to nurses produces local results which are quite strong deterrents when observed by a community still not fully converted to the advantages of the vaccination. The ulceration or "pock," although in cases I have observed not larger than those to be met with in calf-lymph vaccination remains open much longer. The average period for the "pock" to remain moist is 6-8 weeks, with some, not secondarily infected, going on as far as 4 or 5 months. Where a pock was open for less than 3 weeks the vaccination was

likely to prove unsuccessful. (These figures are derived from about 2,000 vaccinations carried out by the Danish Red Cross on D P's in Schleswig Holstein in 1947.) Further, there are 4 cases out of the 2,000 where subcutaneous inoculation has resulted in a sinus persistent after 11 months.

Under these circumstances I would like to ask whether Parish's multiple pressure<sup>1</sup> method of vaccination has been tried with B C G. It avoids the objection to Birkaug's apparatus in that sterilization is very simple it is very much safer in the hands of nurses, and I think it likely that the public resistance to it would be much less than to the intracutaneous method—I am, etc.,

H B M MURPHY  
Regional Medical Officer  
International Refugee Organization

Ariel Germany

### REFERENCES

- <sup>1</sup> Parish H J *British Medical Journal* 1944 2 781
- <sup>2</sup> Mole R H *Lancet* 1947 1 597

SIR—The articles on B C G vaccination (June 12, pp 1126 and 1129) by Prof Arvid Wallgren and Dr H Malmros were most stimulating and encouraging. It seems to be conclusively proved that B C G vaccination is not harmful and that it may be of great benefit in anti tuberculosis work. There are many ways in which it could be used in this country, and one of the most obvious is that of protecting contacts in those homes where, because of shortage of beds, sputum-positive cases have to be nursed for long periods. B C G vaccine should now be available for use in this country—I am, etc.,

Stanstead Abbots Herts

B COURTS

SIR—I congratulate you on continuing to publish articles on the use of B C G vaccine. I think we all agree that it has now been thoroughly tried out in the Scandinavian countries, that it is harmless if used correctly, probably cuts down the incidence of pulmonary tuberculosis, and is especially useful for contacts and young nurses.

In view of the shortage of sanatoria staff and lack of facilities to take infectious cases of pulmonary tuberculosis away from uninfected contacts it is doubly important to use this method in England if there is the slightest hope that good may be done. Our tuberculosis officers in Bedfordshire, who are keen and competent young men, are anxious and willing to use the vaccine in the county. The only stumbling block is the Ministry of Health, who presumably acting on Prof Wilson's advice, will not supply the material and it cannot be obtained through our commercial houses—I am, etc.

Luton Beds

R G AYTHORPE

\*.\* This matter is now under consideration by the Ministry of Health—Ed, B M J

### Chances of Survival in Pulmonary Tuberculosis

SIR—In your annotation on the above subject (June 12, p 1143) you finish by stating that the figures for Aberdeen would have been of more value if the number of persons who were lost sight of during the period of observation had been stated. You may therefore be interested to learn that of the 1257 patients, 26, or 2.1% of the total, were lost sight of. Details are shown in the table below.

12 were lost sight of during the 1st year of observation				
5	"	"	2nd "	"
2	"	"	3rd "	"
1 was	"	"	4th "	"
4 were	"	"	5th "	"
1 was	"	"	6th "	"
1	"	"	7th "	"

One of those in the fourth year died of bowel obstruction unassociated with his tuberculosis, and the one in the sixth year was killed by enemy action. Of the 26 cases, 16 had been classified as Stages 1 and 2 and of these 9 were lost sight of during the first year.

The article from which the figures were taken was, of course, a report on a paper delivered to the Tuberculosis Society of Scotland, and the number of patients lost sight of was regarded as being so small as not materially influencing the figures—I am, etc.,

Aberdeen

ROBERT FRASER

### General Use of Tuberculin Test

SIR,—We are all in debt to the organizers and to the Prophit scholars for their skilled attack from an epidemiological angle on the disease which alone causes approximately 40% of deaths occurring in the age group 15-24. It is however, in reference to the policy suggested in your leading article (June 19, p. 1189) a policy which might be adopted by those responsible for health supervision in young adults that I should like to discuss certain points. How far is it practical even with an aim so important as the early diagnosis of tuberculosis to keep all young adults under general medical surveillance, to carry out graded tuberculin testing, and when necessary x-ray them? Among contacts, medical students, or nurses, where a special risk of exposure is recognized it may be reasonable and in any case likely to be demanded because of their special knowledge of such matters. Among healthy young adults, whether in industry, the armed Forces, at the university, or elsewhere, the problem is different. In proportion to their intelligence they require an explanation of the reasons for carrying out the Mantoux test, and this entails giving information from which the seeds of anxiety might grow.

If 60-85% of these young adults are Mantoux positive there are few health services equipped to carry out full-size chest x-ray examinations on so large a proportion. If the proportion of Mantoux negatives were more than a small one, follow-up testing of Mantoux negatives at four-monthly intervals would not be feasible with present facilities and if the interval is longer the procedure loses value. Before advising the general introduction of Mantoux testing for all young adults, would it not be wiser to restrict its use to annual surveys until such time as the position in this country approaches if it ever does the present situation among university students in the U.S.A. where at some universities only 10-15% are positive reactors? Because this proportion is manageable, the general policy in the U.S.A. is to prefer the Mantoux test to x-ray examination as the routine, but these circumstances do not apply in this country. Here it would as yet be premature in my opinion to attempt to apply the Mantoux test to the general population for the purpose of controlling tuberculosis as opposed to that of carrying out a survey. There is an additional advantage in waiting. More information may become available concerning the value of the test when high dilutions are used. If the proportion of positives should remain high in this country the best use of the test might well be as a test of sensitivity in contrast to its current use to determine the presence or absence of living tubercle bacilli in the body.

At the present time we stand in particular need of published information concerning the proportion of Mantoux-positive young adults among groups of the population who are not exposed to special risk of infection. During a recent pilot investigation here on 41 undergraduates of average age 22.5 years 35 showed a positive reaction (consisting of oedema up to 5 mm diameter with surrounding erythema) to 0.1 ml of 1:10,000 dilution of old tuberculin—I am, etc

Oxford

R. W. PARNELL

### Xanthelasma Palpebrarum, Gallstones, and Atheroma

SIR—Xanthelasma palpebrarum probably a manifestation of a regional disorder of cellular lipid (cholesterol) metabolism, is I think the commonest external cholesterol lesion met with and is on the whole more frequent in females and in certain families, less frequent in those of purely British ancestry than in those of foreign or partly foreign ancestry. Its connexion with other types of xanthomatosis is of course well known, and I think that there is often noteworthy frequency of arterial atheroma and gallstones in the same families—probably indicating the presence of other associated (local and systemic) errors of cholesterol metabolism.

I knew three brothers big men fond of open-air exercise especially shooting. The eldest of the three, a merchant, lived in a healthful way largely in the country and died at 72. Towards the end of his life there were aortic and mitral murmurs probably atheromatous and then suddenly he developed enormous cardiac dilatation. His younger brother in early middle age had a severe cardiac attack when playing

cricket and then was found to have aortic regurgitation possibly due to rupture of an atheromatous valve. He died relatively early. The youngest of the three brothers, an architect, died at 70 or 71, apparently of coronary thrombosis. He had rather striking xanthelasma palpebrarum and one of his daughters was operated for gallstone. A niece (sister's daughter) of these three brothers had slight xanthelasma palpebrarum at about the age of 20 but it had disappeared by 55 and she is now in excellent health at 79. The father of the three brothers died (pneumonia) at 78, and the mother lived to 94. Incidentally this history shows that a family tendency to xanthoma and atheroma does not necessitate early death. It illustrates points to which I wish to draw attention but is by no means an extreme example. There must be hundreds quite as striking or more so—I am, etc.

London W. 1

F. PARKES WEBBER

### Golden Jubilee of the R.A.M.C.

SIR—I have just read your leading article in the *B.M.J.* of June 26 (p. 1242) and your note on p. 1267 on the *Scrapbook* which I had already read. We in Aberdeen are justly proud of the generous references in these places to Sir James McGrigor, and to Sir James Cantlie and his distinguished son, now our Director-General, commemorated in various ways and places—e.g., the McGrigor Mess at the Cambridge and the Cantlie Club—but I cannot help thinking that it is a serious omission to have left out all reference to our Professor Sir Alexander Ogston whose contribution to the initiation and inauguration of the R.A.M.C. is well epitomized by one of the contributors to a privately printed book on Sir Alexander Ogston when he says 'Another of his contributions that seems to be forgotten is his "bombshell" Address in Surgery at the Portsmouth Annual Meeting in 1899 of the British Medical Association, when he arraigned and impeached the Army Medical Department, an address which led undoubtedly to the high position taken by the R.A.M.C. in the Great War. Full credit does not appear to have been awarded to Ogston for this bold frontal attack, carried out in true Ogstonian fashion, but *Si monumentum requiris circumspice*. Perhaps the B.M.A.'s recent repeated chastenings have produced a sort of inferiority complex, but it is to the credit of the B.M.A. that it was at one of its Annual Meetings that this address in surgery was delivered by Prof. Alex. Ogston of Aberdeen in an address that was destined to have such far-reaching effects producing R.A.M.C. results in the two great wars second to none—I am, etc.

Aberdeen

W. C. SOUTER

### Foetal Infection in Prolonged Labour

SIR—I was greatly interested in the case of neonatal *B. coli* meningitis reported in the *Journal* (June 19, p. 1180) by Drs. H. R. Duval and J. T. Burrowes since it draws attention to the foetal dangers of prolonged labour. However I was surprised to find no reference to the work of Douglas and Stander (1943) who studied intra-partum infection of the foetus as a cause of stillbirth. By means of blood culture from the foetal heart they discovered 83 cases of bacteraemia in foetuses stillborn after prolonged labour, and in over 50% of these cases there was histological evidence of infection spreading into the placenta from the foetal surface. The most usual infecting organism was the anaerobic streptococcus. They concluded that the commonest portal of infection into the foetus was directly through the placenta while inspiration of infected liquor into the air passages and infection through the maternal blood stream were less frequent causes. They also considered that apparently intact membranes do not constitute an impassable barrier to organisms.

Now prolonged labour is a common event, but it is relatively rare for an infant which has been delivered alive to die from infection in the first few days of life. Consequently if Douglas and Stander's results are confirmed, there must undoubtedly be many cases in which a newborn infant has an unsuspected bacteraemia and makes such a steady recovery that it is never diagnosed. In order to throw light on this point foetal blood cultures were made from cord blood in five cases of prolonged



labour delivered by caesarean section in the Birmingham Maternity Hospital, positive cultures were obtained twice (anaerobic streptococci, and *B coli*), and both infants made normal progress

It would therefore seem possible that infection of the foetus during prolonged labour is far more common than is generally imagined, and this might well account for the increase in rate of the foetal heart so commonly observed in these circumstances. It would also appear that neonatal immunity or resistance to infection is remarkably high—I am, etc,

Birmingham

W G MILLS

#### REFERENCE

Douglas R G, and Stander H J (1943) *Amer J Obstet Gynec* 46 1

### Abortion Reform

SIR—The recent trial of two women doctors at the Old Bailey should bring home to us how an honest medical practitioner runs the risk of prosecution if he or she procures, or aids in procuring, an abortion for a woman whose life would not actually be endangered by a confinement, however dire the straits to which an unwanted pregnancy brings her. The law relating to abortion is admittedly in an unsatisfactory state.

The Lord Chief Justice, in the debate on the Criminal Justice Bill, said that if a law is bad it is his duty to administer it, but that he would do all in his power to get it altered. The Abortion Law Reform Association was founded to get the present law amended and widened, giving thereby more protection to the doctor who acts in good faith, and to lessen the terrible incidence of mortality and morbidity which results when women who have been refused help by a law-abiding doctor submit themselves to the dangers of 'back-street surgery'. The Association needs many more members so that its work of enlightening the community on the subject of abortion may be increased and necessary changes in the law brought about. The Secretary of the Association is Mrs Alice Jenkins Abortion Law Reform Association, 53, Gloucester Terrace, London, W 2, and she will gladly supply inquirers with information and literature—I am, etc,

London S W 13

EVELYN FISHER

### Balanced-pulse Galvanism

SIR—Credit is due to Wing Commander C E G Wickham (June 12 p 1136) for his ingenuity in the design of the balanced pulse galvanic stimulator, but the elaboration of technique is not in itself an advantage, unless the basis on which it rests is well established. Although much attention has recently been given to the galvanic stimulation of denervated muscle, no evidence has yet been brought forward as to its clinical value, and there are experienced observers who believe that it is actually detrimental to recovery.

The history of a large prisoner-of-war camp in the East is significant. Among the prisoners was an eminent neurosurgeon, and a number of nerve sutures were performed by him. No electrical treatment whatever was given, for none was available. According to information obtained from a competent observer, the results were strikingly favourable. No doubt the good results were due to the skill of the surgeon but the entire absence of galvanic stimulation may reasonably be regarded as a contributory factor. A comparison between groups of cases treated and not treated by galvanism would be of great value—I am, etc,

Sheffield

R G ABERCROMBIE

### Drug Addiction

SIR—My proposal to use, for relief of pain, as far as possible morphine suppositories instead of injections has been criticized in your annotation (Dec 13, 1947, p 965). May I add in support of my opinion that the risk of psychic habituation seems to me lessened when the patient is not aware what is given to him, while the syringe means for him in most cases "morphine". Furthermore, using suppositories, the 'needle addiction' (p 513 of my monograph) is avoided. On the other hand I agree that some danger will persist.

The proposal of Dr F R Ellis (Jan 24, p 175)—viz, to treat the addict permanently with controlled doses of the habit-

forming drug to which he is accustomed—already rejected by Dr G Laughton Scott (Feb 21, p 367)—has been experienced on a large scale in the so called "narcotic clinics" some 30 years ago in the U.S.A., with extremely bad results (see p 525 of the monograph). These "clinics" have been proved not only useless but also dangerous for the addict himself and for spreading drug addiction. A recent intention of the Mexican Government of opening such 'clinics' has fortunately been abandoned, persuaded by the competent League and American authorities. If Dr Ellis's proposal is followed, the result for the poor addict would be only a permanent change between heaven and hell, with all the very bad consequences for the patient. Furthermore, the addicts which Dr Ellis has in mind already demonstrate through the elevated doses which they use that they do not belong to the so called "benign" form, where an 'arrested development stage' can be observed, this is quite uncommon and inherent, and cannot be 'produced' artificially in addicts as Dr Ellis seems to believe—I am, etc,

Buenos Aires Argentina

P O WOLFF

### New Conception of Angina Pectoris

SIR,—In reply to Dr Neil Gordon's letter (June 19, p 1205), in which he asked how I explain the action of nitrites in relieving anginal symptoms, I should like to make the following observations.

Nicotine is known to act on the ganglion cells of the unmyelinated fibres of the autonomic system. Pharmacologists agree however that nitrites produce vasodilatation by direct action on the walls of the arterioles, including the coronaries. They may then cause coronary vasodilatation in cases of coronary vascular disease without affecting the activity in coronary vasodilator nerve fibres. Such a vasodilatation may result in the removal of the supposed metabolites or P factor, which are thought to be responsible for initiating the excessive reflex activity in the vasodilator pain fibres passing to the coronary vessels in cases of angina due to coronary vascular disease. That this is probably the explanation of their effect is borne out by the fact that nitrites do not relieve all cases of angina pectoris, but only some of those due to coronary vascular disease. For example they had previously been tried without relief in the two cases of angina of extra cardiac origin described in my paper. Moreover, in some cases of angina due to coronary vascular disease nitrites do not relieve symptoms and because of this and the unpleasant side-effects some patients may decline to take them. Presumably in these cases the vessels are so severely sclerosed that they can no longer be dilated further. If nitrites act on the vasodilator fibres the degree of arteriosclerosis would have no effect in modifying the action of nitrites.

While nitrites are usually said to produce their effects by direct action on the blood vessels, there is some evidence that they may also act reflexly. They certainly cause a marked alteration in autonomic activity when administered to the intact animal. Nitrites act better and more rapidly when put under the tongue than when taken into the stomach, the normal pathway for absorption and passage to the heart. This suggests their effect on pain may be indirect. Lastly, there is the observation that nitrite inhalation causes a marked sensation of constriction in the chest, like that in angina, and in a number of cases has resulted in sudden death similar to that which occurs in cardiac anginal attacks. This makes it seem possible that nitrites may in fact induce anginal symptoms in certain circumstances.

The effects of nitrites were not considered in my paper, as they provided no evidence for or against the theory I put forward—I am, etc,

London W 1

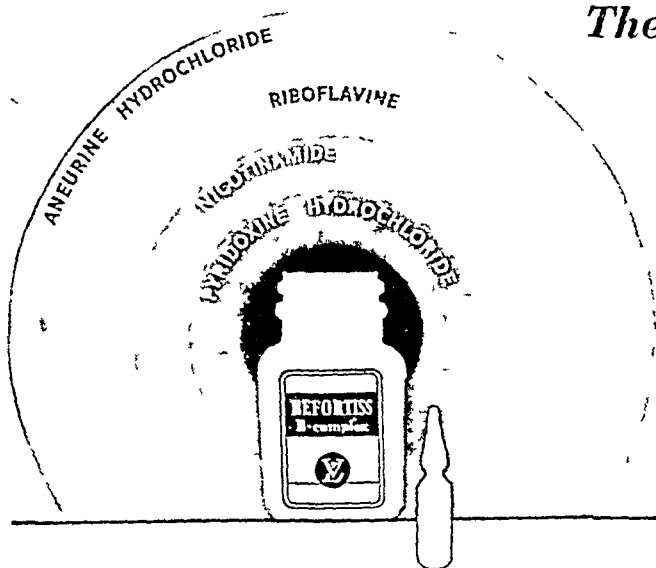
R WYBURN-MASON

### Backache-Sciatica Syndrome

SIR—In the report of a discussion (May 8, p 896), Prof Geoffrey Jefferson is quoted thus "Ytrehus (1947) found only 33.8% of unoperated cases able to do full work, while in Boysen's survey in 1947 only 21.1% were quite free from pain". I have by me a reprint sent by Dr Ytrehus, and the figures should read 70.8% (152 out of 213) with full ability to work,

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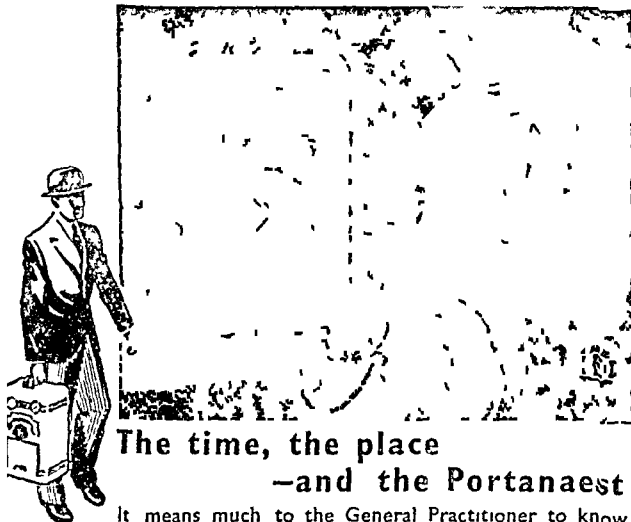


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and only 7 had been obliged to seek lighter employment, of 7 operated patients only 2 are fully capable of working. In the reference to Dr Boysen's review some significant figures have been omitted. 86.5% (225 out of 260) have complete working capacity while 30 are fit for light work. Only 5 are unable to work. These figures agree with those of Kuhns,<sup>2</sup> who found that 790 out of 1 000 patients recovered completely from sciatica without operation.

If, as Prof. Jefferson emphasizes, the clinical picture of disk protrusion does not differ at all from that of the cases in which no protrusion was found at operation, it is possible that the pain is not due to the protrusion. This possibility is strengthened by the recent demonstration that complete recovery is the rule after a negative exploration of the lumbo-sacral canal.<sup>4</sup>

Most of the optimistic reports of operation on intervertebral disks are based on surveys conducted by questionnaire. We should welcome therefore, the recent appearance of two reports based upon the physical examination of the patients by practitioners who had not performed the operation: (i) Aitken and Bradford<sup>6</sup> results good in 50 out of 170 cases, 45% unable to return to work; (ii) Lenhard (reviewing the work of the late W. E. Dandy) only 35 out of 147 are entirely well—I am, etc.,

Melbourne

MICHAEL KELLY

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- <sup>1</sup> Ytrehus, O (1947) *Acta med scand* 128 452
- <sup>2</sup> Boysen, G (1947) *Ibid* 128 473
- <sup>3</sup> Kuhns, J. G (1941) *J Bone Jt Surg* 23 435
- <sup>4</sup> Rowbotham, G. F. and Whalley, N. (1948) *Practitioner* 160 212
- <sup>5</sup> Gray, C. (1947) *Surg Gynec Obstet* 85 (Int Abstr Surg) 417
- <sup>6</sup> Aitken, A. P. and Bradford, C. H. (1947) *Amer J Surg* 73 365
- <sup>7</sup> Lenhard, R. E. (1947) *J Bone Jt Surg*, 29, 425

#### Termination of Pregnancy

SIR—Women desirous of having their pregnancies terminated on psychiatric grounds generally fall into one or other of the following groups: (a) the frankly neurotic, (b) those who have previously had a psychotic illness, (c) the pre-menopausal often associated with (a) or (b), (d) the unmarried, (e) the married with as many children as they can reasonably manage (inadequate housing, economic factors, etc., constitute very real problems in this group), (f) those who attempt to evade their normal and natural responsibilities on some frivolous pretext. The syndromes presented by each group are fairly constant for that group. Each case should be decided on its merits, and it is important to obtain as much corroborative evidence as possible before reaching a decision, which as Dr. Chesser so aptly puts it (June 5, p. 1110), is 'practically always a choice between a greater and a lesser evil'.

Childbirth is the natural function of women, and any reluctance on a woman's part to carry on with a pregnancy must be viewed with concern. We should not think merely in terms of a condition reactive to an unwanted pregnancy. If we do so we may fail to identify a deep-seated disorder, which may involve the patient in a mental breakdown whether her pregnancy is terminated or not. The most difficult cases to assess are the unmarried women with stable past histories. The social and economic consequences of having an illegitimate child obviously have more violent repercussions upon them, by and large, than does the advent of an unwanted child to a married woman. The unmarried unwillingly pregnant woman frequently commits suicide while her married contemporary rarely does so.

As previously mentioned the acute disturbance precipitated by an unwanted pregnancy may readily obscure a serious disorder of personality. The relief afforded by a therapeutic abortion tends to produce a false sense of security in such cases. Before reaching a decision, therefore, on the desirability of terminating a pregnancy, a comprehensive psychiatric investigation is called for, preferably spread over a number of interviews. It has been difficult in the past to insist on further treatment after the surgical interference has been concluded but with the advent of the National Health Service psychiatric treatment should be available to patients who formerly could ill afford it. Psychological treatment is as important after therapeutic abortion on psychiatric grounds as is the re-education and rehabilitation of a patient after amputation—I am, etc.

London W 1

ELLIS STUNGO

#### Stuff Test for Nurses

SIR—In connexion with the current discussion on the training of nurses I should like to draw attention to certain questions in the fevers paper recently set for the Final State Examination of the General Nursing Council:

1 'Which infectious diseases may be complicated by involvement of the central nervous system, what are the special risks and how may the diagnosis be confirmed?'

2 'Describe the appearance, cultural characteristics, and properties of the diphtheria bacillus.'

Apart from the scope ambiguity, and complexity of the first question there arises an important point of definition. In regard to the second question an adequate answer would involve a knowledge of bacteriology quite beyond that which should be required from student nurses. In fact the Council's syllabus merely refers to the 'causation of diphtheria and a standard textbook in popular use among nurses deals with the subject in a few lines.

Questions such as these produce a sense of frustration and not unreasonable indignation among candidates. As one responsible for the training and recruitment of nurses I suggest that the requirement of such academic standards of medical and bacteriological knowledge does not tend to produce or discover good practical nurses, nor does it help to overcome existing difficulties in regard to nursing shortage and lack of recruits to the profession—I am, etc.,

Ilford

J. H. WEIR

#### Convalescent Homes

SIR—We see all round us the deplorable results of sectionalism both at home and in the international field. In a small way we may combat this evil by taking care that it is not made part of medical planning. I have been struck by the opportunities presented when patients are sent away to convalesce.

Recovery is inevitably assisted by stimulating surroundings and contacts. It is therefore regrettable that in so many places convalescents are collected from one small occupational group whereas if persons in a variety of different employments were brought together they would from the very diversity of their interests stimulate one another while broadening their minds. In this way some little may also be done to remove those distrusts and animosities which derive from a narrow and restricted way of life. For these reasons it appears desirable to make the most of an opportunity to secure on the same occasion a more rapid physical and mental recovery with, as one may hope, an increase in social and political sense—I am, etc.

Hadley Woods, Herts.

G. C. PLTHER

#### Short Leg in Soldiers

SIR—We read with interest Dr. Nesta H. Wells's letter (June 19, p. 1206) on scoliosis in school children and her plea for early compensation for leg shortening by heel raising. In dealing with recruits in the Army who are sent to the Army Physical Development Centre we have found a high incidence of leg shortening with resultant scoliosis. The recruits sent here are mostly in the 17½–18½-years age group. The shortening varies from 1/4 in to 1½ in (0.63 cm to 3.17 cm). Remarkably few give any history of backache, sciatica, or bone injury to the lower limbs, or of poliomyelitis. Even fewer are aware prior to our examination that there is any shortening.

It is our practice, however, whether symptoms are present or not, to compensate for shortening by heel raising as a prophylactic measure against back pain, except where the shortening is 1/4 in or less. Such shortening we regard as a normal variation. In all cases where symptoms are present, and especially in youths of this age group, it is most important that other causes of low back pain, including ankylosing spondylitis, are ruled out. We therefore make it a rule in these cases to have an x-ray examination of the spine and sacro-iliac joints.

Shortening of between 1/2 in and 1/4 in we treat by raising the heel on the affected side by that amount. Heel raising of more than 1/2 in gives rise to a somewhat cumbersome boot. Therefore when the shortening is of more than 1/2 in we find

more satisfactory to raise the heel on the affected side by half the required amount and to lower the heel on the opposite side by a corresponding amount. We have found that few of these young soldiers feel any awkwardness or discomfort from boots altered in this manner, in fact most of them say that they now feel more comfortable. When the boots have been satisfactorily adapted we impress upon these youths the desirability of maintaining these alterations throughout their service and on return to civilian life.

We are deliberately omitting any statistics as we feel that the recruits sent here are not a true cross-section of young adults, since they are specially chosen to attend a remedial course for various postural or other defects at this physical development centre—We are, etc.,

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### The SRM

SIR,—In the interests of accuracy may I point out that the principal point of Dr Holman's letter under the above heading is founded on a mishearing or misconception? The proposal duly seconded, from the body of the Great Hall and accepted by the Chairman, and approved by vote of the majority by a show of hands was "that the meeting pass to the next business." In a short subsequent discussion, from the body of the Hall, this was agreed as intending to pass by all the motions of censure on the Council—but not those applying to censure of the Editor of the *Journal*. The first of the motions referring to the Editor was moved, spoken to by several speakers and rejected by a huge majority. Of course I do not know what the Chairman said to Dr Holman on the platform but this was the actual sequence of events, my memory of which is perfectly clear.

In taking the action he did the Chairman was merely conforming to the wishes expressed by vote of the majority of the Representative Body—I am, etc.,

Plymouth

CYRIL F MAYNE

### Remuneration of General Practitioners

SIR—A leading article in *The Times* of May 15 comments on the Spens report with special reference to the remuneration of dentists, but the case of the general medical practitioner demands equal consideration. Since the Minister announced his terms of service last December general attention has been concentrated upon matters of principle, and the actual payment of doctors was not an issue in either plebiscite this year. Now that the B M A has recommended the profession not to refuse co-operation in the Service the amount of remuneration becomes of immediate importance.

It should surely be conceded that acceptance of service under the Act ought not to involve a loss of income for the rank and file of the profession. But careful study of the Minister's proposals shows that grave financial loss may be caused to a high proportion of doctors who have hitherto owned mixed "panel" and private practices. It is becoming increasingly obvious that, owing to the high compulsory National Insurance contributions and the heavy charge on income tax receipts to maintain the Health Service, most patients will feel unable to pay doctors bills in addition so the amount of private practice remaining will generally be very small, and in most mixed practices the future income from this source will be negligible. Salaried appointments, such as district medical officers for public assistance and public vaccinators, will terminate, since all patients are to be placed on doctors lists and compulsory vaccination ceases. The vast majority of general practitioners are thus likely to be almost entirely dependent upon capitation payments for National Health Service patients, and this being so the proposed capitation fee should be much increased. It must be remembered that the Spens recommendations were based on the pre-war cost of living and that their investigations were into the income and expenses of doctors during the years 1936-7-8. Since then every essential item of a doctor's professional expenses has greatly increased—sometimes (e.g. cars) by 100%.

Two methods proposed for calculating fees are unjust

(1) The fewer the patients joining the Service the higher the

capitation fee (15s 2d for 95% increasing to 18s for 80%, of the population). This should be reversed, since the fewer there are in the Service the greater the potential income from private practice, and *vice versa*. (2) A central fund is proposed equal to a capitation fee of 18s multiplied by 95% of the population. The first charges on it would be payment for mileage, temporary residents, emergencies, etc., and "inducements" or basic salaries. What is left becomes the general capitation fee. It would be better to settle a firm capitation fee first and pay other charges from a separate fund after.

The disastrous effects of the present proposals on doctors in a typical rural area can be shown by one concrete example. In a certain district of 9 parishes there is a population of 10,000 of whom 7,500 are concentrated in two adjoining villages. With the gross capitation fee of 18s the income payable to doctors practising here would be £9,000 but with the more likely actual fee of about 15s it would be £7,500. There are 10 general practitioners in this district, of whom 8 have mixed panel and private practices. If practice expenses are taken at 25%, the net income these doctors may expect would be £5,625 for a 15s capitation fee rising to £6,750 for one of 18s. Even if one were justified in assuming that only 8 of these men were fully occupied, none of them could hope to earn as much as £1,000 per annum. In none of these practices does the income received from present panel capitation fees amount to a quarter of the gross receipts, so the losses may thus amount to 50% of their present income. (The lower figure cannot allow for mileage payments, but the 18s proposed by the Minister probably more than covers what may at present be expected.) This very disturbing example of the general practitioner's prospects could doubtless be multiplied throughout the country.

The changes by voting shown in the last plebiscite were undoubtedly prompted by economic pressure, but of those general practitioners voting 67% still disapprove of the Act and 53% were against accepting service. It is obvious that most of the profession will enter the Service with grave misgiving and the prospect of a serious drop in income and standard of living. The Service must inevitably cause harder work for doctors. It offers no payment for locums—the doctor must "provide a deputy"—and no lessening of hours during which a man is liable for duty. When in every other walk of life higher wages are being paid for shorter hours, is it fair that doctors should receive so much less for more work, and under conditions of service which are still distasteful to so many?—I am, etc.,

RALPH GREEN

### Medical Education and the G P

SIR—Two committees have now recorded their recommendations for the reform of medical education. The latest report states that "the undergraduate curriculum can do no more than lay the foundation of a doctor's education but it should stimulate him to remain a student all his life" (*Journal* May 29, p 1038). How, in the face of all the clerical work he must perform, can a G P remain a student? I have heard of practices where the dispenser divides the waiting-room patients into (a) those wanting certificates, (b) those asking for medicine, and (c) those demanding letters to visit the hospital "to be examined." How is this to be prevented when there is so great a temptation to allow it to spread under the NHS? The committee on postgraduate education which is to be set up may be able to tell us.

I would like to make the following suggestions

(1) We attempt to divide the work so that the numbers of NHS patients are between 1,500 and 3,000 per doctor.

(2) We try to maintain the clinical enthusiasm instilled into us by our specialist teachers. What G P can deny that feeling of satisfaction at detecting for example, a patch of bronchial breathing in a feverish patient with pain in the chest?

(3) We give ourselves time to examine our patients and make at least a tentative diagnosis for all patients referred to a specialist. Surely this, if only from the mistakes we make, is how we shall learn. We may also help to cut down unnecessary investigations, the rising flood of which Dr Ffrangcon Roberts justly deplores (March 13, p 485). I like the story (told by one of my recent chiefs) of the Regular Army specialist replying to a brief, "Please examine and advise," with, "You examine and I will advise."



\* (1) Private certificate must be accepted by the National Insurance (2) Private patient not to be charged a reduced rate free of charge in the NHS - [p. 10]

## Medico-Legal

### COMPENSATION BARRED BY UNSKILFUL TREATMENT

[FROM OUR MEDICO LEGAL CORRESPONDENT]

If a workman is injured at work and unskilfully treated, it appears that his disability may be held to result from the treatment and not the accident, so that he may be refused compensation. As Lord Justice du Parcq said in 1941, negligent or inefficient treatment by a doctor or other person may amount to a new cause, a *novus actus interveniens* shifting the liability from the employer. The courts are always anxious to interpret the Acts beneficially to the worker, and the Court of Appeal in a recent case<sup>1</sup> strongly criticized this doctrine and hoped the House of Lords would deal with the matter, but were unable to upset it as it has been supported by several earlier decisions of the court, which by custom and law are binding.

The workman in this case had an unusual deformity—a small supernumerary thumb. This was injured by a flying stone. After conservative treatment he was put on light work but the pain remained and the doctor at the emergency hospital advised the removal of the supernumerary and also of the upper part of the normal thumb beside which it lay. This was done but the stump, in consequence of the operation, remained sore and disabled the man. The county court judge held that the disability was due to the ill advised operation. The Master of the Rolls Lord Greene, recalled that the doctrine of a new intervening cause in such cases came from early in the history of workmen's compensation when courts were more concerned to protect the employer, or at any rate less tender to the workman. He thought the correct view should be that an incapacity caused immediately by unskilful treatment might in truth be due to the accident and attributed to it, provided that recourse to the treatment was the natural and reasonable consequence of the accident. Nevertheless the court was bound to follow the law as it stood, and the judge's decision, which was supported by evidence, could not be interfered with.

Worth noting is his remark that he would have thought that one of the earlier cases, in which the workman went to a bonesetter would have been decided on the simple ground that to go to a bonesetter instead of to a proper medical man was in itself unreasonable.

<sup>1</sup> *Hogan v Bentinck West Hartley Collieries* 1948 1 All E.R. 129

## Medical Notes in Parliament

### NATIONAL HEALTH SERVICE

#### Public and Private Practice

Miss ALICE BACON inquired on June 24 under what authority a doctor refused to take a person on his list and intimated that he was prepared to take the same person as a paying patient.

Mr BEVAN said such conduct was quite unethical. He confidently expected that the profession would express the strongest disapproval of it.

Miss BACON said this conduct occurred and gave point to the contentions advanced by some Labour Members during the Second Reading of the National Health Bill that to allow a doctor in a public practice also to undertake private practice was a means whereby public confidence in the whole scheme could be destroyed.

Mr BEVAN hoped that as experience was gained this practice would disappear. It was believed in only by a very small proportion of the medical profession. It ought to receive the disapproval of the House and the country.

Mr WILSON HARRIS asked whether there was a specific remedy when a doctor refused to take a patient on the ground that the patient was in a position to pay and therefore was not accepted on the general list.

Mr BEVAN said such patients could go to another doctor. If at the end of the process they were without a doctor they could be assigned to one. There had been one or two cases where a doctor had taken a husband and wife and had refused to take the children. He believed that this also was frowned on by the medical profession.

Dr SEGAL asked Mr Bevan to enlist the active co operation of patients in reporting such instances.

Mr BEVAN replied that the patients were obviously making their complaints known or else the House would not have heard about them.

#### Supply of Drugs

Mr RANDALL asked the Minister of Health how many instances of doctors informing their patients that there was a restriction on drugs which could be ordered for free supply for the proper treatment of patients under the new Health Service had been brought to his attention, what steps he had taken in the matter, and what action was open to patients so informed by their doctors. A similar question was put by Mrs LEAH MANNING.

Mr BEVAN said he trusted there had not been many such cases. He was confident that doctors would not attempt to discriminate between those who used the Service and those who did not. He welcomed this opportunity to make it clear that patients were entitled under the new Health Service with out restriction to every kind of drug and appliance necessary for their treatment. Any doctor who failed to prescribe these drugs would be breaking his terms of service. He hoped this statement would receive the widest possible publicity. When a doctor made the statement which Mr Randall had cited the course open to the patient was to make a complaint to the local Executive Council. That council would investigate the complaint. There was machinery under the Act, to deal with the matter. All he himself could do was to call attention to the facts and ask the public to note what was said in Parliament and not to listen to what certain doctors, who had acted well below the ethical standards of the profession, had said.

Col STODDART-SCOTT asked for an assurance that doctors would not be surcharged for supplying certain drugs, as they now were under the panel system.

Mr BEVAN said there were regulations which concerned themselves with the nature of the drugs to be prescribed. Certain things were prescribed as drugs which were not drugs—champagne, for example.

#### B.M.A. Co operation

Dr HADEN GUEST asked whether Mr Bevan knew that the British Medical Association took the strongest view of the improper conduct which a few doctors had followed and was taking action to bring this to the attention of the whole profession. He asked further whether Mr Bevan did not agree that, since the B.M.A. was co operating to give the best possible service under the slogan of Dr Dain that 'Only the best is good enough,' it was desirable that its help in this matter should be welcomed by the Minister.

Mr BEVAN replied that he had already welcomed the help given by Dr Dain especially in a letter written recently to *The Times* (June 18). Mr Bevan was happy that the vast majority of the medical profession frowned on the practices which had been brought into question.

#### Maternity Services

Mr HASTINGS asked Mr Bevan why he had decided to reverse the policy of Statutory Instrument 506 as regards the method of obtaining maternity medical services by encouraging doctors who had no midwifery experience to undertake maternity work and arranging to pay them for it.

Mr BEVAN said he had decided after consultation with the medical profession to provide a lower fee for maternity medical services undertaken for his own patients by a doctor with ordinary experience. Such a doctor could not otherwise receive any fee for such services, either from public funds or from the patient. This did not affect the higher fees for special experience or the main objective that maternity work should generally be done by practitioners with such special experience. A general practitioner could do obstetrical work now and did so, so no new scandal was being created. A new system was being introduced which would mitigate the present evils. He hoped before long the system would entirely remove them. The scheme was to create a panel of general practitioners who would do obstetrical work and relieve other general practitioners without the same experience from doing it. This would powerfully modify and improve the existing practice. A doctor would be paid for obstetrical work if he did the work for his own patient at that patient's request.

#### Temporary Residents at Holiday Resorts

Sir ERNEST GRAHAM-LITTLE asked on June 25 whether the Minister of Health would make arrangements to meet the difficulty of medical practitioners at holiday centres, where the population was increased at certain times of the year but the practitioner's capitation fee was to be based on patients

from the permanent population, with a consequent loss to the practitioner during the holiday months.

Mr BEVAN answered that the arrangements for paying doctors for attendance on temporary residents which would be simplified under the new scheme, would meet this difficulty.

### Transfer of Officers and Compensation

On the motion of Mr JOHN EDWARDS, the House of Commons on June 23 approved without debate the draft National Health Service (Superannuation) (Amendment) Regulations 1948. Mr Edwards then moved that the House approve the draft National Health Service (Transfer of Officers and Compensation) Regulations, 1948.

Mr BURDEN said he was disappointed that the Minister took power to depart from the accepted code of compensation applicable to the Local Government Service. This code, which resulted from negotiations between the National Association of Local Government Officers and the Ministry of Health, was being definitely worsened. The Minister was breaking a pledge given by the Minister of National Insurance when the National Insurance Bill was under discussion. That Minister then said that when the State transferred functions it accepted liability for absorption or compensation of staff.

The DEPUTY SPEAKER suggested that the corresponding regulations relating to Scotland should be discussed at the same time. This was agreed.

Commander GALBRAITH said the regulations laid down that a claimant must have served eight years to be eligible for consideration. Why was that period chosen?

Mr CARMICHAEL said the Glasgow Authority had decided to have a full-time medical service under the Poor Law. The entire duties of the medical people in that service were confined to the aged and sick who were on the Poor Law. A number of them had been advised by the Glasgow Authority that there was no employment for them under the Regional Hospital Scheme and none under the Scottish Office. Some of them had at least ten years' service, and for them to enter ordinary medical practice was not an easy task. Should these medical officers or other local authority officers make an effort to be self-employed and soon discover that they were incapable of so continuing, what would be their position in regard to compensation?

Mr EDWARDS said the new code was the result of careful consideration in the light of present circumstances. This code would apply to all transfers which followed upon current legislation. The Ministry would do everything it could to ensure that claims did not arise but he stressed the point that there was a great shortage of manpower in this field. The Minister would be no less humane than local authorities had been in the past and the door of the Ministry would always be open to the Association of Municipal Employees. The eight-year period was in the nature of a compromise. The provision of two-thirds of the old salary as the maximum compensation was taken from the old Local Government Code. How close one went to the maximum would depend on the length of service. In the matter of comparable employment the Government would do its best so to arrange transfers and to offer employment that there should be the minimum of inconvenience and trouble to the person concerned. The Government had felt it ought to increase the amount of extra compensation because of years of age and had so provided for those over 45—because what seemed important was the age of a person rather than the actual years spent in the service. In regard to the provision that no compensation was payable for a diminution of emoluments less than 5% even on large salaries these amounts were negligible when allowance was made for income tax.

Mr RANKIN asked whether in the case of an officer transferred to another district the Department would pay him for his accommodation while in his new position? Mr EDWARDS said that matter ought to be discussed between the Associations and the Department in considering conditions of service.

The Draft Regulations for England and Scotland which had been under discussion were then approved.

### Superannuation Regulations

Mr EDWARDS then moved that the draft National Health Service (Superannuation) (England and Scotland) Regulations, 1948 be approved.

Col GOMME-DUNCAN asked whether the provision for cross-posting from England to Scotland and from Scotland to England portended that a large scale transfer was likely to be made under the new Health Service. Mr FRASER did not expect that there would be any large-scale transfer, but said that as usual there would be more transfers from Scotland than to Scotland.

The House then agreed to the regulations. Approval was also given to the draft National Health Service (Scotland)

(Superannuation) (Amendment) Regulations 1948, and to the draft National Health Service (Transfer of Officers and Compensation) (Scotland) Regulations, 1948.

### VENEREAL DISEASE

LORD BALFOUR OF BURLEIGH in the House of Lords on June 29, asked the nature of the difficulty in administering the V.D. Acts and Regulations which led to the withdrawal of the statutory protection of secrecy from persons receiving treatment at V.D. clinics and whether it was contemplated that in future information as to attendance or non-attendance at V.D. clinics, or factual information as to the state of health of persons receiving treatment would in any circumstances be able to be communicated to the police by the medical officer of health or by a member of the V.D. services. He asked the number of cases in which compulsory medical examination took place under Regulation 33B now repealed and the number of cases (men and women separately) in which the persons examined were found to be suffering from venereal disease.

LORD LISTOWEL said the withdrawal of the provision resulted from the revoking of the Public Health (Venereal Diseases) Regulations of 1916. These regulations placed upon local authorities the responsibility for the treatment of venereal diseases and had been revoked because that responsibility now devolved upon Regional Hospital Boards under the National Health Service Act. It no longer appeared necessary to continue special statutory provision to the effect that treatment for venereal diseases should be regarded as confidential. The maintenance of secrecy did not primarily depend for its force on any statutory provision but rather on the proper and normal relationship between doctor and patient. There was no reason whatever to apprehend that the confidential nature of venereal disease treatment would not continue to be as closely preserved as it always had been. The number of cases in which compulsory medical examination took place under Regulation 33B was 13 men and 116 women. Information about how many of these were found to have venereal disease was not available.

### R A F Conference

On June 28 Sir ERNEST GRAHAM-LITTLE asked the Secretary of State for Air whether he knew that at a conference of A.O.C.s held in November, 1947, at an R.A.F. unit in Germany attended by all doctors, pilots and commanding officers of the wing M.O.s were reminded that a long-standing regulation required them to divulge to the commanding officer the names and full medical details of patients under their professional care suffering from venereal disease, these records being accessible to other persons than the C.O. that as these requirements constituted a breach of the obligation binding members of the medical profession not to divulge to third persons information received in their professional capacity, several medical officers present at the conference expressed reluctance to obey the regulation and if he would consider its withdrawal.

Mr ARTHUR HENDERSON replied that the officers who attended this conference were reminded of a King's Regulation which required a daily sick return showing the diagnosis and disposal of each case to be made to the commanding officer. At the conference some misgivings were expressed about the regulation, which was, however necessary to enable a commanding officer to carry out his duties in regard to the health and welfare of his unit. The situation in the R.A.F. was not analogous with that in civil life. A commanding officer was responsible for the health of his men and for reducing the risk of infection. He must therefore be made aware of cases of venereal disease in his unit. Mr Henderson said that in these circumstances he could not agree with Sir Ernest that this regulation should be withdrawn.

**Limbley Ex-Servicemen**—Replying to Col LINTON on June 21 Mr BLENKINSOP said that ex-Service paraplegic cases were a small group. Some 600 men and women from the last war suffered from this spinal disease and 200 were still in hospital. Of the remaining 400 patients 70% were in full and regular employment. The bulk of the treatment work for paraplegics was done at the well equipped hospital at Stoke Mandeville and two auxiliary centres at Epsom and at the Star and Garter Home. He hoped that by the end of the year a new hostel at Osterley Park would be available for paraplegic cases who were training for practical jobs.

**Barley Sugar**—Dr SUMMERSKILL stated that there are ample supplies of glucose barley sugar available to meet all demands against medical prescriptions, although it may not always be possible to meet the demand for the product of a particular manufacturer.

**Nutrition of School children**—Mr TOMLINSON circulated on July 1 this summary of the assessment of nutrition of school children seen at routine medical inspections in England and Wales in 1939 and 1946

Year	Number Examined	Percentages			
		A (Excellent nutrition)	B (Normal nutrition)	C (Slightly sub normal nutrition)	D (Bad nutrition)
1939 (only first two terms)	1,098 367	14.7	73.8	11.0	0.5
1946	1,563 015	16.8	75.1	7.9	0.2

NOTE (1) The figures for 1939 relate to Elementary School children and the e for 1946 to children attending maintained Primary and Secondary Schools  
(2) Further information on the nutrition of school children is to be found in Chapter I of the Report of the Chief Medical Officer of the Ministry of Education for the Years 1939-45

**Salaries of Deputy MOHs**—On June 29 Sir ERNEST GRAHAM-LITTLE asked the Minister of Health whether Deputy County and Deputy County Borough Medical Officers of Health commonly received a salary of between £800 and £900 per annum, whereas specialists under the Spens Committee Report are to receive a commencing salary of £1,500 linked to age 32 years. Sir Ernest asked him to grant the above officers classification and remuneration as specialists when their status and qualifications were equivalent to those of officers recognized as specialists in other branches of the National Health Service.

Mr BEVAN replied that it was not for him arbitrarily to determine these officers' salaries, but rather to encourage appropriate negotiating machinery for dealing with any proposals for revision.

## EPIDEMIOLOGICAL NOTES

### Discussion of Table

In England and Wales infectious diseases were less prevalent during the week, and the decreases included measles 1,601, whooping cough 212, and scarlet fever 20.

Alternate rises and falls have been a feature of the returns of measles during the past three months. During the week the largest decreases in the notifications of measles were London 328, Essex 311, Warwickshire 283, Durham 208, Middlesex 192, and Kent 102. The counties with an increased incidence of measles included Derbyshire 69, Northumberland 51, Devonshire 42, Lincolnshire 42, and Monmouthshire 42.

Only a few counties recorded large fluctuations in the trends of whooping cough. The largest decreases were Middlesex 76, Nottinghamshire 53, Gloucestershire 52, and Essex 48, while in the combined area of London and the south eastern counties a rise of 72 was recorded. No changes of any size were reported in the local returns of diphtheria. Only small variations occurred in the local incidence of scarlet fever. In the south eastern, south-western, and northern counties there was a tendency for a small increase and in the remainder of the country the incidence either decreased slightly or remained constant.

The largest returns of dysentery were Yorkshire West Riding 24 (Bradford CB 10, Aireborough UD 11), London 16, and Lancashire 10. Lancashire with 5 notifications of acute poliomyelitis was the only county with more than one notification of this disease.

In Scotland increases occurred in the notifications of scarlet fever 81, acute primary pneumonia 11, and diphtheria 9. Decreases were reported for measles 63 and cerebrospinal fever 10. The rise in the incidence of scarlet fever was due to an outbreak in the county of Lanarkshire, where 101 cases were notified during the week. The notifications of diphtheria in Glasgow were 11 more than in the preceding week.

In Eire infectious diseases were slightly more prevalent, and the rises included measles 26 and whooping-cough 25. The largest of the local outbreaks during the week were 24 cases of whooping cough in Kilkenny Kilkenny R.D., and 17 cases of measles in Galway Loughrea R.D.

In Northern Ireland only small changes were reported in the trends of infectious diseases.

### Week Ending June 26

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1,649, whooping cough 2,803, diphtheria 137, measles 10,571, acute pneumonia 373, cerebrospinal fever 34, acute poliomyelitis 27, dysentery 64, paratyphoid 8, and typhoid 3.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 19.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland. Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	45	8	14	6	1	39	4	18	—	1
Diphtheria Deaths	158	15	56	11	3	220	24	41	24	8
Dysentery Deaths	91	16	41	2	—	47	5	19	—	1
Encephalitis lethargica acute Deaths	—	2	1	—	—	2	1	1	—	—
Erysipelas Deaths	—	—	34	8	6	—	25	14	—	2
Infective enteritis or diarrhoea under 2 years Deaths	45	4	3	23	3	78	1	17	39	2
Measles* Deaths†	10 624	755	188	151	67	10 632	637	117	149	26
Ophthalmia neonatorum Deaths	53	4	21	—	1	64	1	14	—	2
Paratyphoid fever Deaths	8	—	—	1(B)	—	11	—	—	—	—
Pneumonia influenza Deaths (from influenza)‡	456	19	1	3	1	328	26	1	1	2
Pneumonia primary Deaths	156	23	161	30	9	—	18	189	17	4
Polio encephalitis acute Deaths	—	—	—	—	—	2	1	—	—	—
Poliomyelitis, acute Deaths§	15	—	3	3	—	44	2	2	2	1
Puerperal fever Deaths	—	—	8	—	—	—	2	14	—	—
Puerperal pyrexia   Deaths	96	10	8	—	2	121	8	4	—	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 542	107	374	62	41	870	82	120	25	35
Smallpox Deaths	—	—	—	—	—	7	—	—	—	—
Typhoid fever Deaths	7	—	—	1	—	7	—	1	5	—
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	3 086	273	40	105	17	2 107	276	87	54	15
Deaths (0-1 year)	295	32	35	14	14	420	38	73	25	15
Infant mortality rate (per 1 000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still births)	4,178	635	536	186	109	4,089	626	583	192	111
Annual death rate (per 1 000 persons living)	—	—	10.8	11.6	—	—	—	12.1	12.1	—
Live births	8 565	1412	1074	434	264	9,630	1499	1225	498	304
Annual rate per 1 000 persons living	—	—	21.7	27.1	—	—	—	24.7	31.4	—
Stillbirths	211	16	32	—	—	258	25	32	—	—
Rate per 1 000 total births (including stillborn)	—	—	29	—	—	—	—	25	—	—

\* Measles and whooping cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales (London (administrative county) will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio encephalitis for England and Wales (London (administrative county), are combined.

|| Includes puerperal fever for England and Wales and Eire.

## Medical News

### Viscount Addison

The Rt Hon Viscount Addison, K G, P C, M D F R C S, has been appointed Paymaster-General in succession to Mr H A Marquand, M.P., who becomes Minister of Pensions in place of the Rt Hon George Buchanan, M.P., appointed Chairman of the National Assistance Board. Viscount Addison will hold the office of Paymaster General with that of Lord Privy Seal.

### Entered Health Service

The Ministry of Health and the Department of Health for Scotland have announced that the number of doctors in Great Britain who had enrolled under the National Health Service was 18,514 up to Saturday, June 26. This figure was made up of 1,976 doctors in Scotland (compared with 1,810 a week earlier) and 16,538 doctors in England and Wales (compared with 14,784 a week earlier). By the same date 8,131,166 applications had been received for entry on the lists of doctors taking part in the Service. The total for Scotland was 731,166, and that for England and Wales was 7,403,000. These totals do not include the 22,000,000 persons at present on the lists of insurance doctors.

### New President and Honorary Fellows of R S M

At the Annual Meeting of Fellows of the Royal Society of Medicine on July 6, with the President in the Chair, the following were elected Honorary Fellows: Field-Marshal Smuts, Sir Archibald Gray, Prof Charles Singer, Sir Henry Tidy, Prof Georges Debarieux, of Louvain, Dr Mathew Makkas, of Athens, Sir Henry Dale, O.M., has been elected President of the Royal Society of Medicine for the coming year.

### Society for Relief of Widows and Orphans of Medical Men

The annual general meeting of the Society for Relief of Widows and Orphans of Medical Men was held at 11, Chandos Street, London, W, on June 2, with the president, Sir Robert A Young, in the chair. The annual report and accounts for 1947 were received and approved and new officers for 1948-9 were elected. Income exceeded expenditure by £688. The membership of the society at the end of 1947 was 261. During the year seven widows died, one of these had received £3,793 in grants to herself and to her children. The total sum distributed in grants during the year was £4,502 10s. Widows over 65 years of age received £75, and those under 65 received £60, and at Christmas presents of £20 were made to each widow. The president referred with regret to the death on May 13, of Dr E J Blackett. At the 1947 annual general meeting Dr Blackett resigned from the office of secretary of the society, after having held the post for 42 years. Details of the society may be obtained from the secretary at 11 Chandos Street, London, W 1.

### Called to the Bar

M Markowe, M.D., D.P.H. (Lincoln's Inn), M G L Lucas, M.B. Ch.B. (Middle Temple), and F I McD Paterson, M.B., B.S., were called to the Bar on June 9.

### Scientific Information Conference

Speaking at the opening session of the Royal Society Scientific Information Conference called to examine the possibility of improving existing methods of collecting, indexing, and distributing scientific literature, Sir Edward Appleton, F.R.S., said that science had been well served in the past by the publications of its learned societies and academies and by the scientific journals. But the spate of scientific publications was now such that it was becoming extremely difficult to keep abreast with events on even the most limited sector of the scientific frontier. Something must be done to relieve the situation. The really important objectives to be achieved were threefold: first, to ensure that the scientist got all he needed, secondly, that he got it quickly, and, thirdly, that he got it in the right form and shape. Any solution must be practicable, it must be reasonable in cost, and it must take into account the acute shortage of scientific manpower hampering the development of almost every scientific organization in the world—and certainly every organization in the British Commonwealth. The Conference must keep constantly in mind the needs of the scientific user. 'Personally what I require, as a working scientist, are reprints or separates of the papers that matter to me, and I want them quickly and in a form easily storable. In choosing the reprints of the papers I require I want the guidance of brief abstracts to inform me of the existence and contents of those papers.' Then there was the question of translations. Here was certainly a field where co-operation would lead to economy of effort.

### Croydon Welsh Society

Mr R Glyn Thomas, F.R.C.S.E.d., has been elected the first president of the newly formed Croydon Welsh Society.

### New Chairs of Pathology

The University of London has established two Chairs in the Department of Pathology at King's College Hospital Medical School. They are the Chair of Morbid Anatomy, to which Dr H A Magnus has been appointed and the Chair of Chemical Pathology, to which Dr C H Gray has been appointed.

### William Hyde Award

The Research Board for the Correlation of Medical Science and Physical Education (Apothecaries Hall, Black Friars Lane, Queen Victoria Street London, E C 4) announces that the William Hyde Award for 1947 has been made to Dr L G C Pugh in recognition of his work on rheumatism. The Award is named after Alderman William Hyde, who died in April, 1945. He was a trustee of the Nuffield Provincial Hospitals Trust and spent a great part of his life in helping the advancement of the health and hospital services of the country. Starting as secretary of a rural friendly society, he soon became interested in the wider problems of public health. He was an able chairman of the public health and public assistance committees of the Oxfordshire County Council and in 1935 was chairman of the Ministry of Health's Consultative Council on National Health Insurance. It was to a large extent Alderman Hyde's concern for the future of the hospital services of the country which led to the establishment of the Nuffield Provincial Hospitals Trust.

### Research Committee of Tuberculosis Association

In 1947 the Tuberculosis Association decided to set up a committee to help co-ordinate research into problems connected with tuberculosis in England, Wales, and Northern Ireland. The body now in being consists of members who are authorities in their special fields, and it is under the chairmanship of Dr F R G Heaf, President of the Association. It includes an observer from the Ministry of Health and representatives of the Joint Tuberculosis Council and the Tuberculosis Society of Scotland. There will be close liaison with a special subcommittee of the last. Other functions of the Committee will be to supply, when required, advice on the conduct of larger investigations contemplated by official bodies and manufacturing industries, to draw up schemes for adequate trials of newer methods of treatment, and to suggest to individuals and groups of individuals outstanding problems which they might usefully explore. The full Committee will meet several times a year, and there is a standing Working Subcommittee to consider problems as they arise. Communications should be sent to Tuberculosis Association Research Committee, Manson House, 26 Portland Place, London, W 1.

### John S Owens Prize

The John S Owens Prize of the Royal Sanitary Institute was offered for essays on either atmospheric pollution or the ventilation of dwellings and its effect upon human health. There were six entries for the competition, and the Council of the Institute have awarded the prize of £25 to R E O Williams, M.D., for his essay on the second of these subjects.

### Vaccination and Immunization

Local authorities will make arrangements under the National Health Service for medical practitioners to carry out vaccination against smallpox and immunization against diphtheria. The fees to be paid are being negotiated with representatives of the profession and had not been settled by the appointed day. The Minister of Health has therefore sent a letter to local authorities asking them to proceed with the arrangements and to tell practitioners that their fees will be paid as from July 5 according to the scale finally settled.

### District Nurses and Midwives

The Minister of Health has reviewed the arrangements for training domiciliary midwives and district nurses. Many of these are trained by voluntary organizations and the Minister therefore asks local authorities to ensure that existing organizations are enabled financially to continue training on the present scale after July 5.

### Sister Tutors

In view of the serious shortage of qualified sister tutors and male tutors of nurses, particularly in mental hospitals and mental deficiency institutions, the Minister has decided to increase the number of scholarships open to candidates this year from 50 to 75. Of these, 25 will be reserved for those who are prepared to give at least two years' service as tutors in mental hospitals or mental deficiency institutions. Nurses who wish to apply under this scheme should write to the Secretary, Ministry of Health, Division 3c, Whitehall, London, S W 1, not later than July 31.



**Scientific Liaison**

In order to facilitate scientific co-operation within the Commonwealth the British Commonwealth of Nations Scientific Liaison Offices (London) have been opened on the third floor of Africa House, Kingsway WC2.

**Wills**

Mr John William Geary Grant, who was consulting surgeon to the Royal Infirmary, Cardiff, left £4,586 5s 8d. Dr Francis Johnston, formerly of Birkenhead, left £24,785. Dr Helen Winifred Duncan of Southport, left £12,420, and Dr Vincent Sutherland Hodson, formerly consulting physician to the London Chest Hospital, left £4,911.

**COMING EVENTS****Ethiopian Exhibition**

The Ethiopian Exhibition of Arts, Crafts, and Industries will be held on July 12-17 at the Co-operative Wholesale Society's Boot and Shoe Show Room 99, Leman Street, London, E1. Traditional dress, leather work, jewellery, illuminated books, etc. will be shown, and there will be a film about Ethiopia. A box will be provided for donations to the Princess Tsahai Memorial Hospital Fund.

**Society of Chemical Industry**

The annual general meeting of the Society of Chemical Industry will be held at Edinburgh on Wednesday, Thursday, and Friday, July 14, 15, and 16. The second Lister Memorial Lecture will be delivered by Sir Robert Robinson, P.R.S., on July 15, at 10 a.m. His subject is 'The Device of Imitation of Molecules in the Biological Field'.

**Vision Light and Seeing**

Dr Matthew Luckiesh, director of the Lighting Research Laboratory, G.E.C., Cleveland, U.S.A., will read a paper on 'Factors Concerned in Vision, Light, and Seeing' at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Wednesday, July 14 at 2 p.m. Admission is free and all interested are invited to attend.

**Association of Clinical Pathologists**

The 40th scientific meeting of the Association of Clinical Pathologists will be held in the general lecture theatre of the University of Sheffield on Friday and Saturday, July 16 and 17. The programme is as follows: July 16, 9.30 a.m., Dr Joan Taylor (London), 'The Pathogenicity of the Paracolon Bacillus', 9.55 a.m., Dr R. Gouffon (Paris), 'Diarrhées et des Fausses Diarrhées', 10.15 a.m., Dr J. Ungar (Greenford), 'Distribution of Penicillin in Blood and Inflammatory Tissue', 10.35 a.m., Dr L. C. D. Hermite (Sheffield), 'A Short Review of the Pathology, Diagnosis, and Treatment of Amoebiasis', 11.30 a.m., Dr W. Wiener (Birmingham), 'The Significance of the Coombs Test', 12 noon, Dr Rosemary Biggs (Oxford), 'Dicoumarin and the Prothrombin Time', 12.30 p.m., Dr J. F. Goodwin (Sheffield), 'Clinical Aspects of Anticoagulant Therapy', 2 p.m., demonstrations in the Department of Zoology, 4.30 p.m., Sir Theobald Mathew, 'The Collection and Presentation of Evidence', 5.15 p.m., Dr G. Forbes (Sheffield), 'The Assessment of the Effects of Alcohol', July 17, 9.30 a.m., Dr A. Dick (Sheffield), 'A Simple Method for the Determination of Renal Plasma Flow and Glomerular Filtration Rate using Para-amino-hippuric Acid and Sodium Thiosulphate', 9.55 a.m., Dr S. Sevit (Birmingham), 'The Neutral Red Excretion Test of Gastric Function', 10.20 a.m., Dr A. Durupt (Paris), 'Diagnostic de l'Hypothyroïdisme et Surveillance du Traitement par le Test Métabolique de l'Effort', 11.15 a.m., Dr A. H. T. Robb-Smith (Oxford), 'Lipo-melanin Reticulosis', 11.35 a.m., Dr F. O. MacCallum (London), 'The Problem of Serum Hepatitis', 12.5 p.m., Dr J. Murray (London), 'Rapid Slide Method of Rh Grouping', 12.25 p.m., Dr K. B. Rogers (Birmingham), 'Relationship of Specific Gravity of Erythrocytes to Hypochromasia and its suggested effect on the Sedimentation Rate'. The honorary secretary of the association is Dr W. H. McMenemy, Royal Infirmary, Worcester.

**Conference on Civil Engineering Problems**

A conference on Civil Engineering Problems will be held at the Institution of Civil Engineers, Great George Street, Westminster, London, S.W., from July 19 to 23, when a number of papers on subjects of importance in Colonial development will be read and discussed. The Rt. Hon. A. Creech Jones, M.P., Secretary of State for the Colonies, has consented to open the conference on Tuesday, July 20 at 10.15 a.m. The conference is open to members of the institution, to engineers and to other officers specially interested, who are employed in the Colonial Service, and to other engineers who are otherwise engaged in civil engineering work in the Colonies. Included in the programme is a lecture to be given by Prof. George MacDonald, M.D., on 'Tropical Hygiene as it Affects the Colonial Engineer', on July 23, at 3 p.m. Details of the papers, lecture, and visits, and application forms, can be obtained from the secretary of the institution at the above address.

**SOCIETIES AND LECTURES****Monday**

MEDICAL SOCIETY OF LONDON 11, Chandos Street, Cavendish Square W.—July 12, 8.30 p.m. *Natural Defences and Disorders of the Respiratory Tract*. Discussion to be introduced by Dr A. W. Proetz and Prof. R. J. V. Pulverstein.

**Tuesday**

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East S.W.—July 13, 5 p.m. The Bertram Louis Abrahams Lecture *Curare and Curarimimetic Drugs* by Dr J. W. Trevan, F.R.S.

**Friday**

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields London, W.C.—July 16, 5 p.m. *Growth and Development from the Clinical Aspect of Orthodontics*. Charles Tomes Lecture by Prof. A. F. Jackson (Professor of Orthodontics, Temple University, Philadelphia).

**Saturday**

NUTRITION SOCIETY—At Royal Society of Medicine 1, Wimpole Street London, W., July 17, 10.30 a.m. *The Nutrition of Athletes*. Whole-day conference.

**APPOINTMENTS**

Duncan Ballantine, M.B., Ch.B., F.R.C.S. Ed., M.R.C.O.G., has been appointed Gynaecologist to Rotherham (Yorkshire) Hospital and Consultant Obstetrician to the Municipal General Hospital Rotherham.

Dr J. K. Craig, of Donnybrook, Dublin, has been granted a Colonial Service Medical Officership in Kenya.

Dr James A. Harbison, Dublin County Medical Officer of Health since 1931, has been appointed City Medical Officer.

Robert John Harrison, L.R.C.P., M.R.C.S., has been appointed Senior Physician at Fulham Hospital.

Isaac Hunter MacIver, M.B., Ch.B., has been appointed a member of the Scottish Health Services Council.

BIRMINGHAM CHILDREN'S HOSPITAL—Assistant Aural Surgeon and Laryngologist Norman L. Crabtree F.R.C.S. D.L.O. Assistant Radiologist Roy Astley M.B. Ch.B., D.M.R.

DOUGLAS D. M. M.B. B.S. M.R.C.P. Assistant Physician Royal Edinburgh Hospital for Sick Children, Sciennes Road Edinburgh.

DRANSFIELD C. MURRAY F.R.C.S. Orthopaedic Surgeon Ashton under Lyne District Infirmary and Kershaw Children's Hospital.

FINLAY H. V. L. M.B. Ch.B. M.R.C.P. D.Ch. Paediatrician Hillingdon County Hospital, Middlesex County Council.

GENERAL HOSPITAL NORTHAMPTON Assistant Consultant Surgeons Derek G. Lambie B.Sc. M.B. F.R.C.S. and E. E. T. Taylor B.A. B.M. F.R.C.S.

HAMSTEAD GENERAL AND NORTH WEST LONDON HOSPITAL Haverstock Hill N.W.—Honorary Surgeon to Outpatients A. E. Williams F.R.C.S. Honorary Physician in charge of Physiotherapy Department A. J. Martin M.R.C.S. L.R.C.P. D.P.M.

KIDDERMINSTER AND DISTRICT GENERAL HOSPITAL—House physician Beryl G. Castell M.B. Ch.B. Casualty Officer J. Hubert Beswick M.B. Ch.B.

NICHOLSON W. F. M.B.E. M.D. M.Ch. F.R.C.S., Honorary Assistant Surgeon Manchester Royal Infirmary.

PARKMAN T. H. M.B. B.S. D.P.H. Deputy Medical Officer of Health Hastings.

TOLLAND JOHN L.R.C.P. and S. Ed. D.P.H. Joint Medical Officer for Reiford Borough, Retford Rural District and Assistant County Medical Officer Notts County Council.

ZOBB MAX M.D. M.R.C.P. First Assistant to Cardiological Department Royal Free Hospital, Gray's Inn Road London W.C.

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

McCrae—On June 26 1948 at Ayrshire Central Hospital to Eileen wife of Dr John S. McCrae M.B.E. of Rimmerdale, Catrine, Ayrshire a daughter.

**MARRIAGES**

Kinnish—Chamberlain—On June 22 1948 at the Church of St. Mary the Virgin West Derby Village Liverpool Raymond Yondy Kinnish M.B. Ch.B. to Vena Chamberlain.

**DEATHS**

Barlee—On June 25 1948 at Guildford Surrey Hobart John William Parlee M.D. formerly of Tunbridge Wells aged 80.

Beveridge—On June 25 1948 at Edinburgh Royal Infirmary Gordon Beveridge M.C. L.R.C.P. and S. Ed.

Connop—On June 30 1948 at Rossland Hatch Beruchamp Taunton Herbert Connop L.R.C.P. and S. Ed. L.R.F.P.S. Glas. Major R.A.M.C. T.A. retired.

Cooke—On June 28 1948 Martin Alfred Cooke O.B.E. T.D. M.R.C.S. L.R.C.P.

Fleming—On June 27 1948 at 25 Belgrave Crescent Edinburgh Colonel Archibald Nicol Fleming D.S.O. I.M.S. retired aged 79.

Forrest—On June 22 1948 suddenly Alexander Robb Forrest M.B. Ch.B. D.P.H.

Hall—On June 26 1948 at 45 Belgrave Road Birmingham John Arthur Hall M.R.C.S. L.R.C.P. aged 78.

Heggs—On July 1 1948 at a Jersey nursing home Thomas Barrett Heggs M.D. D.P.H. of Dagmar Market Hill St. Aubins Jersey aged 68.

Mossop—On June 25 1948 at Briarwood Hythe Charles Henry Mossop M.R.C.S. L.R.C.P.

Ross—On June 28 1948 Thomas Lawrence Ross M.B. B.Ch. B.A.O.

Tierney—On July 3 1948 at 46 Gloucester Place London W. Thomas Tierney M.D. aged 79.

Tindal—On June 22 1948 at Stracathro Hospital suddenly David Duncan Tindal M.D. Ed. M.B. C.M.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Syphilitic Aortitis

**Q**—What is the best method of treating syphilitic aortitis and how does treatment alter the prognosis?

**A**—Most people nowadays would employ penicillin in the treatment of uncomplicated syphilitic aortitis but would start with very small doses in order to avoid the risk of a Herxheimer reaction. It is advisable to begin with a dose of 500 units increasing fairly rapidly till each injection contains 50 000 units provided there is no untoward reaction. The total dose should be 8 to 10 mega units and injections should be given every three hours. As yet there is little evidence available on the efficacy of penicillin alone, so that iodides, bismuth and arsenic should all be employed as well. Arsenic in the form of neoarsphenamine should be used in doses of 0.1 g. at first, increasing slowly to a maximum of 0.6 g. Treatment should extend over a period of at least two years and most reliance should be placed on bismuth during the second year. Treatment improves the prognosis considerably. Moore (*Modern Treatment of Syphilis* 1943) states that 63 of 75 patients (84%) obtained symptomatic relief, and that in a series of 115 patients adequate treatment reduced the mortality from 42 to 14% over a period of eight years and the incidence of complications, such as aneurysm or aortic regurgitation from 31 to 19%.

### Fluorescent Lighting

**Q**—Is fluorescent lighting injurious to health and to eyesight?

**A**—The efficacy of this type of lighting is the subject of considerable controversy among ophthalmic surgeons. The firms responsible for the manufacture and installation are naturally biased in its favour and they and their representatives do all they can to popularize it. The writer believes that there are factories where the lighting has been tried but where the ordinary tungsten-filament bulbs have been re-installed. Patients certainly complain about fluorescent lighting. In some cases the trouble is due to bad choice of colour, bad positioning of tubes, stroboscopic effects, lack of special methods to remove glare, lack of shadow, bad atmospheric conditions, and inattention to cleansing of the tubes and their replacement when worn out.

The writer's opinion after having seen numerous cases is that, given a healthy and robust eye, properly corrected for errors of refraction, and good working conditions with regard to air-conditioning, freedom from dust, etc., the light has no bad effect if the exposure is not over very lengthy periods but he has no doubt that tungsten light is kinder to eyes which are slightly subnormal.

### Climate and Asthma

**Q**—A patient aged 58, a chronic sufferer from bronchial asthma, bronchitis and vasomotor rhinitis aggravated by cold and damp weather, wishes to know whether a sojourn in South Africa, Rhodesia, California or Switzerland is worth a trial to obtain relief. The title of a textbook which guides one in choice of a suitable climate in the treatment of asthma and other bronchial affections would be welcomed.

**A**—It is likely that this patient would derive most benefit from a climate which is warm and dry without being dusty. South Africa or California would meet these requirements. There are few modern textbooks which deal with climatology, although recommendations of the type required will be found in most standard works on the treatment of the affection in question. The classical book on the general aspects of climatology is *Climatotherapy and Balneotherapy*, by Sir H. Weber and F. P. Weber (Smith Elder and Co., London 1907). M. Piéry's *Traité de Climatologie Biologique et Médicale* (Paris,

Masson et Cie, 1934) is a more recent and comprehensive work while E. Hawkins's *Medical Climatology of England and Wales* (London H. K. Lewis, 1923) has a more local application.

### Para aminobenzoic Acid

**Q**—Can para aminobenzoic acid be obtained in tablet form? Are there any dangers from doses of the order of 200 to 300 mg. daily and is the therapeutic activity of this substance proved?

**A**—Para-aminobenzoic acid can be obtained in bulk from several leading chemical manufacturers, but it is not obtainable in tablet form. A dose of 200 to 300 mg. daily is probably quite safe to administer, but leucopenia, nausea, and tympanites have been reported in patients receiving 12 g. or more daily. It has been used in the treatment of certain rickettsial diseases such as Rocky Mountain spotted fever, typhus, and scrub typhus. The dose is from 12 to 30 g. daily. The premature claims for the treatment of grey hair with para-aminobenzoic acid have not been substantiated.

### Control of Micturition after Prostatectomy

**Q**—How long does it usually take to acquire normal control of micturition after the suprapubic removal of an enlarged non-malignant prostate? One patient aged 70 had this operation some months ago and is still liable to incontinence especially in the latter half of the day.

**A**—No useful estimate can be given of the time taken to acquire control of micturition after a suprapubic prostatectomy, as it varies so much in different patients. An elderly man is likely to take longer than a younger one. It would be useful to pass a catheter and to discover whether there is any residual urine. The patient should also exercise his sphincter by stopping the stream during micturition and restarting it. Voluntary stimulation of the sphincter can also be supplemented by electrotherapy in the form of stimulation of the perineal muscles with a faradic or sinusoidal current.

### Loss of Weight after Hysterectomy

**Q**—Does loss of weight usually follow hysterectomy? A patient aged 36 has lost 3 st (19 kg) in the past three years following hysterectomy and removal of one ovary. The wasting is confined to the trunk and upper limbs, the lower limbs being quite muscular. The face is wrinkled and drawn. Her appetite is good, she feels well and she leads an active life. Is Simmonds's disease a possibility?

**A**—Neither removal of the uterus nor removal of the ovaries usually causes a significant loss in weight. Bilateral oophorectomy is sometimes followed by an increase in weight although this is often only temporary. It seems unlikely that the wasting in this case has any direct relation to the operation and another cause should be looked for. There is nothing in the account to suggest Simmonds's disease, which is not as was formerly supposed characterized by cachexia.

### Treatment of Coccydynia

**Q**—A thin delicate woman aged 55 complains of pain in the terminal coccygeal vertebra. This pain has been present for a year and is aggravated on sitting or lying. Examination reveals a prominent terminal vertebra with a bulbous contour. Would injecting the area with one of the sclerosing fluids used for varicose veins be effective? What other treatment would you recommend?

**A**—The condition described appears to be a form of coccygodynia, a complaint that unfortunately it is not always easy to cure. In view of the bulbous contour of the coccyx it would be helpful to have a radiograph taken to see whether there is any cyst formation or other bone disease. If there is, or if any other organic lesion—e.g., displacement—is present, there might be an indication for excision of the coccyx. In the ordinary case of this kind, however, x-ray changes are not present and surgical treatment is not usually required. Treatment by local injections into the area of tenderness is sometimes helpful. Solutions commonly used are procaine (2%) or "proctocaine." Sclerosing fluids are not advised for injection in this site. If injection treatment fails, physiotherapy, preferably

in the form of short-wave diathermy will often afford considerable relief. If there is no organic lesion 'time' is the best healer.

#### Inoculation and Vaccination

**Q**—*A party of some 30 senior schoolboys propose to visit France in August. Would you please advise me on the necessity for prophylactic treatment against the enteric group and small-pox? Most of these boys are adolescents and it is unlikely that they have been vaccinated previously.*

**A**—Inoculation against the enteric group should be recommended to any person proposing to travel on the Continent, since the hazard of typhoid fever in this post-war period is not negligible. Boys of 14–18 years should be given the adult dose of T A B vaccine—two injections at 10–14 days' interval given in the late afternoon or evening with an aspirin tablet prescribed at bedtime and no strenuous exercise next day.

Primary vaccination of adolescents against smallpox, besides causing a fair degree of local and constitutional upset, does carry a very small risk of postvaccinal encephalitis. Where, therefore, there is no compulsory regulation requiring a certificate of vaccination within the past three years, it is better not to vaccinate unless there is any evidence of smallpox being prevalent in the country to which the boys are travelling. Occasional cases and outbreaks are, of course, liable to occur in France by introduction from North Africa or the East, but the risk for a group of boys going on a conducted tour must ordinarily be very small.

#### Treatment of Thrombophlebitis

**Q**—*Would dicoumarol be beneficial in the case of an active woman of 39 who has suffered from thrombophlebitis of both legs for six months? The condition improved in hospital and afterwards at home when she was kept in bed, but in each case when she was allowed to get up the pain and swelling returned with marked tenderness in the thighs.*

**A**—This type of case often benefits from dicoumarol combined with supportive bandaging with 'elastoplast' or elastic bandages. The former should be worn all the time and the latter in the daytime only. Sleeping with the head low is also of value. The dicoumarol should be administered with care and with a view to keeping the prothrombin time double the normal, in some of these cases a two-months' course is necessary. Some patients (and doctors) are inclined to regard the swelling and aching which persist after subsidence of the attack as a continuation of the condition. Support is sufficient for this, dicoumarol is necessary only when tenderness and induration persist. Focal sepsis must be excluded, and if the blood pressure is low it may be as well to prescribe ephedrine or amphetamine.

#### Vitamin B and Hair

**Q**—*What preparation of vitamin B (whole complex) would you advise for poor-quality hair following pregnancy? Can better results be obtained with parts of the B complex? Are any ill effects likely with large doses of individual B factors?*

**A**—There is no preparation of the vitamin B complex that improves the poor quality of hair. Hair lacking in lustre ('staring' hair) has been described in undernourished subjects, particularly in Newfoundland, but it has not been possible to ascribe it to lack of any specific vitamin. Para-aminobenzoic acid has been used for the treatment of grey hair, but controlled observations have failed to substantiate the early claims for it. The uncontrolled use of this drug is inadvisable, as it may cause leucopenia.

#### The Safe Period

**Q**—*A patient has consulted me for the exact details of the so-called safe period. She is 34 and has one child aged 3½ years. I have replied that there is no absolute 'safe period' during the menstrual cycle but I would welcome an expert's opinion—i.e. what is the modern view on this form of contraception?*

**A**—The existence of a "safe period" is based on the fact that ovulation usually takes place  $14 \pm 2$  days before the onset of the next period and that the ovum and spermatozoa retain

their fertility for not longer than 24 and 48 hours respectively. The time of ovulation, however, is not so constant as to make the safe period absolutely safe, but it is relatively so. Indeed, in some women it is remarkably reliable. In the case in question the cycle usually lasts 27 or 28 days with an occasional shortening to 25 or 26 days. The fertile period is therefore between the 7th and 18th days, counting from the first day of the last menstrual period, any other time in the cycle should be reasonably safe. See also replies to questions previously published in the *Journal* (1943, 2, 286, 1944, 2, 260).

#### Spina Bifida and Incontinence

**Q**—*How often is spina bifida responsible for incontinence of urine? I have in mind a boy of 7 years who suffers from incontinence dribbling of urine occurring equally during the day and at night-time. It started about three years ago and is getting worse. After a thorough investigation in hospital the condition was considered to be due to occult spina bifida. An operation is suggested presumably to relieve hypothetical traction on the cauda equina. What results have hitherto been obtained by such an operative procedure and what risk is inherent in the operation?*

**A**—Spina bifida often causes incontinence of urine. The results of operation are uncertain. Sometimes traction can be relieved or adhesions between nerve roots and the arachnoid can be divided, with relief of urinary incontinence. But more often the result of operation is disappointing. In the case mentioned a boy aged 7 began to have incontinence only three years ago. This is a rather unusual story for spina bifida, and while the diagnosis may be correct there might be some other cause for the incontinence.

#### NOTES AND COMMENTS

**Mauling by Tigers**—Dr C S P HAMILTON (Kapnapahar, E. Bengal) writes: It has fallen to my lot to treat many animal maul cases. In this district tiger and panther maul casualty patients are the most frequent. The commonest wounds are claw wounds, which can be truly incised as well as lacerated. Out of the last four cases coming under treatment this year, they have all been claw wounds. This is due to the animal—often female with young—being suddenly frightened, in consequence it rushes out and hits wildly with its fore paws, and generally runs off. One of the worst cases I had suffered from an apparently incised wound from the left mastoid down the anterior triangle of the neck exposing the carotid; in addition there were lacerated wounds on the right cheek. If the animal wishes to kill it seems to first strike with the paws, then pounce on the victim, in my experience nearly always attacking the head and neck. Scalping is quite common in tiger wounds. One such case showed teeth wounds—lacerated—over both mastoids and a horizontal lacerated wound in the occipital area, with claw wounds over the left scapula. The woman was kneeling on the ground doing up a bundle of wood when the man-eater attacked her from behind.

Treatment now is simple. Clean the wounds, remove torn tissue, fill with sulphonamide powder, and dress with petroleum jelly, penicillin, and sulphonamide paste. Inject penicillin, and the wounds heal by almost first intention. If these victims are not killed on the spot, they nearly always survive. Our last seven cases have a 100% recovery.

**Care of Teeth in Children**—Mr J H BADCOCK (Bury St Edmunds, Suffolk) writes: Referring to the reply in "Any Questions?" (June 12, p. 1165) on the care of the teeth of children, surely the all important reason for saving the temporary teeth is the preservation of their masticatory function at its maximum until their permanent successors take their places—years when growth is most active and perfect nutrition most essential.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology* Western London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1 on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Britmedads* Western London. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. Telegrams: *Mediseca* Western London. B.M.A. SCOTTISH OFFICE: 7 Drumshugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 10 1948

## British Medical Association

### ANNUAL REPRESENTATIVE MEETING, CAMBRIDGE, 1948

TUESDAY JUNE 29

The concluding session of the Annual Representative Meeting opened on Tuesday, June 29 at 9.45 a.m., with Dr J. B. Miller in the chair.

#### An Omnibus Vote of Thanks

The first business was to accord, on the motion of the Chairman, a vote of thanks to all who had contributed to the comfort, pleasure, and convenience of the Representative Body. These included the Lord Lieutenant of Cambridgeshire, the Vice-Chancellor and Members of the Senate, the Mayor and Mayoress, the Town Council and municipal officials and a number of other local persons, also the Honorary Local General Secretary Dr Salisbury Woods, the Honorary Local Science Secretaries, Dr M. M. Wilson and Mr R. M. Fry and the members of the local Executive Committees.

The vote of thanks was accorded by acclamation.

#### Miscellaneous Motions

In the absence of the representative of Westminster and Holborn a motion was formally proposed from the Chair that steps be taken by the Council to set up a Standing Legal Committee.

The Chairman of Council said that he did not appreciate the reasons for this proposal, which was put forward without any suggested reference or functions for such a committee to perform. He hoped that it would not be accepted.

The motion was lost.

Dr Elsie Warren (Kensington and Hammersmith) moved that through the *Journal* or in other ways it should be suggested to members of the Association that they might volunteer to do part of the daily work of representatives during the B.M.A. Executive and other meetings.

This was agreed to.

Mr Weldon Watts (Newcastle-upon-Tyne) moved: 'That every session done by a practitioner should be paid for at full rate without any limitation of the number of sessions taken.' He objected to the principle of limitation of the number of sessions for which the practitioner was paid. This was carrying on the tradition of the Emergency Medical Service. Two groups were specially hit by this limitation—namely, young men back from the Services who had not had time to establish a reasonable private practice and the 'super-specialists' who did all their work in hospital. He hoped that this motion would go to the Negotiating Committee for consideration and action.

Mr Simson Hall (Edinburgh) supported the proposal. Domiciliary consultations were an extremely important point to some specialists. This was probably one of the most fruitful ways in which the energetic and keen surgeon might obtain extra remuneration, and he thought they should adopt the attitude that such a man should be enabled to make what his reputation and ability entitled him to make and not be limited by any financial ceiling of this kind.

Dr Craig (Newcastle) supported the proposal which was carried.

#### Payments of Expenses of Representatives

Dr S. Noy Scott (Plymouth) moved that in order that suitable representatives should not be prevented from attending meetings on the score of cost, reasonable out-of-pocket expenses in addition to first-class railway allowance be paid by the Association, even if the expenditure should necessitate an increase in the annual membership subscription.

He said this was a hard annual. It was high time that representatives should be paid reasonable out-of-pocket expenses. This was the more important in view of the continual cry for younger men in the Association.

Dr H. G. Dowler (Gloucestershire) moved an amendment which made the motion include members of Standing Committees, and for reasonable out-of-pocket expenses substituted expenses reasonably incurred in employing locum-tenents. As the Plymouth motion stood he could not agree to it. It was an honour to be chosen to come to the Representative Meeting.

Dr J. O. McDonagh (Perth) asked what Plymouth meant by 'reasonable.' He hoped they meant 'reasonable towards the B.M.A.' A sum of £2,000 was already spent on Council and committee meetings and this new proposal would mean a very heavy extra expenditure. This would necessitate the raising of the subscription which was questionable policy at the present time. Were representatives deterred from coming to the meeting because of expense? He greatly doubted it. They felt rewarded by the experience and contacts they made there. Nowadays most of the world was wanting something for nothing. There were very few people who were willing to do something for nothing. They as representatives were asked to continue to do that, and he hoped they would be allowed to do it.

Dr G. J. Meikle (Worcester and Bromsgrove) speaking as a recently elected representative said that he felt it an honour to come and while he sympathized with the suggestion behind the Plymouth motion he thought they should continue to act as voluntary representatives rather than seek to form a class of part-time professional medical politicians.

Dr D. H. Muir (Fife) said that he gained a great deal in contact and experience by coming to the Representative Meeting and he wanted both the motion and the amendment turned down.

Dr A. C. E. Breach (Bromley) said that to the best of his knowledge this would be his last Representative Meeting and therefore this motion would not affect him. He hoped, however, that it would be realized that there was a good deal of sense behind it. Those present were there presumably because they could afford the expense but others were absent because they could not afford the expenditure nor the serious loss of earning power. There was a danger in the present system that representation was being confined to men who were financially established and this tended to exclude those to whom expense was a matter of prime consequence.

Dr Elsie Warren (Kensington and Hammersmith) said that it was true that not many young men attended, but were they really wanted?

Dr F Gray (Wandsworth) reminded the meeting that last year the principle of payment was affirmed but not by a sufficient majority. It was becoming apparent that it was more and more difficult to get men to carry out the Association's work because of the extra strain imposed on them by the National Health Service, under which they would carry a greater burden than ever before. The expense to members was unequal, and so far as the London members were concerned it was trivial as compared with their provincial colleagues. He hoped the matter would be referred to Council so that it could be dealt with again.

Dr F E Gould (Birmingham) said that he felt that this question of payment of expenses might alter the whole work of representatives of the Association. There was another hard-working body of men whose expenses should be paid—the Divisional Secretaries. If they started paying expenses, where would it stop? He hoped the motion and amendment would be rejected.

Dr W D Steel (Worcester and Bromsgrove) agreed that the burden of committee work was heavy, but he would strongly oppose any interference with the voluntary nature of the work. Committee work had been increased very greatly under the National Health Service Act and it seemed wrong that the machinery of government should be carried out voluntarily by members of the medical profession. If any payment was to be made it should be to members of statutory committees taking part in the administration of the new Health Service. He hoped that the motion and amendment would be turned down promptly.

Dr N J Cochran (Burton-on-Trent) said that payment for people doing Government work was already made, but work for the Association should be done voluntarily, gladly, and willingly.

Dr Brown (North Staffs) said that this was the first time he had been a representative, he was honoured to represent his constituency. He opposed the motion.

Dr O C Carter (Bournemouth) pointed out one anomaly of the present situation, that if a member had to attend standing committees on two consecutive days he might have time to get home at night, thus saving himself the expense of a hotel, but it cost the Association two railway fares.

Dr J A Pridham (Dorset) hoped that the meeting would turn down the amendment and vote on the main motion. He would ask the members to remember the voluntary levy—that wherever a Division felt that a member was put to considerable expense it could put up a voluntary fund to assist him and do his work while he was away. That suggestion had worked in some areas, his own colleagues had been very generous to him. He hoped the vote would be taken on the principle and not merely on a reference back to Council, and that the decision would be made by the necessary two thirds majority.

Dr S Noy Scott (Plymouth) also hoped that the amendment would be rejected and a vote taken on the straight motion.

Dr H G Dowler (Gloucester), in reply, said that the voluntary principle should remain, but why were railway fares paid? In order to equalize the position between those who came from long distances and those who were close to the place of meeting he would ask those in partnership practices to remember their single-handed brethren who had to pay a locum-tenent as well as their expenses.

The amendment to insert "members of standing committees" and to pay expenses "necessarily incurred in employing a locum-tenent" was lost.

Dr J W Bone, speaking to the Plymouth motion, said that there were many reasons for doing what was desired, but it wanted a good deal of consideration because of the repercussions which would arise. The last Special Representative Meeting cost the Association £1 250 in railway fares and there had been several Special Representative Meetings in the last year. The normal subscription was £3 3s, but the average subscription was about £2 5s, because reduced subscriptions were given to the newly qualified and to Service personnel, and there was a free list, and if it was decided by the necessary majority to pay these expenses there would have to be an increase in the subscription. The slogan should be "No practising medical man can afford to stay outside the Association," and the subscription should be kept low enough to enable this to be accom-

plished. This aspect of the question should be considered very carefully, and if there were any doubts about it the motion should not be carried.

Dr T W Morgan (Kingston-on-Thames) proposed a further amendment, "That the payment of expenses in individual cases should be a matter of recommendation by the Divisional Executive Committee to headquarters" (No). In certain areas it was well known to the secretaries of Divisions that there were people who were willing to go to meetings in London and elsewhere but who honestly could not afford it. There were these few cases, and it might be that recompense should be given.

Dr A C E Breach (Bromley) asked how one representative could be paid and another not. On the other hand, if they were all given payment it would of course, be open to anyone to hand it back to the Association.

Dr J A Pridham appealed to the meeting to turn down the amendment. If a Division or Branch encountered a difficulty surely it would be possible for it to make suitable arrangements.

The amendment by Kingston-on-Thames was lost.

In replying to the motion Dr Noy Scott made the confession that in his Divisional meeting both he and his fellow representative consistently voted against this proposal, but as representing his Division he had to bring it forward.

The motion to allow reasonable out-of-pocket expenses to representatives was lost by a very large majority.

### Method of Election of Council

Dr C F Mayne (Plymouth) asked the Council to report progress on that part of the Plymouth resolution adopted at the Annual Representative Meeting 1943, that consideration be given at an early moment to the election of Council on a more direct and better geographical basis. Members at the periphery, at any rate in his area, were anxious to know what was being done in this respect. He instanced the circumstances of his Group Area. It extended from Land's End to Gloucester and Worcester, and it was quite unfair to ask their representatives to come down as often as they would like to have them in order to meet distant Divisions. He did not bring forward this motion in criticism of the representatives of his Group but it was felt that it would be better if direct representation were to a certain extent modified.

Dr Pridham said that this matter was brought forward in 1943 and the Council, after consideration, was not in favour of taking action. It recognized that there were certain anomalies in the grouping of Branches, but it was satisfied that the removal of such anomalies would only give rise to similar difficulties in respect to other areas. The Organization Committee had given constant attention to the whole structure and machinery of the BMA and was not of opinion that it was wise to make more drastic changes at the moment. They wanted to see the effect under the new Act.

It was agreed to proceed to the next business.

### SCIENCE

Dr R G Gordon (chairman of the Science Committee) moved approval of the Annual Report under "Science."

He said that the Science Committee was doing important work—work which would become more important in the future. The most striking event of the year had been the removal of the library into its new premises, and here he wished to thank the Librarian, Mr Shields, and his staff for the work they had done in transferring the library without any serious inconvenience to members. The Council had been asked for additional money to spend on the purchase of medical books, which were now coming out with increasing frequency and unless bought immediately were soon out of print. The library, although it received many journals through the Abstracting Service, also found it necessary to purchase a number.

He mentioned the prizes given by the Association and expressed thanks to the adjudicators. He referred in particular to the new venture whereby prizes were offered for essays by nurses. The response had been gratifying, and although the level of merit was varied, in each section there were essays of a very high order indeed and well deserving of praise.

Another new institution was the Insole Scholarship for research into the causes and cure of venereal disease. The Divisions were asking for BMA lectures increasingly.

The Report was approved.



### MEDICAL FILMS

Mr Dickson Wright, chairman of the Film Committee moved approval of the report under "Medical Films". He said there had been a proposal that the Film Committee should become a Standing Committee of the Association, but it was thought better that for the time being it should continue as an *ad hoc* committee. Accommodation had been put aside for the work of the Committee at headquarters, and it was the intention to set up a film library. An effort had been made to obtain films of special interest for general practitioners and it was hoped to get this whole matter of films on a proper footing so that it would be a credit and a great amenity to the Association.

Dr R P Liston (Tunbridge Wells), speaking as deputy chairman of the Committee, said that the scope of films in medical education was very wide and the B.M.A. was embarking on a most important project. A medical film library was being set up at Headquarters, and it was hoped that it would in course of time be second to none in the world. It would cost a lot of money and take up a lot of time, and he appealed to members who were interested in films and who had actually made medical films to lend them so that copies could be made for inclusion in the library. If such members felt disposed to give their films the Committee would be more than delighted.

Mr Dickson Wright endorsed what Dr Liston had said, and the report was approved.

### PUBLIC RELATIONS

Dr H Guy Dain, as chairman of the Public Relations Committee, moved approval of that part of the report. He said that this had been the most active year since the inception of the new department and there was every reason for congratulation on what had been accomplished. On the question of the National Health Service and the Association's negotiations the Press had been helped on all sides by the Public Relations Department and its officer, and the benefit had been felt in the understanding of the Association's ideas and policy thus achieved. An information service on medical matters of all kinds—not merely political matters—was being built up so that the constantly increasing number of inquiries which the Press were making could be answered quickly and efficiently. The effect of this was difficult to measure, but the support received during the past months had been most helpful. A really effective Public Relations Department had now been established.

Dr A C E Breach (Bromley), in offering congratulations to the Department on its extraordinarily fine work, asked whether the Chairman of Council could amplify the report a little. Some members were perplexed by the failure of the Department to send out to members the posters, handbills, and handbooks promised as a matter of urgency at the Special Representative Meeting in March.

Dr Scott (Barnet) hoped that Headquarters "in the flush of enthusiasm for the new Service" would not forget those members who were desirous of staying out of the Service or those who, while entering the Service, wished to retain an interest in private practice. Recent letters in *The Times* had been confusing in their effect. An article in a London evening paper last week stated that people requiring dental benefit could get it provided they could find a dentist who would undertake it on presentation of a medical card. Dental benefit was equally applicable to those who had registered and those who had not. It was also stated that ophthalmic benefit was on the same basis. Such statements could do a great deal of harm, and he hoped that the Public Relations Department would do its best to refute them.

Dr F E Gould (Birmingham) paid a tribute to the work and courtesy of the Public Relations Officer, Mr Pringle. With regard to the material sent to Divisional Secretaries for distribution to their members he wondered whether the Public Relations Committee could consider some method of sending them out to individual practitioners in order to help secretaries.

Dr G J Meikle (Worcester and Bromsgrove) asked if representations could be made to the Ministry of National Insurance to ensure that local offices did not give wrong information to people making inquiries about the National Health Service. Wrong information was given to one of his patients, and when

he protested to the manager he was informed that they were not supposed to give information on the Health Service whereupon he suggested that if the staff did not know the answers they should not give misleading information. This was probably going on all over the country.

Dr A G Heron (Bristol) said he was also worried about the contradictory statements made from time to time. His Division would like to know whether anything was done about the recommendation passed at the last Special Representative Meeting that steps be taken to inform the public that at its inception not all the promises made in the National Health Service could be fulfilled. Very little of this recommendation seemed to have been carried out.

The Chairman of Council, in reply, said that following the plebiscite in February literature of all kinds was put in hand, but it was difficult to get it printed because of the shortage of paper. By the time it was ready the Minister had changed his mind, and it was not issued. So much of it dealt with the danger of a whole-time Service created by regulation. The Minister's statement put the material out of date. Approximately 500 000 leaflets on the private practice question had been issued to doctors and explained to patients what was their position on the subject of private practice. When a newspaper published a statement which was inaccurate it was not very easy to catch up on it, papers were not always willing to correct statements, and it often did more harm than good if they could be persuaded to do so. After July 5 leaflets would be issued to practitioners with regard to the deficiencies in the Service which were bound to occur, and the responsibility was placed where it should properly lie. The medical profession would do their utmost to give good service to the public, and what deficiencies there were were not their fault.

The Association was in considerable difficulties with Ministries other than the Ministry of Health. The Ministry of National Insurance issued instructions which Headquarters did not see, and it took a little longer to catch up on them. A letter had arrived that morning saying that the Ministry of Education was issuing an instruction to schoolmasters to tell them to sign on their pupils on the school doctor's list, which was news to the office. This kind of thing became known only when complaints were received from members. The Committee was very anxious that the public relations service should give every satisfaction, it was very pleased to receive comments, criticism was expected, but constructive and helpful suggestions were received with gratitude. He hoped to get the support of the whole profession in showing that the Association's public relations work was as good as anybody's in the country.

### PSYCHIATRY AND THE LAW

The Annual and Supplementary Reports under this heading were submitted for approval by Dr Doris Odum. She said that the Committee consisted of magistrates and doctors in equal proportions and there were also observers on it from the Home Office, the Ministry of Education, and the Board of Control. It came into being in the early part of 1946 on the initiative of magistrates who found that they had many problems in relation to unstable adults and children which caused them a great amount of anxiety and distress because they did not know how to deal with them. More and more problems were cropping up to be dealt with, and reports had been published the first of which was concerned with the adolescent girl. The work had lain in three fields: the Committee had first to prepare recommendations for emendation of the Criminal Justice Bill, now before Parliament, then the memorandum in Appendix VI of the Supplementary Report on enuresis, particularly in relation to delinquency, was prepared. Magistrates said that they had quite a number of children in the juvenile courts who suffered from enuresis, it was obviously a contributing factor in their delinquency, and the Committee tried to deal with it and make suggestions for the solution of the problem. At present the Committee was engaged in the preparation of a memorandum on sexual offences a problem of great social importance. Although it would not be published until the discussion on the Criminal Justice Bill had been finished it was hoped that it would be of great help to the legal profession.

Dr J G Thwaites (Brighton), commended the work of the Committee. He said that its reports were eagerly looked for by lay people who undertook social work throughout the country, and this quiet steady work brought much credit to the Association.

The Report was approved.

The Annual Report under 'Armed Forces, in the absence of the Chairman of the Armed Forces Committee, was formally moved and approved.

### SCOTLAND AND WALES

Dr G MacFeat, Chairman of the Scottish Committee, outlined the various matters relating to Scotland which were given in detail in the Annual and Supplementary Reports of Council. He referred to the new machinery for the organization of the Association in Scotland and forecast the usefulness of the Regional Consultants and Specialists (including Hospitals) Committees, and of the Central Committee. He referred also to the Report of the Working Party on the recruitment and training of nurses in Scotland, the Scottish public relations machinery and the discussions which had taken place with the Department of Health on the various sections of the National Health Service (Scotland) Act.

The Report was approved.

Dr H R Frederick, Chairman of the Welsh Committee, introduced the section under "Wales". The Welsh Committee had been active during the year and they had been interested in the fact that Wales and Monmouth had been included as a region under the new Act.

This Report was also adopted.

### MEDICAL BENEVOLENCE

Dr Janet Arken, Chairman of the Charities Committee, moved the Report under Medical Benefit. The Association had £11 500 to distribute among charities during the year—a large increase on the amount for 1945-6. But she did not want anyone to think that the charities in which they were interested did not need more support. The Royal Medical Benevolent Fund had committed itself to a new undertaking on behalf of the aged, and the expenses of Epsom College were going up by leaps and bounds. She also referred to the action of Swiss doctors in giving holidays to the children of British medical men who were killed in the war. A magnificent holiday of three months was given to 92 children who went in three parties.

Dr F M Rose (Preston) asked for special consideration for the claims of Epsom College, and Dr D F Hutchinson (West Middlesex) made an appeal for greater support for medical charities in general.

In reply to questions, Dr Macrae (Deputy Secretary) said that the work under the Medical War Relief Fund was still going forward. The Distribution Subcommittee met regularly once a month. Applications were still being received from people who came within the scope of the Fund, but by the time the balance was expended it was hoped that they would have completed the purpose for which the Fund was formed. He added that when the Committee decided to give a fairly large sum to a widow to help her with the education of her children over 5 years the money was paid to her yearly. By far the greater part of the money paid out had been in the form of gifts.

### VOTE OF THANKS TO THE CHAIRMAN

This completed the business before the Annual Representative Meeting.

Dr H W Pooler moved a vote of thanks to the Chairman, Dr J B Miller, one of his oldest personal friends in the Association. The distinguishing characteristics of Dr Miller's chairmanship had been his tolerance, forbearance and ready wit. His term of office had coincided with the most momentous period in the whole history of British medicine, and many difficulties had been surmounted as a result of the qualities he had exhibited.

The vote of thanks was accorded with loud cheering the representatives rising in their places.

Dr J B Miller said that during the three years of his office there had been seven Representative Meetings. Although conducted amid alarms and excursions the meetings themselves were on the whole peaceful and reached decisions in a judicial manner. Despite their fears there had been few or no casualties, and the membership of the Association was still increasing. The success of these meetings had been due to the representatives themselves, who were now experienced in the affairs of the Association, the future of which was safe in their hands.

He then proceeded to invest his successor, Dr E A Gregg with the badge of office. He said that Dr Gregg had presided for eleven years over that virile and exuberant body the Insurance Acts Committee, and that being so he was fit for any chairmanship.

Dr Gregg, who was heartily applauded on taking the chair, said that he had been looking through the list of past Chairmen of the Representative Body and he felt that he was entering upon a wonderful heritage and a great responsibility. He felt like John Bunyan, who spoke of his experiences on reaching heaven. There were three great surprises—that there were people there whom he did not expect to find, that there were not people there whom he did expect to find and, the greatest surprise of all, that he was there himself. (Laughter.)

The meeting terminated at 12 30 p.m.

### Correction

We regret an obvious error in reporting (*Supplement*, July 3, p. 22) that the eight members of the new Council were elected by Grouped Branches not in Great Britain or Northern Ireland. This should of course, have been 'by the representatives acting together'.

## 116TH ANNUAL GENERAL MEETING

The 116th Annual General Meeting was held in the Large Examination Hall, Cambridge, on Tuesday, June 29, 1948 at the termination of the Annual Representative Meeting. Sir Hugh Lett, Bt., occupied the Chair.

The Secretary read the notice convening the meeting.

The Minutes of the last Annual General Meeting held in London on July 22, 1947, and published in the *Supplement* of Aug. 2, 1947, were confirmed.

### Induction of President

Sir Hugh Lett then inducted Sir Lionel Whitby as President of the Association, 1948-9, and invested him with the Presidential badge of office. He said that looking at Sir Lionel's youthful appearance they might be surprised to know that he fought in the first World War with great distinction and was awarded the M.C. and took his majority at the age of 22. Unfortunately he was seriously wounded. After the war he entered medicine and devoted himself to bacteriology. He soon became the most distinguished bacteriologist in the country. Some would recall the value of the services he rendered to King George V during his serious illness, from which he recovered. It was to Sir Lionel that they owed the chemotherapeutic treatment of pneumonia, for it was he who discovered the action of sulphapyridine against the pneumococcus. It would be difficult to overestimate the enormous benefit and the number of lives saved as a result of that treatment. Then he devoted himself to the study of blood and became an authority on haematology. When the second World War broke out he was appointed to the charge of the Army's Blood Transfusion Service at Bristol, and again literally thousands of lives were saved as a result of his work. Later he was appointed Regius Professor of Physic in Cambridge University and Master of Downing College.

That day the Association had the great privilege of welcoming him as its new President. His personal qualities had endeared him to those who knew him, and his name would take a very high place among the distinguished names of Presidents.

Sir Lionel Whitby, who then took the Chair, said how very happy he was to be elected as President. Some of them would

remember the last meeting of the Association in Cambridge in 1920, when the President was his famous predecessor as Regius Professor of Physic, Sir Clifford Allbutt. That meeting at Cambridge in 1920 was, like the present one, the first provincial meeting to be held after a World War. Civilization was indeed at the crossroads, and they in the medical profession were likewise caught up in the toils of the social and economic upheaval that had followed upon two wars.

'None of us can say,' Sir Lionel continued, 'how the great State experiment which is to begin next week will work. Most of us have given considerable thought to the implications, effects, and practicability of the scheme. In common with most others I am considerably apprehensive, not so much of inefficiency, not so much of frustration, nor even of undesirable control, because all that can be most vigorously countered by our great Association, and also by the public itself provided it is suitably informed, I am more apprehensive of a more subtle aspect, and that is the loss of the personal and human touch without which the whole soul goes out of the profession of medicine. (Applause)

#### Appointment of Auditors

On the motion of Dr C F Mayne, seconded by Dr F M Rose, it was unanimously agreed.

That Messrs Price, Waterhouse & Co be and they are hereby appointed Auditors of the British Medical Association until the next Annual General Meeting.

#### President-Elect

The President reported that Dr C W Curtis Bain, physician, Harrogate General Hospital, had been elected by the Representative Body as the President of the Association, 1949-50.

Dr Curtis Bain, who was heartily welcomed, briefly thanked the Association for the honour done to him and to Harrogate and said they would do their best to make the Association very welcome next year.

#### Vote of Thanks to Past President

The Chairman of Council (Dr H Guy Dain) moved.

That the hearty thanks of the Annual General Meeting of the Association be given to the retiring President, Sir Hugh Lett, for his services as President, 1946-48.

He said that when Sir Hugh Lett accepted the invitation to become President he brought great gifts to this high office. They were grateful to Cambridge that the University had recognized his services by the honorary degree which he received at the hands of the Chancellor, Field Marshal Smuts only a fortnight ago. If the Association had in a small way helped Sir Hugh Lett to acquire a new distinction they were grateful. When he accepted the invitation to become President he did so in no perfunctory spirit, and he had been most helpful with his advice and interest on the Council and Committees.

The vote of thanks was accorded by acclamation, the members standing and applauding.

Sir Hugh Lett said he was deeply touched by the extremely kind words of the Chairman of Council. He wished that he better deserved them. It had been a great privilege to work with the Association during two years. Some people inside and outside the Association had been inclined to criticize it, calling it a minor trade union but no one could work at B M A House, even for a year, without being enormously impressed by the wide field that the activities of the Association covered. It was not simply a question of seeing that medical men got fair terms for their work. The Association did much on its scientific side, through scholarships and lectures, through its great *Journal* through its Medical Abstracting Service, and its specialist journals, and through its library. He hoped that in the new Empire Medical Advisory Bureau they would have an organization of the greatest possible benefit for their friends from overseas.

On seeing the activity of the Association at close quarters and the able men who sat on its Councils and Committees he felt the utmost confidence that the Association would go on to greater achievements.

The meeting then adjourned until 8.30 p.m. for the President's Address to be given at the Senate House.

### EXTRAORDINARY GENERAL MEETING

An Extraordinary General Meeting of the Association was held in the Large Examination Hall, Cambridge, on Tuesday, June 29, 1948, immediately following the Annual General Meeting. The Chair was taken by the President, Sir Lionel Whitby.

The Secretary read the notice which appeared in the *Supplement* of June 5, 1948, as follows:

Notice is hereby given that an Extraordinary General Meeting of the British Medical Association will be held in the Large Examination Hall, Bene't Street, Cambridge, at 12.30 o'clock in the afternoon, or as soon thereafter as the Annual General Meeting of the Association shall be terminated, when the following resolution, with or without amendment, will be proposed as a Special Resolution.

#### Resolution

That the Articles of Association be altered in the manner following:

(i) By inserting in Article 3 after the words "The Medical Acts the words and figures" "or the Medical Practitioners and Pharmacists Act, 1947".

(ii) By deleting from Article 10 (c) in line 6 the words "for India or".

The President moved.

That this Extraordinary General Meeting amend Articles 3 and 10 (c) of the British Medical Association in the manner above indicated.

The motion was carried unanimously, and the meeting terminated.

### ADJOURNED ANNUAL GENERAL MEETING AND PRESIDENT'S ADDRESS

The adjourned 116th Annual General Meeting of the Association was held in the Senate House, Cambridge, on the evening of June 29. The famous hall was filled with an assembly numbering 1,000, very many of whom were in academic robes and this with the dresses of the ladies made a brilliant spectacle. The President, Sir Lionel Whitby, had on his right the Vice-Chancellor of the University, and on his left the Mayor of Cambridge. On the dais also were principal officers of the Association.

The proceedings began with the introduction to the President by the Chairman of Council of the following delegates from kindred Associations:

Major-Gen E A Moyes (American Medical Association), Dr R C J Meyer (Medical Association of South Africa), Dr P T O'Farrell and Dr A Ryan (Medical Association of Eire), Dr A Batty (Indian Medical Association), Dr Md Ibrahim and Dr Choudury (Pakistan Medical Association), Dr W Demuth and Prof Karl Fellingner (Austrian Medical Association), Dr Moller-Nielsen (Danish Medical Association), Dr B Frankenhäuser (Association of Physicians of Finland), Dr A Codouris (Medical Association of Greece), Prof Joann Saemundsson and Dr Karl Strand (Icelandic Medical Association), Dr Stig Berseus (Swedish Medical Association), Mr E Rothlin (Swiss Medical Association).

The following representatives from Overseas Branches were next presented:

Dr E J Foley (Tanganyika), Dr F J Wright (Kenya), Mr J H G Robertson (Matabeleland), Dr J N P Davies (Uganda), Dr H J Ham and Dr C G L Stening (New South Wales), Dr E W Duncan (New Zealand), Dr G H McQueen, Mr J L Steele Scott, and Dr J C Lum (South Australia), Dr J Gowland and Dr W Nelson (Victoria), Dr G Fraser (Assam and Northern Bengal), Dr V H L Anthonisz (Ceylon), Dr H P L Ozorio and Dr A W Woo (Hong Kong and China), Dr D W G Farris and Dr R D Gross (Malaya), Dr Masood Ahmed (Punjab), Dr B Gillette (British Guiana), Dr J C R Buchanan (Fiji), Dr C Michie (Gibraltar), and Dr J Cauchi (Malta).

Dr Dain then introduced to the President Dr J W Bone of Luton, the late Treasurer, who on the previous day had been awarded by the Council the Gold Medal of the Association in recognition of his distinguished work for the Association and the profession. Dr Bone was given a great ovation.

Sir Hugh Lett, the Past President, invested Lady Whitby with the President's Lady's Badge, remarking that one seldom heard

a really great man speak of his work without paying a tribute to the help he had received from his wife. Those who knew Sir Lionel Whitby were well aware how true this was in his case. Lady Whitby said a few graceful words in acknowledgment.

Next came the presentation of the Association prizes. Some of the prizewinners were unable to be present, but the following received their prizes at the hands of the President:

Dr J G Nathan (Stoke-on-Trent), the Sir Charles Hastings Clinical Prize

Mr A Hedley Visick (York), First Prize in the Nathaniel Bishop Harman Award

Dr W Hedley Summerskill (Southsea), Second Prize in the Nathaniel Bishop Harman Award

The following prizes were awarded to nurses for the best essays on certain prescribed subjects:

Pupil Nurses

First Prize—Miss P Yates, Queen Elizabeth Hospital, Birmingham,

Second Prize—Miss Monica M Pearce, General Hospital, Birmingham

State Registered Nurses working in a hospital

First Prize—Miss Joyce Donaldson, Little Bromwich Hospital, Birmingham,

Second Prize—Miss Lois Beulah, Queen Mary's Maternity Home, London, NW3

State Registered Nurses not working in a hospital, district nurses, private nurses, etc

First Prize—Mrs A J Franklin, Deganwy, Caernarvonshire,

Second Prize—Miss N Mackintosh, West Lothian

The President then delivered his address, entitled "The Changing Face of Medicine." The address was published in the *Journal* of July 3. Thanks to excellent loud speaker arrangements every word was heard perfectly in all parts of the hall.

At the close, Dr E A Gregg, Chairman of the Representative Body, expressed the thanks of the assembly to the President. He said that if the visitors had come to Cambridge for nothing else than to hear this address their visit would have been well worth while. They would carry away from Cambridge many happy memories, of generous hospitality, of inspiring meetings, of noble buildings, but he was sure the outstanding impression would be one associated with this very fine and instructive address.

After the proceedings in the Senate House were over an adjournment was made to Old Schools, almost adjoining, for the President's reception. Sir Lionel and Lady Whitby received about 700 guests.

## PROCEEDINGS OF COUNCIL

### Monday, June 28

A meeting of the Council was held in the Small Examination Hall, Bene't Street, Cambridge, on June 28, Dr H Guy Dain presiding.

The congratulations of the Council were conveyed to twenty-five members of the Association whose names appeared in the recent Honours List.

The Council heard with regret of the illness of Dr James Fenton, chairman of the Public Health Committee, and sent him a message of sympathy.

On the proposition of the Chairman it was resolved unanimously and with acclamation to award to Dr J W Bone at the conclusion of his Treasurership the Gold Medal of the Association for his distinguished services to the Association and to the profession.

Dr Dain and Dr Gregg were appointed delegates to represent the Association at the General Assembly of the World Medical Association, to be held in Geneva in September. It was mentioned that Dr J A Pridham was attending the assembly in another capacity.

Mr A M A Moore presented a report from the Consultants and Specialists Committee. This opened up the consideration

of the Specialist Spens Report. The Consultants and Specialists Committee could not approve the principle of granting awards for merit which was put forward in the Spens recommendations, and had passed certain expressions of opinion to the Negotiating Committee.

The Council noted the views of the Committee on this subject, and it was understood that the newly constituted committee would look further into the subject and bring it forward again before Council.

Dr R G Gordon, for the Science Committee, brought forward recommendations for awards of Association prizes and scholarships which were approved. He said that the essay competition for nurses had evoked an excellent response, and though the quality of the entries was uneven the committee had no hesitation in recommending prizes, six in number, with commendations to six other entrants.

The Council, on the recommendation of the Office Committee, accepted the invitation of the Medical Association of South Africa to hold an Annual Meeting in Johannesburg in 1951.

Dr Bone, in presenting for the last time the report of the Finance Committee, said that the great feature of the first four months of this year was the remarkable increase in income, but the commitments of the Association were also extending.

It was agreed that the Treasurer be authorized at his discretion to permit payment of expenses of travel by air of members attending central meetings, provided that the member could establish his claim to this payment in virtue of special circumstances.

It was reported that an initial step had been taken towards the establishment of regional offices for the Association. Certain office premises had been taken in Leeds, and similar arrangements were being made at Cambridge.

Dr Janet Aitken, for the Committee on the Care and Treatment of the Elderly and Infirm, presented a memorandum entitled "The Right Patient in the Right Bed," which is a supplement to the earlier report of the Committee. The report was approved for publication, and it was agreed that copies should be sent to the chief officers of the regional hospital boards, hospital management committees, and local authorities.

Routine reports by the Industrial Medicine Committee and the Welsh Committee were approved. On the motion of Mr Moore it was agreed to open negotiations with the appropriate authorities to secure the application with retrospective effect, of the recommendations of the Inter-Departmental Committee on the Remuneration of Consultants and Specialists to full-time medical teachers and laboratory and research workers.

Various matters were held over for the first meeting of the new Council.

### Wednesday, June 30

The first meeting of the new Council was held in the Small Examination Hall, Cambridge, on Wednesday morning, June 30.

Nominations were invited for the chairmanship, and from many parts of the Council it was moved that Dr H Guy Dain be re-elected. He was called unanimously to the Chair, and in thanking the members said that he had now been chairman for a number of years and thought it was time for a change. In view of the wish expressed, however, he was prepared to carry on for a further year, but that must be the limit.

The several new members of the Council were then welcomed—namely, Dr C W Curtis Bain (President-elect), Dr J Cottrell, Dr J A Gorsky, Dr I G Innes, Dr W M Knox, Air Commodore J Kyle, Dr R P Liston, Dr J C Pearce, Major-General Sir Percy Tomlinson, Dr H Vickers, and, in his absence, Lord Horder.

It was agreed that there was no occasion to take a referendum on any of the decisions of the Annual Representative Meeting.

Dr S J Hadfield was appointed an Assistant Secretary of the Association in place of Dr Revans, who had resigned.

A letter was read from Lord Webb-Johnson, of Stoke-on-Trent, thanking the Council for its congratulations on his elevation to the peerage, and stating that he would at all times do his utmost to co-operate with the Association in promoting the welfare of medicine.

In accordance with the decision of the Representative Body a Special Committee was appointed to consider the effectiveness of the Association in collective bargaining and the best method by which it would be obtained. It was agreed that the Committee should consist of the principal officers of the Association, the chairmen or their nominees of the General Practice, Insurance Acts, Central Consultants and Specialists, Scottish, Ethical, and Organization Committees, and five other members—namely, Dr J A Brown, Mr L Dougal Callander, Dr O C Carter, Dr F Gray, and Dr J A Gorsky.

The Council proceeded to the election of members to Standing and Special Committees. At its previous meeting the Council had agreed that the immediate postgraduate training of the general practitioner should be a special subject of study and a committee of 26 members was appointed for this purpose.

The Protection of Practices Committee and six other special committees, having discharged their reference, were not re-appointed. The number of special committees to which members were appointed was twenty, and in addition members were appointed to five joint committees with other organizations. Dr J A Ireland and Dr F Gray were appointed representatives of the Association on the Council of the Society of Medical Officers of Health.

The consideration of a long report by the Health Centre Committee had been deferred from the last meeting of the old Council, but it was felt that members of Council, especially the new members—had not yet had time to study the document, and, as the matter was considered to be of some urgency inasmuch as certain local authorities were said to be preparing plans for such centres, it was agreed to hold a special meeting of Council for the consideration of this report on July 14.

The proceedings then terminated.

## RECEPTIONS AT CAMBRIDGE

The abounding hospitality of Cambridge manifested itself in a number of receptions, some of them informal and sectional, but three for the general body of members and their ladies attending the Annual Meeting. The first of these was the reception given by the Vice-Chancellor of the University the Rev Canon C E Raven. This was held at Christ's College, of which the Vice-Chancellor is Master. The guests were received by the Vice-Chancellor in his lodgings, and tea was served in the great hall. The guests were shown round the historic College including the Fellows Building, built in the middle of the seventeenth century, and also saw the beautiful gardens, freshened by recent rain, with the mulberry tree associated with the most famous of Christ's men—John Milton. The reception offered a welcome relaxation in a day filled with business and official functions.

On the same evening, following the President's Address in the Senate House, a reception was given in Old Schools, almost adjoining 'Standing in the Dome Room, Sir Lionel and Lady Whitby received many hundreds of guests, until the old building, large as it is, could hardly accommodate another. With the red and black gowns of the doctors, the jewels and orders and the evening dresses of the ladies, the scene was animated and picturesque, and Old Schools provided the ideal setting. Part of the building goes back to the late fourteenth century, and much of it to the fifteenth. From the Dome Room, which is an eighteenth-century addition, the guests proceeded to the Council Room, which housed the first University Library, and then to Regent House the University's oldest building, originally used as chapel and senate house.

On the following evening, again at Old Schools, the Association enjoyed civic hospitality. The Mayor and Mayoress (Councillor and Mrs G F Hickson) received a large number of guests. An interesting feature of this reception was the exhibition of the ancient charters of Cambridge as well as other treasures of the town, including the maces. The great mace is of silver gilt, weighing 155 oz, and dates from the reign of Queen Anne, each of the four smaller maces, also of silver gilt, weighs between 80 and 90 oz. Another interesting Corporation exhibit was a small copper gilt sergeant's mace which was used in the reign of Charles I, and probably purposely mutilated at the death of the King. Music and conversation prolonged the proceedings to a late hour.

## ANNUAL DINNER OF THE ASSOCIATION

The dinner in connexion with the Annual Meeting at Cambridge was held on Thursday evening July 1, and was attended by about 600 members and guests. The President (Sir Lionel Whitby) occupied the Chair and was supported by the principal officers of the Association. Among the distinguished guests were the Lord-Lieutenant of Cambridgeshire (Capt R G Briscoe), the Vice-Chancellor of the University (Rev C E Raven, D.D.), the Mayor of Cambridge (Councillor G F Hickson), the Master of Trinity (Dr G M Trevelyan), and Major-Gen E A Noyes, representing the American Medical Association.

### "The University and Town of Cambridge"

Sir Hugh Lett, Immediate Past-President, reminded the assembly that the first provincial meeting after the first World War was also held at Cambridge. This was no mere coincidence. There were great ties between Cambridge and the medical profession, and there could be no better place in which to begin afresh.

There was another reason for coming to Cambridge—namely, the close association between Cambridge and the medical profession which had continued for 400 years since Dr John Caius did so much for the University and Medicine. John Caius was a great liaison officer: he was President of the Royal College of Physicians for nine years, he wrote a textbook in English and he introduced the study of anatomy into Cambridge. On this point he would say a word on behalf of the "down-trodden surgeons." There was an extraordinary veneration for physicians in Cambridge yet John Caius owed a great deal to the surgeons, because when he came back after his wanderings he was given a job by the Barber-Surgeons Company the forerunner of the Royal College. Because of this John Caius had the opportunity of practising dissection in the only place in England in which it was allowed, and from that one could trace his institution of the study of anatomy in Cambridge.

He wished to say how much the Association appreciated all that had been done by the University and the town through the Vice-Chancellor and the Mayor to make its stay as happy as possible. It would have been observed that "University and Town" were combined in a single toast. In the old days there was keen rivalry between town and gown. But the one could not get on without the other, the University would be in great difficulties without the town, and the town would not be what it was without the University, so that it was appropriate to ask the company to join him in a comprehensive 'health act,' and he was sure it would be welcomed without the slightest difficulty.

The Vice-Chancellor, in responding for the University, said that Winston Churchill was not the only one to receive a degree at the hands of the Chancellor on the recent occasion, and he was proud that the toast had been proposed by the newest Honorary Graduate, a very distinguished surgeon and successor to Dr John Caius. He would summarize the very long speech he had prepared in three headings. First, the "crimes" of the University against medicine in the form of the anatomy paper, how any human being survived that memory test had always been to him a miracle. That it created a dislike of surgery he had not the slightest doubt and he thought it created a certain dislike of anatomy which remained even to this day. This "crime" had been repented of and to some extent expiated. The second "crime," unfortunately still existing, was that men reading for medicine could not come to Cambridge until they had read the first M.B. This was a crime of the greatest magnitude, because it condemned the student to specialization at far too early an age. Next there were the benefits of medicine to the University, the University had been in dispute with Government circles on the question of salaries, but the findings of the Spens Committee would be a great help on this question.

In spite of these crimes and benefits there remained a relationship with a long history, with a splendid present, and a still more splendid future, when Cambridge had its new regional hospital and school, with the possibility of completing medical training in Cambridge, other parts of the kingdom would have to look to their laurels. The University owed the Association



a deep debt of gratitude for holding its conference in Cambridge and wished it well.

The Mayor of Cambridge said he was a mere layman in this scientific gathering, but he had listened with great interest to the President's Address although it contained some technical phraseology. He did not need technical language to thank Sir Hugh Lett for his kind words in proposing the toast. Cambridge had been very pleased to see this first big conference since before the war, it was most appropriate that a learned body should come to Cambridge, and he hoped the Association would not wait until there was another world war before it came again.

#### "The British Medical Association"

Dr G M Trevelyan (Master of Trinity) proposed the toast of the Association. He said he was qualified for his task only by the admiration he had always felt for the sort of person a doctor usually was, and by the fact that he had many close friends among the medical profession. He had lived a long and very healthy life out of the hands of the doctors. One of his dearest friends was Sir Walter Morley Fletcher, a man of the widest culture, with a wonderful zest for everything good in life, who was the first secretary of the Medical Research Council, and the great work accomplished by that institution was largely due to the impetus given it by its first secretary. It was not only because of the men of science and of academic distinction that he admired the profession. Living as he did in a remote district of Cumberland for part of the year, he had seen the devoted work of the doctor and what an isolated community owed to his willing, zealous, sympathetic help and care. There was a spirit of service which no private fees nor State salary could buy. He wished that all other sections of the community had that spirit to the same extent as the doctors, and as a historian he knew what a great and indispensable part doctors had played in building up our present civilization and modern organization which enabled nearly 50 million people to live in this little island.

Cambridge was not uninterested in the progress of medical science, Cambridge folk were specially delighted by the choice of President this year, and he hoped his Address would be read far and wide. It was a great honour to propose the toast of the British Medical Association.

The Chairman of Council (Dr H Guy Dain) asked how he could reply to such a toast without bragging, it was quite impossible. The British Medical Association was a voluntary association of doctors to preserve their honour and interests. The days of increased specialization had separated doctors into little cliques and had given them different functions which did not always seem to hold very well together, but who would hold them together if not the British Medical Association?

The Association had this year achieved what had never been done before in this country or in any other, it had organized or modified the organization of a health service in which the freedom of the people and of the doctors was preserved. Without the Association's strenuous efforts that would not have been attained. The public were now free to choose their doctor, the doctor was free to go into the Service or stay out, he was free to say what he liked about medicine or the Service without supervision, he was free to practise under the conditions which hold today, with very little limitation, and his success in life would depend on the goodwill of the patient.

These features having been attained, a Service was about to commence such as had never before existed. Other countries had had them and had made one mistake or another, these had been avoided and, now that the struggle was over and freedom had been obtained, doctors would put their best efforts into making it a really fit and proper and good Service for the people of this country.

The Association was determined to see that this was done, that the honour and interest of the medical profession was upheld and having attained freedom, he would remind his hearers that the price of freedom was eternal vigilance. That would be the work of the British Medical Association.

#### "The Guests"

Alderman Dr Robert Ellis in a short speech proposing the health of the guests, said that no function in Cambridge was complete without the Lord-Lieutenant of the County, the Chair-

man of the County Council, the Vice Chancellor, and the Mayor, all of whom were present. He also welcomed those who had come from all parts of the Empire and from countries with kindred associations throughout the world. Some had come to Cambridge for the first time, others were making its acquaintance after a long interval, and he was certain they would return to their homes with happy memories of their stay in Cambridge this week.

The Lord Lieutenant of Cambridgeshire (Capt R G Briscoe), in response said that he had always found individual members of the profession most entertaining, but he had always had to pay for the entertainment, that night, however, he and all the other guests had been entertained for nothing, and for that he would say "Thank you." As Lord Lieutenant he would like to welcome the medical profession to the county, and as a prospective patient to placate them.

Dr V H L Anthonisz, OBE (Ceylon), also in response said that he came from the newest Dominion overseas but not the least loyal in the great British Commonwealth of Nations. In his Dominion the medical service was entirely State controlled, and it was a great pleasure to be present on the eve of the birth of the new National Health Service, it would be to watch its growth, development, and future achievements. He had been pleased and delighted with the wonderful entertainment and generosity which had been extended to his wife and himself and appreciated the privilege of attending the meeting. He wished the new Health Service every success.

Major E A Noyes, MC, MD (American Medical Association), in a brief reply, extended on behalf of his own Association best wishes and congratulations on the 116th Annual Meeting. He trusted that the cordial and helpful associations and relationship which had been existing between the American Medical Association and the British Medical Association would continue to grow and flourish in the years to come.

#### "The President"

Prof E D Adrian, OM, MD, FRCP, FRS, said that when Sir Lionel Whitby was appointed to Cambridge they knew that the Crown could do no wrong, but it was gratifying to find out how very right it could be. It had given Cambridge someone eminent both in the scientific and practical side of medicine, he was a man who could get things done. He was an admirable Chairman of the Faculty Board, and he would be an admirable President, and every member was grateful to him for agreeing to lead them in these difficult times.

Sir Lionel Whitby said it was very difficult to reply to a toast proposed to oneself. There was a great difference between having something to say and having to say something, but at least he could say "Thank you" for the way in which the toast had been received and "Thank you" to Prof Adrian for the way in which he proposed it. He would add that any success at this meeting was in very large part due to the tremendous assistance he had had from his many auxiliaries, secretaries, and others, and he had enjoyed it very much.

### THE EXHIBITION OF SURGICAL INSTRUMENTS AND DRUGS

The exhibition of surgical instruments and appliances, drugs, foods, and other products of medical interest which was a feature of pre war Annual Meetings, reappeared at Cambridge, and if not quite as large, was as interesting as ever. Many applications for space had to be refused owing to the limited accommodation, but the very best use was made of the sixty stands which were available and the housing of the Exhibition, which was in the Guildhall, in the centre of the town and close to the places of meeting was all that could be desired.

The Exhibition was opened on the morning of June 29 by Sir Lionel Whitby the President of the Association. He congratulated the organizers on the splendid way in which the Exhibition had been set up. It was the first BMA exhibition of the kind for nine years. It included, he said exhibits of the finest products on the manufacturing side of medicine. For many years this country had had reason to be proud of the way in which medicine was served by the manufacturers of fine

chemicals and pharmaceutical products, by the makers of surgical instruments and orthopaedic appliances, and by others whose skill and ingenuity were directed to the production of tools and material for the physician and surgeon. These manufacturers had endeavoured to deliver nothing but the best for the service of the medical profession. Many firms had spent a great deal of time and money on research and in that way had made a notable contribution to the advance of medicine. Sir Lionel Whitby mentioned the work on salvarsan, the development of the sulphonamides and the production of antimalarial drugs as examples of manufacturing enterprise in these fields. There was good friendship and co-operation between the profession and the manufacturers which was to their mutual benefit as well as to the benefit of a third party, most important of all—namely, the patients.

The meeting of the Representative Body was put back in order to give representatives an opportunity to inspect the exhibits.

## OVERSEAS CONFERENCE

A conference of representatives from Overseas Branches was held at Cambridge on June 30. Mr J. L. Gilks, FRCS, chairman of the Dominions Committee, presided.

The Secretary (Dr Charles Hill) made a statement on the Empire Medical Advisory Bureau and the projected Commonwealth Medical Council. So far as the Dominions were concerned, the Council of the Association thought that the time had come to establish a body which was in a sense superior to the medical associations or branches in the Dominions, the idea being that regarding Great Britain as itself a Dominion on terms of equality with the other Dominions, there should be established a Dominion Medical Council consisting at the outset of three representatives of each Dominion. The meeting in this first year would be in London. Practically all the Dominions were members of the World Medical Association, which would hold its assembly in Geneva in September, and the Dominions Conference would be held in London the week following. The invitation had been accepted with alacrity by practically every Dominion. It was hoped that this Conference would effect a liaison between the Dominions on terms of complete equality.

The establishment of a special organization to have as its main purpose the giving of advice on all problems—professional, social and other—which confronted men coming to this country for the first time was the result of another decision of the Council. The Association had set aside £5,000 a year for this purpose. The committee of management of the Empire Medical Advisory Bureau was presided over by Sir Hugh Lett. At the back of their minds was the hope that an increasing number of overseas practitioners would come to this country for postgraduate instruction, and this Bureau would do all it could to assist them. On the subject of conditions of service in the Colonial Medical Service, Dr Hill said that the next task in the negotiations on remuneration would be to secure the acceptance of the Spens recommendations on remuneration of general practitioners and specialists for all other groups of medical practitioners. This would include the Colonial Medical Service.

Dr H. A. Sandiford, director of the Bureau, gave a few additional details. The Bureau, he said, would be opened on July 13. The service would include the making available of information concerning facilities for postgraduate study, the maintenance of a register of lodgings and hotels, the supply of a wide range of general information, arrangements for private hospitality, and the bringing together of overseas practitioners and prominent members of the profession in this country. It was hoped eventually to arrange for practitioners from the Dominions and Colonies to be met at the ports.

Dr E. Grey Turner, Assistant Secretary at Headquarters, in charge of the work of the Dominions Committee, gave a review of the work of the committee during the year and also said it had been suggested by one overseas visitor that the new Bureau should have a two-way action, not only advising practitioners coming from overseas but also British practitioners going out to the Empire. Already any doctor who was going to any part of the world was welcomed at B.M.A. House and

given such information as was available. Concerning the terms of service for Colonial medical officers, the Chairman of Council had made it plain at the Representative Meeting that the negotiation of the terms of service for practitioners in the National Health Service in Britain would be followed by a full endeavour to bring the remuneration of other services, including the Colonial Medical Service, into alignment. In the meanwhile the Colonial Office had been urged to make an interim improvement in rates of pay.

Dr J. Gow (Victoria) and other overseas delegates showed a desire for information about the exact position in Great Britain and in particular what occurred between the two plebiscites, and on request Dr Hill gave an account of recent events.

Dr J. N. P. Davies (Uganda) suggested that the Association might set up an office at which practitioners when going overseas could get information about their contracts. Dr Davies also, in view of the proposed Annual Meeting in Johannesburg in 1951, suggested that members who went by air should make a stop at Kampala where the Uganda Branch would organize a meeting and afford what entertainment it could. Dr F. J. Wright (Kenya) suggested similarly that a stop be made at Nairobi. Dr Wright also proposed that when the various medical services were running in parallel their terms and conditions being based on the Spens Reports, it might be possible for the Association to arrange transfers from one service to another without loss of pension rights. Dr Hill said that interchange of superannuation rights would be one of the points to be discussed.

Dr J. Cauchi (Malta), Dr G. Fraser (Northern Bengal) and other representatives raised various points and an informal discussion ensued.

## THE CHURCH SERVICE

The official religious service in connexion with the Annual Meeting was held in Great St. Mary's Church, Cambridge, on the afternoon of June 29. Members robed in the Examination Hall, Bene't Street, and with the President and principal officers at their head, proceeded to the church across Market Hill. Other processions were those of the Vice-Chancellor and of the Mayor who was accompanied by the Mayoress and members of the Corporation. The service was conducted by the Vicar of Great St. Mary's, the Rev. G. E. A. Whitworth, and the sermon was preached by the Lord Bishop of Ely, the Rt. Rev. H. E. Wynn, D.D. The first lesson was read by the Chairman of Council and the second lesson by the President. A collection was taken on behalf of medical charities.

In his sermon the Bishop of Ely addressed himself to the co-operation of the minister of religion and the doctor. He said that physicians and surgeons in the course of their work must often have asked themselves whether it was worth while in the best sense of the words, to keep some of their patients alive. Their duty was clear and they had followed it, but perhaps sometimes they doubted its wisdom. Thanks to the advance of medical knowledge, they were able to heal the body far more completely than in the past, but no one could say that the restoration was to what was described in the New Testament as a 'perfect soundness'. The body might be healed, but the mind, the character, the personality, the soul might still be mortally sick. He knew from a wide personal experience that many physicians and surgeons went beyond the healing of the body. These men were rightly loved and respected, but they would be the first to say that they had neither the time nor the training nor, it might be, the knowledge to do that work properly.

'It is here,' the Bishop continued, 'that we perceive the need for closer co-operation between the physician and the minister of God. Not indeed, that there is no co-operation at present. That is far from the truth. But it needs to be closer and there must be a fuller mutual understanding. You will note that I do not say "between the Church and the medical profession" for that might imply that the medical profession is one organization and the Church another. The Church embraces all Christian believers and whatever work any of us is doing is work for Christ and His Church. But

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The Secretary (Dr Charles Hill) made a statement on the Empire Medical Advisory Bureau and the projected Commonwealth Medical Council. So far as the Dominions were concerned the Council of the Association thought that the time had come to establish a body which was in a sense superior to the medical associations or branches in the Dominions, the idea being that regarding Great Britain as itself a Dominion on terms of equality with the other Dominions there should be established a Dominion Medical Council consisting of the outset of three representatives of each Dominion. The meeting in this first year would be in London. Practically all the Dominions were members of the World Medical Association which would hold its assembly in Geneva in September, and the Dominions Conference would be held in London the week following. The invitation had been accepted with alacrity by practically every Dominion. It was hoped that this Conference would effect a liaison between the Dominions on terms of complete equality.

The establishment of a special organization to have as its main purpose the giving of advice on all problems—professional, social and other—which confronted men coming to this country for the first time was the result of another decision of the Council. The Association had set aside £5,000 a year for this purpose. The committee of management of the Empire Medical Advisory Bureau was presided over by Sir Hugh Lett. At the back of their minds was the hope that an increasing number of overseas practitioners would come to this country for postgraduate instruction, and this Bureau would do all it could to assist them. On the subject of conditions of service in the Colonial Medical Service Dr Hill said that the next task in the negotiations on remuneration would be to secure the acceptance of the Spens recommendations on remuneration of general practitioners and specialists for all other groups of medical practitioners. This would include the Colonial Medical Service.

Dr H. A. Sindiford, director of the Bureau, gave a few additional details. The Bureau, he said, would be opened on July 13. The service would include the making available of information concerning facilities for postgraduate study, the maintenance of a register of lodgings and hotels, the supply of a wide range of general information, arrangements for private hospitality and the bringing together of overseas practitioners and prominent members of the profession in this country. It was hoped eventually to arrange for practitioners from the Dominions and Colonies to be met at the ports.

Dr E. Grey Turner, Assistant Secretary at Headquarters in charge of the work of the Dominions Committee, gave a review of the work of the committee during the year and also said it had been suggested by one overseas visitor that the new Bureau should have a two-way action, not only advising practitioners coming from overseas but also British practitioners going out to the Empire. Already any doctor who was going to any part of the world was welcomed at B.M.A. House and

given such information as was available. Concerning the terms of service for Colonial medical officers, the Chairman of Council had made it plain at the Representative Meeting that the negotiation of the terms of service for practitioners in the National Health Service in Britain would be followed by a full endeavour to bring the remuneration of other services, including the Colonial Medical Service, into alignment. In the meanwhile the Colonial Office had been urged to make an interim improvement in rates of pay.

Dr J. Gowland (Victoria) and other overseas delegates showed a desire for information about the exact position in Great Britain and in particular what occurred between the two plebiscites and on request Dr Hill gave an account of recent events.

Dr J. N. P. Davies (Uganda) suggested that the Association might set up an office at which practitioners when going overseas could get information about their contracts. Dr Davies also, in view of the proposed Annual Meeting in Johannesburg in 1951, suggested that members who went by air should make a stop at Kampala, where the Uganda Branch would organize a meeting and afford what entertainment it could. Dr F. J. Wright (Kenya) suggested similarly that a stop be made at Nairobi. Dr Wright also proposed that when the various medical services were running in parallel their terms and conditions being based on the Spens Reports, it might be possible for the Association to arrange transfers from one service to another without loss of pension rights. Dr Hill said that interchange of superannuation rights would be one of the points to be discussed.

Dr J. Cauchi (Malta), Dr G. Fraser (Northern Bengal), and other representatives raised various points, and an informal discussion ensued.

## THE CHURCH - SERVICE

The official religious service in connexion with the Annual Meeting was held in Great St. Mary's Church, Cambridge, on the afternoon of June 29. Members robed in the Examination Hall, Bene't Street, and with the President and principal officers at their head, proceeded to the church across Market Hill. Other processions were those of the Vice-Chancellor and of the Mayor, who was accompanied by the Mayoress and members of the Corporation. The service was conducted by the Vicar of Great St. Mary's, the Rev. G. E. A. Whitworth, and the sermon was preached by the Lord Bishop of Ely, the Rt. Rev. H. E. Wynn, D.D. The first lesson was read by the Chairman of Council, and the second lesson by the President. A collection was taken on behalf of medical charities.

In his sermon the Bishop of Ely addressed himself to the co-operation of the minister of religion and the doctor. He said that physicians and surgeons in the course of their work must often have asked themselves whether it was worth while in the best sense of the words, to keep some of their patients alive. Their duty was clear, and they had followed it, but perhaps sometimes they doubted its wisdom. Thanks to the advance of medical knowledge, they were able to heal the body far more completely than in the past, but no one could say that the restoration was to what was described in the New Testament as a "perfect soundness". The body might be healed, but the mind, the character, the personality, the soul might still be mortally sick. He knew from a wide personal experience that many physicians and surgeons went beyond the healing of the body. These men were rightly loved and respected, but they would be the first to say that they had neither the time nor the training nor, it might be, the knowledge to do that work properly.

It is here," the Bishop continued, "that we perceive the need for closer co-operation between the physician and the minister of God. Not indeed, that there is no co-operation at present. That is far from the truth. But it needs to be closer and there must be a fuller mutual understanding. You will note that I do not say 'between the Church and the medical profession' for that might imply that the medical profession is one organization and the Church another. The Church embraces all Christian believers, and whatever work any of us is doing is work for Christ and His Church. But

## H.M. Forces Appointments

### ROYAL NAVY

Acting Surgeon Lieutenants T J Scannell, H Walters, and N Watson to be Surgeon Lieutenants

### ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Lieutenant G McI Forsyth to be Surgeon Lieutenant Commander

Temporary Acting Surgeon Lieutenants D G L Davies, P Jordan, J D Montagu, K M Backhouse, W T Miller, P K Ledger, J S Rawlins, P R Clay, W V Graham, and W A Witt to be Temporary Surgeon Lieutenants

### ROYAL ARMY MEDICAL CORPS

Lieutenant Colonel S W Burrows has retired on retired pay and has been granted the honorary rank of Colonel

Captains (War Substantive Majors) D H D Burbridge and G R Marshall DSO to be Majors

Captains A M Buchanan, L R Taylor, and I W Caldwell to be Majors

*Short Service Commissions*—Captain T Bird has retired receiving a gratuity and has been granted the honorary rank of Major

Captain W J Christie, from Emergency Commission, to be Captain

### TERRITORIAL ARMY

#### ROYAL ARMY MEDICAL CORPS

Captains J H Richmond and T L Oliver to be Majors

Lieutenant E S Curtiss to be Captain, and has been granted the acting rank of Major

Lieutenant H T H Arnott from T A R O, Army Cadet Force (Warwick), to be Lieutenant

### LAND FORCES EMERGENCY COMMISSIONS

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War Substantive Captain J H Stirrat has relinquished his commission and has been granted the honorary rank of Major

D N Parfitt to be Lieutenant without pay and allowances and has been granted the unpaid temporary rank of Lieutenant Colonel

*Short Service Commission Specialists*—War Substantive Captains W J Ferguson, R J Carr, H M Goldberg, and A Naylor have relinquished their commissions and have been granted the honorary rank of Major

Captain J Corbett has relinquished his commission and has been granted the honorary rank of Captain

### WOMEN'S FORCES

#### EMPLOYED WITH THE R A M C

Lieutenants M Staunton and B B Noone to be Captains

### ROYAL AIR FORCE

Air Marshal Sir Andrew Grant KBE, CB, KHS has retired at his own request on completing his tour of duty as Director General of Royal Air Force Medical Services

Squadron Leader J Park has retired at his own request retaining the rank of Wing Commander

The be Squadron Leaders H L Roxburgh, P H Blackiston, and E F Mason MBE

To be Flight Lieutenants P R Travers, T J G Price, and A C Akehurst

To be Flight-Lieutenants (Temporary) H A L O Latta, D MacDonald, H de B Warren, P C Meyer, W G A Riddle, and P Weinstein

Flying Officers M D Warren, T C Gibson, and J L Struan Marshall to be Flight-Lieutenants

To be Flying Officers (Temporary) J P F Cook, K A Exley, G R C D Gibson, H Hanson, G B C Harrop, H T Kay, J M Kay, A H B Mason, A E B Matthews, A J Berrill, D J Gill, J Morgan, A Reid, P M Smith, J Stanners, J A M White, and J A McC Miller

Flying Officer T C L Brown has ceased to be seconded to the Hospital of St Cross Rugby

Flying Officer J H Atteridge has resigned his commission

### ROYAL AUXILIARY AIR FORCE

L A S White to be Flight-Lieutenant in the reconstituted R A A F

T S Davies to be Flight Lieutenant

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Flight Lieutenant T S Davies has relinquished his commission on appointment to the reconstituted R A A F, retaining the rank of Squadron Leader

Flight-Lieutenant L A S White has relinquished his commission on appointment to the reconstituted R A A F, retaining his rank

Flying Officers J Alterman, I C Geddes, D M Leahy, E C Levine, P M Lynch, A McDermott, P M Magee, J S Marshall, G C Stewart-Hunter, N P Watson, P W Bothwell, T G Bradley, W S Foulds, I C S Knight, R M Layland, R W McConnachie, A McDonald, J G Milne, R H Oldfield, J M D Roberts, W R St Clair, J K Trotter, R G Watson, and C E Williams to be Flight-Lieutenants

Flying Officers C MacIver and W R St Clair have resigned their commissions

### WOMEN'S FORCES

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Majors L Feinholts and T P Mulcahy have retired and have been granted the honorary rank of Lieutenant Colonel

Captain (War Substantive Major) G S Michelson has retired and has been granted the honorary rank of Lieutenant Colonel

Major B A Porritt has retired

The notification concerning Captain (War Substantive Major) J L M Whitbread in a *Supplement* to the *London Gazette* dated April 2 1948, has been cancelled

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Lieutenant Colonels A Ba Thaw and R Sen have retired

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The following appointments have been announced: J P Bennett MB Travelling Medical Officer, Sarawak, J G Davies, MB DTM & H O M O'Malley, MB, and J D O'Shaughnessy, MB Medical Officers, Malaya, N M B Dean, FRCS, Medical Officer, Nigeria, G Q Patton MRCS, and R Paul, MB, Medical Officers Northern Rhodesia, R S Slessor, MD, Senior Medical Officer Falkland Islands, A B Watt MB, Lady Medical Officer, Malaya, C O Fung Kee-Fung FRCS, Assistant Surgeon Public Hospital, Georgetown, British Guiana, H Herlinger MD Medical Officer British Guiana, P L O'Neill, FRCS, Medical Officer, Grade (A) Surgeon, Trinidad, H M O Lester Ph D, MRCS, DTM & H, Director of Tsetse and Trypanosomiasis Research and Reclamation East Africa, G F T Saunders MD, Specialist Gold Coast, R Ramsay MB ChB, Assistant Director of Medical Services Gold Coast

## Association Notices

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Notice is hereby given that consequent upon (1) the election of A M A Moore as Treasurer of the Association, a vacancy exists in the Council for the Metropolitan Counties Branch (Group I), and (2) the election of J A Brown as Deputy Chairman of the Representative Body, a vacancy exists in the Council for the Berks, Bucks and Oxford, Birmingham, and Staffordshire Branches (Group F). Nominations of candidates must be forwarded in writing so as to reach me by Aug 14, 1948. Candidates must be nominated by either (a) a Division or (b) not fewer than three members of the Branch. A notice will be published by the Council in the *British Medical Journal Supplement* on Aug 21, 1948, of the candidates nominated. If contests occur voting papers will be issued on Aug 28 1948, to each member of the Groups, and a notice will be published by the Council in the *Supplement* of Sept 11, 1948, giving the results of the elections.

CHARLES HILL  
Secretary

### Diary of Central Meetings

JULY

- 14 Wed Special Meeting of Council, 12 noon
- 22 Thurs Publishing Subcommittee 11 am

LONDON SATURDAY JULY 17 1948

## AGENTS DETERMINING AND INFLUENCING THE FUNCTIONS OF THE PARS NERVOSA OF THE PITUITARY\*

BY

E B VERNEY, F.R.S., F.R.C.P.

*Professor of Pharmacology University of Cambridge*

The pars nervosa of the pituitary is essentially the macroscopic representation of the multiple and terminal branching of axons most of which originate from the supraoptic nuclei. These nuclei are bilaterally placed in the ventral surface of the anterior part of the hypothalamus, each is separated into an anterior and posterior division by the emergence of the optic tract from the optic chiasma, and the axons stream thence as the supraoptico-hypophyseal tracts in the antero-ventral wall of the infundibulum, to their distribution in the pars nervosa. The structural entity comprising the nuclei, tracts, and pars nervosa is called the neurohypophysis. Extracts of the pars nervosa exhibit antidiuretic activity and, under certain experimental conditions, pressor and diuretic properties and I propose in this opening paper to confine consideration to the first of these by briefly reviewing the evidence which has led to the endowment of this pharmacological property with the significance of a physiological function.

### Conditions Leading to Profuse Watery Diuresis

There are three conditions under which a profuse watery diuresis is observed and in each instance the effect of posterior pituitary extract is to reduce the rate of water

and thirdly the administration by mouth of large volume of water to the living mammal.

The effects of post-pituitary extract on the polyuria associated with the first condition are closely simulated by switching into the perfusion circuit, in parallel with the kidney, the head of a dog the inhibition of diuresis and

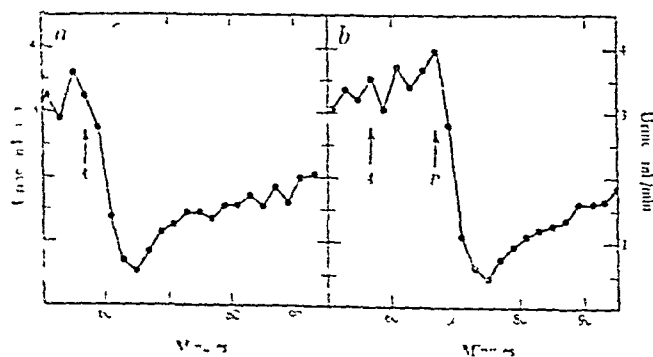


FIG. 1.—Inhibitory responses to intracarotid injection of hypertonic solution during water diuresis in the dog: *a* at 4 injection of 10 ml of 1.50% NaCl into left carotid in 20 seconds; *b* at 7 injection of 11 ml of 1.50% NaCl into right carotid in 12 seconds. Abscissae: time after the test dose of water.

output by the kidney and to increase the percentage of chloride in the urine. These conditions are first perfusion of the dog's kidney in the isolated state; secondly, experimental or pathological lesions of the neurohypophysis.

\* Read in opening discussion in the Section of Pharmacology at the Annual Meeting of the British Medical Association, Cambridge, 1947.

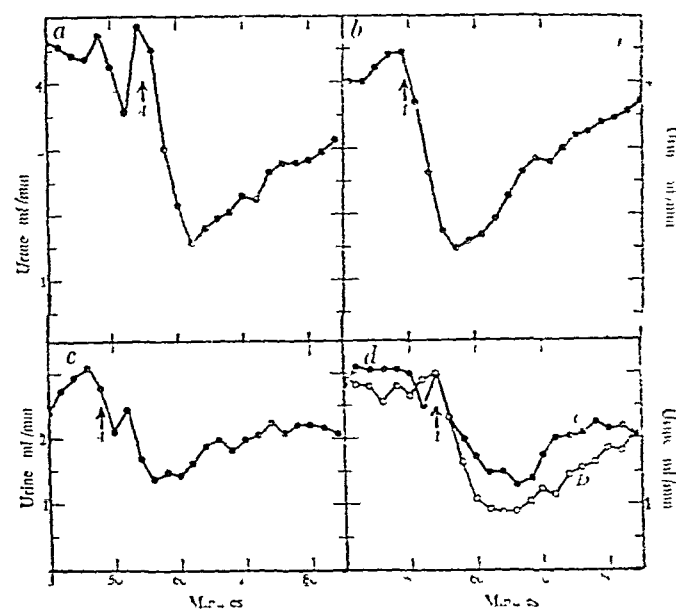


FIG. 2.—Responses to injections: *a* and *b* 5 days before *c* and *d* 11 days after removal of posterior lobe of pituitary; *a* at 4 injection of 21 ml of 2.50% NaCl into right carotid in 20 seconds; *b* at 4 1 mU of post-pituitary extract injected intravenously in 15 seconds; *c* at 4 injection of 21 ml of 2.50% NaCl into right carotid in 20 seconds; *d* at 4 0.1 mU (curve C) and 0.2 mU (curve D) post-pituitary extract injected intravenously in 20 seconds. Abscissae: time (approx) after the test dose of water.

increased excretion of chloride being then dependent upon the presence of the pituitary in the perfused head and these effects may occur without appreciable diminution of blood flow through the kidney at constant perfusion pressure. The view was put forward therefore that the phenomenon of profuse watery diuresis exhibited by the kidney perfused in the isolated state was due to the divorce of the kidney from the inhibitory influence of the antidiuretic substance elaborated in the pars nervosa.

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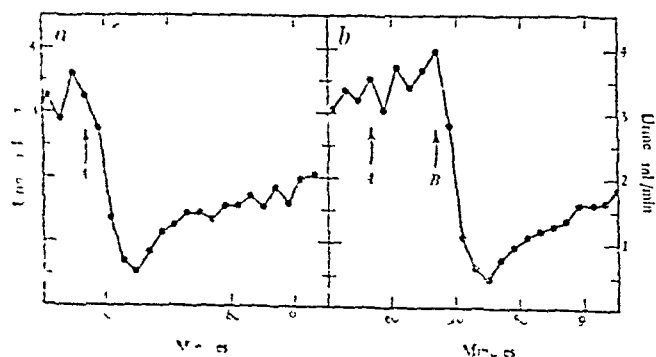


FIG. 1—Inhibitory responses to intracarotid injection of hypertonic solution during water diuresis in the dog. *a* at *A* injection of 10% ml. of 1.5% NaCl into right carotid in 9 seconds. *b* at *B* injection of 11 ml. of 1.5% NaCl into right carotid in 13 seconds. Abscissae: time after the test dose of water.

output by the kidney and to increase the percentage of chloride in the urine. These conditions are first perfusion of the dog's kidney in the isolated state, secondly experimental or pathological lesions of the neurohypophysis.

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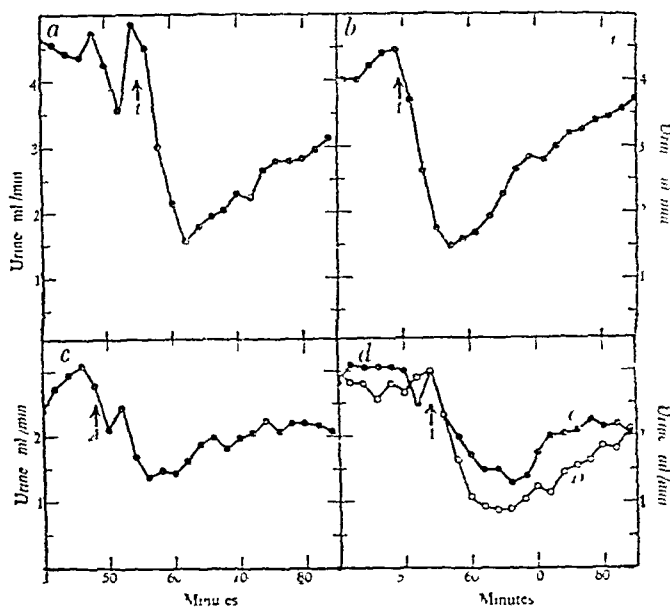


FIG. 2—Responses to injections *a* and *b* 5 days before *c* and *d* 11 days after removal of posterior lobe of pituitary. *a* at *A* injection of 21 ml. of 2.5% NaCl into right carotid in 20 seconds. *b* at *A* 1 mU of post-pituitary extract injected intravenously in 15 seconds. *c* at *A* injection of 21 ml. of 2.5% NaCl into right carotid in 20 seconds. *d* at *A* 0.1 mU (curve C) and 0.2 mU (curve D) post-pituitary extract injected intravenously in 20 seconds. Abscissae: time (approx.) after the test dose of water.

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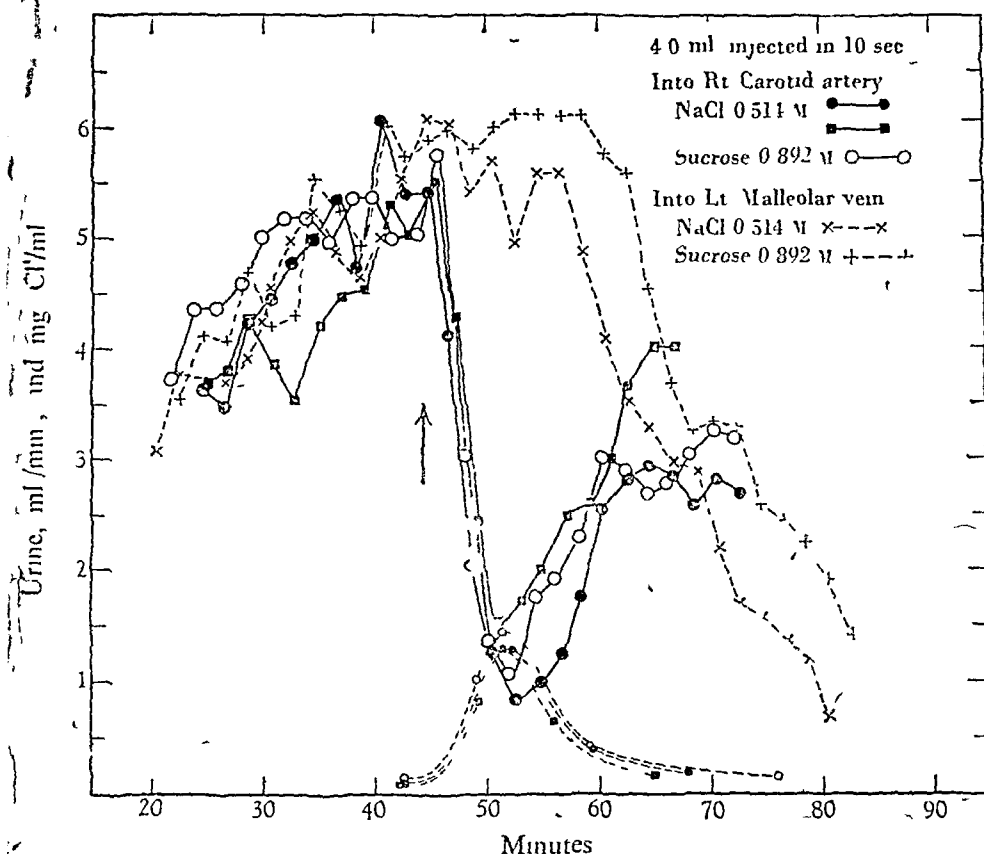


FIG 3—The injections were made at the arrow. The corresponding changes in urine chloride are given by the curves at the bottom of the figure. Abscissae: time after the test dose of water.

the diabetes insipidus associated with these has culminated in the elegant demonstration by Ranson and his colleagues that the occurrence of diabetes insipidus is contingent upon the complete or quasi-complete degeneration or removal of the neurohypophysis. Using the Horsley-Clarke stereotaxic instrument, they have been able to place small discrete lesions at any desired points in the hypothalamus and to show that when by these means the supraoptico-hypophysial tracts are interrupted a series of striking degenerative changes takes place in the supraoptic nuclei and in the neural division of the hypophysis, the degeneration being associated with a fall of some 95% in antidiuretic activity as measured by comparative assays of extracts of the normal and of the atrophic pituitaries. The view, therefore, that diabetes insipidus derives essentially from a deficiency complete or extreme, in the antidiuretic product of the neurohypophysis would appear, on the available evidence, to be incontrovertible.

The third condition under which a profuse watery diuresis appears is the administration of water by mouth to the living mammal, and the question arises whether this phenomenon, too, is of pituitary origin. When water is given by stomach-tube to the dog under conditions which, both externally and internally, are kept as constant as possible, the diuretic responses to successive doses are sufficiently uniform to allow analysis of the phenomenon's underlying events. That such responses are not so simply determined as appearance suggests is shown by the fact that the course of alimentary absorption is well in advance of that of renal excretion, there being in the dog under certain experimental conditions, an interval of 15 minutes between the peak of the water-load—i.e. the proportion of absorbed but as yet unexcreted water—and the peak of diuresis. The significance of this interval will be considered later. The response of the innervated kidney runs strictly parallel with

that of the denervated kidney, and the response is unaccompanied by any change in the volume flow of blood through the kidney.

### Inhibition of Diuresis Response

Next, this diuresis response may be inhibited in various ways—for example, by subjecting the animal to short-lived muscular exercise or to emotional stress and by intravenous injections of adrenaline or of post-pituitary extract. The inhibition produced by short periods of muscular exercise in the dog—e.g., running at 6 m.p.h. for 4 minutes—has been shown to be due to the emotional accompaniment of the exercise, and, since the inhibition from emotional stress was very much like that produced by an intravenous dose of post-pituitary extract, it seemed worth while to analyse the phenomenon with some care. The induced emotional disturbance need be a very small one, an unfamiliar and ugly sound being sometimes enough to elicit

an inhibitory response. Usually, however, a weak faradic current carried to the subcutaneous tissues by surgically clean needle electrodes, as being a simpler and more controllable form of stimulus, has been used for the analysis of the resultant inhibition. From such analysis we now know that the inhibition of water diuresis by emotional stress is independent of the nerve supply to the kidney, is not caused by the endogenous release of adrenaline, is unaccompanied by any appreciable change in the volume flow of blood through the kidney, and is deferred by some two minutes from the time of the stimulus. The inhibition of water diuresis by the intravenous injection of post-pituitary extract likewise shows all these characteristics and with a suitable dose of extract the response to the one agent is indistinguishable from that to the other.

So close a resemblance between the two responses both in form and in measurable accompaniments and independencies, made one confident that removal of the posterior lobe of the pituitary would be followed by a big reduction in the inhibitory response to emotional stress. This was found experimentally to be so. There can, then, be little doubt that the stimulus produces the observed changes in the excretion of water and chloride by ultimate involvement of the supraoptic group of hypothalamic cytons whose axons pass down the stalk of the pars nervosa, and by whose activity the pituitary antidiuretic substance is released. Certain pharmacological agents, too, affect the functional activities of the neurohypophysis.

### A Controlling Factor

The demonstration in the normal animal of the release of pituitary antidiuretic substance by the artificial means of faradic stimulation of sensory nerves and receptors, and the fact that this release may be caused by such mild disturbance of the central nervous system as comes within

a physiological range encouraged an attempt to determine whether the secretion of this substance was not continuously varying with and under the direct control of some factor in the animal's internal environment, to the maintenance of which factor within a narrow physiological range the renal excretion of water and of chloride would specifically contribute. Such a factor is clearly the osmotic pressure of the arterial blood and it became of interest to determine the effects of a rise in this pressure on the secretion of the kidney during water diuresis.

For this purpose dogs have been provided with carotid loops whereby injections or infusions may be made direct into the common carotid blood stream. While intracarotid injection of isotonic solution of sodium chloride and intravenous injection of hypertonic solutions are without apparent action on the course of water diuresis, intracarotid injection of hypertonic solutions causes definite inhibitory responses. They are illustrated in Fig 1. The shape of these responses suggested that they were of pituitary origin, and this hypothesis was put to the test of experiment by measuring the response to a given injection before and after removal of the posterior lobe. Fig 2a gives the response to 21 ml of 2.50% NaCl injected into the right carotid in 20 seconds, and we may note in passing that it equates closely with the response to 1 mU of post-pituitary extract injected intravenously (Fig 2b).

The response to the same intracarotid injection after removal of the posterior lobe is given in Fig 2c: it is very much reduced in size. It is therefore a valid procedure to assay the responses in terms of post-pituitary extract and when this is done it is found that the response to a given intracarotid injection is diminished by some 90% as the result of removal of the posterior lobe. Fig 2d gives the response to an intravenous injection of 0.1 mU.

#### Action of Sodium Chloride

It now became important to know whether the sodium chloride was acting specifically or by virtue of the increase which it produced in the osmotic pressure of the plasma. To this end equal increases in the osmotic pressure of the carotid blood were produced by injections of sodium chloride, sodium sulphate, dextrose, and urea. While the responses to sodium chloride and sodium sulphate were indistinguishable, the response to dextrose was seemingly little smaller, suggesting that the osmotic effectiveness of dextrose was less than that of the other two solutes. Urea, on the other hand, was found to be quite inactive. A similar comparison was then made between the effects of osmotically identical injections of sodium chloride and sucrose. The results are given in Fig 3. Three responses are shown: two of them (black circles and squares) are to injection of the sodium chloride solution, and the third (open circles) is to the injection of the sucrose solution. The calculated percentage increases in the osmotic pressure of the carotid blood during the injections are 52 and 53

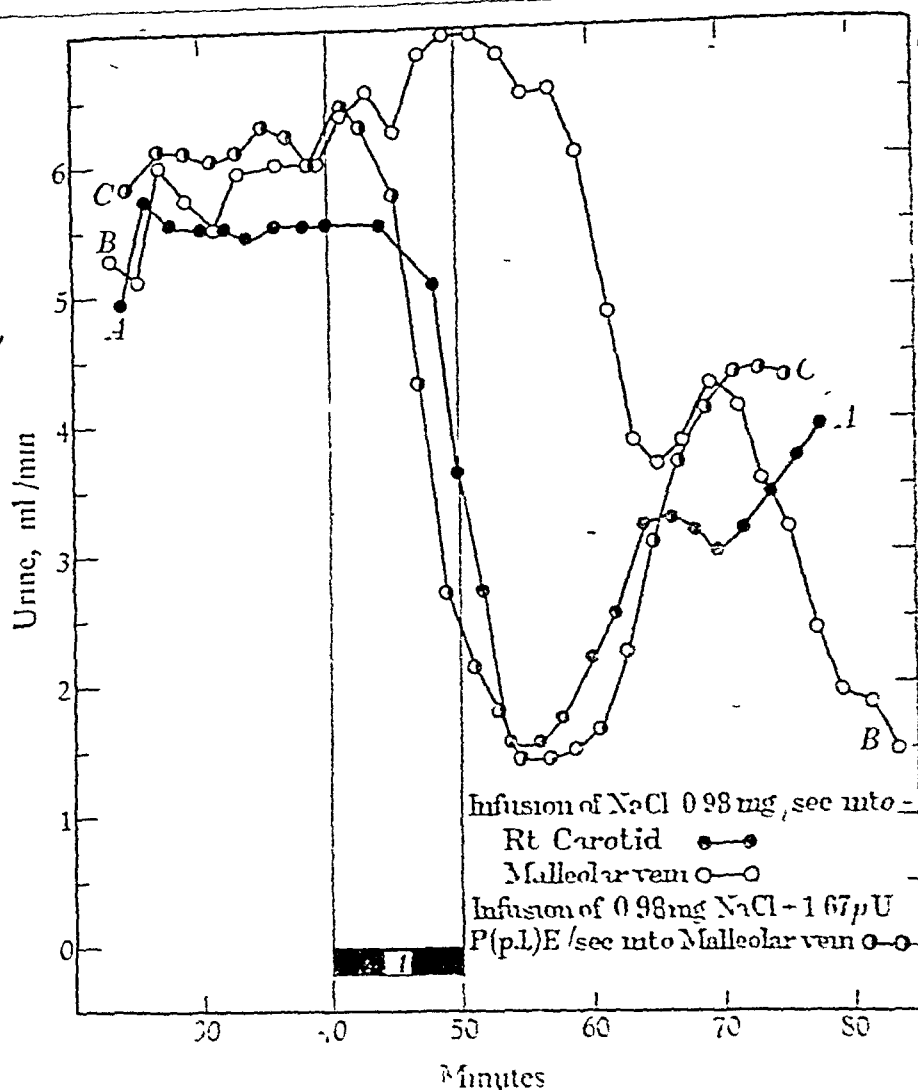


FIG 4—The rectangle 1 covers the period of the infusions. Abscissa: time (approximate) after the last dose of water.

respectively. The response to sucrose lies between the two responses to sodium chloride. Moreover the courses of the concentration of chloride in the urine (shown at the bottom of the figure) are identical. Seeing that the only common and equal change in property of the carotid blood caused by the injection of these two solutions is the increase in osmotic pressure and that both produce quantitatively the same release of post-pituitary antidiuretic substance the osmotic determination of the phenomenon is beyond cavil.

#### Osmoreceptors

It becomes justified therefore to introduce the term "osmoreceptors" as descriptive of the autonomic receptive elements with which the neurohypophysis is functionally linked and through whose activation the pituitary antidiuretic substance is released, and the facts so far presented show that when they are exposed to short-lived and large increases in the osmotic pressure of their environment their "membrane" is relatively impermeable to sodium chloride, sodium sulphate and sucrose, less impermeable to dextrose and freely permeable to urea.

Where then do these receptors lie? They are not in the carotid sinus nor in the carotid body. Comparison of the effects of like increases in the osmotic pressure of the common carotid blood before and after ligation of the internal carotid artery, however, has shown that such ligation virtually abolishes the response. The receptors lie therefore in the vascular bed normally supplied by the

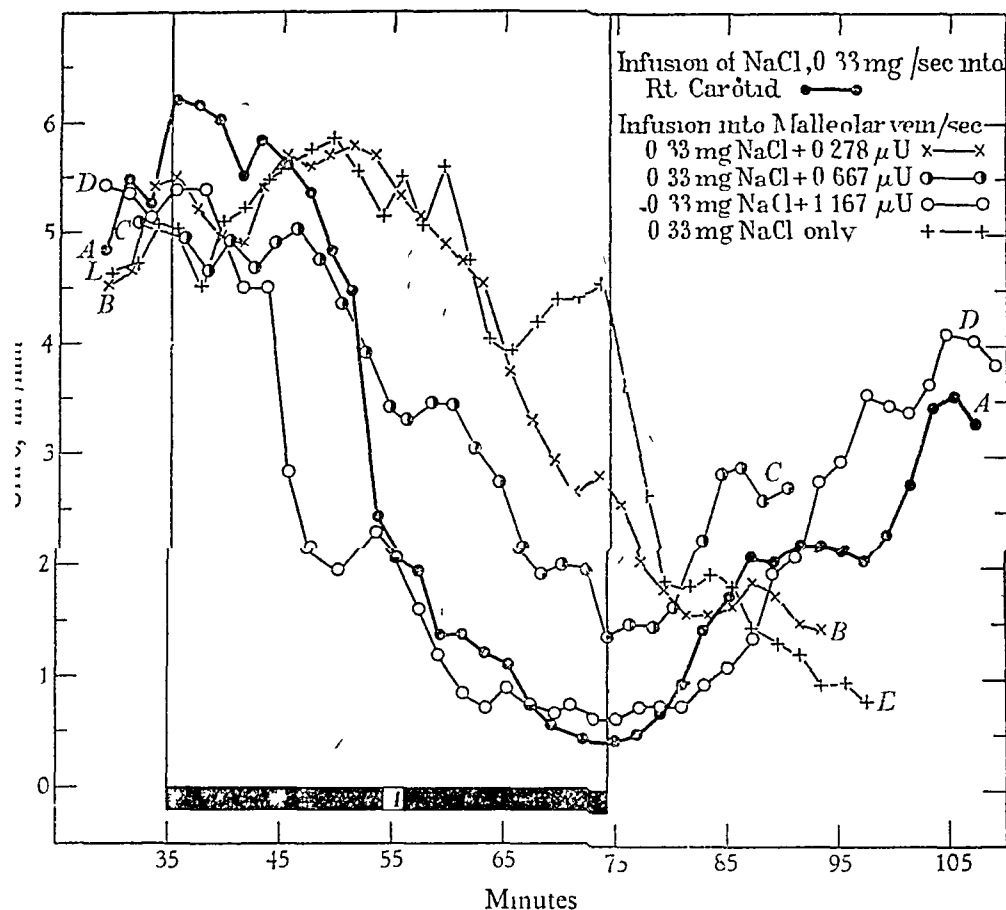


FIG 5—Effect of 40 minute infusion of NaCl into the carotid and the method of its assay. The black rectangle covers the period of the infusions. With the intracarotid infusion the calculated local increase in osmotic pressure is 18%. Abscissae time (approx) after the test dose of water.

internal carotid artery. Their precise location and histological identification must be left to future experimentation.

So far we have been considering the responses of the osmoreceptors to short-period (10 to 20 seconds) and large (50 to 100%) increases in the osmotic pressure of their environment. It now became of interest to determine the effects of exposure of the receptors to much smaller increases maintained over longer periods. For this purpose intravascular infusions of various solutes have been made at uniform rates over periods of 10 and 40 minutes. It was found that when over a period of 10 minutes a hypertonic solution of sodium chloride was infused into a carotid the inhibition of urine flow occurred earlier than when the same infusion was made into the malleolar vein, and that as the strength of the infused solution was reduced this difference became greater. The cause of the earlier onset of the inhibition when the infusion was made into the carotid must be attributed to the increase in osmotic pressure of the internal carotid blood over and above that of the aortic blood.

This difference between the effects of intracarotid and intravenous infusions is illustrated in Fig 4. During the 10-minute period shown by the black rectangle a sodium chloride was being introduced into the circulation at the rate of 1 mg/sec. The effect of this procedure on the course of the urine flow when the infusion was made into the right carotid is shown by the black circles, when into the malleolar vein by the open circles. The third curve (black-and-white circles) shows that the response to the intracarotid infusion is closely matched when to the intravenous infusion is added post-pituitary extract in such amount that 1.67  $\mu$ U is being introduced into the circula-

tion every second. The calculated local increase in osmotic pressure produced by the intracarotid infusion is 54%. Comparable experiments with sodium sulphate and with sucrose gave results which on assay were closely similar to those of the sodium chloride experiments. With dextrose, however, two striking differences appeared: there was a small response to the intravenous infusion, and the response to the intracarotid infusion, though larger than that to the intravenous, was definitely smaller than that to an osmotically equivalent infusion of sodium chloride. The osmoreceptors therefore are, under these conditions, at least partially permeable to dextrose.

#### Long-period Intracarotid Infusion

We come now to the effects of a much smaller increase in the osmotic pressure of the carotid blood maintained over a much longer period—

viz, 40 minutes. The results obtained with infusions of sodium chloride at 0.33 mg/sec are illustrated in Fig 5. The black rectangle covers the period of the infusions. With the intracarotid infusion (curve A, black circles) the urine flow, after a latent period of some 10 minutes, begins to fall, eventually it reaches the low rate of 0.5 ml/min, at which level the flow is persisting when the infusion is stopped. The flow then slowly increases, to reach a rate of nearly 4 ml/min thirty minutes later. The intravenous infusion (curve E), on the other hand, has no appreciable influence on the course of the diuresis. The calculated percentage increase in the osmotic pressure of the carotid blood during the intra-arterial infusion is 18, corresponding with a local increase in blood chloride of 9 mg/100 ml, and the experiment shows that under these conditions the "membrane" of the osmoreceptors maintains its relative or complete impermeability to sodium chloride for a period of at least 40 minutes.

In strictly comparable experiments with dextrose, however, no difference was detected between the effect of the intracarotid and that of the intravenous infusion. With the intracarotid infusion the local increase in blood dextrose responsible for the 18% increase in osmotic pressure is some 90 mg/100 ml, the conclusion is justified, therefore, that the "membrane" of the osmoreceptors is permeable to dextrose to such degree that a maintained rise in blood dextrose of some 90 mg/100 ml—a rise which, incidentally, is within the human pathological range—fails to elicit an antidiuretic secretory response by the neurohypophysis. *Patients with diabetes mellitus are still permitted to be polyuric.* When similar experiments were made with sucrose the results of the intracarotid infusions showed

close quantitative agreement with those obtained with sodium chloride. The assay of such response to sodium chloride is illustrated in Fig 5. The response to the intracarotid infusion (black circles) lies for most of its course between the responses to 0.67 (black-and-white circles) and 1.17 (open circles)  $\mu\text{U}/\text{sec}$ , being nearer to and probably a little less than the latter—it is assayed as having a post-pituitary-extract equivalence of 1  $\mu\text{U}/\text{sec}$ .

### Conclusions from Results of Long-period Infusions

Three conclusions follow from the results of the 40-minute infusions. First, that increases in the osmotic pressure of the arterial blood—increases which, when large, were shown by the short-period injections to release post-pituitary antidiuretic substance—are still operative when they are reduced to values well within a range which may reasonably be regarded as physiological. An increase of only 1.8% in the osmotic pressure of the carotid blood gradually reduces the rate of urine flow from a water-diuresis maximum to the sort of rate which prevails at the beginning and end of a normal response to ingested water—i.e., a reduction of some 90%. The smallness of the osmotic pressure increase gains additional interest when it is recollected that the intracarotid infusions were unilateral. For if, as is probable, only half of the total number of osmoreceptors are being exposed under these conditions to the osmotic pressure increment, an increase of some 1% only (54 mm Hg in absolute terms) in the osmotic pressure of the aortic blood would suffice to produce the same degree of inhibition of urine flow—i.e., a reduction to about 10% of the maximum rate of which the kidney is capable during water diuresis.

Secondly, the results of the 40-minute infusions demonstrate that the induced change in the osmotic pressure of the arterial blood which is responsible for this degree of reduction in urine flow itself causes the release of post-pituitary antidiuretic substance at an average rate of 1  $\mu\text{U}/\text{sec}$  ( $0.5 \times 10^{-9}$  g/sec in terms of the standard powder), this being the intermediating agency through which the change in osmotic pressure becomes effective.

Thirdly, the recovery of urine flow when the intracarotid infusion is stopped (Fig 5) shows that the secretion of post-pituitary antidiuretic substance is now inhibited by the local fall in osmotic pressure and consequent depression of activity in the osmoreceptors, the progression of this recovery being attributable to the gradual destruction in the kidney, and maybe in the blood, of the quantity of antidiuretic substance which was maintaining the secretion of urine at a non-diuretic level. The latent period between the peak of the water-load curve and the maximum rate of urine secretion, to which I referred earlier and promised to return is clearly to be attributed to the same process.

Water diuresis, then, is fitly and accurately described as a condition of physiological diabetes insipidus, and there can be little doubt that the antidiuretic secretion of the neurohypophysis is a hormone in the physiological sense that its liberation is mainly and continually governed by the contemporary concentration of sodium chloride in the carotid arterial plasma. The physiological fitness of this control is emphasized by its quantitative aspects, in that changes within the range and of the order of 1% in the osmotic pressure of the arterial blood lead, through the intermediation of the antidiuretic hormone, to changes in the rate of water excretion within the range and of the order of 1,000%—the maintenance of near constancy in the osmotic pressure of the internal environment is thereby achieved.

## THE USE OF POST-PITUITARY EXTRACT IN PHYSIOLOGICAL AMOUNTS IN OBSTETRICS

### A PRELIMINARY REPORT

BY

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In 1895 Oliver and Schafer reported that extracts made from the pituitary gland caused a rise of blood pressure in anaesthetized animals when injected intravenously. Three years later Howell (1898) demonstrated that their pressor activity was confined to the posterior lobe, and this was confirmed in the following year by Schafer and Vincent. In 1901 Schafer and Magnus reported that post-pituitary extract exerted both diuretic and antidiuretic activities, and it was not until 1915 that Konschegg and Schuster first demonstrated that in conscious animals only an antidiuretic response could be obtained. Dale in 1906, was the first to draw attention to the fact that this extract stimulated uterine muscle, and this activity was confirmed in 1909 by Frankl-Hochwart and Frohlich.

It is now generally accepted that post-pituitary extract contains two active principles: (a) a pressor which is identical with the antidiuretic activity, and (b) an oxytocic substance. Both principles are destroyed by heat, trypsin digestion, hydrochloric acid decomposition, and alkaline hydrolysis, and both are of approximately the same molecular size. Further, in the most purified extracts the pressor and oxytocic activities remain in the same proportions as in an ordinary post-pituitary extract. It was for these reasons that for many years controversy raged on whether post-pituitary extract contained one or more active principles and it was not until 1928 that Kamm *et al.* settled the dispute by separating and concentrating two active principles in the form of potent solid preparations.

In 1925 a Committee of the League of Nations adopted the USP Standard Reference Powder as the international standard, 0.5 mg of this powder being equivalent to one international unit. The international standard preparation of the post-pituitary gland is simply a powder made from the whole posterior lobes of cattle, collected immediately after death and ground in acetone in order to remove water and fat. The different standard powders may therefore differ somewhat in activity, but it is unlikely that the discrepancy ever exceeds 20% in either direction. Until 1928 post-pituitary extracts were standardized for their oxytocic activity by a method devised by Dale and Laidlaw in 1912, but the separation of two distinct principles by Kamm *et al.* suggested the desirability of devising a separate method for assaying the pressor activity of these extracts.

Blair Bell was the first to use post-pituitary extract in obstetric practice, and in 1909 he reported its efficacy in the treatment of post-partum haemorrhage and intestinal atony. It is of interest to note that before this date no clinical application of

\*Mr Gange terminated his appointment as resident obstetric officer at the end of December, 1947.

We are greatly indebted to the Director of the Department of Biological Standards, the National Institute for Medical Research, Hampstead, for the above information.



post-pituitary extract had been made other than to prescribe tablets by mouth for their supposed diuretic activity. Two years later Hofbauer (1911) suggested its use in the treatment of uterine inertia. In 1927 Bourne and Burn concluded "that valuable application of a dose of 2 units can be made in cases in which labour is prolonged owing to sluggish pains provided that in primiparae dilatation is nearing completion". There is still however, a widespread fear, based on unfortunate happenings of using post-pituitary extracts until labour is completed. Reid (1946) and Eastman (1947) have recently advocated the use of small amounts of post-pituitary extract in cases of prolonged labour. Reid advocates starting with one minim (0.06 ml) and increasing the dosage to not more than five minims (0.3 ml) whereas Eastman is more cautious and starts with a half minim (0.03 ml), and never gives more than one minim. Both authors consider it wise to confine this method of treatment to obstetrically normal primigravidae whose progress in labour is tedious.

In 1931 Burn described a method of estimating the anti-diuretic activity of post-pituitary extract by injecting it subcutaneously into a number of rats. This method was accurate within certain limits, but the subcutaneous route of injection introduced unknown, uncalculable and avoidable errors. Using the method described by Kłisiewicz *et al* (1933), one of us (Theobald, 1934a, 1934b) showed that the intravenous injection of from 0.0005 to 0.01 unit of infundin\* inhibited water diuresis not only in the dog but also in man, and in women during the last few weeks of pregnancy. The amount of anti-diuretic activity necessary to inhibit water diuresis was remarkably constant for each dog, and the water diuresis curves thus inhibited, obtained over a period of several months, could be almost superimposed. Later in the same year Bentz, Marx and Schneider (1934) and Stehle (1934) also showed that very small amounts of post pituitary extract, when injected intravenously inhibited water diuresis in the dog.

Two conclusions may be drawn from these results. The first is that, contrary to the observation of Kamm *et al* the anti-diuretic activity affords the most delicate and possibly the most accurate method of assaying post pituitary activity. The second is that the post-pituitary gland elaborates the two active substances in remarkably constant proportions (a fact observed by many workers), for it will be noted that infundin is standardized for its oxytocic activity. It was for this reason that it has always seemed to us logical to assume that the normal physiological oxytocic responses in the body are effected by an amount of the oxytocic principle of the same order as that of the anti-diuretic principle which inhibits water diuresis.

For the same reasons one of us has postulated (Theobald 1934b) that the post-pituitary gland does not elaborate a pressor principle, but that the anti-diuretic principle when injected intravenously in many thousand times its physiologically effective amount, happens to exert a transient pressor effect. Further, several observers have reported that post-pituitary extract constricts the coronary vessels, while Leschke (1919) has stated that it causes sino-aortic block, and these concomitant effects can hardly be regarded as desirable or likely to accompany the activity of a physiological pressor substance. We are not aware that Verney has specifically stated that it is illogical to assume that Nature would provide the same substance both to elevate the blood pressure and to inhibit water diuresis when it is evident that many thousand times the amount adequate for the one activity is required to effect the other but it is clearly implicit in his writings (Verney, 1947).

### Clinical Observations

We have addressed ourselves to two main problems (1) the induction of labour, and (2) the stimulation of uterine pains in cases of uterine inertia.

The procedure was as follows. Either 9 or 19 ml of 5% glucose-saline was placed in a small sterile bowl and to it 1 ml of pituitrin† was added and stirred. The requisite amount

of this mixture was then added to a standard bottle containing 500 ml of a 5% glucose-saline solution prepared for intravenous injection. The dilutions of the pituitrin drip we have used have been 1 in 2,500, 1 in 5,000, and 1 in 10,000. Whereas for some months we used the 1 in 2,500 solution almost exclusively, we now prefer either the 1 in 5,000 or the 1 in 10,000 solution. It may be that the ideal lies in between the last two strengths. There is some reason to believe that the 1 in 2,500 solution occasionally causes irregularity of the foetal heart. In addition to the pituitrin we have sometimes added quinine bihydrochloride 2 gr (0.13 g), carbachol 25 mg, and 100-200 mg of pethidine to the bottle of glucose saline. The drip was set up in the ordinary manner, using a vein in either the arm or leg and the infusion was begun at a standard rate of 40 drops to the minute. This rate was decreased if the pains became too strong or too frequent, and was occasionally increased. Not more than three bottles were given on any one day but the drip was often discontinued and restarted on the following day.

### Induction of Labour

It was felt that if a safe, efficient, and reasonably rapid method of inducing labour at any time during the last three weeks of pregnancy could be devised it would be of distinct value in obstetrics. It can be stated that, so far, the pituitrin drip, even when quinine and carbachol were added, proved a quite unreliable method of terminating pregnancy, and failed more often than it succeeded.

We found that the most effective single method of inducing labour was to sweep the membranes from that part of the lower uterine segment immediately above the internal os uteri with the finger and to touch this denuded area lightly with the silver stick. Labour supervened within 24 hours in the first 11 cases, but subsequent experience showed that the method was not always successful.

The routine to which we adhere at present is composite. In the first instance, four doses of quinine sulphate 10 gr (0.65 g) are given at four-hourly intervals. Two ounces (57 ml) of castor oil are given either just before or just after the third dose of quinine. A copious warm enema is administered approximately four hours after the castor oil. If the woman does not go into labour within 24 hours from the time that the quinine induction is completed the membranes are ruptured at a point immediately below the presenting part. Should she not go into labour during the next 24 hours the pituitrin drip is started.

During the first three months of this year 43 patients were subjected to this method of induction of labour. Twenty-two went into labour within 24 hours of the completion of the quinine therapy, the membranes were ruptured in 20 cases and the pituitrin drip was administered in 9 cases. In one of these the pituitrin drip was given 24 hours after the completion of the quinine therapy. The membranes of this patient were not ruptured, because she showed a marked degree of pelvic contraction. All the infants, save one a breech delivery were born alive and survived. One of us (G. W. T.) has used the quinine method of induction in hundreds of cases, we are satisfied that it is a safe way to induce labour, and it is successful in between 50 and 60% of all cases at term. The intervals between the administration of quinine must not be less than four hours, and the drug must be withheld once uterine contractions begin. In our experience any other form of medical induction is comparatively unsuccessful.

Only two patients caused anxiety, and they were both elderly obese multigravidae. Subsequent labour was in each case associated with marked uterine inertia. One was a 5-gravida, aged 35, with hypertension, who had not been pregnant for some years and was overdue, the other was a 6-gravida, aged 45, whose first pregnancy had terminated by caesarean section and whose youngest child was 6 years old. In each case delivery was effected by a difficult forceps extraction. The infant of the former patient died as the result of cerebral haemorrhage.

A number of patients were admitted after spontaneous rupture of the membranes. In our experience labour may be delayed subsequent to the rupture of the membranes for as many as eight days, and this delay may be associated with intra-uterine death of the foetus. In these cases a pituitrin drip, containing in addition quinine hydrochloride 2 gr (0.13 g) in

\*A commercial preparation of post-pituitary extract made by Messrs Burroughs, Wellcome and Co., and standardized for its oxytocic content.

†A commercial preparation of post-pituitary extract made by Messrs Parke Davis and Co., and standardized for its oxytocic content.

1 bottle of glucose saline solution, is set up. The drip is down after two or three bottles have been administered recommenced next day. Whereas the drip may have no arent effect on the first day, it usually happens that uterine ractions occur within one to ten minutes of restarting the on the following day.

is our practice to rupture the membranes whenever possible ie treatment of placenta praevia and to apply a tight binder. pree recent cases labour did not supervene within the course he next 20 hours, so the pituitrin quinine drip was begun ne case labour pains started almost immediately, while in other two it had to be repeated next day. All these babies e born alive and well.

### Primary Uterine Inertia

We first treated cases of primary uterine inertia by the pituitrin o method in June 1947, and propose to report the results tained in 20 consecutive cases treated during the last 5 months. In one of these patients had previously given birth to a ll term living child *per vias naturales* and she was a 5-gravida o had previously been delivered by caesarean section and e had had two miscarriages and a premature infant which d died. Of the 20 patients four were aged 40 years or over d nine were over 30 years (three being 38 years old). In ne cases the head was free above the brim, and in only four is the head fully engaged. One was a breech presentation. ter trial labours' two were delivered by caesarean section. ne patients were delivered by the forceps, and the remaining ne delivered themselves spontaneously. One baby died from a ntorial tear. The largest infant weighed 9 lb (4.08 kg), and e average weight was 7 lb 6 oz (3.34 kg).

### Case Reports

**Case 1 Placenta Praevia**—DM, aged 23, 1-gravida, term n 16 1947—Admitted because of ante-partum haemorrhage, t in labour Nov 17—7 p.m. Cervix two fingers dilated, riginal placenta praevia, membranes ruptured, Willett's forceps plied to control bleeding 9.30 p.m. Weak pains at five minute ervals Nov 18—1 a.m. Weak pains every 15 minutes 3 a.m o pains 9.30 a.m. Still no pains 10.10 a.m. Pituitrin 1 in 500 + quinine 2 gr (0.13 g) drip begun 10.20 a.m. Slight short in 10.30 a.m. Moderate pains every three minutes, drip stopped, 3 pint (190 ml) given 12.40 p.m. Cervix fully dilated 1.30 p.m. elivery of living female child weighing 7 lb 8 oz (3.4 kg) 4.8 p.m. Placenta and membranes expelled complete.

**Case 2 Induction of Labour**—EH, aged 23, 2 gravida term. evous elective classical caesarean section for contracted pelvis sociated with transverse lie Sept 30 1947—12.30 a.m. embranes ruptured 1 a.m. Admitted to hospital, transverse i, no pains, draining liquor amni, lie changed to vertex by ternal manipulation pads and binder applied 7 p.m. Still no ans—head free, pituitrin 1 in 2,500 + quinine 2 gr drip 7.45 m. Vague pains—one every 20 minutes 9 p.m. Moderate pruns ery five minutes, head engaging 10 p.m. Second bottle started p.m. Head on perineum, drip discontinued Oct 1— 17 a.m. Spontaneous delivery of living male child weighing lb 7 oz (2.92 kg).

**Case 3 Induction of Labour**—AS, aged 31, 1-gravida ne 8 1947—11 a.m. Membranes ruptured June 9—7 p.m. dmitted to hospital, no pains 8 p.m. Head engaging, os two igers dilated, BP 130/70 mm Hg 8.35 p.m. 1 in 5,000 pituitrin ip started (30 drops a minute) 11.35 p.m. Pains every 5 minutes fairly strong, os two fingers dilated drip slowed to 20 drops a nute, pot brom and chloral hydrate 12 30 gr (2 g) June 10— 5 a.m. Os fully dilated 2.10 a.m. Spontaneous delivery of ng female child, 6 lb 5 oz (2.86 kg).

**Case 4 Induction of Labour Uterine Inertia**—MH, aged 1 gravida, 38 weeks Sept 8 1947—Admitted with hyper- ion Sept 17—11.50 a.m. Pituitrin 1 in 2,500 + quinine 2 gr ll started (three bottles given) Sept 18—5.30 p.m. Pains began p.m. Membranes ruptured 7.10 p.m. Moderate pains every minutes, head engaged, os two fingers dilated 8.40 p.m. is every four minutes—strong os two to three fingers dilated, idine 150 mg and hyoscine 1/100 gr (0.65 mg) given 10 p.m. rogress Sept 19 12.40 a.m. Strong pains every three minutes, n 5,000 + quinine 1 gr (65 mg) drip started, BP 155/110 mm Hg a p.m. Needle out of vein, drip discontinued, indefinite pains n. Second bottle of pituitrin + quinine drip started 5 p.m. rate pains every four minutes 6 p.m. Mild rigor 6.40 p.m. g pains every four minutes 8.30 p.m. Strong pains every minutes os three to four fingers dilated 10.50 p.m. Only

rim of cervix palpated, pethidine 100 mg given Sept 20— 5.20 a.m. Forceps delivery of living female child 7 lb 10 oz (3.46 kg).

**Case 5 Induction of Labour Uterine Inertia**—CG, aged 21, 1-gravida Nov 26 1947—Membranes ruptured spontaneously during the night Nov 27—5.15 p.m. Admitted to hospital Nov 28—10 a.m. No pains, no obvious loss of liquor amni 3.50 p.m. Draining much liquor amni, no pains 9.5 p.m. Foetal heart 120, irregular, no pains 11.10 p.m. Pituitrin 1 in 2,500 + quinine 2 gr drip started 11.15 p.m. BP 104/60 mm Hg, no pains Nov 29—12.10 a.m., no pains 12.40 a.m. Pot brom and chloral hydrate 12 30 gr (2 g) given 1 a.m. Second bottle of pituitrin drip started 2.45 a.m. Weak pains every 10 minutes 3.30 a.m. Third bottle started 5.10 a.m. Drip discontinued, foetal heart 120, regular, castor oil 2 oz (57 ml) given, followed four hours later by enema 10.10 a.m. Fairly strong pains every five minutes head free, os one finger dilated 2.10 p.m. Moderate pruns every 10 minutes, head free 7.35 p.m. Pelvis contracted, but no obvious disproportion, pot brom and chloral hydrate 12 30 gr given Nov 30—12.15 a.m. Weak pains, pot brom and chloral hydrate 12 30 gr repeated at 2 a.m. 10.50 a.m. Slept well, no pains, head still free, liquor amni blood-stained 11.45 a.m. Pituitrin 1 in 2,500 + quinine 2 gr drip started, BP 104/60 mm Hg, pains started immediately uterine spasm, drip slowed for 10 minutes 12.15 p.m. Strong pains every three minutes, foetal heart rate 136 12.45 p.m. Needle out of vein 1.45 p.m. Drip restarted, head engaging, os two fingers dilated 2 p.m. Strong pruns every three minutes, pot brom and chloral hydrate 12 30 gr 2.20 p.m. Pethidine 100 mg and hyoscine 1/150 gr (0.433 mg) given 3.45 p.m. Well sedated 6.15 p.m. Third bottle started, strong pains every three minutes head still palpable above brim 6.30 p.m. Drip discontinued 7 p.m. Head showing at vulva 7.10 p.m. Spontaneous delivery of living female child, 6 lb 1 oz (2.75 kg).

**Case 6 Uterine Inertia**—AB, aged 43, 5 gravida, 39 weeks Feb 14 1948—5.10 a.m. Membranes ruptured 12 midnight Labour started Feb 15—6 a.m. Admitted to hospital head free, cervix closed, pruns moderate Feb 16—10 a.m. Head entering pelvic inlet, cervix one finger dilated, pains weak 4.30 p.m. Pains stronger, every two to three minutes 5.15 p.m. Cervix one finger dilated, morphine 1/4 gr (16 mg), scopolamine 1/100 gr (0.65 mg), nembutil 1 1/2 gr (0.1 g) 6.15 p.m. Pituitrin drip 1 in 10,000 begun, BP 108/80 mm Hg 6.55 p.m. Pains stronger 8 p.m. Pains strong, cervix two fingers dilated, BP 110/80 mm Hg 10 p.m. Pains strong, head descending, cervix 3/4 dilated, drip stopped 10.45 p.m. Precipitate delivery of living child.

**Case 7 Uterine Inertia Incision of Cervix**—LS, aged 31, 1-gravida, term Nov 20 1947—Admitted at 9.30 p.m. from a nursing home with history of having started labour at 9 p.m. on Nov 16 and membranes having ruptured at 5 a.m. on Nov 17. On admission the head was well engaged, os one finger dilated, BP 145/100 mm Hg. Morphine 1/4 gr was given immediately Nov 21—7.10 a.m. Irregular pains at approximately ten-minute intervals 2.30 p.m. Moderately strong pruns every three minutes, pethidine 100 mg 3.30 p.m. Pethidine 100 mg 8 p.m. Strong pruns every five minutes 11.45 p.m. Pethidine 200 mg given 12 midnight Pituitrin 1 in 2,500 + quinine 2 gr drip started, BP 140/100 mm Hg Nov 22—12.45 a.m. Pains every seven minutes, BP 140/100 mm Hg 2 a.m. Strong pains every five minutes 2.5 a.m. Pethidine 100 mg given 4 a.m. Pains still strong, no change in position of head, os two fingers dilated 9.30 a.m. Drip discontinued 11 a.m. Has slept well since 5 a.m., condition good 1.20 p.m. Cervix incised and living female child weighing 8 lb (3.63 kg) delivered with forceps. Post-partum haemorrhage controlled with ergometrine.

This patient was in labour for nearly six days, and although the cervix became thinned out it failed to become more than half dilated in spite of fairly good pains.

**Case 8 Uterine Inertia**—ML, aged 38, 1-gravida, term Jan 9 1948—11.30 p.m. Admitted to hospital, membranes having ruptured Jan 10—12 noon Vague uterine contractions, head free, cervix closed 5 p.m. Pains as they were, os one finger dilated, head just tipped 6.45 p.m. Pituitrin 1 in 2,500 + quinine 4 gr (0.26 g) started, BP 150/110 mm Hg 7.45 p.m. Patient vomited profusely, weak contractions every five minutes head descending, os almost two fingers dilated 10 p.m. Continuous backache, contractions as before head advancing, os three fingers dilated, pethidine 100 mg given 11.15 p.m. Drip discontinued one bottle given, morphine 1/4 gr hyoscine 1/100 gr given, slept well most of night Jan 11—12 noon Vague uterine contractions, slight backache, BP 150/110 mm Hg, os three fingers dilated 12.15 p.m. Pituitrin 1 in 2,500 + quinine 2 gr drip restarted 2.15 p.m. Weak contractions every five minutes, head in mid-cavity, os three fingers dilated, BP 150/90 mm Hg 3.30 p.m. Second bottle begun, pruns every ten minutes, BP 170/110

mm Hg, os three to four fingers dilated head in same position 5 30 p.m. Strong contractions every five minutes, B.P. 140/90 mm Hg, os 3/4 dilated, pethidine 100 mg given 8 30 p.m. Strong contractions every five minutes, rim of cervix only palpated anteriorly, pethidine 100 mg given 9 30 p.m. Third bottle begun, B.P. 140/90 mm Hg, general condition good Jan 12 — 6 a.m. Still small rim of cervix anteriorly pethidine 100 mg given, slept well 11 30 a.m. Second stage begun 2 12 p.m. Preps delivery of living female child, 9 lb (4 08 kg)

Case 9 Uterine Inertia—M.F., aged 20, 1 gravida, 41 weeks 15 1947—5 a.m. Pains started 6 a.m. Admitted to pital 9 40 a.m. Pains irregular, membranes intact, head aging, os one finger dilated 4 30 p.m. Weak pains every 20 minutes, membranes intact, no progress 11 30 p.m. Pot brom 1 chloral hydrate aa 30 gr Sept 16—10 a.m. Pains stronger every six minutes, head engaged, os one finger dilated 2 p.m. Pains fairly strong, no progress 5 p.m. No progress, pains weak, pituitrin + quinine 2 gr + pethidine 150 mg drip 5 55 p.m. Pains stronger—every 5 minutes 7 30 p.m. Os two fingers dilated 4 5 p.m. Pains strong, os three fingers dilated, pethidine 100 mg 5 55 p.m. Second bottle started 10 33 p.m. Spontaneous delivery of a living male child, 7 lb 11 oz (3 49 kg)

### Discussion

The pituitrin drip may cause no uterine contractions if the woman is not in labour, and on the other hand may cause strong uterine contractions within five minutes, even within one minute, of its commencement. We have come to the conclusion that a 1 in 2,500 solution is too strong and that the optimum dilution possibly lies between 1 in 5,000 and 1 in 10,000 of the post-pituitary extract. Kamm *et al* (1928) stated that they had prepared post-pituitary extracts having an oxytocic activity 150 times greater than that of the standard powder, and later writers have made similar claims (Stehle and Fraser, 1935, Du Vigneaud *et al*, 1933). None of these authors claims to have isolated the oxytocic principle in pure form, so that it is reasonable to assume that the post-pituitary oxytocic principle possesses an oxytocic activity at least 150 times greater than that of the international standard powder. Let it therefore be assumed (a) that the post-pituitary gland elaborates an oxytocic principle at least 150 times more potent than that of the standard powder, (b) that the average pregnant woman possesses three litres of blood plasma, (c) that none of the oxytocic activity becomes adsorbed to the red blood corpuscles, and (d) that labour pains do not start until after the drip has been running for five minutes, during which time  $\frac{200}{17}$ , or 12 ml, of the drip has entered the blood stream.

It would then follow that a concentration of the oxytocic principle in the blood plasma not exceeding  $\frac{10,000}{12} \times 3,000 \times 150 = 1.375 \times 10^6$  may suffice to initiate or to stimulate uterine pains.

In those cases in which spontaneous rupture of the membranes occurs before the onset of labour we consider it desirable to add 2 gr of quinine hydrochloride to each bottle of glucose-saline solution in addition to the post-pituitary extract. If uterine contractions do not occur it is obviously desirable to take down the drip after two bottles have been given and to restart it on the following day. In such cases it often happens that strong pains occur immediately the drip is recommenced.

The pituitrin drip does not cause a woman suffering from uterine inertia to have very strong pains, but it does in most every case increase both the frequency and the intensity of the pains. An elderly primigravida may be in labour for three days and longer without any advance of presenting part and without any dilatation of the cervical os. The pains, although ineffective, suffice to exhaust her. Morphine and other drugs potent enough to afford the woman adequate rest tend to put her "out of our". The pituitrin drip is invaluable in such cases and

makes possible the use of morphine and pethidine, for the drip can be continued while the patient is adequately narcotized. If we had to choose between the narcotic drugs and the pituitrin drip we should unhesitatingly choose the former, but we believe the drip to be a very valuable aid in the treatment of these peculiarly difficult cases.

The uterus apparently relaxes completely between the pains stimulated by the pituitrin drip. Slight irregularities in the foetal heart were noted occasionally, particularly when the 1 in 2,500 pituitrin drip was used. In such cases the drip was slowed. No permanent adverse effects on the foetus were observed. We consider it perfectly safe to use the pituitrin drip in cases of contracted pelvis when the head is not engaged, in cases of hypertension, and in cases of placenta praevia. It will be seen that Case 2 was previously delivered by a classical caesarean section. We no longer consider it safe to allow such patients to undergo trial labour, and for this reason we regard it as unsafe to administer the pituitrin drip to such cases. We know of no other contraindication to the use of the pituitrin drip provided it is thought desirable to stimulate the uterine pains.

Schockaert and Lambillon (1937) showed that the intra venous injection of "tonephin" (a post-pituitary pressor preparation) caused a higher and more prolonged rise in the blood pressure of patients suffering from "pre-eclamptic toxæmia" than in normal pregnant women, and these findings have been confirmed by de Valera and Kellar (1938) and by Browne (1944). The pituitrin drip causes no elevation of the blood pressure in normal patients, but a rise is sometimes detected in patients suffering from hypertension (see Case 9). The elevation is usually temporary, and strictly similar rises have been noted when a 1 in 10,000 dilution of "pitocin" \* was used. We propose in a subsequent paper to discuss this matter more fully, to record the antidiuretic effects, and to reproduce kymographic tracings of the uterine contractions caused by the pituitrin drip.

### Summary

A dilution of the oxytocic principle of post-pituitary extract in the blood plasma of an order not exceeding  $1.375 \times 10^6$  is capable both of initiating and of augmenting labour pains in man. This dilution is comparable to that of the antidiuretic principle which suffices to inhibit water diuresis. This evidence makes it increasingly difficult to believe that the post-pituitary gland is normally concerned either with regulating or with elevating the blood pressure.

The use of the pituitrin-quinine drip is of great value in those cases in which the woman fails to go into labour subsequent to the rupture of the membranes, whether spontaneously or as the result of surgical intervention.

The pituitrin drip increases both the frequency and the intensity of the uterine pains in cases of uterine inertia and makes possible the adequate use of sedative drugs in the conduct of the labour.

The pituitrin drip may be used in all cases in which it is considered desirable and safe to stimulate the uterine pains, and it is immaterial whether the woman is a primigravida or a multigravida, whether or not she suffers from hypertension, or whether the head is above the brim.

It is not impossible that it will be found advantageous to apply the pituitrin drip to a wider range of cases. It is also possible that it will find a place in the third stage of labour, particularly in those cases of severe post-partum haemorrhage in which the placenta is retained. The pituitrin would of course be added to the transfused blood.

We have in the majority of cases used pituitrin, but pitocin would appear to be equally efficacious, and it would perhaps be more logical to use the latter preparation, particularly in those cases which manifest hypertension.

\*A commercial preparation of the oxytocic principle of the post-pituitary gland prepared by Messrs Parke and Sons.

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## SUBTOTAL COLECTOMY AND COLECTOMY IN ULCERATIVE COLITIS

BY

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The treatment of ulcerative colitis in this country has always been regarded as medical. Like most Australian surgeons, we have had little experience of the surgical treatment of this condition because patients suffering from ulcerative colitis are only referred for surgical treatment as a last resource. In three metropolitan hospitals over a ten-year period, the Royal Melbourne (in this hospital the ten-year period did not include the last two years), the Alfred, and St Vincent's, 341 patients suffering from ulcerative colitis were admitted. Of these, 87 died and 23 were treated surgically (in one hospital 3 cases, in another 5 and in a third 15). There were 6 cases of appendicostomy, 6 of ileostomy, 5 of colostomy, 1 of ileosigmoidostomy, 1 of ileocolostomy, and 1 of colectomy. Of the 6 patients subjected to enterostomy 5 died.\*

From these figures we may infer that in Victoria the incidence of ulcerative colitis is material, that its treatment has been mostly medical and has not been very successful, and that what little surgical treatment has been practised has not been of much value. This paper is founded on a relatively small series of cases, but they were desperate ones, and the later cases reflect team work by the authors—a necessary method of work in this critical surgery which demands painstaking and scientific preparation, often synchronous operating, small bedside operations, skilful post-operative methods, and constant surgical attention. Our interest in the radical surgical treatment of this condi-

tion was awakened by a particularly bad case which came under our notice (H B D) in 1941.

**Case 1**—A woman aged 34, who had been ill for six months with obscure abdominal symptoms, a progressive secondary anaemia, and some disturbance of her bowel function, became acutely ill with severe abdominal pain. She was operated on in the belief that she had an acute appendicitis, the appendix appeared acutely inflamed. About a week after the operation she began to have frequent and painful bowel actions and to pass large quantities of blood with some pus. It was apparent that she had a fulminating ulcerative colitis. Sigmoidoscopy confirmed this diagnosis and showed that the rectum was also badly affected. Notwithstanding many blood transfusions and every kind of treatment she steadily got worse until she was emaciated, cachectic, exhausted, and almost moribund.

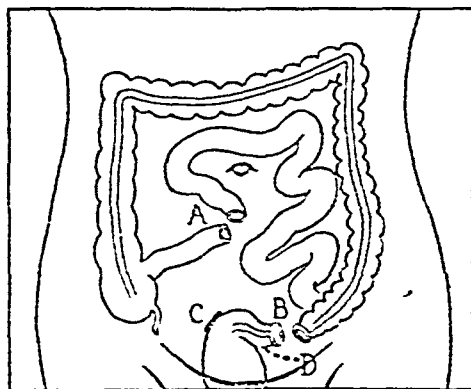


FIG 1—A=divided ileum, B=divided sigmoid, C=some mobilization of rectum, D=some prolapse of peritoneum of anterior abdominal wall around the sigmoid remnant so that when the bowel-ends are being closed the size of the sigmoid remnant can be reduced by amputation.

Conservative surgical measures such as appendicostomy or enterostomy could offer little hope of cure and she was too weak to stand a colectomy. We decided therefore on a 'piecemeal' surgical approach, each successive step in treatment being designed not only to bring about improvement but also to be a stage in the removal of the colon. (a) An enterostomy was so planned that it was a step in the formation of an ileorectostomy (Figs 1 and 2).

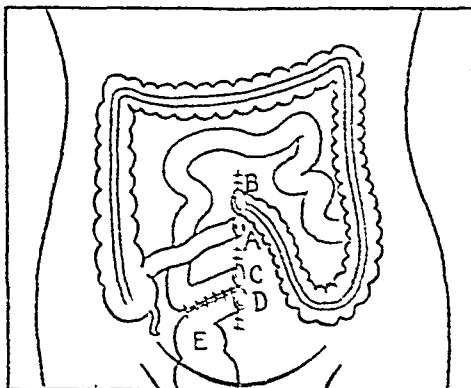


FIG 2—A=distal end of the ileum, B=distal sigmoid, C and D show the ileosigmoid anastomosis made up of proximal end of ileum and distal end of sigmoid, E=rectum.

(b) About five weeks later the ileum was connected to the rectum by the use of a special spur-clamp (Fig 3) and the open ends of the bowel taking part in the anastomosis were closed under local anaesthesia (Figs 4 and 5). (c) The colon, now isolated, with both ends open forming two mucous fistulae was completely out of action and was treated by routine chemotherapy over a period of months until the patient ceased to improve. Since she had no discharging enterostomy and was comparatively comfortable the length of

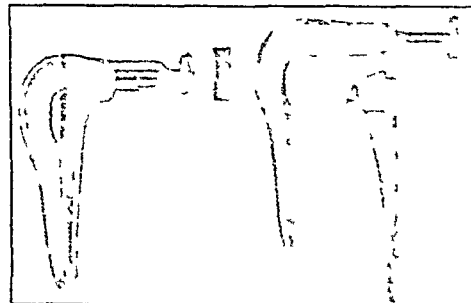


FIG 3

\*For this information we acknowledge our indebtedness to Dr George Gunther of the Royal Melbourne Hospital, Dr Smibert of the Alfred Hospital, and Dr Carl DeGruchy, of St Vincent's Hospital with kindly help.

Hg, os three to four fingers dilated, head in same position 30 p.m. Strong contractions every five minutes, B.P. 140/90  
 Hg, os 3/4 dilated, pethidine 100 mg given 8.30 p.m.  
 Strong contractions every five minutes, rim of cervix only palpated anteriorly, pethidine 100 mg given 9.30 p.m. Third bottle begun, B.P. 140/90 mm Hg, general condition good Jan 12 — 6 a.m. Still small rim of cervix anteriorly, pethidine 100 mg given, slept well 11.30 a.m. Second stage begun 2.12 p.m.  
 Forceps delivery of living female child, 9 lb (4.08 kg)

Case 9 Uterine Inertia—M.F., aged 20, 1 gravida, 41 weeks Sept 15, 1947 — 5 a.m. Pains started 6 a.m. Admitted to hospital 9.40 a.m. Pains irregular, membranes intact, head engaging, os one finger dilated 4.30 p.m. Weak pains every 20 minutes, membranes intact, no progress 11.30 p.m. Pot brom and chloral hydrate 30 gr Sept 16 — 10 a.m. Pains stronger—every six minutes, head engaged, os one finger dilated 2 p.m. Pains fairly strong, no progress 5 p.m. No progress, pains weak, pituitrin + quinine 2 gr + pethidine 150 mg drip 5.55 p.m. Pains stronger—every 5 minutes 7.30 p.m. Os two fingers dilated 8.45 p.m. Pains strong, os three fingers dilated, pethidine 100 mg 8.55 p.m. Second bottle started 10.33 p.m. Spontaneous delivery of a living male child, 7 lb 11 oz (3.49 kg)

### Discussion

The pituitrin drip may cause no uterine contractions if the woman is not in labour, and on the other hand may cause strong uterine contractions within five minutes, even within one minute, of its commencement. We have come to the conclusion that a 1 in 2,500 solution is too strong, and that the optimum dilution possibly lies between 1 in 5,000 and 1 in 10,000 of the post-pituitary extract. Kamm *et al* (1928) stated that they had prepared post-pituitary extracts having an oxytocic activity 150 times greater than that of the standard powder, and later writers have made similar claims (Stehle and Fraser, 1935, Du Vigneaud *et al*, 1933). None of these authors claims to have isolated the oxytocic principle in pure form, so that it is reasonable to assume that the post-pituitary oxytocic principle possesses an oxytocic activity at least 150 times greater than that of the international standard powder. Let it therefore be assumed (a) that the post-pituitary gland elaborates an oxytocic principle at least 150 times more potent than that of the standard powder, (b) that the average pregnant woman possesses three litres of blood plasma, (c) that none of the oxytocic activity becomes adsorbed to the red blood corpuscles, and (d) that labour pains do not start until after the drip has been running for five minutes, during which time  $\frac{200}{17}$ , or 12 ml, of the drip has entered the blood stream it would then follow that a concentration of the oxytocic principle in the blood plasma not exceeding  $1 \text{ in } \frac{10,000}{12} \times 3,000 \times 150 = 1 \text{ in } 375 \times 10^6$  may suffice to initiate or to stimulate uterine pains.

In those cases in which spontaneous rupture of the membranes occurs before the onset of labour we consider it desirable to add 2 gr of quinine hydrochloride to each bottle of glucose-saline solution in addition to the post-pituitary extract. If uterine contractions do not occur it is probably desirable to take down the drip after two bottles have been given and to restart it on the following day. In such cases it often happens that strong pains occur immediately the drip is recommenced.

The pituitrin drip does not cause a woman suffering from uterine inertia to have very strong pains, but it does in almost every case increase both the frequency and the intensity of the pains. An elderly primigravida may be in labour for three days and longer without any advance of the presenting part and without any dilatation of the external os. The pains, although ineffective, suffice to exhaust her. Morphine and other drugs potent enough to afford the woman adequate rest tend to put her "out of labour." The pituitrin drip is invaluable in such cases and

makes possible the use of morphine and pethidine, for the drip can be continued while the patient is adequately narcotized. If we had to choose between the narcotic drugs and the pituitrin drip we should unhesitatingly choose the former, but we believe the drip to be a very valuable aid in the treatment of these peculiarly difficult cases.

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### Summary

A dilution of the oxytocic principle of post-pituitary extract in the blood plasma of an order not exceeding  $1 \text{ in } 375 \times 10^6$  is capable both of initiating and of augmenting labour pains in man. This dilution is comparable to that of the antidiuretic principle which suffices to inhibit water diuresis. This evidence makes it increasingly difficult to believe that the post-pituitary gland is normally concerned either with regulating or with elevating the blood pressure.

The use of the pituitrin quinine drip is of great value in those cases in which the woman fails to go into labour subsequent to the rupture of the membranes, whether spontaneously or as the result of surgical intervention.

The pituitrin drip increases both the frequency and the intensity of the uterine pains in cases of uterine inertia and makes possible the adequate use of sedative drugs in the conduct of the labour.

The pituitrin drip may be used in all cases in which it is considered desirable and safe to stimulate the uterine pains and it is immaterial whether the woman is a primigravida or a multigravida, whether or not she suffers from hypertension, or whether the head is above the brim.

It is not impossible that it will be found advantageous to apply the pituitrin drip to a wider range of cases. It is also possible that it will find a place in the third stage of labour, particularly in those cases of severe post partum hæmorrhage in which the placenta is retained. The pituitrin would of course be added to the transfused blood.

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## SUBTOTAL COLECTOMY AND COLECTOMY IN ULCERATIVE COLITIS

I.

Sir HUGH DEVINE, MS (Melb), Hon F.R.C.S.

AND

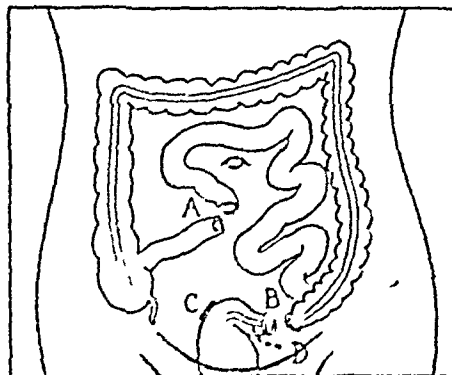
JOHN DEVINE, MS (Melb), F.R.C.S.

The treatment of ulcerative colitis in this country has always been regarded as medical. Like most Australian surgeons, we have had little experience of the surgical treatment of this condition because patients suffering from ulcerative colitis are only referred for surgical treatment as a last resource. In three metropolitan hospitals over a ten year period, the Royal Melbourne (in this hospital the ten year period did not include the last two years), the Alfred, and St Vincent's, 341 patients suffering from ulcerative colitis were admitted. Of these, 87 died and 23 were treated surgically (in one hospital 3 cases in another 5 and in a third 15). There were 6 cases of appendicectomy, 6 of ileotomy, 5 of colectomy, 1 of ileosigmoidostomy, 1 of ileocolostomy, and 1 of colectomy. Of the 6 patients subjected to enterostomy 5 died.\*

From these figures we may infer that in Victoria the incidence of ulcerative colitis is material, that its treatment has been mostly medical and has not been very successful, and that what little surgical treatment has been practised has not been of much value. This paper is founded on a relatively small series of cases, but they were desperate ones, and the later cases reflect team work by the authors—a necessary method of work in this critical surgery which demands painstaking and scientific preparation, often synchronous operating, small bedside operations skilful post-operative methods, and constant surgical attention. Our interest in the radical surgical treatment of this condi-

tion was awakened by a particularly bad case which came under our notice (H.B.D.) in 1941.

**Case 1**—A woman aged 34, who had been ill for six months with obscure abdominal symptoms, a progressive secondary anaemia, and some disturbance of her bowel function, became acutely ill with severe abdominal pain. She was operated on in the belief that she had an acute appendicitis, the appendix appeared acutely inflamed. About a week after the operation she began to have frequent and painful bowel actions and to pass large quantities of blood with some pus. It was apparent that she had a fulminating ulcerative colitis. Sigmoidoscopy confirmed this diagnosis and showed that the rectum was also badly affected. Notwithstanding many blood transfusions and every kind of treatment she steadily got worse until she was emaciated, cachectic, exhausted, and almost moribund.



Conservative surgical measures such as appendicectomy or enterostomy could offer little hope of cure and he was too weak to stand a colectomy. We decided therefore on a piece-meal surgical approach, each successive step in treatment being designed not only to bring about improvement but also to be a step in the removal of the colon. (a) An enterostomy was so planned that it was a step in the formation of an ileorectostomy (Figs 1 and 2).

(b) About five weeks later the ileum was connected to the rectum by the use of a special 'pur clamp' (Fig. 3) and the anastomosis was closed under local anaesthesia (Figs 4 and 5). (c) The colon, now isolated, with both ends open forming two mucous fistulae was completely out of action and was treated by routine chemotherapy over a period of months.

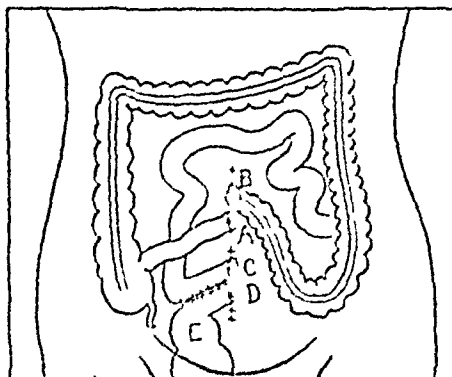


FIG. 2—A—distal end of the ileum, B—distal sigmoid, C and D show the ileosigmoid purse made up of proximal end of ileum and distal end of sigmoid, E—rectum.

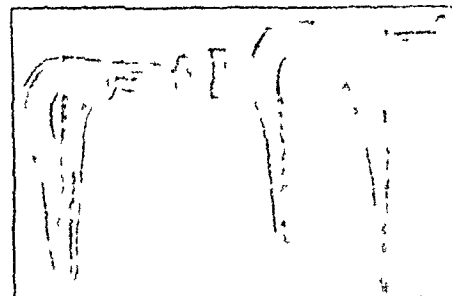


FIG. 3

\*For this information we acknowledge our indebtedness to Dr. George Gunther, of the Royal Melbourne Hospital, Dr. Smibert, of the Alfred Hospital, and Dr. Carl DeGruchy, of St Vincent's Hospital, who kindly collected it, and to the respective hospitals for their generous permission to publish the figures.

until the patient ceased to improve. Since she had no discharging enterostomy and was comparatively comfortable, the length of this period was immaterial and we could wait almost any time (in this case eight months) till we felt that she was thoroughly



fit for the last stage—namely, (d) a colectomy (or near-colectomy), which in this instance was done in one stage after a period of painstaking preparation

### Main Principles

Certain main principles should govern this surgical procedure (1) A very careful preparation to correct hypoproteinaemia and anaemia (2) A graduated method so that when the colon is removed there is no sudden dislocation of function (3) No stage should be undertaken until the

patient's condition justifies it (4) No intra-abdominal sutures must be used in the infected, rigid, greatly thickened colon—thus the cut ends of the bowel must be closed extraperitoneally The anastomosis of the ileum with the rectum must be made without sutures—that is with a specially constructed enterotome in which the edges are so generously bevelled that the rigid friable tissue is subjected to a gradual pressure and broad adhesions in the edges of the anastomosis are brought about, a straight-edged clamp would cut through the

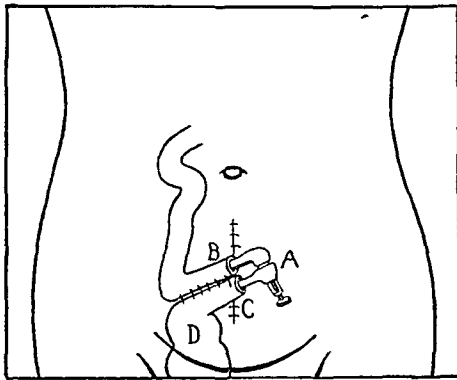


FIG 4—A=clamp made of hard aluminium alloy, in position to crush the spur, B=ileum, C=sigmoid, D=rectum

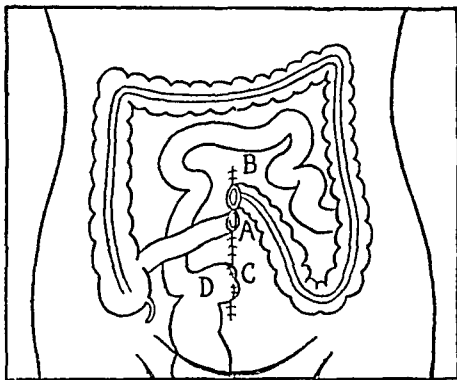


FIG 5—A=openings of excluded bowel, B=ileum C=closed ends of the ileum, D=lower segment of the sigmoid

brittle tissue The rectum is mobilized upwards and a small segment of the lowest part of the sigmoid is preserved so that this spur-clamp (Fig 3) can be used

In Case 1 when the resected colon was examined it was found to be 2 ft 9 in (84 cm) long and uniformly affected with an advanced stage of acute ulcerative colitis. In the ileocaecal region there was a group of very large inflamed glands, nowhere else were the glands enlarged to any extent. The patient began to improve soon after the ileum was connected to the rectum. For eight months while her isolated colon was washed out with sulphonamide solutions her general condition improved steadily and she became much heavier and began to look well. There was, however, little improvement in the colon, an examination showed little or no improvement in the condition of the mucous membrane and pus poured from the mucous fistulae in large quantities. Then her general condition ceased to improve and this determined the time for her colectomy. This operation caused her little disturbance. The isolated colon was much retracted and much smaller than normal and was thus comparatively easy to remove. Four months after her colectomy she began to improve rapidly. The badly diseased rectum began gradually to clear up. A few tiny ulcers formed in the ileum, but these

soon disappeared. This patient is now, six years later, a red-faced, healthy-looking person, she is 4 stone (25.4 kg) heavier and has no signs of active disease in her rectum. Her bowels open six to eight times a day and twice at night (This is unusually frequent, as we shall see from later cases). She has, however, a group of inflammatory glands which can be felt in the left iliac fossa and which on x-ray seem to be well away from the rectal anastomosis.

**Case 2**—A man of 54 had suffered from a severe ulcerative colitis for three years. He had hourly motions, had lost a lot of weight, had become cachectic, was unable to work and was very sick indeed. X-ray and sigmoidoscopic examination showed that extensive and irreparable structural changes had taken place in the bowel. A modified enterostomy as described in Case 1 (Fig 1), the first stage of the subtotal colectomy, was done (H B D). His general condition began to improve but the repair of his abdominal wound was weak and a superficial mild but spreading ulceration formed around the enterostomy. Then about two months after his ileum had been connected to his rectum strangulation of a loop of bowel occurred under a band like section of ileum which was attached to the anterior abdominal wall. He recovered from the operation, but died some months later from bronchopneumonia.

This case was a failure. He never derived much benefit from his enterostomy, never improved enough to enable us to proceed with the stages of his colectomy, and never had a healthy-looking abdominal wound. Deficient tissue vitality as shown by lack of repair in his enterostomy wound and by his terminal bronchopneumonia was probably the direct result of an intense toxemia and of protein loss from the large ulcerating surface. Careful pre-operative measures to counteract his hypoproteinaemia had never been properly carried out.

**Case 3**—This patient was in just as desperate a condition as Case 1. He had been sick for four years. He had ten or more motions a day and several at night with copious blood and pus. He weighed 7 stone (44.5 kg) and looked like a person in the last stages of tuberculosis.

This patient was operated on (H B D) in much the same way as Case 1. When examined after removal the colon was over 3 ft (91 cm) long and showed a late stage of the disease involving the whole colon. After the colectomy there was a dramatic improvement and in 12 months the patient was able to do light work.

Two years after the colectomy he developed an acute intestinal obstruction. An operation (J B D) relieved this. Now three years after his operation he appears to be quite well. He has been back at full work for one year and is 5 stone (31.8 kg) heavier. The number of his motions has gradually diminished till now he has two in the day—one in the morning and one before going to bed. He says 'The motions are not formed, but they are not liquid they are softish. The tip of a finger introduced into the rectum enters the ileum. Sigmoidoscopy shows that the disease in his rectum has completely cleared up.'

### Four More Cases

**Case 4**—A woman of 43 was very wasted, acutely ill (pulse 130), and looked as if she would only live a month. For 18 months she had had all the symptoms and signs of a very severe ulcerative colitis in which the rectum was also involved. She had weeks of intensive preparation before any operation could be considered. With a great struggle she got through her first stage operation carried out as in Case 1. She was so sick that the periods between the operative steps had to be long. Her tissues had very poor vitality, a slab of tissue in the abdominal wall lying over the anastomosis with the rectum, came away as a large slough. After each operation she improved, until finally we were able to remove her colon. The colon was white and opaque looking, greatly thickened, oedematous and uniformly involved. The appendix was in two parts, the division lying in the midst of evidences of a past abscess.

Two years later this patient was comparatively well. She had gained much weight and was doing her own housework.

The rectal condition was almost normal. She had six stools in 24 hours—four during the day two during the night. A sinus still remained in the lower part of the abdominal scar where the slough had occurred.

**Case 5**—A young man of 22 had had a very severe ulcerative colitis of two years' duration; he had spent six months in hospital. He received the usual careful pre-operative preparation with a view to correcting haemoglobin and protein deficiency. Immediately after the first stage of his surgical treatment—that is after the modified enterostomy (HBD)—he became painlessly distended and notwithstanding Miller-Abbott therapy, jejunostomy, and every possible measure including abdominal exploration (JBD) he died of what we regarded as a paralytic ileus.

**Case 6**—This patient reached a stage of almost complete cure and then died from an adventitious cause. He was 60 and had suffered from a bad ulcerative colitis for two years. The colon was removed in the way already described (HBD). Following the operation his condition improved and reports two years later indicated that he was comparatively well. About this time a report reached us that he had died suddenly up country from an acute intestinal obstruction (no operation).

**Case 7**—This woman of 37 had had an ulcerative colitis for 20 years and had been under my care (HBD) for that time. In its early stages the colitis had been very severe for three years and she had been practically bedridden. In an effort to help her a valvular appendicostomy was made and into this we inserted an indwelling catheter (HBD) which never leaked. Through this she gave herself a daily wash out and after a time she became well enough to earn her living.

Years later there was an exacerbation of the disease and finally a stricture formed in the lower 3 in. (7.5 cm.) of her sigmoid. This became so narrow that surgical treatment was imperative. Accordingly her colon was removed by the 'sliding scale' method already described (HBD and JBD). Since the stricture was in the lowest 3 in. of sigmoid it could be included in the spur. Thus with the distal cut end of the sigmoid opening on to the abdominal wall, the stricture could be so dilated as to permit the intro-

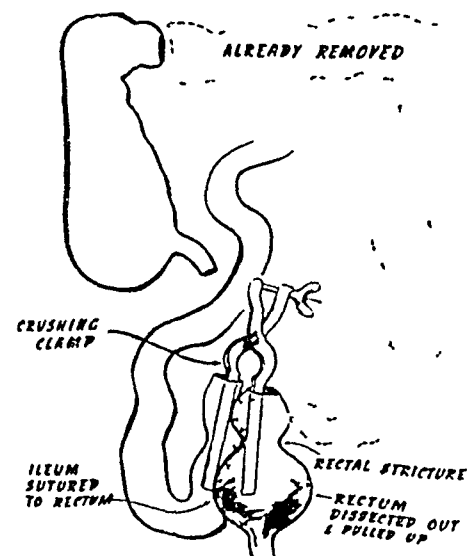


FIG 6

duction of the enterotome, so that when the spur was crushed it was divided (Fig 6) and the stricture became part of the anastomosis.

Two and a half years after the operation this patient has greatly improved. Her colour has completely changed and she looks healthy; she has increased greatly in weight, is able to do full work and to defaecate comfortably. The number of her motions has become less and less until now they are four a day and none at night. Sigmoidoscopy shows that the disease in the rectum has almost cleared up, the signs of inflammation are gone and there is much scarring, but there still remains one small ulcer.

#### Possibilities of Surgery

The next case was a good example of what surgery can do for ulcerative colitis. It concerned a distressing and pitiable case of four years' duration in a 19-year-old girl. In the early stages of her illness a properly constructed

enterostomy had been done. For twelve months after this she continued to improve, but then began to relapse rather badly and soon became very ill indeed. Although her condition was desperate we felt justified in facing up to a colectomy because of her youth. The most favourable time for operation, when the patient had derived the greatest benefit from the enterostomy, had long passed. Her general condition was very bad. Her tissues had almost lost the power of repair, a small wound in the abdominal wall had not healed in nine months. There were fistulae from the rectum into the vagina, and there was a stricture in the rectosigmoid region. The disease in the rectum was so advanced that it was obvious that this organ was irrecoverable.

**Case 8**—Special care was taken in her pre-operative preparation. Blood and serum to correct her anaemia and hypoproteinaemia were given well before the operation so as to get their full effect. At operation (HBD and JBD) it was seen that while the distal colon was severely affected the proximal colon showed no evidence of the disease. The disease was so advanced as to preclude the possibility of the colon ever functioning normally: there was a perforation in the sigmoid, and it was obvious that the rectum would eventually have to be removed.

In this case we thought it wise to take advantage of the absence of disease in the proximal colon to preserve the ascending colon as it would provide a more controllable artificial anus than would the terminal ileum (the wisdom of this was subsequently proved). The colon was resected from the hepatic flexure to a point about 3 in. (7.5 cm.) above the recto-sigmoid junction. The cut end of the distal segment of the sigmoid was implanted in the lower end of the wound, the peritoneum of the anterior abdominal wall being stripped and well prolapsed into the abdominal cavity round the stump so as to leave as small a segment of sigmoid as possible. A small carefully constructed artificial anus which could be controlled was made at the hepatic flexure. At a second operation the enterostomy was closed. The wound however, showed little tendency to heal.

For about nine months her general health continued to improve, after which she was again so ill that it looked as if she would surely die. We were faced with a most adverse set of circumstances—a profound deterioration of general health and of all her bodily functions—wounds from the previous operation which had not yet completely healed and spreading areas of cellulitis in various parts of her body. Nevertheless because she was only 19 we decided to operate.

She was first given several blood transfusions. Later, under nitrous oxide anaesthesia (Dr Travers) with two sets of instruments and two nursing teams—one for the abdominal surgeon (HBD) and one for the perineal surgeon (JBD)—the rectum was removed in just over the half-hour with astonishingly little disturbance to the patient. Penicillin was used as dressing in the large infected cavity left after the rectum was removed.

Her general condition began to improve very slowly, but for many months the rectal cavity showed no sign of healing. Finally a stage was reached when it began to heal very slowly; it was well over 12 months before it had closed.

Now, over three years later, she seems to have completely recovered. She looks perfectly healthy, has gained stones in weight, is able to ride and to drive a car, and carries out nursing duties for her father who is a doctor. What is most gratifying is that thanks perhaps to the fact that she has her ileocaecal valve, or that a small part of her colon was left to make the artificial anus she has a practical control of her bowel. She gives herself a wash-out through the colostomy once a week and until her next wash out her abdominal wall is never soiled. This is unusual but is cited to show the value of preserving the proximal part of the colon. That a patient as ill as this girl was could survive removal of most of her colon and the whole of her rectum and could get so well that she could lead a normal life has

made us revise our surgical philosophy in so far as it applies to the treatment of desperate cases of ulcerative colitis

In this case we see some traits of the worst form of the disease—the intractable type of ulcerative colitis, the specific deficiency in tissue repair, the general dissemination of the infection as seen by the areas of cellulitis, and the greater incidence of the disease in the distal colon and particularly in the rectum. In it, too, we see the temporary value of enterostomy, the powers of recovery of youth in a desperate case of ulcerative colitis, the importance of taking advantage of an unaffected caecum and ascending colon, and the fact that in this case after all that was done to her she is able to live practically a normal life

### Partial Colectomy

Another case showed how a partial colectomy may help in some patients. A man of 57 had had an ulcerative colitis for 20 years. He was cachectic, emaciated, and dehydrated. He had been having motions, mostly of pus and blood, 12 or more times a day and three or four at night. About 18 months before coming into hospital he had begun to have attacks which were diagnosed as due to chronic intestinal obstruction. A 3-in (7.5 cm) stricture in the middle of the transverse colon and another but shorter one in the rectosigmoid region could be seen in a radiograph. A long, hard, nodular tumour, which was undoubtedly malignant, could be felt in the region of the transverse colon corresponding to the site of the stricture.

*Case 9*—At operation (HBD) a long sausage shaped malignant growth was found occupying the greater part of the transverse colon. The walls of his chronically inflamed colon were about 1/4 in (6 mm) thick, rigid, and friable. To suture such a colon would be impossible. Here it was obvious that the only way to effect an anastomosis was to make a spur and use a bevelled edged enterotome so as to crush by graduated pressure rather than cut through the rigid and friable tissue. The hepatic flexure and the adjoining part of the ascending colon, the transverse colon, the splenic flexure, the descending colon, and the upper half of the sigmoid were stripped from the posterior abdominal wall as one large segment. The limbs consisting of mobilized ascending colon and hepatic flexure and mobilized descending colon and sigmoid were sutured together to form a spur. The tumour-containing segment was then widely amputated. Later the spur was crushed by the gradual application of a bevelled edged enterotome. The patient recovered and for three years enjoyed a comparatively comfortable life.

The lesson to be learnt from this case is that extensive partial colectomy—subtotal colectomy—has a value in the surgical treatment of ulcerative colitis. So much of his diseased colon was removed that the toxic effects of, and the miseries attendant on, the inflamed and ulcerated colon were greatly ameliorated. This patient died three years later following an attempt to remove the rectosigmoid stricture, which appeared also to have become malignant.

### Low Stricture of the Rectum

The next case had a special interest in that it showed how a fairly low stricture of the rectum could be dealt with.

A girl aged 19 had had ulcerative colitis for six years. Sigmoidoscopy showed that the rectum and sigmoid were almost completely denuded of mucosa, there was a foul, frothy, semi-purulent discharge. A radiograph showed absence of haustration, rigidity of the bowel, and loss of the mucosal pattern as far as the splenic flexure. The remaining colon had a normal appearance. The patient looked very sick and had a haemoglobin of 65% on the 14-gramme standard.

*Case 10*—As the disease was confined to the descending colon, sigmoid, and rectum, a transverse "defunctioning" colostomy was done in August, 1946 (JBD), under gas and

ether anaesthesia. The idea was that as the patient was a young girl the question of resecting the distal part of the colon and making an anastomosis between a long proximal part of the transverse colon and the rectum should be considered if the "defunctioning" colostomy did not bring about healing of the disease. Following this operation, the patient improved and her weight increased by half a stone (3.2 kg).

By March, 1947, she was again having almost continual rectal bleeding and her general health was no longer improving. She now had a stricture 2 in (5 cm) from the anus through which the tip of the examining finger could not be passed. So at the Alfred Hospital under gas, oxygen, and ether anaesthesia a midline lower abdominal incision was made and the rectum was dissected free to within 1/2 in (1.25 cm) of the anus. The ileum was then transected and its acting loop brought down and sutured alongside the rectum as low in the pelvis and as near to the anus as possible. A spur was thus created with ileum going to below the stricture, and the end of the rectosigmoid stump was also implanted in the wound. At the same time the colon was removed from the rectosigmoid junction region as far as the transverse colostomy.

Six days after the operation a crushing clamp was applied as shown in Fig. 6, and the stricture was crushed into the ileum. Thus a free passage of ileal contents into the rectum was assured. At a later date, under thiopentone, the acting loop of the ileum and the rectosigmoid stump opening on to the abdominal wall were closed. The specimen removed was 3 1/2 ft (105 cm) long, and showed considerable fibrosis and much loss of mucosa. Following this operation the patient had put on weight and had become engaged to be married. She was having two bowel motions in the 24 hours.

Sigmoidoscopy before she left hospital revealed improvement of the disease in the rectal pouch, which had previously been markedly involved. There was a wide opening between the ileum and rectum. Three or four months later, by which time she was in every way a normal girl, sigmoidoscopy failed to reveal any disease in the rectum. It was now thought advisable to remove the isolated segment of ileum and caecum and ascending colon. This was done and she progressed favourably until the tenth day, when she developed a subphrenic abscess. The abscess was drained surgically below the twelfth rib. Drainage ceased in about a fortnight, and the next stage of her progress was uneventful except for the slow healing-over of a fistula from the ileo-rectal anastomosis which was inadvertently opened at the preceding operation.

Our last patient (Case 11), aged 55, was a woman who had suffered from diarrhoea, often having 15 motions in each 24 hours, and loss of weight. She had become very depressed and the disease had reached a late stage. The first stage of the operation (the junction of the ileum to the rectum and closing the ileo-rectal fistula) was carried out. The patient has been sent home where she can live comfortably, having only a slight mucous discharge from the two mucous fistulae. She can do her own work, so there is no hardship in her remaining any length of time, so long as she continues to improve, before the final stage, a colectomy, is carried out. This case is included to show the comfortable life that patients can lead while waiting for their colectomy, and also because we feel that it is in the first-stage operation that the danger lies.

### Future Policy

Although our series is small it includes such bad cases and good results that we feel we are entitled to build from it a surgical philosophy for our future treatment of ulcerative colitis. We believe, first, that a case of established ulcerative colitis should come to a surgical consultation early in its course to consider the question of early operation from the following viewpoints:

(a) Can the surgeon help the physician? He may be able to do so by making a non-leaking valvular appendicostomy (in Case 7 such an appendicostomy functioned for about 18 years without leaking).

(b) There is some justification for the removal of the appendix, since it is not above suspicion as the point of entry of the infective element in the colitis

(c) To find out early in the course of the disease whether the ascending colon is free from the disease, because in this case the prognosis is much brighter and early operation is justifiable

(d) To ascertain the type and severity of the ulcerative colitis with a view to planning its treatment. Is it a case which medical treatment will not cure? I think this judgment can be made

Secondly, we should advise in treatment more attention to tissue resistance and tissue repair. They probably play a larger part in this infective disease than does the virulence of the organism

Thirdly, we should regard ulcerative colitis in much the same way as we do gastric ulcer, that is, when ulceration and loss of substance of the mucosa have taken place and the physician is making no headway with his treatment we should advise operation with a view to removing the colon, and advise operation early

We believe that the reward of early colectomy or subtotal colectomy is a low immediate mortality and a very fair chance that the rectum will recover when the colon is removed. We feel it is not wise to wait on and on in the hope of medical cure

#### Summary

Here were 11 advanced and desperate cases of ulcerative colitis for which a policy of careful radical surgery was planned. In general, it represents a rather timid and tedious method of operation but both the immediate and remote results are more than satisfactory. We look forward to the application of the method to much earlier and less debilitated cases—to cases which from our experience we can say will not be cured by medical treatment.

Of the 11 patients two died. One died of an adynamic ileus immediately following the first-stage modified enterostomy, and one three months after the first stage from tissue deficiency and toxæmia. None of the patients died following colectomy or excision of the rectum. Thus, of 11 desperately sick patients six survived subtotal or near-colectomy, one a near colectomy combined with excision of the rectum, one a partial colectomy involving two thirds of the colon, and one the first stage of colectomy

Six patients seem to be cured—the worst case of all for six years. They have no bowel discomfort and live normal lives. One patient has only two motions a day and none at night. Most of the patients, however, have from four to five motions in 24 hours

The Minister of Health recently held a valedictory reception for members of the Rushcliffe Nurses and Midwives Salaries Committees and members of the Advisory Council of the Civil Nursing Reserve, which were disbanded on July 5. The two Rushcliffe Committees worked almost continuously for nearly seven years and have reviewed the pay and conditions in every field of nursing. Their reports and recommendations have covered all grades of nurses, both men and women, in all branches of the hospital and public health field, as well as the midwifery service. In 1941, for example, a hospital staff nurse received £70-£80 a year, to day as a result of the Rushcliffe recommendations she receives £140-£200 a year. With the coming into operation of the National Health Service there will be entirely new machinery for dealing with salaries and conditions of service. There is to be a series of Whitley Councils covering all those working in the Service, and one of these will be for nurses and midwives. The Minister of Health paid tribute to the great work of Lord Rushcliffe and the members of his Committees and of the CNR Advisory Council. Lord Rushcliffe in reply said that during a long period in public life nothing had given him greater satisfaction than his association with the Nurses and Midwives Salaries Committees. Their recommendations had not been pigeon holed but had shown prompt results

## DEATH FROM INHIBITION, AND ITS RELATION TO SHOCK

### A CRITICAL SURVEY

BY

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Among medico-legal experts there is apparent a certain confusion in describing the nature of death from inhibition, and often also between the effects of shock and of inhibition. This is especially so when they are dealing with cases which might fall within either category, and regarding which they have to decide in one way or the other and to present a logical and scientific conclusion to the courts. The medico-legal expert cannot afford to use vague expressions and nomenclature. The pathologist, on the other hand, is not usually subjected to such difficulties and can afford to express opinions that are not necessarily binding; he is at liberty to advance hypotheses which are liable to modification or alteration but which can be so altered without serious consequences.

I propose to draw attention to the manner in which various writers on pathology and legal medicine deal with these matters and other related subjects of special medico-legal interest. We find, for example, in certain medico-legal textbooks special attention given to death due to inhibition with almost entire neglect of the subject of shock, while the exact opposite occurs in some of the books on pathology. Both sides may have their own reasons for this selective handling of their own subject. For instance, the medico-legal expert may contend that shock does not interest him greatly because usually it is possible to attribute the cause of death directly to the injuries so obviously and extensively present—severe trauma such as rupture of viscera, extensive burns, or severe haemorrhages. On the other hand, the pathologist may contend that death due to inhibition has no material meaning to him so long as he cannot find microscopic or macroscopic evidence of direct pathological processes which he can hold responsible for the death. Thus both parties appear to be relatively satisfied with the present position in regard to both subjects.

Elsewhere in the literature of forensic medicine and trauma we find an obvious confusion between these two subjects, the terms "inhibition" and "shock" being used loosely and incorrectly as if they were interchangeable—a state of things that is perhaps attributable to recent activity in the study of shock and the frequency with which the subject is referred to in medical periodicals. The fact that shock has become extensively written about seems to have had as a consequence the effect of confusing the two syndromes.

Very few among the leading authorities in forensic medicine, pathology, or physiology deal with the difference between the two subjects with sufficient emphasis, and then only to put death due to inhibition under the title of primary shock while speaking of shock as "delayed shock"—an attitude which has served only to increase the confusion.

I shall endeavour to put forward the real facts concerning the nature and mechanism of both syndromes and of the other phenomena, related to quite different causes, which are ordinarily confused with death due to inhibition.

### What is Inhibition, and How Does it Result in Death?

The term was first used after the discovery by the Weber brothers in 1846 that the excitation of the vagus along its course and irritation of its peripheral end after section give rise to a marked slowing of the heart's action, and that when the excitation is strong enough it may lead to the stoppage of the heart in diastole—i.e., to a complete inhibition of its action.

In 1856 Pflüger established the possibility of inhibiting the intestinal movements as a result of excitation of the ends of the splanchnic nerves. A few years later, in 1861, Rosenthal succeeded in inhibiting the respiration by exciting the vagus centrally. Since then many other workers have proved that this inhibitory action is not limited to the excitation of the main nerve trunks, but can be accomplished by reflex action, as happens after the excitation of the superior laryngeal nerve, which leads to the inhibition of respiration and even to sudden death.

Brouardel, of Paris, was the first to use the term "death due to inhibition." His conception of death due to circulatory or respiratory inhibition was accepted for a long period without contradiction, and indeed it became somewhat abused. Thus we find that till the beginning of this century a large proportion of cases of sudden death were attributed to inhibition in medico-legal records. This proportion, however, diminishes more and more with the progress of pathology, which throws light on the real causes of certain doubtful cases of sudden death for which the term "death due to inhibition" was advanced only to cover ignorance of the real causes of death.

In the early days it was common to speak of two kinds of death from inhibition, primary and secondary, the latter term being used to cover asphyxia and cardiac or respiratory syncope, which were due to definite diseases to which the inhibition was regarded as being secondary. The same descriptive terms were later applied to shock.

### What is Meant by "Death from Inhibition"?

Among the cases reported by medico-legal experts are the following:

Two boys, aged 12 and 14, were playing together when one kicked the other in the abdomen. The victim dropped dead instantaneously. The necropsy did not reveal any lesion which would explain the cause of death, nor was there a trace of ecchymosis on the abdominal wall.

A midwife was practising abortion on a young woman in the early months of pregnancy. While endeavouring to introduce a type of cannula into the cervix the patient suddenly complained of difficulty of respiration, relaxed and died. Nothing was found at the necropsy to explain the cause of death, not even traces of ecchymosis on the cervix.

Other reported cases occurred after the introduction by a surgeon of a catheter into the bladder, and after a slight blow on the testicles. In such cases may be found only superficial abrasions or a little discoloration of the skin on the site of the blow, or even no signs at all.

In my fifteen years' experience of medico-legal cases I have encountered, out of more than 2,000 sudden deaths, two cases which I could not explain except by the mechanism of inhibition.

The first was that of a boy aged 16 leaving his house on the river-bank just after lunch, and wearing his swimming suit. He joined a number of companions, jested with them, and then rushed into the river for a swim. After a few minutes he disappeared from their view and could not be found. His parents were informed, search was made, and the body was recovered a few hours later. A necropsy was performed the same day, before putrefaction had taken place. We found him to be healthy, without any sign of injury, either superficial or deep, on the body. His stomach was full of undigested food, and

there was a small amount of unclotted blood in the heart cavities. No pathological signs were detected in his organs macroscopically, and especially no sign of drowning. For the purpose of accuracy we sent specimens of his viscera—heart, kidneys, suprarenals, spleen, pancreas, liver—for microscopical examination. The report stated that nothing was detected except congestive reaction in the above mentioned viscera, and I personally contacted the family to inquire about his previous state of health. They assured me that he did not complain of any weakness or disease, and that he was a good swimmer. The entire circumstances of the accident were substantiated by his friends.

The second case was that of a police student aged 23. While engaged in a game of football he was struck on the abdomen by the ball and dropped dead while uttering the word "Ah!" The accident was witnessed by the other players, especially by two of his own team very near to him at the time. A necropsy was performed speedily, and before putrefaction took place. No sign of violence was observed either superficially or deep in the muscular layers. A small quantity of unclotted blood was found in the heart cavities and a little food of a pasty consistency in his stomach, there was a general congestion of his viscera, but no pathological signs were detectable either macroscopically or microscopically.

Faced with these two cases, my conclusion was definite that death was due to inhibition, this was supported by (1) the absence of any pathological traumatic, or toxic signs, and (2) the circumstances which surrounded the fatalities. It was a conclusion reached by exclusion of other possible causes.

### Mechanism of "Death from Inhibition"

It is not necessary to enter into details and relate all the theories and hypotheses of the mechanism. A summary will suffice. The principle discovered by the Weber brothers still obtains and is the basis for the explanation of the occurrence of such cases. With regard to the inhibition reflex physiologists are in accord, their view is that it is accomplished through the centres existing in the central nervous system. According to the latest conception the transmission is performed by the liberation at the nerve-ending of small amounts of highly active substances which exert their effects on, and are quickly destroyed in the tissues. The degree of trauma and the type of irritation which can lead to such changes and to the liberation of the substances which act as the medium for the transmission of the inhibitory reflex have not yet been determined.

### The Domain of "Death from Inhibition"

Death from inhibition as it is generally accepted covers all sorts of sudden death occurring within a few seconds or not longer than two minutes, after trauma or peripheral excitation relatively simple and not in itself sufficient to cause death. No pathological changes which would be liable to account for death must be present at the subsequent necropsy.

All medico-legal authorities are satisfied that this kind of death is explicable only on a basis of the "arrest" or "inhibition" theory by excitation of some part of the vagus. Some authors attach special importance to certain parts of the body, such as the laryngeal, epigastric, testicular, cervical, and cardiac regions, when these are subjected to trauma or irritation. Others endeavour to classify the deaths according to whether they are frequent, rare or exceptional in the regions involved, while some suggest that death may take place irrespective of the area concerned.

I am of the opinion that certain regions, as mentioned above, are of particular importance in this matter and also that there must be a special personal sort of constitutional susceptibility which varies from individual to individual. Highly emotional beings, for example, are





A youth of 19, while lying in a shallow trench, was hit by a shell fragment and suffered a compound fracture of the tibia. He did not lose consciousness. There was no appreciable haemorrhage. Two minutes later his chief complaint was thirst. He had no pain. He was extremely restless, throwing the injured leg about with flail-like motions at the fracture. Although sweating profusely, he complained of feeling cold. Respiration was apparently normal. The pulse, at first slow, later became rapid, and remained small and barely palpable. On the basis of findings in similar cases, his systolic pressure was probably below 70 mm. Mentally he was quite alert and talked about his experiences while the limb was splinted without anaesthesia. Apparently this procedure gave him no pain. Later his condition improved and he was able to be moved to a dressing station.

Shock may develop almost instantly at the time of injury, and it is then known as "primary". It may develop slowly after some hours, and it is then known as "secondary" (Macleod). When primary shock occurs incident to severe injuries it may merge imperceptibly into the grave condition of secondary shock (Moon).

From what has been advanced with regard to primary shock it has become obvious that it is related to one of two things: either it is concerned with a rapid onset of a state of shock or it may be a form of abortive shock, its gravity lies in its possible development into the classical form of shock.

### Distinctive Characteristics

Having reviewed the facts relating to death by inhibition and shock, it seems opportune to compare the main elements distinguishing the two syndromes. It should be pointed out that, despite the infrequent occurrence of pure fatal inhibition, which is usually met with only by medico-legal experts of long experience, it constitutes a special entity all its own, differing completely from shock in its circumstances, its causes, its mechanisms, its symptoms, its pathological results, and—what is of great interest to the medico-legal expert—its legal implications.

This entity covers cases in which relatively simple trauma or peripheral irritation results in death, with a lapse of time not exceeding two minutes, by a special mechanism—namely, an inhibition reflex. Experiments have not yet determined all its elements. Its diagnosis is arrived at by the absolute exclusion of any traumatic, pathological, or toxic cause, acute or chronic, which may be found during the necropsy, and by the circumstances surrounding death. This entity must not be confused with syncope, which is inadequate to express its individuality.

Embolism and prophylactic shock have also different mechanisms, and finally "shock" (traumatic shock), as we have seen, whether primary or secondary, is definitely a different syndrome, being essentially a circulatory deficiency which can be obviated in certain cases, as it can be diagnosed easily in time and can be treated, and does not necessarily end in death. It has an obvious pathological criterion.

### Main Distinctive Characteristics Differentiating Shock and Death by Inhibition

	Shock	Death by Inhibition
Nature	Its major factors: anoxia, stony, and vascular dilatation	Its essential factor: arrest of the vital organ
Cause	Macrotrauma producing extensive destruction or haemorrhage	Microtrauma producing very slight injury or none
Mechanism	Circulatory deficiency due to chemical influence	Inhibitory reflex
Development	Progressive	Instantaneous
Appearance	Characteristic	Nothing characteristic
Post mortem findings	Pathological criterion	No pathological criterion
Elements of diagnosis	Clinical and pathological	By exclusion of any pathological causes backed by circumstances preceding death

### Conclusion

My final aim is to emphasize that death by inhibition is an entity. Facts may receive varying explanations but remain essentially unchanged. The medico-legal expert will be confronted with such facts and will be dealing with a special kind of sudden death to which the term "death by inhibition" is rightly given, and which is not readily susceptible to controlled study. Its lack of pathological criteria will never disturb the established reality it may, however, be anticipated that sooner or later advances in pathology may lead to the establishment of final proof. At present it is the duty of the medico-legal experts to keep in mind these facts and give them the weighty consideration to which they are entitled.

I wish to thank Prof. Sydney Smith and Prof. A. Murray Drennan for their keen interest and for placing the facilities of their departments at my disposal.

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The Ministry of Health has issued three explanatory leaflets (SDA, SDB and SDC) on superannuation in the National Health Service. They supplement the Ministry's booklet on the superannuation scheme which has already been issued. Leaflet SDA is being sent to local authorities owning hospitals to be transferred under the Act, and it explains the option open to employees transferred under the Act to retain rights corresponding with those enjoyed before transfer. Leaflets SDB and SDC are being sent to voluntary hospitals. The former explains the option open to employees to remain on their present superannuation scheme, and SDC—for employees with not less than 10 years' hospital service before July 5—explains the broad principles which the Ministry of Health will apply when dealing with applications for payments on retirement or death equivalent to those that might have been expected under the voluntary hospital service.



## HODGKIN'S DISEASE · AN UNUSUAL CASE WITH SPINAL SYMPTOMS

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We record this case because it displays certain less-known features of lymphadenoma which are of greater moment than a mere record of unusual manifestations of a protean disease

### Case History

The patient, a house decorator aged 49, was in good health until October, 1942, when he noticed a swelling of the neck. Clinical examination in December revealed a mass of firm discrete glands in the left side of the neck and supraclavicular region and some smaller glands in the right axilla. No other abnormality was found clinically and the patient felt well. The red cell count, haemoglobin estimation, and total and differential white cell counts were normal. A large cervical gland was removed, and was reported on as a lymphadenoma by Dr Fraser, pathologist to the Bristol Royal Infirmary. Radiotherapy was started in January, 1943, under the late Dr Bryan Adams. (Details of radiotherapy are given in an Appendix.)

In March, 1943, a nodule the size of a walnut still remained in the left side of the neck, but this had disappeared by May, 1943 when no other abnormality could be detected. The patient was examined at three-monthly intervals and was well until August 1946, when he complained of pains in the back and down the right leg. Clinical examination did not reveal any abnormality. Radiological examination did not show tumour involvement of the vertebrae, but osteoarthritic changes were noticed. No treatment was given. One month later the patient was seen again, he complained of having had lower abdominal pains, the character of which suggested girdle pains, and now had loss of power of the right leg and weakness of the left leg. On examination a mass in the right iliac fossa was found with wasting of the right gluteus maximus and of the right hamstrings, weakness of both lower limbs especially the right, spasticity, exaggerated tendon reflexes, and analgesia corresponding to a cord lesion at the level of the tenth dorsal segment. Sphincter control was normal. No further details are available.

Radiotherapy was then directed against the iliac mass and the spinal column between the eighth dorsal and the second lumbar vertebrae. On completion of the course the mass in the right iliac fossa had disappeared. The patient was free from pain but loss of power in both legs was almost complete and he was now incontinent of urine and faeces. He was considered unfit for further radiotherapy and was removed to another hospital, where he was found by one of us to have the clinical picture of a complete transverse lesion of the spinal cord in the lower dorsal region. The cerebrospinal fluid was under normal pressure and showed a normal response to jugular compression. The protein, chloride, and cellular contents were normal, and the globulin and Lange tests were negative. Introduction of 2 ml of lipiodol into the cisterna magna did not demonstrate spinal block.

In January, 1947, a suprapubic cystotomy was carried out and treatment was directed to keeping the patient comfortable. Large bed sores and urinary infection developed and he died three months later—i.e. four and a half years after the onset of symptoms.

### Post-mortem Examination

The body was extremely emaciated and dehydrated. There were large scars in the region of both knee joints and marked talipes equinus. A large bed-sore took up the sacral area, buttocks and lower half of the back, surrounding tissues were thickened and oedematous. No enlarged glands could be palpated and no glands could be found in the cervical supraclavicular axillary or mediastinal regions, or in the abdomen.

A few small soft glands were present at the hila of the lungs and in the inguinal region, these were taken for examination. The structures of the mouth, neck, thorax, and abdomen showed no evidence of lymphadenoma. In particular the liver (2,035 g) showed only a uniform nutmeg pattern, the spleen (130 g) was small and presented a uniform pale red pulp, and section of the ribs revealed a red marrow. Apart from the vertebral column the following were the only abnormalities found.

The lungs showed oedema and hypostatic bronchopneumonia. The heart was flabby and the left ventricle was dilated. There was marked pyelonephritis and cystitis, with slight dilatation of the renal pelves and ureters, the prostate contained abscesses. No mass was found in the right iliac fossa, but there were slight diffuse adhesions tacking down the caecum. The vertebral column and its integument showed no external abnormality or deformity. Section revealed a uniform sclerosis of the bodies of the seventh and eighth dorsal vertebrae, so that they were harder and paler than those of the other vertebrae but none of the bodies showed any disorganization of architecture.

Removal of the spinal cord revealed no abnormality of the bony canal. The dura appeared normal and not even roughened on inspection with a hand-lens. The pia-arachnoid and nerve roots also appeared normal. The spinal cord showed slight evidence of flattening and softening in the upper lumbar and lower dorsal region. The cranium and the brain and its membranes showed no abnormality.

### Histological Examination

Apart from moderate periportal fatty change the liver was normal as was the spleen. The hilar and inguinal lymph glands showed a subacute inflammatory sinus catarrh. The sclerosis of the dorsal vertebrae was accounted for by a generalized increase of fibrillar connective tissue throughout the marrow, diminished vascularity, and hypoplasia of the cellular elements of the marrow so that they were represented by scanty small round cells. Other vertebrae examined revealed no abnormality. The spinal cord showed a transverse myelitis in the upper lumbar region, a segment of it having large patchy areas of demyelination irregularly scattered in all zones. Sections just above this level showed complete degeneration of the posterior ascending (sensory) columns and sections below showed complete degeneration of the crossed and direct pyramidal tracts. No cellular lesion was found in the cord. These appearances are consistent with a transverse lesion produced by local external pressure.

### The Original Biopsy

Dr Fraser kindly gave us the original slide. The section was from a gland 1.2 cm in diameter and showed the classical features of Hodgkin's disease: there was complete replacement of the normal architecture by a pleomorphic cellular tissue containing the characteristic reticulum cells, some in giant form with or without double nuclei in mirror image form, eosinophil leucocytes, lymphocytes and plasma cells. The cellular tissue was broken up by a fibrillar stroma condensed into thicker bands in a few places.

### Discussion

While the sceptic might be inclined to consider that the train of events originated with a mix-up in biopsy specimens and ended with a nervous disease complicated by deep x-ray therapy, the findings are not unknown. There are a number of accounts of cases of lymphadenoma with clinical remission from 10 to 36 years (Holmes and Schulz, 1946; Jackson and Parker, 1946). One must therefore conclude that exceptionally with deep x-ray therapy the disease may remain latent for long periods or completely disappear. Our case is remarkable in that we did not find evidence of the disease even in the form of a sclerotic process. It is considered that the sclerosed vertebrae are accounted for by the effects of radiotherapy and if there was previous marrow involvement by lymphadenoma it was not sufficient to disturb the bony architecture. Robinson (1928) reports a similar finding in a case with spinal

symptoms treated with radiotherapy. The slight adhesions of the cecum are not uncommonly found at necropsy and were not of a nature to indicate a healed lymphadenomatous lesion.

Spinal symptoms, though rare in lymphadenoma, are not unknown. The extensive literature has been reviewed by Allen and Meeker (1936). The clinical histories are similar to our case and are of paraplegia consistent with a transverse myelitis. Destruction of vertebrae by lymphadenoma tissue sufficient to cause collapse and compression fracture is rare, as also is pressure on the cord from lymphadenoma tissue extending direct from involved vertebrae. The commonest finding is a growth of lymphadenoma tissue in the epidural space, adherent to the dura. Reel (1936) has been found continuous through the intervertebral foramina with growth outside. The usual finding is a localized epidural mass with no direct contact with spinal cord or nerve roots, or bone lesions and mixed vertebral compression fractures. A few cases with similar histology of paraplegia have been reported, but none explicitly of this type. Here we have had either an epidural mass, or still to enter the cord as a transverse myelitis. In all the previous cases concerning this type of paraplegia, the spinal level involved was recorded.

Weil (1941) recorded epidural lesions at 17 of the 26 vertebral levels in three thoracic and two lumbar. He interpreted the latter findings as being due to the fact that lesions in the lumbar region are more likely to be clinically evident. Since our case is of the thoracic type, it is not clear whether it is the same as the findings in cases of compression fracture. It is considered that a similar explanation is warranted. The explanation is reinforced by the fact that the compression fracture of lymphadenoma tissue is a localized process.

In the type of case such as we have described, Allen and Meeker dispute the belief that the lesions are secondary to a transverse myelitis. The lesions are more extensive than those untreated by deep x-ray therapy, which, though extensive lymphadenoma is present elsewhere, the compression of the dura or of the spinal cord is not the cause of the cord lesion. An extensive oedema of the cord, with its compression and round cell infiltration. Reel (1936) results with intracerebral injection of lymphadenoma extract in rabbits they argue that the cord lesion is a similar type of reaction to a reaction induced by the presence of extensive lymphadenoma in contact with lymphadenoma in continuous proximity. But their argument could be equally well used to ascribe the cord lesion to lymphatic or venous occlusion to the blockage of the paravertebral lymphatic circulation. Allen and Meeker's findings, however, indicate that a dural lesion need not always be the mechanism of cord lesion in lymphadenoma.

Pathologists would be advised to bear this dispute in mind in future cases and to plan their investigations to allow of an examination of the paravertebral lymphatic plexus.

Pobb Smith (1947) has reported briefly some interesting results since he is in an attempt to produce a rational classification of the progressive lymphadenopathy. From classical lymphadenoma (verum) he differentiates among other lymphoreticular medullary reticular lymphadenopathy in which the morbid lymphoid tissue consists of a proliferation of lymphocytes and abnormal reticulum cells in lymphadenoma but lacking the central fibromyeloid element (fibroblast tissue leucocyte) of the latter. Previously lymphoreticular reticulosis would have been included as a disease in the "Hodgkin group" which indeed Pullinger (1932) describes and illustrates. According to Robb Smith (1947) the disease has a better prognosis than lymphadenoma verum, and he states that it is "a

slowly progressing disorder commonly presenting with lymph node enlargement at a single site, most commonly cervical and after this has been treated by surgery or radiotherapy there will be a symptom free interval of several years and then a recurrence at a different site. There is a liability for paraplegia to develop in the later stage due to dural involvement and circumferential transformation may take place after a course of ten to fifteen years. Our case with primary involvement of cervical and axillary glands, their disappearance and a symptom free interval of three and a half years followed by recurrence in the right iliac fossa and development of spinal symptoms is similar to his account. While this history may be interpreted as lymphadenoma verum, it can be said that the unusually lymphadenoma-like behaviour of the lymphadenoma is characterized by the absence of lymphadenoma. Pobb Smith's account reinforces our argument that the disease is a distinct entity, the disease of Hodgkin's disease and not a part of the same disease, and the disease is distinct from the disease of Hodgkin's disease and not a part of the same disease.

### Summary

A case of Hodgkin's disease, with primary involvement of cervical and axillary glands, their disappearance and a symptom free interval of three and a half years followed by recurrence in the right iliac fossa and development of spinal symptoms is similar to his account. While this history may be interpreted as lymphadenoma verum, it can be said that the unusually lymphadenoma-like behaviour of the lymphadenoma is characterized by the absence of lymphadenoma. Pobb Smith's account reinforces our argument that the disease is a distinct entity, the disease of Hodgkin's disease and not a part of the same disease, and the disease is distinct from the disease of Hodgkin's disease and not a part of the same disease.

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### APPENDIX

#### Details of X-ray Therapy

Jan 17 to Feb 19 1947. (1) Left supraclavicular area. Field (15 x 15 sq cm) 9 applications each 150 r incident dose 1350 r incident dose without back scatter.

Jan 17 to Feb 19 1947. (2) Left supraclavicular area. Field (15 x 15 sq cm) 9 applications each 150 r incident dose 1350 r incident dose without back scatter.

Sept 15 1946. Pelvis (c fields) anterior 20 x 15 sq cm posterior 20 x 15 sq cm right lateral 20 x 10 sq cm left lateral 20 x 10 sq cm 19 applications to each field each 100 r incident giving total dose in pelvis 3780 r.

Oct 15 to Nov 6 1946. (3) Left supraclavicular area. Field (15 x 15 sq cm) 9 applications each 150 r incident dose 1350 r incident dose without back scatter.

## Medical Memoranda

### A Case of Intramedullary Abscess Recovery after Operation

The following case is recorded because of its rarity and because of the successful result achieved by operation and chemotherapy

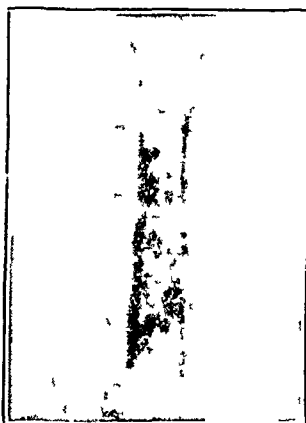
#### CASE REPORT

A girl aged 6 was admitted to the Children's Hospital, Tehran, in April, 1945. For a month she had complained of backache and had been suffering from diarrhoea and vulvo-vaginitis. On examination it was found that she had an exaggerated lumbar lordosis and some scoliosis in the dorso-lumbar region. Movements of vertebrae in this area were somewhat limited. This stiffness of the back made walking difficult. No abnormal neurological sign could be found. Radiological examination failed to reveal any bony lesion. She was having an evening temperature of 37.5–38° C. The report on the vaginal discharge, which was repeatedly examined, was "Diverse micro organisms. Gram positive cocci and Gram negative bacilli. No gonococci seen." Diarrhoea and vulvo-vaginitis soon cleared up, but a month after admission, when she was discharged at her mother's request, she still complained of pain in her back.

Seven months later (Dec. 22, 1945) the girl was readmitted. According to her mother the backache had gradually become worse and vulvo-vaginitis had recurred. On examination it was seen that the general condition was poor and walking very difficult. The vertebral column was kept absolutely rigid, with severe lumbar lordosis. There was left foot drop. The left knee jerk and both ankle-jerks were absent. No sensory impairment was found. Her evening temperature was 37.5–38° C. Radiographs of dorso-lumbar vertebrae were again normal.

"Oestroform" and vitamin B injections were given without benefit. On Jan. 25, 1946, she was dragging both her feet, and on Feb. 4 there was complete flaccid paralysis of the right lower limb. On Feb. 7 she was put on systemic penicillin therapy—100,000 units were given in three hourly doses of 10,000 units. The vulvo-vaginitis completely cleared up, but there was no change in her paralytic condition. On Feb. 17 the left lower limb was also completely paralysed and she was complaining of severe pain in her back. Superficial and deep sensations were greatly diminished in both lower limbs. There was retention of urine, but the urine was normal. The white cell count numbered 13,400 (88% polymorphs).

A course of sulphathiazole was started, and within two days a definite sensory level was established and the backache completely



disappeared. Below the level of the first lumbar segment sensation to touch was lost. Pin prick sensation was also absent except for a small area in the anterior aspect of both thighs. There was faecal incontinence as well as urinary retention with overflow. A radiograph of the spine again showed no abnormality.

In view of the possibility of some infection in the lumbar region, lumbar puncture had not been performed until this date. Puncture was done on Feb. 23. A few millilitres of golden yellow fluid under low pressure was obtained. Albumin, 0.85 mg per 100 ml. 20 mononuclear cells per cmm., no micro organisms. Two days later a descending myelography was performed. "Ioditol," 2 ml., was injected through a cisterna magna puncture. As is shown in the accompanying radiograph the opaque substance did not pass below the level of the upper border of the eleventh dorsal vertebra.

The parents were reluctant to consent to an operation, but on March 10 permission was obtained. By this time the patient's general condition was very poor and paralysis of the lower limbs complete.

**Operation**—Open ether anaesthesia was administered. The eleventh and twelfth dorsal laminae were removed. The dura mater was tense, it was carefully incised in the middle line. The cord presented all the appearances of an intramedullary tumour, and had completely filled the canal. In the lower reaches of the opening there were some fibrinous deposits on the nerve roots. On palpation of the cord with two fingers distinct fluctuation could be obtained. The swelling was aspirated exactly in the middle line and 3.5 ml. of frank pus withdrawn. Penicillin, 20,000 units, was introduced into the cavity, but most of it escaped from the puncture spot into the theca. The cord did not completely collapse, and it was thought that this was probably due to oedema. As the patient's condition was unsatisfactory the wound was hurriedly closed. The opening in the dura mater was not sutured. The pus contained a large number of leucocytes, but no micro organisms could be found. Culture and guinea pig inoculation were also negative.

On the third day after operation the patient felt the needle prick in the left buttock when receiving penicillin—10,000 units three-hourly were continued until the seventh day. On the fifth day she could just move her left thigh. On the ninth day stitches were removed but from one of the stitch holes a few drops of cerebrospinal fluid escaped. The amount gradually increased and the wound had to be reopened on March 21.

The spinal cord was again examined, and fluctuation could still be obtained. This time a larger-bore needle was used for aspiration, and 4 ml. of pus identical with the first specimen was withdrawn. On this occasion the cord collapsed completely, but there was a hard nodule, the size of a split-pea, situated near the end of the exposed cord. Penicillin was again injected into the cavity of the abscess. The muscular layers were sutured with care. The wound healed without any further difficulty.

Sensation and movements slowly returned to the paralysed limbs. On the anterior aspect of the left thigh there was severe hyperaesthesia for some days. Sphincter disturbances also gradually cleared up. A month after the first operation her micturition, and ten days later the defaecation, were under control.

Two months after the first operation she could walk if some one would hold her hand. On Aug. 28, 1946, five months from her last operation, she walked without any difficulty, but her gait was somewhat waddling. In walking, both feet were held in the valgus position. She had no backache and had gained 3 kg. in weight. Her general condition was excellent.

Muscular power of the limbs was good except for some weakness of the anterior tibiales. The left knee jerk was weak. Both ankle jerks were still absent. The left plantar reflex was flexor but the right was doubtful. Sensation to touch, pin prick and position was normal.

#### DISCUSSION

An abscess within the spinal cord is a rare condition. Woltman and Adson (1926) published a case of their own and gave a summary of 29 other cases reported in the literature up to that date. P. K. Arzt (1944) in a review of the literature was able to find 39 cases, including the 29 already referred to. He discussed all aspects of this disease at length and added three cases of his own.

Prognosis in this condition seems to be very poor. Only four cases have been treated successfully by operation, but in one of them paraplegia did not improve. Six other cases were also submitted to operation, but the outcome was in all other cases was fatal.

In the majority of cases reported a primary focus of infection had been found. In the above case it is possible that micro-organisms entered the circulation from the known focus of vulvo-vaginitis. In Uhlmann's case, in which multiple intramedullary abscesses were found, the primary focus was a gonococcal urethritis.

In none of the surgically treated cases had chemotherapy been tried and the successful result obtained in my case is probably largely due to penicillin and sulphathiazole medication.

My thanks are due to Mr. Brodie Hughes, surgeon in charge, Neurosurgical Department, Birmingham United Hospital for his advice and encouragement in the final preparation of this paper.

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#### REFERENCES

- Arzt, P. K. (1944). *Arch. Neurol. Psychiat.* Chicago 51: 533.  
Woltman, H. W. and Adson, A. W. (1926). *Brain* 49: 193.





He first describes the theory and rationale of specific remedial exercises. He covers the field exhaustively but unfortunately his classification is neither clear nor simple. He would do well in future editions to prune these chapters of old-fashioned terminology that has no practical relation to the advanced theories that he teaches. In two chapters Mr Fitton describes the relation of specific remedial exercises to the pathological changes after injury and to splints and plaster casts. The latter will be of great interest to plaster-room assistants and after-care sisters. Mr Colson then discusses the theory behind exercises with special remedial apparatus and describes the various types with their advantages and disadvantages. He is enthusiastic about using a pulley-and-weight system for re-developing muscles. He does not like other types of weight-resistance exercise though it is noteworthy that very dramatic results can be obtained in certain types of case by using the de Lorme system. In subsequent chapters he describes exactly the remedial exercises to be used in all the various types of bone injury though strangely enough he does not mention torn ligaments of the knee joint. These graduated routines are lucidly and neatly arranged in tables after an explanation of the aims of treatment at various stages. He subdivides the aims into primary and secondary—a very useful classification—reminding the physiotherapist and remedial gymnast of what is most important. Dr Langdale Kelham then contributes a short but excellent chapter on the treatment of amputation stumps. The book concludes with a neat account of re-education in walking. The lay-out and the illustration of the book are excellent. There is no doubt that it should be studied by all who are concerned with the treatment of injuries of the spine and the extremities.

H. OSMOND CLARKE

## INSTRUCTION IN PSYCHOLOGY

*Psychological Atlas* By David Katz (Pp 142 396 illustrations 55 00) New York Philosophical Library, 15 East 40th Street

Any teacher called on to provide classes of instruction in psychology and elementary psychiatry is likely to find this a useful book. It contains 395 illustrations, excellently reproduced with verbal descriptions in the earlier part of the book. Many of these illustrations could be suitably reproduced as slides for exhibition to a class of students. The subjects covered include the anatomy and physiology of the central nervous system, optical illusions, perception and gestalt phenomena, the apparatus for and the results of experiments on memory, work and fatigue, symbolism, with illustrations from picture writing, Chinese idiograms, and Egyptian hieroglyphs, facial expression and physiognomy, constitutional types, child psychology, psychological testing, abnormal psychology, occult phenomena, animal psychology and conditioned reflexes. At the end are some 40 photographs of distinguished psychologists. Many of the pictures are in themselves unusual and would be difficult to come by but are apt illustrations of particular aspects of the general theory which the teacher will be trying to expound. They are nearly all of a kind to awaken interest.

ELIOT SLATER

The sixth edition of Prof. Cameron's remarkable little book, *Recent Advances in Endocrinology* (J and A Churchill, 21s), follows only two years after the fifth. To repeat in different words the praises earned by previous editions seems unnecessary after so short an interval. If there are still any doctors who have omitted to buy the fifth edition, they should immediately retrieve their mistake by buying the sixth. Possessors of the fifth might be well advised to wait for a few months and buy the inevitable seventh for there have been few advances in the last two years of sufficient importance to warrant inclusion. The new material includes an excellent short account of the uses in diagnosis and treatment of radioactive iodine and of the production of artificial iodoproteins with a thyroid-like activity. There are a few omissions which might well be made good next year. Recent workers on exophthalmos lay more stress on the increase in retrobulbar fat than on oedema of orbital tissues. The section on prolactin does not very adequately reflect modern views on the action of the pituitary in lactation. There is a most curious omission of any mention of Verney's work on the posterior pituitary and the effects of anxiety on water metabolism. Two suggestions might be considered while the next edition is in preparation—a more detailed index and a section summarizing all new material, with references to the main body of the book.

## BOOKS RECEIVED

*The Clinical Picture of Thyrotoxicosis* By Peter McEwan M.A., M.B. Ch.B., F.R.C.S. Ed. (Pp 125 15s) London Oliver and Boyd 1948

A general account of thyrotoxicosis, including its diagnosis and treatment

*Medical Education* By Ffrangcon Roberts, M.D. (Pp 172 12s 6d) London Lewis 1948

An account of the training of students and teachers

*Diagnostic Bacteriology* By I. G. Schaub A.B., and M. K. Foley, A.B. 3rd ed. (Pp 532 22s 6d) London Kimpton 1947

A laboratory textbook on the isolation and identification of pathogenic bacteria

*Letters on Yellow Fever Addressed to Dr William Currie* By Noah Webster (Pp 110 52 00) Baltimore Johns Hopkins 1947

With an introductory historical essay

*The Worker and the State* By Sir Frank Tillward C.B.E. M.A. M.Com. 3rd ed. (Pp 302 16s) London Routledge 1948

An account of modern social legislation

*Medecine Légale Judiciaire* By C. Simonin 2nd ed. (Pp 819 1,100 francs) Paris Maloine 1947

A textbook of forensic medicine

*An Introduction to the Principles and Practice of Homoeopathy* By C. E. Wheeler, M.D., B.S., B.Sc. 3rd ed. (Pp 371 21s) London Heinemann 1948

Intended for those who wish to form an unbiased opinion of the claims of homoeopathy

*The Conflict of Science and Society* By C. D. Darlington F.R.S. (Pp 51 2s) London Watts 1948

The 1948 Conway Memorial Lecture

*Recent Advances in Surgery* By H. C. Edwards C.B.E., M.S. F.R.C.S. 3rd ed. (Pp 437 24s) London Churchill 1948

An account of modern surgical practice

*Constitutional Medicine, Endocrinology, and Allergy* Edited by E. Pulay, M.D., and P. Lancel M.D. Vols 2, 3 and 4 (Pp 102, 63, and 112 10s 6d each) London Muller 1948

Papers by various authorities

*Psychiatrie et Psychologie* By M. Assailly and others (Pp 47 145 francs) Paris Administration Synthèse et Thérapeutique 1948

Papers on various aspects of medical psychology

*Diseases Affecting the Vulva* By Elizabeth Hunt, B.A. M.D. Ch.B. 3rd ed. (Pp 211 25s) London Kimpton 1948

Much new material on treatment has been added

*Hemoglobin, Plasma Protein, and Cell Protein* By G. H. Whipple, M.D. (Pp 27 7s 6d) Illinois Thomas 1948

A monograph on the production and interchange of these proteins

*Fungus Diseases of the Lungs* By David T. Smith, M.D. (Pp 59 10s 6d) Illinois Thomas 1948

A monograph, with references

*Nutrition and Hormones* By Leo T. Samuels Ph.D. (Pp 48 8s 6d) Illinois Thomas 1948

A monograph on the relation between the endocrine glands and nutrition

*Embryonic Sex Hormones and Sexual Differentiation* By Carl R. Moore, Ph.D. (Pp 81 10s 6d) Illinois Thomas 1948

The experimental effects of sex hormones

*Pain* By Harold G. Wolff, M.D., and Stewart Wolf, M.D. (Pp 86 10s 6d) Illinois Thomas 1948

A discussion of various types of pain in man



those who believe that some of the impurities present in most preparations have a considerable therapeutic value, certainly it was a fairly uniform opinion in the U.S.A. that after April, 1945, results tended to become poorer and poorer and that this may have been due to a preponderance of penicillin K, which is relatively ineffective against the spirochaete. In spite of its excellent effect on signs and symptoms it seems at least doubtful if penicillin is as effective in reversing positive serum reactions as a combination of arsenic and bismuth, whether this is of great importance is a matter of opinion, but most of us, and patients too, are encouraged by a regular and rapid fall in the titre of positive reactions, and in latent syphilis this is the only yardstick by which the effect of treatment can be measured.

Much remains to be learnt about the penicillin treatment of syphilis: whether a continuous moderate blood concentration is better than a series of peaks, whether one heavy course is as good as several moderate ones, and whether and when courses should be repeated (in the absence of signs of serological or clinical relapse). Most relapses in early syphilis occur within six months of completion of treatment, so that it would seem reasonable, when relying on penicillin alone, to give a second course within three months or so of the first, just as has been the custom with arsenic and bismuth in the past. As to the effect of penicillin in late syphilis few would care to express an opinion, time alone will show, and it will be five years at least before we know whether those patients treated for early syphilis with penicillin only are going to develop such late manifestations as tabes and G.P.I. The one great advantage of penicillin is the absence of serious side effects. Apart from Herxheimer reactions, which are very common but rarely serious, and urticaria, which is uncommon and seldom an indication for discontinuance of treatment, there are no contraindications to its use, and doses may be stepped up to very high levels, though it seems doubtful whether such doses are ever necessary. Methods of treatment are still being frequently changed, and the wise syphilologist will keep an open mind till some general agreement is reached.

## OSTEOARTHRITIS OF THE HIP-JOINT

Osteoarthritis of the hip-joint commonly has as its starting-point a congenital malformation, a developmental abnormality of childhood and adolescence, or a traumatic lesion. Physical treatment is an important palliative measure, but cannot result in cure. Injection into the joint of various fluids intended to modify the chemical reactions of the synovia has aroused interest, but as yet there are no carefully documented reports of the long-term effects in any considerable series of cases. Surgery will therefore continue to play a large part in the relief of pain, the correction of deformity, and the restoration of mobility.

For single osteoarthritic hips, arthrodesis has generally been accepted in Great Britain hitherto as the most reliable method of treating intractable pain and correcting deformity, and for this purpose the two-stage method of Watson-Jones<sup>1</sup> has gained in popularity. Arthrodesis sacrifices

joint mobility but allows much greater activity because of the relief of pain and deformity. In a case of bilateral osteoarthritis of the hip the restoration of mobility in one or both joints is a pressing additional necessity. Valuable recent reports on reconstruction operations have been published by Bristow,<sup>2</sup> McMurray,<sup>3</sup> Plewes,<sup>4</sup> and Girdlestone.<sup>5</sup> More or less wide excision of the femoral head while often sacrificing stability, has given relief of pain and increased mobility. McMurray's operation of realigning the weight distribution by intertrochanteric osteotomy gives benefit also by correcting the deformity, though without improving movement at the joint. Fresh interest has been aroused in the reconstruction of osteoarthritic hip-joints by the report given by Smith-Petersen<sup>6</sup> at Exeter to the British Orthopaedic Association on the results of his arthroplasty operation, first described in 1939. In the past the effects of arthroplasty have often been vitiated in these cases by shock, by infection, and by new bone formation around the newly constructed joint. Smith-Petersen employs an antero-lateral approach which is practically bloodless, and by meticulous care and gentleness of handling gains easy access to every component of the articulation. The acetabulum and femoral head are reshaped with specially designed tools and the capsule and synovial membrane are widely excised. A suitably shaped cup of vitallium or of 18/8 stainless steel is then inserted. The operation is followed by a carefully planned programme of after-care. It should be stated that there are surgeons in this country who prefer to use the original Murphy lateral approach with elevation of the great trochanter. They claim that muscular re-education is easier and that by avoiding the wide denudation of the ilium they minimize the risks of new bone formation.

Herman Gade<sup>8</sup> has now reviewed the whole problem of osteoarthritis of the hip-joint, and he describes 130 operations of various kinds carried out by him in Norway between 1938 and 1946 on 115 patients. Among these operations are 12 involving total excision of the capsule, 14 arthroplasties by the Smith-Petersen vitallium cup method, 49 operations "combining both these procedures," 7 arthroplastic resections without the insertion of a cup, and 27 arthrodeses. It is a little difficult to understand the reason for Gade's separation of the "combined operation." Excision of the capsule and synovial membrane of the hip-joint is an essential feature of Smith-Petersen's arthroplasty, as it was indeed of the original fascial arthroplasty described by Murphy many years ago.<sup>9</sup> The synovial membrane and capsule of the hip-joint both play an important part in the symptomatology of osteoarthritis, a fact that has been stressed by Tavernier<sup>10</sup> and his associates at Lyons, who have advocated a denervation operation for this reason.

In evaluating operative results the clinical assessment of functional restoration is difficult. Ferguson and Howarth<sup>11</sup> measured the total normal range of hip movements in degrees and multiplied this figure by a factor which gave an index of 100. The range of movements in a stiff hip multiplied by the same factor gave a percentage figure. Along similar lines Gade uses a different factor for different sectors of each direction in the range of movement at the hip, and provides an index of functional value which

s interesting, though it must be rather more complicated to apply. In 54 cases in which cup arthroplasty was performed the average age was 45, and the follow-up period averaged nearly four years after operation. Where the capsule was not excised relief of pain was obtained in 41% of cases, as compared with 78% of those in which there was capsular excision. In the first group the functional result was assessed at 56%, with a post-operative gain of 20%, while in those cases with capsular excision as well the figure was 66%, with a post-operative gain of 28%. An important late finding was atrophy of the bone ends (both acetabulum and femoral head), which Gade attributes to pressure from the metal cup. This change was seen more frequently where the joint surfaces were atrophic at operation. In 34 of the 54 cases there was some degree of new bone formation around the cup, in 8 of them to such a degree as to affect the results adversely. Gade concludes that in relieving pain and increasing mobility Smith-Petersen's cup arthroplasty with capsular excision yields results which have probably never been bettered by any previously used method of arthroplasty. Commenting upon the large number of cases operated upon by this method and the paucity of reported results, Gade says that this is probably due to the fact that such results can only be estimated after long observation. He applies this to his own work and will not commit himself to a final opinion upon the likely duration of his results, in which the most serious complication, he suggests, is atrophy of the bone ends.

Those surgeons in Great Britain who are following Smith-Petersen's technique of cup arthroplasty are clear that relief of pain is a most satisfactory and early result, and that correction of the deformity is complete without any additional operation. They will also agree with Gade that the range of movement obtained depends on painstaking care in after-treatment. The competence of the muscular apparatus of the hip before operation has an important bearing on the probable result. Smith-Petersen has emphasized repeatedly the need for operation before muscular degeneration has proceeded too far. For this reason Smith-Petersen himself has operated on some of the very early cases of osteoarthritis seen in young adults suffering, for example, from the effects of imperfect reduction of congenital dislocation of the hip. Encouraging as his early reports seem to be, it is obviously going to be many years before a true assessment can be given. There remain two problems in the successful surgical reconstruction of the osteoarthritic hip. First there is the difficulty of re-establishing an efficient local neuromuscular system, and, secondly, there is the later difficulty of maintaining biologically what has been achieved temporarily as a mechanical compromise. How long will the local equilibrium remain undisturbed by the presence of a foreign body?

## REMUNERATION OF GENERAL PRACTITIONERS

In a letter on this subject in last week's issue of the *Journal* (p. 110) it was estimated that the proposals for remuneration under the National Health Service might result in a loss to a group of local practitioners of more than 50% of their present income from general practice. The group comprises ten general practitioners in a rural area with a population of 10,000, and in each of these practices the income received from the present panel capitation fees amounts to less than one-quarter of the gross receipts. The estimated loss is based on the assumption that the capitation fee will be about 15s. The capitation fee will be the main source of public remuneration for general practitioners, but certain additional payments may be overlooked in making comparisons between present and future prospects.

The Government's proposals provide for the establishment of a central fund of some £40.8 million, which corresponds to a capitation fee of 18s. for 95% of the civilian population. To the extent to which the proportion of the population signing on a doctor's list is less than 95% the capitation fee—disregarding basic salary—per person on a doctor's list will be higher than 17s. 5d. (i.e., 18s. less the mileage apportionment). This central fund will provide in the first place for payments for mileage. The sum allocated for this purpose is £1.3 million as compared with the pre-war mileage fund of £250,000 and the existing mileage fund of approximately £600,000. It will also provide a fixed annual payment of £300 a year in those few cases in which this is applicable, and the remainder will be distributed to each executive council for local distribution in the form of a capitation fee for each person on each doctor's list.

Apart from this central fund, however, there will be an additional amount to be distributed of over £4 million, or approximately £200 per general practitioner in the Service. Furthermore, over and above the capitation fee there will be available to general practitioners income from any one or more of the following sources: (1) The sum of £400,000 a year will be available for providing discretionary extra 'inducement' payments to assist doctors practising in 'peculiarly difficult (e.g., sparsely populated or unpopular) areas'. The Minister will consult the Medical Practices Committee on the distribution of this sum. (2) There will be a grant for supervision of the training of assistants amounting to £150 per annum. (3) Fees for maternity services: seven guineas a case will be paid for maternity services to practitioners on the "obstetric list" and five guineas a case for practitioners not on the list. (4) There will be additional payments in respect of drugs and appliances which a doctor is required to supply on the spot. The rate will be 2s. 6d. per annum (or more in certain years) for every 100 persons on the doctor's list. (5) Where the doctor dispenses by arrangement with the executive council payments for drugs, etc., will be made either on the basis of the actual drugs and appliances he supplies or at a flat rate per annum in respect of each person on his list, with additional payments for specially expensive items. (6) The Government superannuation contribution of 8% of the net remuneration of each general practitioner must be taken into account. (7) Sessional fees from local health authorities will be paid—for example for clinic appointments. (8) General practitioners may provide general medical care as members of the staff of a hospital in the following capacities: (a) as one of the staff of a general practitioner ("cottage") hospital, (b) as the part-time medical officer of a convalescent home or other institution. For these appointments remuneration will be received

<sup>1</sup> *Proc. roy. Soc. Med.* 1945, 38, 363.

<sup>2</sup> *Ann. Surg.* 1934, 100, 1043.

<sup>3</sup> *Brit. J. Surg.* 1935, 22, 716.

<sup>4</sup> *Ibid.* 1940, 27, 682.

<sup>5</sup> *Proc. roy. Soc. Med.* 1945, 38, 363.

<sup>6</sup> Shortly to be published in *J. Bone Jt. Surg.* (British Section).

<sup>7</sup> *J. Bone Jt. Surg.* 1939, 21, 269.

<sup>8</sup> *Acta chir. scand.* 1946, 45, Suppl. 120.

<sup>9</sup> *Ann. Surg.* 1913, 57, 593.

<sup>10</sup> *Traitement Chirurgical de l'Arthrite Sèche de la Hanche* Paris: Masson 1915.

<sup>11</sup> *J. Amer. med. Ass.* 1931, 97, 1867.

from the hospital management committee (9) Fees from private practice will continue. In addition the practitioner will receive yearly  $2\frac{1}{4}\%$  interest on the capital value of his practice as estimated for the purpose of compensation.

### THE SHORT OESOPHAGUS

Rare diseases are apt to become more common when their possibility is kept in mind, and this is particularly true of hiatus hernia, short oesophagus, and the peptic ulceration of the oesophagus commonly associated with it. The protean manifestations of oesophageal hiatus hernia provide a common ground for many specialists. Obscure cases of anaemia, unexplained haematemesis, dyspepsia of all degrees from heartburn or "wind in the stomach" to intense boring pain related to meals, dysphagia, pain simulating angina but not related to exercise, breathlessness, and cough may all be the result of herniation of the stomach through the oesophageal orifice of the diaphragm. Unless the radiologist considers the possibility of the condition he may miss it by using routine radiological technique, and it is therefore the physician's responsibility to draw his attention to it.

There are two types of hernia: those with a short oesophagus and a pouch of stomach drawn up into the chest, and those with an oesophagus of normal length and herniation of part of the fundus of the stomach. It has been assumed that short oesophagus was a primary developmental error in its caudal passage, the stomach failing to reach the sanctuary of the abdomen before the fusion of the diaphragm. On the other hand, herniation with a full-length oesophagus was thought to be due to a primary defect of the diaphragm. It has been recognized that peptic ulcer of the oesophagus is particularly associated with the short oesophagus, and Dick and Hurst<sup>1</sup> demonstrated the ease with which gastric juice regurgitates through the vertical opening between the short oesophagus and the gastric pouch. Regurgitation is less apt to occur when the opening through the cardia is normally oblique and the oesophagus of full length. The division of aetiological responsibility between developmental error of the diaphragm and faulty descent of the oesophagus and stomach has recently been discussed. Allison, Johnstone, and Royce<sup>2</sup> pointed out that peptic ulcer of the oesophagus, if it persists for any length of time, is associated with shortening of the oesophagus from cicatricial contracture, as occurs with the "purse stringing" of the lesser curve from gastric ulceration. Gilbert, Day, and Rall<sup>3</sup> consider that shortening from spasm of the longitudinal coat of the oesophagus from a vago-vagal reflex may be responsible for the drawing up of a gastric pouch. Experiments on dogs and rabbits have shown such shortening after vagal stimulation, and the same result was obtained by stimulation of the peritoneum, distension of the gall-bladder, and manual distension of the stomach wall. Vagal section or administration of atropine abolished the reflex. They draw attention to the apparently high proportion of intra-abdominal lesions which may be associated with hiatus hernia. The weakness in their clinical argument is the lack of a control series in the corresponding age groups, and it may be suspected that cholelithiasis, obesity, and duodenal ulcer are found as often in people without an oesophageal hiatus hernia.

The conceptual unity of the mechanism of short oesophagus and hiatus hernia has been propounded by Smithers<sup>4</sup> and by Allison<sup>5</sup> in his recent admirable paper on peptic ulcer of the oesophagus. After careful study of 63 patients

Allison maintains that short oesophagus is usually an acquired condition due to defects in the diaphragm which allow an intermittent or persistent herniation of the stomach into the thorax. This facilitates regurgitation of acid gastric juice into the oesophagus, leading to peptic oesophagitis or peptic ulceration, the cicatricial reaction causes further shortening of the oesophagus. Smithers believes that spasm of the longitudinal muscle fibres is particularly important. A natural weakness of the oesophageal hiatus may be aggravated by increasing abdominal pressure from obesity, or by atrophic changes in muscle with advancing years. Fifty-six of the 63 cases were in fact over 50 years of age. During inspiration the negative suction in the chest and the positive pressure in the abdomen both increase, so there is a natural tendency for the cardia to be drawn upwards or, alternatively, for the stomach contents to pass into the oesophagus. But it is at this time that the crural fibres contract round the lower end of the oesophagus, closing its lumen and normally preventing herniation. The muscular contraction is not equal in all directions, being strongest at the sides, moderate in front, and weakest behind—a point of great importance in relation to operative repair of the hernia. Although Allison admits that a true failure of longitudinal development of the oesophagus may occur, it must be exceptionally rare, and for practical purposes cases of hiatal hernia and short oesophagus, with or without ulceration, may be considered as due to a primary defect of the diaphragm.

The logical application of this viewpoint is to use a more radical surgery to cure the deformity, which may allow acid to regurgitate into the oesophagus causing oesophagitis and ulceration. In most cases symptoms are not sufficiently severe to justify operation, but there are a few that may be greatly benefited by either repair of the orifice or excision of the cicatrized area. Repair of the hernia was undertaken in 9 of the 63 cases in Allison's series and a further 5 had excision of the ulcerated and badly stenosed oesophagus with anastomosis to the jejunum.

### NODULAR DEFENSIVE REACTIONS OF THE SKIN

The "trisymptomatic malady of Gougerot" is a characteristic skin reaction which consists of three well-defined lesions—erythematous papules from 2–10 mm in diameter, resembling most often erythema multiforme or sometimes urticaria, purpuric macules from 1–5 mm, and small firm nodules from 2–7 mm, varying in their depth in the skin. Gougerot<sup>1</sup> has recorded six cases. The lesions come out in crops over the whole body, but especially on the lower limbs, and disappear in 15–60 days, usually without any scarring. The condition persists for years and may be symptomless or associated with very occasional pyrexia, headache, and joint pains. The general health is fair, though the patient may gradually lose weight and feel fatigued. Histologically, the lesions are situated in the dermis and there is obvious swelling of the endothelium of the capillaries, which are surrounded by a sleeve of fibrinoid necrosis and marked polymorphonuclear infiltration. Despite extensive studies no pathogenic agent has been found in either the blood or the tissues.

Gougerot suggests that this syndrome is one of a large series of skin reactions which are caused by organisms establishing themselves in a sensitized skin. They vary from acute necrotic tuberculides to the lesions described above, and include other tuberculides and "pityriasis lichenoides varioliformis acuta". He has labelled them nodular dermal "allergides". Closely related to them are Osler's

<sup>1</sup> Dick R. C. S. and Hurst A. *Quart J Med* 1942 11 105  
<sup>2</sup> Allison P. R. *J Thorax Surg* 1943 12 432  
<sup>3</sup> Gilbert G. B. *J Amer med Ass* 1946, 132 132  
<sup>4</sup> Smithers J. D. *Thorax* 1948 3 20  
<sup>5</sup> Allison P. R. *Thorax* 1948 3 20

<sup>1</sup> *Sem Hôp Paris*, 1947, 23 1311

nodes, which are associated with severe endocarditis, here Gougerot believes the cutaneous defence reaction is inadequate. Numerous pathogens may cause these nodular dermal "allergides," including the tubercle bacillus, pyogenic cocci, and, less often, Hansen's bacillus, gonococci, trichophyton, and other organisms known and unknown. He considers that it is justifiable to group these reactions together, as they all entail the same allergic process, which he calls the nodular defensive reaction. Not only does he think the skin is the site of this reaction but he suggests that it takes an active part in defence against organisms by complex mechanisms and notably by tissue secretions.

While a relation between many of these conditions can be seen, it is probably spreading the net of allergy too wide to include such lesions as Osler's nodes unless we are to assume that all inflammatory processes are allergic. There is moreover insufficient evidence that organisms occur in the blood in such a condition as erythema multiforme, even in the six cases which Gougerot has himself described. It would be more helpful to isolate conditions in which the aetiology is known than to group together large numbers of eruptions in which the pathogenic causes can only be surmised. It is unjustifiable to assume that the lack of resistance in endocarditis with Osler's nodes is due to failure of the skin defence mechanism and it is usually considered that the cutaneous reaction of a tuberculide is an indication of a good resistance and not the cause of it.

### GIANT HYPERTROPHIC GASTRITIS

The normal gastric mucosa is subject to wide variation, both between different people and in the same person at different times. Only changes in its gastroscopic or radiological appearances that are constant, or, if inconstant, when accompanied by symptoms, can be regarded as pathological. Giant hypertrophy of the gastric mucosa fulfils these criteria. It is a rare condition, and in reporting six new cases Maimon<sup>1</sup> and his associates refer to fewer than fifty cases reported in the literature.

There is no constant clinical picture, but all six patients had epigastric discomfort. One patient had had a severe haematemesis, this has occurred in other cases, and Bourne<sup>2</sup> has reported in Britain an example in a man who had severe anaemia. Radiologically the rugae are prominent and rigid, collections of barium between the elevations of the mucosa give the impression of multiple polyps, and in some cases true polyps may occur, as Sprigg<sup>3</sup> has shown. Gastroscopically the appearance varies, but usually the dull red oedematous and infiltrated folds can be seen, there may be superficial ulceration, and in all cases the distinction from carcinoma may be impossible. Macroscopically the rugae are seen to be enlarged and tightly packed together, so that the resemblance to the cerebral convolutions may be striking, sessile polyps may also be present. Microscopically, redundancy of the mucosa with marked hypertrophy of the glandular structures are the outstanding features. In some areas there may be cyst formation, with metaplasia to the intestinal type of epithelium.

Little is known of the aetiology of the condition. It is uncertain whether the cause is inflammation, and the condition would therefore be better given the descriptive name of giant hypertrophy of the gastric mucosa rather than giant hypertrophic gastritis. Its importance lies in its relationship to carcinoma, for it has been suggested that it may

be a precursor of a neoplastic change, but this again is not certain. What is certain is that both gastroscopically and radiologically it may be impossible to differentiate between this condition and carcinoma of the stomach. Gastrectomy is therefore the treatment of choice.

### COLOUR TERMINOLOGY

The publication of a report on colour terminology by a committee of the Colour Group of the Physical Society<sup>1</sup> marks the end of an inquiry which has been proceeding since 1941. The compilers have gone beyond the accepted uses of colour in physiology and colour physics and have attempted, first, to collect information on existing usages in a variety of industries, and secondly to decide on the minimum changes necessary to secure a consistent terminology that could be used by all colour workers. Physiology, as might perhaps be expected, comes well out of this scrutiny. The terms used to describe deficiencies of colour vision are definable in terms of experimentally determined characteristics, and though associated historically with the Young-Helmholtz theory of colour vision they will probably remain undisturbed by such work as, for example, that of Prof. Hartridge on the reality of a fourth and separate yellow-sensation.

It is rather in usages regarded as normal or "everyday" that some degree of restraint is required from professional men, as was lately shown by the Colour Group at the expense of visitors to the Physical Society's Exhibition. Confronted with one particular colour sequence and asked to describe the quality in which there was variation, just under one thousand visitors proposed between them some 43 different terms. As an example, the word "shade" may be used in at least four different senses. It is used in ordinary speech to mean any colour, by the dyer as a synonym for hue (the subjective equivalent of dominant wavelength), in the paint industry to describe a small variation in "tone" from another colour, and, correctly, by the printer for the shadow effect given by a darker colour of the same hue and saturation as another. Tone and brightness provide other examples of uncertain meaning, and in the case of the latter it is proposed that the colour physicist should himself promote understanding by giving way. Unquestionably when we refer to the brightness of our neighbour's front door we have in mind not merely the intensity of the light which is scattered from its surface but also the vividness of its colour. Apart from this general and almost instinctive use the matcher of dyestuffs uses brightness to describe the opposite of that dullness which results from the addition to any colour of a small quantity of a neutral grey. It is proposed, therefore, that the physicist should renounce his use of this term and that the word "luminance," already proposed for the objective measurement of luminous intensity, should be joined by "luminosity" as the corresponding subjective term to indicate "intensity of luminous sensation."

It would be well for mutual understanding if the committee's recommendations could be generally followed, for the number of changes required of individual users is comparatively small. In place of 230 existing usages it is suggested that 60 should suffice for unambiguous description "throughout science and industry."

On July 8 Lord Webb-Johnson was re-elected President of the Royal College of Surgeons of England for the eighth successive year.

<sup>1</sup> Maimon, S. N., Bartlett, J. P., Humphreys, E. M., Palmer, W. L., *Gastroenterology*, 1947, 8, 397.

<sup>2</sup> Bourne, W. A., *Proc. R. Soc. Med.* 1948, 41, 43.

<sup>3</sup> Sprigg, E., *Quart. J. Med.*, 1943, 36, 1.



## HOSPITAL ADMINISTRATION IN AMERICA

### REPORT TO KING EDWARD'S HOSPITAL FUND

Capt J E Stone, who lately undertook a tour of the hospitals of the United States and Canada on behalf of King Edward's Hospital Fund for London, has presented to the Fund a report on some of the latest ideas and devices in hospital administration and equipment which he discovered on the other side.

His general impressions are that the hospitals in the large cities of America are much bigger and more massive in appearance than those in Britain. The majority are of the multi-storied type, not because of limitations of ground space, but to reduce horizontal travel. He specially noted the large, light, and lofty entrance halls, some of them bigger than our own out-patient departments, and conveying a feeling of welcome often absent from British hospitals, even modern ones. A visitors' lounge, comfortably furnished with armchairs and small tables and decorated with flowers, often opens off the main entrance.

The popular building material is glass bricks, which increase the lighting without loss of privacy. Stainless steel is chosen for equipment everywhere. If an item can be obtained in this material no other will serve. All kinds of devices are used for saving labour—dictaphones, stenotyping machines, electric typewriters, pneumatic tubes for carrying documents, the teleautograph system for the transmission of messages, electric scrapers, polishers, and the like.

The public wards are rather larger in America than is customary in Britain, but there is now a tendency towards smaller ones and to a division of the original almost square ward into several compartments by the use of curtains. Three types of accommodation are commonly provided: private (single-bed rooms), semi-private (two bed rooms), and general or public wards (10 to 26 beds). The majority of patients are able to pay for their maintenance, and because of this the proportion of private bed accommodation is relatively high in practically all hospitals, accounting for a quarter or a third of the total bed accommodation. An increasing number of people are making provision for hospital care by means of an organization which corresponds to British contributory schemes. Staff is plentiful except for nurses. The nursing position in America appears to be similar to that in Britain.

### Hospital Bed Ratios

The method of calculating the number of beds required for a given area has been worked out in New York as a result of an analysis which shows that for the past ten years an average of 120 patient-days of general hospital care has been provided for each death occurring in the city. From this a formula has been developed which indicates that 0.41 general hospital beds should be available for each death occurring in one year in a population group.

The U S Public Health Service recommends the following as adequate:

General hospitals 5.5 beds per 1,000 population (or from 3.5 per 1,000 in sparsely populated areas)

Chronic disease hospitals 2 beds per 1,000

Mental hospitals 5 beds per 1,000

Tuberculosis hospitals based on the average annual death rate from tuberculosis

Public Health centres 1 per 30,000 population (or up to 1 per 20,000 in States with fewer than 12 persons to the square mile)

The authorities are very definite that no hospital should exceed 1,000 beds, the majority place the maximum at 700 to 800.

Several American authorities expressed the opinion that the day of the isolated specialist hospital is over and that if these hospitals are to render efficient service in the future they must work in close association with medical centres of general hospitals. The tendency is towards making the large general hospital complete in every respect so far as all specialties are concerned. A large number of hospitals in country districts are of the 100-bed class, all voluntary, and all complete in the sense that they meet the needs of all classes, providing private rooms and public wards.

It is estimated that from 5 to 15% of the beds in a general hospital should be for children. The Americans lay stress on the individual care needed by children to protect them from cross-infection.

The following points among others are laid down in connexion with the siting of hospitals:

Ample parking space, present and prospective

Good light in adjacent roads

Avoidance of noise from highways, railroads, playing grounds

Avoidance of insect infested areas

If there are industrial smokes in the vicinity the hospital must be out of line of prevailing winds

A cemetery should not be visible from the hospital

One of the minimum standard requirements for hospitals desirous of approval by the American College of Surgeons is that the hospital should provide a clinical laboratory giving a complete and properly supervised service. This laboratory is expected to be able to cope with the essential examinations immediately necessary in assisting the clinician in making or confirming his diagnosis—e.g., urine analysis, blood counts, smears, sputum examinations, and spinal-fluid counts. The American hospitals, both large and small, are proud of their laboratories, which are generally well equipped and adequately staffed.

### Operating-theatres

It is generally agreed that there should be one operating-theatre for every 40 or 50 surgical beds. In small hospitals there should be one major and one minor operating-theatre in addition to an emergency room in the admission department. Generally the standard lay-out comprises twin theatres with a "scrub up" between them and a sterilizing room similarly placed. Opinions differ as to the provision of anaesthetic rooms, some hospitals have dispensed with them. In one hospital the operating theatre unit consists of seven theatres ingeniously arranged around a central work area, economizing space, time and effort. The entrance for patients is from an outside corridor, thus avoiding cross traffic and there are no anaesthetic-rooms. It is estimated that the theatre floor space should be approximately 30 to 40 square metres.

The use of fluorescent lighting from lamps fixed to the theatre ceiling is proving satisfactory. The arrangement of the centre light is such as to allow the air to escape above it and so keep the theatre cool. A floor- or pedestal-lamp is often used for additional illumination. For contagious disease units some hospitals are using ultra-violet sterilization lamps pre-operatively in the operation theatre.

To minimize risk of anaesthetic explosions, most theatre floors are of terrazzo, with metal (not vulcanite) grids to dissipate static ceiling electricity, and noiseless, sparkless electric mercury switches are in general use. At one hospital the surgeons and theatre staff have aluminium incorporated in the soles of their shoes.

In one operating theatre an arrangement is made for students and visitors to sit in a semicircular glass enclosed dome almost directly above the operation table and a radio device enables the surgeon to carry on a conversation with those in the enclosed area outside the actual theatre.

Some hospitals maintain an individual supply of instruments for each operating theatre against a central instrument-room. The equipment seen was first class. Locked cabinets were recessed and flush with the walls. Sponge and swab racks for easy and accurate counting were in general use. The scrub sinks, three for each pair of theatres, were of the splashless type and the flow of water was regulated by knee or foot control. An alcohol hand bath adjoined the sink in most cases. In some hospitals no sinks are used in the scrub up—merely an anti splash board supported obliquely against the wall, the water draining into a shallow gutter.

In America recovery wards or rooms are favoured. The advantages are twofold: the patient receives greater protection because the highly trained nurses are obviously better fitted—and such wards better equipped—to cope with early post-operative complications and emergencies, and the nurses in the surgical wards are relieved of the strain of major nursing at this most anxious period. The recovery ward has oxygen and every apparatus for emergency. Generally there are three or four recovery beds for each major theatre.

### The Nursing Unit

The ideal nursing unit in America is considered to comprise between 20 and 30 beds. The determining factor is the number of patients the night nurse can properly care for, the head nurse during the day hours will have as many assistants as are needed. The number of patients in such a unit is variously estimated at from 18 to 22 in single rooms, 20 to 30 in two bed rooms, and a maximum of 40 in four-bed or large rooms. The U.S. Public Health Service holds that the nursing unit should normally consist of 25 beds if mixed (that is, private, semi-private, and ward), 30 if all ward patients, and 20 if all private-room patients. A larger proportion of single rooms gives a more flexible unit, simplifies complete isolation, aids in the distribution of patients by sex, and helps to avoid the presence of conflicting personalities or noisy or obnoxious cases in the same room or wards.

Nowhere in the United States did Capt Stone find any hospital authority desiring more than six beds for a general or public ward, in Canada the number is six to eight. Two bed rooms are out of favour owing to the difficulty of selecting congenial companions, and three-bed rooms are also not liked because of the possibility of two patients combining against the third. The four-bed ward makes it easier for the sister to select psychologically compatible people. The general opinion is that beds are best placed parallel with the outer wall free on two sides and at the foot end, in such a way that the patient does not have to face the window.

The ideal bed light has not yet been evolved even in America—by 'ideal' is meant a light shaded sufficiently to be of no inconvenience to other patients in the room, and to allow maximum light for the reader in a convenient position. Some hospitals have installed a direct-call system from every bed to the nurses' station, the patient being able to talk into a bed telephone and the nurse to reply at a distance. The nurses' station is separate for each unit, in a good central position for over-all supervision, and convenient for all avenues of approach. Patients' records are generally kept in the nurses' station. In some hospitals each nursing unit has its own treatment room, containing examination table or couch, supply and instrument cupboards, instrument sterilizer, and washing facilities.

### Out-patient and Other Departments

The out-patient arrangements do not differ very much from the British pattern. The appointment system is fairly general. Departments are well marked with directing signs, and there is an information bureau to assist patients. Many hospitals have a food clinic in the out-patient department, with a view to instructing patients how best to carry out the dietary orders of the doctor.

The maternity section is separated from the other sections of the hospital. In the 15 years ending 1944, 73.1% of all births in the United States occurred in hospitals, and approximately 12% of all admissions were for confinements. It is considered that there should be one labour room for every ten patients, and one delivery-room to every 20 maternity beds. Generally the babies are viewed through glass, the visitor standing in a corridor or recess. In American hospitals admission to the nursery is forbidden to all except the nurses who scrub and gown before entering. Doctors scrub, mask and gown before making examinations.

There are many other features of American hospitals worthy of comment. Food is transported in specially designed trolleys, generally heated by electricity, with hot and cold compartments well insulated from one another. Every hospital which Capt Stone visited had a blood bank. Wiring for all x-ray equipment is separate from the general wiring system of the hospital. The use of the viewing-box with glass top light flush with the surface of a table saves much time and effort for the nurses in sorting x-ray films and putting them in their folders and containers. For hospital floors sheet linoleum bedded on linoleum felt (on a concrete base) is much used, terrazzo is also used in corridors. Rubber floors are difficult to keep clean and cork is not often seen. One feature of American hospitals is a conversation-room for confidential conversations with relatives, doctors, or ministers of religion. The patients are wheeled in and interviewed in their beds.

All hospital authorities insist that bedpans and urinals should be of stainless steel. Capt Stone was told of an innovation

which was first introduced at the Southern Hospital, Stockholm. This is a special room called the enema-room for each nursing unit. Patients are wheeled in on their beds for ordinary bowel evacuation or for enemas and washouts. The idea underlying the arrangement is that anything obnoxious should, wherever possible, be kept away from the patient's bedroom, or, in other words, his living-room.

### Courses in Hospital Administration

Eight universities in the United States and one in Canada (Toronto) have established courses in hospital administration. A division of hospital administration has been established in the school of public health of the faculty of medicine at Columbia.

The American Medical Association, through its Council of Medical Education, concerns itself with the training of medical record librarians. The training consists of not less than 50 weeks of theoretical instruction and practical hospital experience. Hospital records, by the way, are generally kept for twenty years, after which they are micro-filmed and destroyed, the micro-films take up about one tenth of the space of the records.

The certificate of approval granted by the American College of Surgeons on the recommendation of its committee on hospital standardization is regarded as an important mark of achievement by the hospitals of America and Canada. For the purpose of conferring approval the College maintains a permanent staff of field representatives who are graduates of medical schools and have had experience of clinical work and of hospital administration. This task of approval was undertaken by the College in a desire to advance the standards of surgery laid down for its Fellowship. It was found that few graduates could meet its requirements because so few hospitals were in a position to give their surgeons facilities for the proper pre-operative study of their patients. To remedy this unsatisfactory state of affairs the College prepared and published its minimum standard and introduced its certificate of approval. The standard has no legal enforcement, but the public has been educated to expect it of hospitals.

## BRITISH TUBERCULOSIS ASSOCIATION

### ANNUAL CONFERENCE

The annual conference of the British Tuberculosis Association was held in Belfast on June 30, July 1, and July 2 with the president Dr Frederick Haef in the chair.

Dr Brice Clarke, director of tuberculosis services under the Northern Ireland tuberculosis authority gave an outline of the tuberculosis problem and mentioned the schemes in operation and those being planned for the control of the disease. The annual number of deaths was 1,100 and the total number of beds available was 1,200, 700 additional beds were being planned and of these 250 would be ready in about a year. The policy of the authority was to have all the beds in special chest hospitals or in units of general hospitals, so that patients would always have access to any treatment they required. The clinic and mass radiography services were to be extended, and it was hoped later to make some tuberculin surveys and statistical analyses.

Professor Arvid Wallgren (Stockholm) spoke on the "Time Table of Tuberculosis." He said that primary infection with tuberculosis was in the large majority of cases benign and without significance. In certain cases where resistance was low or other factors were involved a serious primary infection occurred, and by careful observation of the patients the various phases of the infection could be followed. The incubation period before tuberculin sensitivity developed was usually five to six weeks. Occasionally erythema nodosum, and more commonly 'initial fever,' marked the end of the incubation period. The second phase he considered to be the three months following the development of sensitivity. This was the period of haematogenous dissemination and was the most dangerous. Miliary spread and meningitis were most common in this phase. The third phase was from the third to the seventh month and this he called the pleurisy phase. He mentioned that it was rare for meningitis to follow pleurisy. After the seventh month the third or latent phase was entered, and during this period the lesion tended to heal, though bone lesions sometimes developed. Healing of the primary lesion was usual in the second or third

year after infection. Most of the bony lesions occurred in the first year. These phases applied to primary tuberculosis in all age groups, but age played an important part in influencing the nature of the disease. He instanced the rarity of phthisis in young children and the relative frequency of meningitis. In adolescents or young adults phthisis was common and meningitis rare, though there were many exceptions to these generalizations.

Dr Dorothy Price (Dublin) described the results of BCG vaccination of a group of infant contacts. In this group there had been no deaths from tuberculosis during a period of ten years. The vaccine was given by the intradermal method, originally in a single dose, but more recently in three doses. No adenitis occurred and only a slight local reaction. The infants were kept in hospital for six weeks before vaccination to enable those already infected to be detected. They were retained in hospital after vaccination till tuberculin sensitivity was established. In children who had had a serious primary infection with tuberculosis a marked reduction in the death rate had been obtained during the last few years by early diagnosis and prolonged bed rest. Recently, a short course of streptomycin had been tried in these cases.

#### Para-aminosalicylic Acid

Professor Jorgen Lehmann (Gothenburg) described the treatment of pulmonary tuberculosis with para-aminosalicylic acid. In a large series of cases, many of them with advanced disease, improvement was noted in more than 50%. The most striking effect was an improvement in general well-being coinciding with an increase in weight, raised haemoglobin, and a fall in the blood sedimentation rate. Improvement in the radiological appearances was seen in the exudative type of disease but in the more chronic cases cavities were little affected. The treatment, however, made it possible for many of these cases to have coincident or subsequent collapse therapy. Toxic effects were not usual, though some patients had had vomiting and diarrhoea. The drug was given orally in doses of 14 g daily (for an adult) divided into four or six doses. It was rapidly absorbed and excreted and a blood concentration of 3 to 6 mg per ml should be maintained. Treatment could be continued for several months, and bacterial resistance to the drug did not occur. The blood sedimentation rate was the most sensitive indicator for the management of treatment.

Dr T G Dempsey (London) gave an account of 20 cases of tuberculous empyema treated with intrapleural P.A.S. Of these 8 had broncho-pleural fistulae and were a less favourable group. Better results were obtained in the 12 non fistula cases, and a sterile fluid was achieved in 11 of them after twelve weeks' treatment. There was considerable improvement in the general condition, and some of the cases became suitable for thoracoplasty. In 6 cases the pleural space was obliterated. The speaker pointed out that procaine should not be used as a local analgesic with P.A.S. Sinuses in the chest wall healed rapidly after P.A.S. therapy was started. A small series of cases of pulmonary tuberculosis was treated with oral P.A.S. The dose given was 20-30 g per day. Results were most striking in the pneumonic and miliary cases, sputum conversion depended on cavity closure. Apart from nausea, no toxic signs were noted and the sodium salt appeared to cause even less upset.

Dr A F Foster Carter (Frimley Sanatorium) dealt with the segments of the lungs. He described their anatomical formation and their importance in disease of the lung. Tuberculous disease was not commonly confined to a segment of the lung. Other segments nearly always showed infiltration. If the area involved was segmental in distribution in a proved case of tuberculosis, tuberculous bronchitis with stenosis should be suspected. Segmental lesions occurred in primary tuberculosis, as for example in epituberculosis.

Dr Dillwyn Thomas (Sully Hospital) described a method of treatment of cavities by antipostural drainage. If the cavity were prevented from emptying in many cases it would not be visible after one or two months. Immobilization of the patient in a suitable position was essential and strict and constant nursing care was needed. Thoracoplasty was done on some of the patients after a period of immobilization.

Mr J H Carver (London) spoke on silent renal tuberculosis. He described a group of cases in which the usual symptoms of

renal tuberculosis were absent. The condition was due to occlusion of the ureter so that the bladder remained unaffected and the urine normal. The kidney might become greatly enlarged and the symptoms might suggest gastric or colonic disease. The diagnosis was made by intravenous pyelography, and the treatment was nephrectomy. Tuberculosis was present elsewhere in the body in almost all these cases.

#### Thoracoplasty

Dr Johann Gravesen (Copenhagen) described the operation of combined apical thoracoplasty with extrapleural pneumo-oleothorax, which he had used for several years. He emphasized the need for conservation of healthy lung tissue. The apicolysis introduced by Semb had been a great advance but sometimes the mobilized apex expanded again and cavities reopened. To prevent this the speaker had performed a very limited thoracoplasty with an extrapleural pneumo- or oleothorax. Extrapleural pneumothorax was dangerous where cavities were superficial, and in these cases the mobilization was done extrafascially. Very careful haemostasis of the wound space was needed and clot formation must be prevented. The space was first filled with air and after two or three weeks with oil.

Dr Joseph Smart (London) spoke of the dyspnoea which followed thoracoplasty, operations when pulmonary efficiency was impaired. Pulmonary function was difficult to assess accurately. Bronchspirometry measured the function of each lung separately and therefore had certain advantages, but it had the disadvantage that the patient must be at rest during the test and was breathing under difficulties. A more accurate assessment could be made by combining the exercise tolerance test with bronchspirometry, particularly in emphysematous patients. Marked impairment of function of one lung could be caused by obliteration of the pleural space and also by phrenic nerve interruption. In certain cases there was less impairment of function after thoracoplasty than after artificial pneumothorax. The pneumonic type of disease, superficial cavities and endotracheal tuberculosis were all contraindications to artificial pneumothorax, and treatment by primary thoracoplasty was preferable when these conditions were present.

Mr W P Cleland (London) in a paper on primary thoracoplasty emphasized the contraindications to A.P. mentioned by Dr Smart. He deprecated attempts at adhesion section in cases with "ballooned" cavities and advised thoracoplasty instead. Certain types of disease needed the maintenance of a permanent collapse and for these also thoracoplasty was indicated. The age and occupation of the patient must be considered. Very good results had been obtained in endobronchial tuberculosis with streptomycin treatment. Stenosis of the bronchus sometimes made it necessary to perform a lobectomy.

Dr James Deeny (Dublin) described his personal experience of the epidemiology of tuberculosis in two medium sized towns in Northern Ireland over a period of twenty-five years. He showed how many minor and severe epidemics developed from single cases in small areas of these towns. Ten or eleven deaths in five years were traced to a single focus. The effects of bad housing and poverty were variable. Spread of infection by direct contact was particularly dangerous to adolescents.

Dr J E Wolf (Dinos) discussed the treatment of pulmonary tuberculosis with streptomycin. He had treated 96 cases in the past three years. The results had been most favourable in the more acute forms of the disease, particularly the miliary and bronchopneumonic forms. The results in the chronic fibroid cases were less good but some improvement was effected. Doses were 1 g or less per day, and continuous treatment for three months at least was to be preferred to intermittent administration of the drug. Laryngeal tracheobronchial, and enteric forms of the disease were greatly benefited by streptomycin. Resistance developed in some of the infecting organisms, and a second or third course of treatment was less effective than the first. Treatment after such resistance had developed was harmful in some patients. Toxic effects were not common. Vestibular disturbance cleared up when the treatment was discontinued. Another toxic manifestation noticed was loss of memory for recent events, but this also cleared up after a few weeks' rest from treatment. The toxic effects he believed were due to impurities, and he had found that changing from the preparation of one manufacturer to that of another

relieved the toxic symptoms. He spoke of the diminution of toxæmia shown by all the patients treated, but was emphatic that early cases who were doing well should not be given streptomycin. The drug was most valuable in certain forms of the disease, but the standard treatment by rest and collapse therapy must not be abandoned.

Dr Johannes Holm (Copenhagen) was unfortunately unable to attend to read his paper on "refined methods of search for tubercle bacilli."

## THE NATIONAL HEALTH SERVICE AND THE DEAF

### Mr Bevan on the National Hearing-aid

The annual general meeting of the National Institute for the Deaf, which was held in London under the chairmanship of the Duke of Montrose on July 7, was addressed by the Minister of Health.

In the course of his remarks Mr Aneurin Bevan said that not until now had the deaf had statutory recognition. He believed that the word "deaf" had never appeared in a British statute before the National Health Service Act. The local authorities were responsible for looking after handicapped persons, including, of course, the deaf and dumb. It was decided when the scheme was framed that the care of handicapped persons should reside with the local authority because the service was a personal one, varying in its demands from place to place, and a national scheme would not be sufficiently flexible and adaptable for the purpose. It would be his task to see that the local authorities did their job. It was intended that the widest possible interpretation would be given to the word "workshop," for example, in the rehabilitation proposals, in order to retain in the general community those suffering from this and other handicaps.

The hearing-aid illustrated an aspect of the service to which too little attention was apt to be paid. What the new Act did was to establish people's rights or entitlement. The coming into existence of the service must depend upon the resources available, and recently the production of the hearing-aid had lagged behind expectation. A few snags had been discovered, and they had had to wait until certain technical difficulties had been overcome. The production of the aid had depended upon various techniques, some of which were developed and perfected during the war, and now a sensitive mechanism had been provided which he hoped would be of great assistance to the hard-of-hearing. Certain criticisms had been made, chiefly that the aid was not handsome in appearance. But the important thing was its efficiency, and at the same time the question of cost could not be ignored. The batteries were large, so that the instrument tended to be heavy, but if smaller batteries had been put in they would have required more frequent renewal, and therefore would have been more expensive. In connexion with this problem of the deaf they had to bear in mind that hundreds and thousands of people who had been living in solitude would be brought again into social intercourse and made not only happier and more contented but enabled to do useful work. He also looked forward to the development of research to find out more about the causes of deafness and how they could be forestalled.

At the same meeting the Chairman of the National Institute, Mr R. Scott Stevenson, said that the Institute had sought for years to have a hearing-aid brought within the range of poor people in this country. The new Government hearing-aid was an excellent job. It was the nearest approach possible to a universal aid, and for the kind of deafness that could be helped by a hearing-aid it was as good as could be got. It was a mistake to emphasize smallness of size in a hearing-aid; efficiency was wanted, not prettiness. There was, of course, a psychological element in the choice of a hearing-aid. In a recent visit to three or four rehabilitation centres in the United States he had found the central individual to be, not an otologist, nor an educationist, but a psychologist. In America great stress was laid on auditory training, and in this country the fullest benefit would not be got out of the Government hearing-aid unless it was combined with a period of training.

Lord Leverhulme said that it was estimated that 150,000 people were eligible for hearing aids. It should be remem-

bered that the provision of the aid would benefit not only those with impaired hearing but those with normal hearing also, making possible or easier the give-and-take of ordinary business and social intercourse.

The annual report of the Institute, which was adopted at the meeting, described a volume of useful and varied work done on a wholly insufficient income of about £6,500.

### A New Sound-reinforcement System

The hall of the National Institute for the Deaf, at 105, Gower Street, has been equipped with a new sound-reinforcement system—a system designed to give the most powerful and flexible aid to gatherings of the hard-of-hearing. The system embodies, among other technical contrivances, three microphones, and is many individual headphones and bone-conduction receivers as there are people in the audience requiring them. A wide range of frequency response is provided and flexible tone control arrangements permit of amplification of the particular frequencies needed for different kinds of deafness. At a demonstration the value of the installation was tested for ordinary speech and discussion and general conversation or "committee talk", to the normal hearing person the amplification, though too loud for comfort, in no way distorted the sound, and the many deaf people who tested it expressed themselves delighted with the result. A feature of the system is a roving microphone which enables the audience to participate in any discussion. It is claimed that the system, the installation of which has cost the Institute about £500, makes this small hall—the Leo Bonn Memorial Hall—the most useful and up to date meeting place for the hard-of-hearing anywhere in this country.

## MATERNITY AND CHILD WELFARE

### Encouraging Statistics

The annual conference arranged by the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality was held recently in London, when the general theme was the State and family life. Dr Jane Turnbull, opening the conference as chairman of the Association remarked on the general feeling that notwithstanding the new social legislation voluntary work had still an important part to play. It was an encouraging indication to that effect that out of 145 county and county borough councils just over half were affiliated to the Association and 28 of them had joined since the passing of the National Health Service Act.

The Minister of Health, the Rt Hon Aneurin Bevan, who was president of the conference, gave an address in which he said again, as he has often done in recent utterances, that trouble was to be expected once the National Health Service Act was hunched. For some years it would not be possible to say that the Service had reached maturity. It must always appear to be inadequate. Although he was more conscious than most people of what was lacking on July 5 he believed the Service was starting with almost universal good will and before many years were over we should look back with pride upon what had been accomplished.

In the field of public health, said Mr Bevan, contributions were made from a thousand different sources and each in itself tended to be regarded as comparatively unimportant, yet in their sum they produced the progressive improvement in vital statistics which was now being witnessed and improvements in environmental health generally. The latest statistics showed another decline in the infant mortality rate—41 per thousand live births in 1947, as compared with 43 in 1946. The stillbirth rate in 1947 was 24 per thousand, as compared with 27 the previous year, and the maternal mortality rate 1.17, as compared with 1.43. All these statistics, including the birth rate, which showed an increase, proved that the sap of vitality was flowing freely in the British oak.

In addition to the refurbishing of the health organization, a great deal of interesting legislation had been put through Parliament. One measure now passing through the Lords was the Dry Nurseries and Child-minders Bill. Good as this legislation was, it must never be forgotten that communal care for the child could not replace parental care. He had been a little afraid lest so much emphasis be laid upon collective activities

that the primary thing, parental relationship, might be forgotten. That was why he had attached so much importance to good housing.

Finally Mr Bevan spoke of the need for maintaining voluntary organizations. The intervention of the State into the world of hospitals and social services was not for the purpose of destroying the spirit of voluntary organization but of emancipating it from the necessity for spending so much time in the mere collection of money. In the National Health Service Act the skeleton was State organization, but the flesh was voluntary effort.

#### A Charter for Children

The conference discussed the National Health Service Act as it affected young children, environmental factors in the life of the child, and the effect of the Children Bill. In an exposition of this latest "Children's Charter" Mr John Ross, Assistant Under-Secretary of State in charge of the Children's Department, Home Office, said that local authorities had a duty to receive into their care any child in need in their area, they were enabled to make any reasonable provision for that child, including further education up to university standard to the age of 21 and beyond, they were enabled to use voluntary homes for the accommodation of children, they would have some responsibility for the care of children in voluntary homes, and by their training schemes, administered under direct control of the Secretary of State with the immediate help of local authorities throughout the country, it was hoped to provide staff who would be able to care for these children in an adequate, sympathetic, and affectionate way.

Mr John Edwards, M.P., Parliamentary Secretary, Ministry of Health, said that the smaller local authorities, although they would no longer have the responsibility that they had in the past in regard to maternity and child welfare, must not think that there was no longer a place for them in the Service. Some of the larger authorities would not be able to do this work properly unless they had the day-to-day help of the smaller authorities.

## COUNTY BOROUGH MEDICAL OFFICERS

### Annual Meeting

The annual meeting and conference of the County Borough Medical Officers of Health Group of the Society of Medical Officers of Health was held at the Aberdare Hall, Cathays Park, Cardiff, from Friday, July 2, until Monday July 5. By invitation of the Group's president Dr J Greenwood Wilson, the medical officer of health for Cardiff, some fifty members of the Group attended and enjoyed a varied programme. The first event was the inaugural dinner on Friday evening. The president welcomed the guests, who included the Lord Mayor of Cardiff (Alderman R G Robinson J.P.), Sir Frederick Rees (Principal of the University College of South Wales and Monmouthshire), Professor R M F Picken (Provost of the Welsh National School of Medicine), Dr Arthur Massey (Chief Medical Officer, Ministry of National Insurance), Dr A R Culley (Principal Medical Officer of the Welsh Board of Health), and Dr Trevor Jones (Senior Administrative Medical Officer of the Welsh Regional Hospital Board). The company heard some excellent speeches in reply from the Lord Mayor, Sir Frederick Rees, and Professor Picken. After dinner there followed the annual meeting of the Group and a discussion opened by Dr E K Macdonald (M.O.H., Leicester), who took as the title of his paper "The Fragments that Remain".

On the Saturday morning many members of the Group took the opportunity of visiting coal mines in the Merthyr Valley and seeing the work which was being done on the control of dust. They were entertained to luncheon at the City Hall by the Lord Mayor and returned to Llandough Hospital to hear an address by Dr Charles Fletcher, director of the Medical Research Council's Pneumoconiosis Research Unit.

At the Temple of Peace on Sunday morning, July 4, Sir Frederick Rees gave an address on post-war planning in Wales and briefly reviewed the considerations which had been taken into account by the Boundary Commissioners. Later that morning the Group heard a description of the Cardiff scheme for the follow-up of ex-hospital patients suffering from such conditions as diabetes, asthma, and peptic ulcer. The speakers were Dr D A Williams, Mr D B E Foster and the health visitor,

Miss Mary Davies. In the afternoon the party paid a visit to the Welsh National Museum, through which they were conducted by Dr North, director of the Geological Section. After tea the Group discussed medico-political matters, and after dinner they again met to hear an interesting paper on the regional hospital board and the medical officer of health by Dr W G Patterson, senior administrative medical officer of No 1 (Newcastle-upon-Tyne) Region. The discussion on this paper continued until a fairly late hour. The meeting concluded with a vote of thanks to the president for his arrangements, and to all those who had helped, including a number of medical students who had acted as stewards at the Aberdare Hall for the three days.

## REPORT OF SIMS COMMONWEALTH PROFESSOR

### Australasian Tour of Sir Hugh Cairns

Sir Hugh Cairns, the first Sims Commonwealth Professor to be appointed, travelled to Australia in December, 1947, and after a short visit there spent a month in New Zealand and then two months in Australia. He has now presented his report.\* He lectured on the work done by himself and his colleagues at Oxford, the titles of his lectures including "Blunt Head Injuries and Their Effects," "The Late Results of Gunshot Wounds of the Head," and "The Treatment of Tuberculous Meningitis by Streptomycin." He also delivered the Annual Syme Oration of the Royal Australasian College of Surgeons and the Lister Oration of the South Australia Branch of the B.M.A. In the second half of the tour he gave a number of clinical demonstrations for students or house men which were followed by general discussion, and he found that it was an excellent way of meeting all the clinical members of the hospital. At Adelaide and Sydney he discussed methods of clinical teaching with the honorary staffs of teaching hospitals, and in Adelaide answered questions from a number of young graduates about work in Britain.

He comments in his report on the general dissatisfaction in Australia and New Zealand on the number of postgraduate surgical examinations that are commonly taken. Most of them take the primary and final F.R.C.S. the final F.R.A.C.S. and the primary and final M.S. Since these examinations are very similar many people believe that young men are wasting valuable time "pot hunting." It is thought that when young surgeons come to Britain they should spend their time working with British surgeons or in research rather than in attending classes for the primary and final F.R.C.S. Australasian surgeons value their fellowships of the English College and their connexions with it and the R.A.C.S. is therefore considering having its own primary examination (there is none at present the primary M.S. or F.R.C.S. being accepted), it may then ask the English College to agree to reciprocity between the two primary examinations. Alternatively, the R.A.C.S. may ask for a combined primary F.R.C.S. and F.R.A.C.S. to be held annually in Australia. In any case they do not want to discourage men from taking the English examination.

Sir Hugh Cairns points out that there are departments in Australia and New Zealand where work of the first order is carried out. They are splendidly equipped and accustomed to training young men of outstanding ability, but with few exceptions there are no clinical departments with facilities for training postgraduate students. He suggests therefore that postgraduate medical fellowships might be established for British students to work in suitable departments in Australasia. Ultimately there might be free exchange of teachers and research workers between all parts of the British Commonwealth. These fellowships should be for training in research and technical methods and be tenable for two years the fellows holding permanent appointments in Britain from which they could be seconded.

Apparently the title "Commonwealth Travelling Professor" misled many people in Australia into thinking that it signified a professor who was travelling around the Commonwealth of Australia. To avoid ambiguity Sir Hugh Cairns suggests that it might be changed to "Sims British Commonwealth Travelling Professor" if the trust deed permits.

\*Report to the Presidents of the Royal College of Physicians of London, the Royal College of Surgeons of England and the Royal College of Physicians and Royal College of Surgeons of Australasia.



ONE HUNDRED AND SIXTEENTH  
ANNUAL MEETING  
of the  
**British Medical Association**  
HELD AT CAMBRIDGE, JUNE, 1948

THE SECTIONS  
SUMMARY OF PROCEEDINGS

*In subsequent issues there will be printed in the BRITISH MEDICAL JOURNAL a few of the opening papers read at the Scientific Sections. All the papers will be published in full in a separate volume of Proceedings. The reports of the discussions concluded from last week (p. 104), are intended to give members who were not present a general idea of the proceedings.*

SECTION OF OTO-RHINO LARYNGOLOGY

Wednesday, June 30

The Sphenoidal Sinus

With the president, Mr V E Negus, in the chair, Dr Arthur W Proetz (St Louis, Missouri) read a paper on the sphenoidal sinus. With the posterior ethmoid and sphenoid sinuses it was often a case of 'out of sight out of mind'. Inferences drawn from examination of the anterior sinuses were not necessarily correct. In contact with this sphenoid sinus were thirteen important structures separated only by the thinnest bone, and sometimes even that was absent. The sphenoidal face and ostium were out of the line of inspired air, so there was no tendency to drying, except in atrophic conditions. Air exchange through the ostium was negligible, so that glands were relatively sparse. Sagittal section showed that the lining mucosa, very thin and adherent, merged with the thicker and looser nasal mucosa at the very rim of the ostium. Inflammatory blocking was therefore due solely to the nasal mucosa and could be relieved by shrinking the nasal mucosa outside the sinus. There was practically no tendency to polyposis, but an obliterative swelling did occasionally occur in allergy. Mucosal changes in chronic infections were reversible for much longer than was generally supposed. Jonathan Wright pointed this out in 1914, and showed that cilia persisted in a surprising manner.

In conservative treatment Dr Proetz favoured mild vasoconstrictors, such as 'turamine' or 0.25% ephedrine, introduced by displacement. In operating, the ostium must be carefully preserved, as it was the point to which all ciliary streams converged. A new slit-like ostium should be medial to the old one. He now treated conservatively two-thirds of the patients on whom he would originally have operated, and found he got better results.

Mr T C W Capps (London) dwelt on the clinical aspect. He said we tended to conservatism in this country. The sphenoid was well protected from air-borne and fluid borne infections and was therefore the least often infected of all the nasal sinuses. He emphasized the aid given by good radiographs in making a diagnosis of sphenoiditis. In twenty-five years experience he had had only two cases of acute sphenoiditis both treated successfully by immediate drainage. In chronic infections only the ethmoid sinuses need be drained. In his experience there was no direct connexion between sphenoiditis and retrobulbar neuritis. In treating malignant disease affecting this sinus diathermy plus irradiation gave the best results. In conservative treatment in children he preferred postural instillation of ephedrine to actual displacement.

The president, Mr Negus, congratulated Dr Proetz on his masterly paper. He felt that the sphenoid should not be regarded as a separate entity, but as one of the group of posterior ethmoids. He would like to know what was the relation

if any, of allergic swelling of the lining to migraine and of infection to mental disorders.

Mr A S H Walford (Cambridge) asked Dr Proetz if it was permissible to probe the ostium, as owing to asymmetry in sinus development, the new ostium might be made into the wrong side. Mr J C Hogg (London) had no experience of primary acute sphenoiditis but had opened many sphenoids when treating chronic pansinusitis. It was often easy to pass a cannula into the sphenoid without disturbing the middle turbinate.

Mr G H Bateman (London) was struck by the rarity in his experience of isolated sphenoidal sinusitis. Mr Donald Watson (Bradford) had seen very few cases in Edinburgh, as had his old teacher, Mr J S Fraser. He had seen cases of mental derangement cured by sphenoid drainage. Displacement and menthol snuff, had given excellent results in children.

Mr T C Graves (Birmingham) contended that there was a possible connexion between sphenoiditis and insanity. He stressed the importance of the sympathetic chain, and said that this might influence the cerebral vessels, and so the mental state. He described several cases showing dramatic improvement after sphenoid drainage. Mr J H Otty (Aberdeen) was impressed by the rarity of isolated sphenoiditis. He himself had seen only two cases. Dr J W D Bull (London) described the radiological findings in two cases, one a mucocele of the sphenoid, the other a meningioma of the anterior clinoid process.

In reply Dr Proetz agreed that it was necessary to remove the middle turbinate in fulminating cases, but in chronic cases the turbinate should be preserved. He warned against the use of cocaine and adrenaline in treatment as they paralysed cilia in a matter of seconds. There was no objection to probing the ostium, nor to enlarging the latter, provided the entire sphenoidal face was not removed. He doubted if migraine was ever caused by allergic swelling of the sphenoid lining and said he had no experience of mental cases though he was much impressed by Dr Pickworth's specimens. Radiologists should be encouraged to work with radio-opaque substances and should always use standard positions of the head.

Mr Capps replying said that by this discussion much of the aura of mystery by which the sphenoid had been surrounded had been dissipated. When he had used cocaine in treatment it had been only a 1% solution. In very acute cases one should use common sense in deciding the type of operation to employ, and in chronic cases all conservative measures should be tried first.

Poliomyelitis and Tonsillectomy

With the president Mr V E Negus again in the chair for the afternoon session Dr Allan M McFarlan (Cambridge) opened a discussion on poliomyelitis and tonsillectomy. He recounted the history of five children in one family who developed bulbar paralysis nine to fourteen days after tonsillectomy, three of them died. Many workers had noted a tendency for the bulbar type of paralysis to develop within thirty days of operation. Experiments on monkeys had shown that injection of virus into the tonsil region produced poliomyelitis but spraying virus on the raw surface following tonsillectomy was ineffective. In man the pharynx was a favourite portal of entry. Absence of tonsils appeared to predispose towards the bulbar rather than the spinal type of paralysis. He admitted the risk was very small but it was of course, greater during epidemics. Symptomless virus infections were common, and there was no easy method of demonstrating them. Therefore the only safeguard was to avoid operations on the tonsils during an epidemic. He did not regard the risk as a contraindication to tonsillectomy in normal times.

Dr J Alison Glover (London) compared the risks of tonsillectomy during epidemics with those of postponing the operation and suggested that the former was the greater risk. We should not know until late August or September if we were to have another epidemic this year. The virus was probably as widespread among the population as *Streptococcus pyogenes*. He quoted many authorities to show that the risk of bulbar paralysis was much greater in tonsillectomized patients and he contended that postponement of the operation last year had not caused any increase in respiratory tract infections.

Mr Geoffrey H Bateman (London) said that clinicians had refrained from operation during epidemics mainly because of



publicity. But the risk was extremely small, even at the height of the epidemic. The effect of the four months break in operating in 1947 had been to add enormously to the waiting list. He thought parents were better judges than Dr Glover of the harm caused to their children by such postponements. Surgeons would still stop operating during an epidemic, but he would still do so in urgent cases particularly if there had been no immediate contact with proven cases, and if the child could be nursed in a cubicle.

The president Mr. Negus, thought Dr. Glover was wrong in minimizing the ill effects of postponing operation, and that his figures applied to notifiable diseases only and not to minor ailments.

Mr. Donald Watson (Bradford) thought the chance of an epidemic this year was small. Operations for tonsils and adenoids were undertaken on the poorer type of children, in whom poliomyelitis would in any case be more prone to develop. He did not believe that there was no harm caused by postponing operation.

Mr. F. C. W. Capps asked why this operation was singled out. Were other operations on the head and neck, or even abdominal operations, to be postponed? Could carriers be recognized by an easy test, and was segregation likely to help? If the Ministry of Health advised when operations should be stopped they should also say when to start again.

Major-General E. A. Noyes (U.S. Army) said their practice during epidemics was to stop tonsillectomy operations on children unless there were overriding considerations. Mr. J. F. Lipscomb had seen many cases of poliomyelitis in Australia, where epidemics were prevalent. There operations were put off as soon as the figures for poliomyelitis began to rise. Poliomyelitis was no respecter of social grades. There was the same incidence among children carefully isolated by their parents as among the poorer ones who played together in the streets. Mr. J. C. Hogg asked if dental extractions carried any risks.

In reply Dr. McFarlan said that operations other than tonsillectomy appeared to have no bearing on the incidence of paralysis. There were contradictory statements about dental extractions. He thought it wise to isolate operation patients on general epidemiological grounds.

Dr. Alison Glover quoted an instance in which fatal bulbar paralysis developed after dental extractions. He agreed that cubicles were most desirable for tonsil cases but thought that this measure would not prevent poliomyelitis from developing in cases in which there was a latent infection.

## SECTIONS OF MEDICINE AND SURGERY

Thursday July 1

### Surgery in Hypertension

With Professor John McMichael (London) in the chair Dr. R. H. Smithwick (U.S.A.) opened a discussion on the indications for and results of surgery in hypertension and reviewed 256 cases followed for five to nine years. He said that most of the patients were treated by bilateral thoracic lumbar ganglionectomy with removal of the sympathetic chain from the eighth thoracic to the first lumbar ganglia inclusive and of the splanchnic nerves arising from that segment. Total thoracic (T2 to L1) and total (T2 to L3) sympathectomies were reserved for patients who had angina or unusual tachycardia in addition to hypertension, in order to denervate the heart as well as the splanchnic bed. The advantage of the thoracic lumbar operation was that it permitted inspection and biopsy of the kidneys and examination of the adrenals. An adrenal tumour causing continuous hypertension was found in 5% of cases. The operation was performed in two stages the second side ten days after the first. The operative fatality rate was 2% with only a slightly higher rate in males than in females. In the series 40% of the patients were males and the ages varied from under 10 years to over 60. Nearly 90% of the patients were between 20 and 49 years of age. Thirty-one per cent of all patients died 5-9 years after operation. The 5-9-year mortality rate was specially high in patients under 20 and over 50 years of age but the numbers in these groups were small and the figures probably not significant. The mortality rate varied also with the severity of the hypertension as measured by the

diastolic pressure in recumbency, 65% of the patients with a sustained diastolic pressure of more than 140 died in the 5-9-year period. The mortality rate bore a direct relation also to the state of the cardiovascular system.

No patients whose hypertension had been complicated by congestive heart failure and poor renal function had survived nine years. Of the patients who had had congestive heart failure or poor renal function 53% died. Of those who had suffered cerebral incidents 39% died, and of patients with retinal haemorrhages and exudate and papilloedema 25-30% died. The causes of death in the 80 fatal cases had been cerebral accidents (48%), cardiac complication (23%), renal failure (16%), unrelated (10%), and unknown (4%).

The effect of the operation upon the various vascular areas after 5-9 years was as follows: (1) The retinal changes had been improved in 40%, unchanged in 39%, and worse in 20%. (2) The cardiac function, as measured by electrocardiogram, had been better in 42%, unchanged in 49% and worse in 9%. (3) The renal function had been improved in 29%, unchanged in 61%, and worse in 10%.

The effect upon the diastolic pressure had been classified also. A marked effect had been a fall of 20 or more to below 90, a moderate effect had been a fall of 20 or more to less than 110, a slight effect had been a fall of 10-19 to below 110. In the first five-year period after operation there had been a marked fall in diastolic pressure in 35%, a moderate fall in 29%, a slight fall in 20%, no significant change in 11%, and an elevation in 5%. In the 5-9 year period these figures had been 21, 13, 13, 36 and 17 respectively. In other words, half the patients who seemed to be improved during the first five years after operation returned to the pre-operative level or higher in the second five years.

He had attempted to assess the mortality of untreated hypertension but had met great difficulty in doing this because of the variations in age and severity of disease from series to series. In a Swedish series 28% of untreated or medically treated patients had died in 4-11 years, in a Mayo clinic series 91% Dr. Smithwick and Dr. Paul White had compared two series treated and untreated, grouped according to fundus changes. The mortality was substantially lower in all the surgically treated groups. A similar benefit had been shown to be attained in the electrocardiograms.

Dr. Horace Evans (London) said that Dr. Smithwick had given a masterly review of his considerable experience of the subject. There was still a great lack of control data on which to assess the results of surgery. Bright had suggested that arterial hypertension was always a result of disease of the kidneys, later Allbutt had pointed out that many cases had no evidence of kidney disease and finally Goldblatt had shown that renal ischaemia induced hypertension. He thought now that there was a clinical subdivision into essential and renal hypertension. In benign essential hypertension the cause of the disease was quite unpredictable and in those cases it was difficult to evaluate the results of surgery. Women tolerated the disease better than men. In malignant and renal hypertension the cause was more certain and that sympathectomy operations had an effect could not be doubted if the evidence of the hypertensive retinitis alone was considered.

Subsidence of the eye changes after the operation was sometimes quite remarkable. At the London Hospital at first only the most severe cases were operated on and it was hoped that renal changes might be reversible. However it was found that a blood urea over 100 mg per 100 ml was a contraindication. Cardiac asthma was also an absolute contraindication. It was important that pre-operation assessment should be as complete as possible and be based on data including a diagram of the eye-fields, cardioscopy and electrocardiograms and estimation of cerebrospinal fluid pressure. The physician would tend to choose the patient who showed unmistakable progressive hypertensive disease with cardiac stress and even early renal damage, into which group came some cases of Bright's disease, but the surgeon would wish to operate before there was irreversible arterial change. In spite of all these difficulties and although he regarded the operation as a formidable procedure he was sure it was worth attempting in younger patients where the prognosis without operation was certainly unfavourable.

Mr. D. W. C. Northfield (London) analysed a series of 46 patients followed for upwards of six months. In the first few

years most of the patients had had malignant hypertension, subsequently benign cases with retinal changes, cardiac disturbance, or high diastolic pressure had been more commonly submitted to operation. More recently still, operation had been afforded to patients with chronic nephritis who had a high and rising blood pressure but no renal failure. In all cases asthma was a contraindication but infarction was not. A blood urea of over 100 mg per 100 ml was held to contraindicate operation except in patients of the nephritis group.

Forty-six patients were submitted to operation, there were eight operative and ten later deaths. The results were much worse in males than in females. Though there was frequent systemic relief, the effect on the blood pressure was disappointing, and the only objective improvement was in the fundi. Fundus changes, if present, resolved in all patients surviving three months, though in two of these patients dying later the fundus changes returned before death.

Dr Rae Gilchrist (Edinburgh) said hypertension was the greatest medical problem of the day, being four times more common than cancer. He reviewed a group of 80 cases treated by medical means and followed up to five years and compared them with 42 patients treated surgically and followed for 8½ years. They were compared symptomatically and by repeated observations of the diastolic blood pressure, and by both methods the progress of the surgical cases was the more favourable. People with a diastolic pressure over 120 were not greatly influenced, and it was in the lower ranges that the very good results were obtained. He also spoke of a group of 30 cases of malignant hypertension followed for a period of two years. Twenty who had not been operated on were all dead, whereas of 10 treated by sympathectomy eight were alive, and one man who four years before had had papilloedema and could not work was now well and working and had married and had a son.

Dr William Evans (London) thought it important to define hypertension, and suggested that the systolic blood pressure should be over 180 or the diastolic over 110, taken on at least three occasions. He also thought that before a patient had the operation the electrocardiograph should show a low T wave or inversion of the T wave, with RT depression in leads I and CR7. There was a great deal of invalidism caused by people being told they had hypertension which did not come up to these criteria.

Mr F E Stock (Liverpool) said that the only hypertensive patients treated by splanchnicectomy in the surgical professorial unit at Liverpool who showed permanent improvement were those whose hypertension appeared to have originated in pre-eclampsia. The blood pressure in pre-eclamptics had been found to fall sharply after splanchnic procaine block, but it had not been found possible to effect a permanent reduction by alcohol or "procaine" block. Tetraethyl ammonium bromide given intravenously had had the same vasodilator effect as procaine block, but repeated intramuscular injections had been ineffective. Splanchnicectomy therefore seemed justifiable in patients with hypertension, particularly if performed in the second trimester, since post-operative miscarriage seemed a lesser risk than spontaneous miscarriage if the disease was allowed to proceed. Splanchnicectomy seemed specially justifiable in young female hypertensives, even in the absence of symptoms, with the hope of permitting pregnancy to go normally to full term.

Mr A Dickson Wright (London) advocated extensive bilateral sympathectomy by the transpleural route.

Dr Smithwick in reply repeated his conviction that more benefit was obtained by a thoracic lumbar sympathectomy (T8 to L1) than by a more extensive operation. A lower dissection was apt to be followed by severe postural hypotension and tachycardia. The lumbar chain was removed only in a few patients who had an unusual fall in the diastolic pressure in recumbency. Malignant hypertension even, in males though not in females was sometimes associated with a return to a normal diastolic reading on recumbency. Total thoracic sympathectomy was reserved for hypertensives with tachycardia, but even in these it was unnecessary to dissect higher than T2 for a denervation of the heart. Three patients submitted to total sympathectomy had been badly incapacitated for years by postural hypotension.

To prevent cerebral and cardiac complications of operation he emphasized the importance of replacing the blood lost in mediastinal haematomas and pleural exudates, to determine this loss a haematocrit reading on the third day was invaluable. In hypertensive patients the presence of a pheochromocytoma of the adrenal was sometimes suggested even before operation by (1) severe postural hypotonia (as great almost as it usually is after operation), (2) tachycardia, (3) a basal metabolic rate of more than +20%, (4) unusual twitching, (5) hyperthermia or episodic pyrexia, and (6) pronounced response to the new adrenolytic agents—DHK and benzodioxane, for example—which afforded a safer index of hyperadrenalinism than histamine injection did.

Dr Horace Evans in reply said that Dr Smithwick's reference to suprarenal tumours emphasized the need for accurate clinical assessment. He felt that Dr William Evans's figures were too high and that he would not like to have a blood pressure of 180/110. He thought that the results of sympathectomy on patients whose hypertension developed during pregnancy were dramatic.

## SECTION OF MEDICINE

Friday, July 2

### Macrocytic Anaemias

With Dr Branford Morgan (Norwich), a vice-president, in the chair Sir Lionel Whitby (Cambridge) read a communication on 'Pernicious Anaemia' from Professor George R Minot (Boston, U.S.A.), who was to have opened the discussion but was prevented by illness. He said that the control of the hitherto fatal disease pernicious anaemia, which had been achieved in 1926 had happily abolished a dreadful urgency for discovering its cause. Soon thereafter a relationship of pernicious anaemia to defective digestion, surmised many years before by Coombe and by Austin Flint, had been established by Castle and his associates. This conception of a conditioned deficiency disease due to a specific disturbance of the gastric secretion and to defective absorption by the alimentary tract had been extended to include such macrocytic anaemias as those of sprue and of pregnancy. Recently von Bonsdorff had shown that the broad tapeworm might induce pernicious anaemia in persons already on the threshold of that disease apparently by inhibiting the scanty supply of enzyme remaining in their depleted gastric secretions. A few years ago Lucy Wills had shown that many patients with tropical macrocytic anaemia failed to respond to purified liver extracts of great potency. Because of the satisfactory response of these patients to relatively crude liver extracts it had then become clear that at least two substances active in human nutritional macrocytic anaemias, including pernicious anaemia, were present in mammalian liver.

The failure of early workers to isolate the active principle of liver had remained for twenty years a tantalizing challenge. Then quite unexpectedly a growth factor for the *Lactobacillus casei* synthesized by Angier and his colleagues, had been discovered by Spies and his associates to be an active haematopoietic substance in pernicious and related macrocytic anaemias. Surprisingly enough, this substance, pteroylglutamic acid, was virtually lacking in purified effective preparations of liver extract, and to date, despite the acquisition of much knowledge of its natural occurrence in conjugated forms in food, the relationship between their precursors and the active principle of liver extract and pteroylglutamic acid had not been elucidated.

Guided by the discovery of Shorb that *Lactobacillus lactis* *Dorner* required a growth factor present in commercial liver extracts, Rickes and his associates had recently announced the isolation from liver of a substance crystallizing as small red needles and had designated it vitamin B<sub>12</sub>. That material, according to clinical tests conducted by West, had been found to be haematopoietically active in pernicious anaemia in a single intramuscular injection of as little as 3 µg. Because of its extraordinary potency it could scarcely be doubted that that substance was in fact the active principle of liver effective in pernicious anaemia.

The paradox of the increased output of bile pigment despite convincing evidence of partial-maturation arrest of delivery of red cells to the circulation was well known. By feeding glycine containing isotopic nitrogen to a patient with pernicious

anaemia London and his associates had shown that in the first week of the observation about 50% of the isotopic nitrogen absorbed appeared in the stercobilin of the faeces. Because during this period few if any of the newly formed red cells of the peripheral blood containing isotopic nitrogen in their haemoglobin had been destroyed, those new facts were satisfactorily consistent with Whipple's surmise of a quarter-century ago that in pernicious anaemia stercobilin might be derived to a considerable extent from haemoglobin precursors before their incorporation into circulating red cells.

Sir Lionel Whitby then opened the discussion with a paper on 'The Modern Management of Macrocytic Anaemias'. The diagnosis of macrocytic anaemia was made by the integration of the laboratory work of the haematologist with clinical observation. Megalocytic anaemia arose from a megaloblastic erythropoiesis in the bone marrow, but it was not the only cause of macrocytosis. The methods of assessing macrocytosis were (1) colour index (but a colour index of less than 1 did not mean there was no macrocytosis), (2) halometry, which was unreliable when there was much anisocytosis, (3) the look of the film, which was only of value to those with great experience, (4) the Price-Jones procedure, which was an academic labour, and (5) undoubtedly the best method, the volume determination by Wintrobe tube. The proof that a megaloblastic marrow was present could be obtained by sternal puncture.

Macrocytic normoblastic anaemias occurred after acute blood loss, with disturbance of liver function, acute haemolytic anaemia, scurvy, myxoedema, steatorrhoea, and refractory anaemias due to toxic factors. It might also appear in primary dyscrasias such as leukaemia. In minor degrees it was present in subacute and chronic haemolytic anaemias, where a reticulocytosis in the circulating blood also occurred, and in acidosis such as that caused by renal failure.

With regard to treatment, there were available crude, purified, concentrated, and proteolysed liver extracts and folic acid (pteroylglutamic acid). Each served its own purpose. Folic acid was of use in sprue, nutritional anaemias, and anaemias of pregnancy, it also had effect in Addisonian anaemias, but large doses often precipitated neurological symptoms. Liver, on the other hand, had a well-balanced action, though the mode of action of all the preparations was not clear. Clinical experience rather than pharmacological considerations should decide which preparation was used.

Professor J. F. Wilkinson (Manchester) said that in 19 years he had treated 1,600 cases of pernicious anaemia—68 before liver had been in use, of which 59 died within one year; 441 with stomach preparations, 513 with liver preparations, and 546 with both. In this series 301 had died with the usual diseases from which people of their age group suffered, only 47 being within a year of treatment, 100 of the living were quite well over the age of 80. He stressed the importance of diagnosis, which must precede treatment. Sufficient dosage and regular blood counts were essential. It was necessary to make sure that the extract was potent, since extracts were now made from livers which had been rejected as unfit for human food. Stomach preparations were better for cases that had spinal-cord changes since they provided more of the principle and an ounce of protein as well. Folic acid had an extraordinary effect in bringing on acute cord symptoms, sometimes within 14 days. He had treated 20 patients with it, and 15 had developed these symptoms of 184 cases described in the literature; 66 had developed them. Small doses of the drug might not maintain the blood improvement.

Dr C. C. Ungley (Newcastle-upon Tyne) said that a red crystalline material isolated from liver by Lester Smith seemed identical with the vitamin B<sub>12</sub> of American workers. The isolation of this substance had involved parallel clinical tests in over 100 patients with pernicious anaemia. The intramuscular injection of single doses of 10 µg had been followed by maximal reticulocyte responses and a rapid increase of red cells. The red crystalline material itself had not been used long enough to permit assessment of its value in subacute combined degeneration. Preliminary observations had been made in cases of subacute combined degeneration using red pigmented material containing colourless impurities. The rate of improvement in four cases had paralleled that seen in patients with crude liver extracts. The molecular weight of this substance was about 1,500.

In megaloblastic anaemias other than Addisonian anaemia the material would not necessarily prove effective. Thus, in a patient with megaloblastic anaemia of pregnancy there had been no response to the equivalent of 65 µg although the patient had subsequently responded to 2.5 mg of folic acid daily. The availability of the anti-pernicious anaemia factor in a crystalline state would aid in disentangling the other haematopoietic factors present in yeast and crude liver extracts.

Dr R. R. Bomford (London) said that the macrocytic anaemias associated with hypothyroidism still caused mistakes in diagnosis and management. The uncomplicated anaemia of hypothyroidism was never severe. The cells were enlarged, but there was no anisocytosis or poikilocytosis. The yellowish tint sometimes seen in the skin and in the plasma was due to lipochromes, which were soluble in petroleum ether, and not to bilirubin, which was soluble in alcohol. Free acid might be present in the gastric juice. That anaemia responded very slowly to thyroid alone, and iron and liver were of no value. Sometimes hypothyroidism was associated with iron deficiency or with liver-factor deficiency, and in the treatment of these anaemias thyroid and iron or thyroid and liver extract, as the case might be, were necessary to produce a complete remission. When the clinical features of myxoedema were not prominent the uncomplicated anaemia of hypothyroidism might at first sight be taken for true pernicious anaemia. Mistakes could hardly occur, however, if proper investigations were made and the characteristics of the uncomplicated anaemia of hypothyroidism noted above were kept in mind.

Professor D. F. Cappell (Glasgow) stressed the superiority of marrow section over the smear method of examining sternal puncture material.

Sir Lionel Whitby in reply thought that the kernel of the discussion was accurate diagnosis, and if this was not made at the outset the picture was for always obscured.

## SECTION OF SURGERY

Friday July 2

### Carcinoma of the Breast

With the vice president Mr P. H. R. Ghey (Cambridge), in the chair, Sir Cecil Wakeley (London) opened a discussion on carcinoma of the breast. He recollected that 7,500 women died yearly in England of this disease and that the presenting symptom was usually swelling or pain. Age was important in prognosis. Modern researches had demonstrated the fallacies in the older conceptions of lymphatic drainage from the breast. There appeared to be no grounds for the opinion that extension could occur from the axilla to the neck, the supraclavicular lymph nodes were affected only by way of intercostal and internal mammary lymphatic routes. It was wrong to believe also that drainage from the inner half of the breast was to internal mammary nodes in the upper spaces only; intercostal metastases were often found as low as the sixth intercostal space. Discussing the earliest signs of breast cancer he stressed the significance of a small swelling.

He preferred deep x-ray therapy as an adjuvant of operation rather than radium application. He then described the operative details of a modified Halsted operation. The clavicular head of the pectoralis major was left intact since it afforded a screen for the axillary vein and prevented haematoma formation in the axilla. Post-operative bleeding was also reduced if the pectoralis minor was divided through its avascular tendinous insertion in the coracoid process rather than through its muscle fibres.

Nine cases of carcinoma of the male breast presented showed the retraction of the nipple which could occur in the male as in the female breast and revealed the relatively high malignancy of cancer of the breast in males. Sir Cecil Wakeley concluded with a plea for standardization of x-ray therapy throughout the country. Dr Frank Ellis (London) argued against the insertion of radium needles in the axilla and intercostal spaces, and proceeded then to consider the figures presented elsewhere by Dr McWhirter. He questioned whether the Edinburgh cases treated in the second series (local mastectomy and x-rays) were quite comparable with the earlier series (radical mastectomy).

and x rays), the numbers were so much smaller in the former that certain Stage I cases may not have been referred for radiotherapy, with consequent reflection on the value of the more radical treatment. Dr Ellis then showed by his own series from Sheffield on the one hand and the London Hospital on the other how seriously different local circumstances could disturb statistical results.

Mr J B Oldham (Liverpool) urged the need for biopsy in any case of doubtful swelling in the breast of a woman over the age of 20. He had tried many methods of treatment in a long surgical career and had become confirmed in his attachment to radical mastectomy. He avoided the operation in lactating or pregnant women in the presence of lymphoedema of the arm or of a large area of skin, and in the presence of supraclavicular swelling. Relatively localized cutaneous oedema, or attachment of glands to skin, or fixation of glands, or ulceration of skin was not, if alone, a contraindication to radical operation, but the presence of any two of these made operation of doubtful value. Like Sir Cecil Wakeley, he restricted his dissection to the area below the artery and vein, since no nodes lay above them, the sole exception to this being a few lymph nodes around the thoraco acromial axis. Radiotherapy was of value as an adjunct to surgery in all cases and as an alternative to surgery in late cases but it must not replace surgery to any greater extent than this.

Mr R L Holt (Manchester) discussed the limitations of the methods of treatment now at our disposal. Little reduction of mortality had occurred since Halsted. The Manchester method of purely clinical classification had disadvantages, 40% of Stage I cases were later apportioned by the histologist to Stage II, some 30% of Stage II to Stage I. Comparison of figures from different centres was made difficult by differences in classification.

The results of radical surgery plus post-operative radiotherapy were illustrated by 640 cases. Of these 50% were alive after five years, and 42% free from recurrence. In the performance of the radical operation Mr Holt advised the use of thin skin-flaps. The results of radiotherapy alone were not so good as those of surgery. In 111 cases treated by pre-operative irradiation subsequent histological examination showed the presence of active cancer cells in the tissue removed at operation. Deep x-ray therapy could be regarded as no more than a holding method of treatment.

Recorded results of certain American centres were then discussed. Upwards of 75% of five-year cures might be expected from radical operation and post-operative radiotherapy in Stage I tumours. From the surgical point of view there were disadvantages in pre-operative irradiation, the chief of which were delayed healing, postponement of operation, and a relatively slightly increased difficulty in operative technique because of loss of elasticity in the skin. Radium was more effective than deep x-ray therapy in killing cancer cells, but more difficult to manage. In a series treated at Manchester by Keynes's radium method the results in Stage I cases were not so good as those of radical surgery, the method was used now in cases considered unsuitable for radical mastectomy. In Stage III cancer operation must be regarded as the handmaiden of surgery.

The oestrogen and androgen drugs were not in any way curative of cancer, there was no record of a cure from either. Testosterone was preferable in pre-menopausal cases, oestrogens in post-menopausal. Improvement could be expected in only 20%. At the Christie Institute Stage I cases were treated by radical amputation alone. Stage II and Stage III cases were having pre-operative irradiation, and radical amputation as soon as possible thereafter. Stage IV cases were radiotherapeutic problems, surgery being employed only as an ancillary measure. Lieut Col W L Harnett (London), statistical secretary of the British Empire Cancer Campaign, reported a survey he had performed for the BECC of 15,200 cases of cancer treated in all London hospitals, voluntary and municipal, over a period of 18 months in 1938-9. Of these, 2,129 were cases of primary cancer of the female breast, and 23 were of primary cancer of the male breast. These had now been followed up for five years. The operation mortality was 3.1%. Only 53 patients (3.9%) were untraced. The growth was confined to the breast with no involvement of lymph nodes in 22.8%, lymph nodes were involved in 21.9% there was infiltration of skin or muscle

(with or without lymph-node involvement) in 35.7%, and distant metastases or enlarged supraclavicular nodes were present in 17.1%. Seven hundred and three patients were treated by radical mastectomy alone, the operative mortality in these was 3.1% and the five-year survival rate 47.6%.

When the cases were subgrouped into stages there was a five-year survival rate of 68.2% in Stage I, 43.6% in Stage II, 59% in Stage III with lymph-node involvement, and 25.6% in Stage III without it. Radical mastectomy was combined with radiotherapy in 393 cases, only 39.9% of these survived five years. Of 133 patients treated by local mastectomy alone, the five-year survival rate was 40.6%—59.6% for Stage I and 19% for Stage III. One hundred and seventy-five patients were treated by radium, with or without surgery, and 63.4% of these survived five years.

Mr R Sampson Handley (London) described his attempt to detect early internal mammary lymph-node involvement. Internal mammary biopsy was performed in 31 cases. These lymph nodes were found to be involved in 16 cases, sometimes even from tumours in the outer half of the breast. In a proportion of these positive biopsies the axillary nodes were not invaded, and intercostal biopsy thus served to separate from cases in Stage I a few in which radical operation could not be expected to succeed.

Mr G E Moloney (Oxford) urged the need for earlier diagnosis and affirmed that any woman over the age of 30 who harboured a swelling of the breast for over a month must be regarded as suffering from carcinoma.

Mr J R A White (Birmingham) made a plea for hormone therapy. He recorded the case of a patient 34 years old who had reported last August with a four-year-old breast cancer adherent to the skin and chest wall, and with multiple skeletal metastases. Bilateral oophorectomy had been performed, and two months later she could walk again, the breast tumour had regressed, and recalcification had been obvious radiologically in the skeleton. The breast had been removed by radical mastectomy and the area treated by x-rays. Improvement had continued to date, and the affected bones were now, 10 months later, completely re-consolidated and the patient had returned to work, though of course cure could hardly be expected. Other late pre-menopausal patients had been relieved of pain immediately and completely by testosterone.

Professor Ernest Finch (Sheffield) had been distressed always by the pain and disability of late breast cancer, the treatment of cancer of the breast did not cease after operation. He had recently had experience of the complete relief of skeletal and brachial plexus pain by the operation of leucotomy.

Sir Cecil Wakeley, replying, accepted that internal mammary deposits might explain some of the five-year recurrences after the radical operation for Stage I cancer but not for all of them, many must be due to blood-borne metastases.

## COMBINED MEETING OF THE SECTIONS OF ANAESTHETICS AND OBSTETRICS AND GYNAECOLOGY

Thursday July 1

### Analgesia in Midwifery

The president of the Anaesthetics Section, Dr Z Mennell (London), took the chair and opened the proceedings by defining the scope of the discussion. It was important at the outset to define terms and to differentiate between institutional and domiciliary practice. After a plea that chloroform should not be neglected he called upon Professor W C W Nixon (London) to open the discussion.

Professor Nixon said that the ideal type of analgesic for labour had yet to be found. The method must not endanger the life of the mother or child. Asphyxia neonatorum was still too often due to the analgesic or anaesthetic used. At University College Hospital Dr Shila Ransom was in sole charge of the analgesia in the department and with a research team was investigating all the new drugs. He strongly recommended that new drugs should be tried first on human volunteers and their effect on the respiration noted before giving them to women in labour. Pethidine took first place among the drugs at present available. After a study of 500 cases it had been found that 150 mg injected intramuscularly gave relief from pain

without respiratory depression in the baby. Any increase in this dose tended to cause such depression. The use of chloral hydrate, the bromides, barbiturates, and omnopon and scopolamine was reviewed. Anoxia at birth might give rise to an impaired IQ later in life. The action of drugs on the uterine contractions must be considered, and there was now an apparatus which would measure the amplitude and frequency of the contractions. Finally, the better the preparation given to expectant mothers for childbirth the less analgesic would be required. Pre-natal explanation and training should be obligatory.

Dr P J Helliwell (London) reviewed the results of the work he had carried out with Dr Hutton as research fellows of the Association of Anaesthetists of Great Britain and Ireland. He said that very satisfactory analgesia could be produced with nitrous oxide and oxygen and by the portable gas-and-air machine devised by Minnitt. Chloroform could not be administered by midwives, and in this respect trichlorethylene was not without danger. None of the inhalers available for the vaporization of the latter substance could really be depended upon to give a constant strength of vapour. Patients might pass into anaesthesia and must be supervised. A very efficient analgesia using a high percentage of oxygen could be achieved by the inhalation of 5% cyclopropane and oxygen. In America rectal ether took the place of gas and air in this country.

Dr A M Hutton (London) discussed the signs of overdosage with trichlorethylene, mentioning cardiac arrhythmia and tachypnoea. An investigation had been undertaken in sixteen hospitals throughout the country on the efficacy of trichlorethylene and its safety for domiciliary use. This investigation was undertaken under the auspices of the Royal College of Obstetricians and Gynaecologists. A total of 2,354 cases had been reviewed. All had used Freedman's inhaler, and 90% of the patients had had satisfactory analgesia. No increase in the number of cases requiring instrumental assistance had been observed, and it was clear from this survey that trichlorethylene was better than gas and air if the analgesia was started late in labour or without preliminary instruction. Trichlorethylene crossed the placental barrier, but there had not been any increased incidence of asphyxia neonatorum, except when it was used with other analgesics.

A long discussion followed. Dr G S W Organe (London) pleaded that an anaesthetist should supervise the analgesia in departments of obstetrics. No baby need die from asphyxia neonatorum, since all that was needed was oxygen and artificial respiration. He deprecated the use of undiluted carbon dioxide, which was dangerous and had probably asphyxiated many newborn babies; the mixture with oxygen was extremely valuable. Dr C G Roworth (Swindon) stressed the importance of gaining the complete confidence of the patient. This was not always achieved in the larger clinics. Morphine should not be withheld, especially to ensure rest at night. Mr F R R Martin (Bradford) liked to use chloroform with a Junker inhaler, in his hands this had always proved satisfactory, portable, and convenient.

Mr J H Peel (London) stated that no analgesic gave such complete freedom from pain as caudal anaesthesia. He was pleased to hear that anaesthetists no longer regarded the technique as difficult. In primigravidae its use was contraindicated because of the increased incidence of forceps deliveries, but in multiparae and for obstetrical manipulations and operative procedures it was most useful. He was sorry that this country seemed to be lagging behind America in the use of this method. Dame Louise Mellroy supported Professor Nixon in his demand that only the best anaesthetists should deal with obstetrical cases. She gave 10-15 gr (0.65-1 g) chloral each night for a week before labour, as she felt that this helped to relax the cervix. The psychological preparation of the patient was important. The most painful stage was at the end of the first stage and it was then that analgesia must be used. Dr G G Lennon (Oxford) read a short note from Professor Chassar Moir's department describing a new machine designed by Mr A Warming, of Copenhagen. This machine had been in use in Denmark for years. It delivered 80% oxygen and 20% nitrous oxide. In the Radcliffe Infirmary it had been used in 60 cases with good results. Dr G F Rawdon Smith (Liverpool) said that women generally should be taught not to terrify intending primiparae with descriptions of their confinements.

Dr H N Gregg (Coventry) felt that the obstetric education of the patient should start not with her pregnancy but at puberty.

Dr H P L Ozorio (Hong Kong) regarded the women of the Western world as spoilt. The Chinese mother was more phlegmatic and made a good patient. It was important to consider the psychological make-up of patients when discussing analgesia. A mother who heard her baby cry seldom had post partum haemorrhage. Dr Edith Gilchrist (London) noted a discrepancy in the findings with hysterography as between Nixon and Bourne. Unlike Professor Nixon, the latter found that nitrous oxide actually increased the uterine contractions.

## SECTION OF-OBSTETRICS AND GYNAECOLOGY

Friday, July 2

### Third Stage of Labour and its Complications

With Professor Hilda N Lloyd (Birmingham) in the chair Dr J D S Flew (London) opened the meeting by saying that it was his desire to be provocative in his remarks and to put forward the following questions: (1) Should the obstetrician's or midwife's hand be placed on the fundus of the uterus during the third stage of labour, and, if so, how should it be placed? (2) In third stage haemorrhage should the use of ergometrine be advised, especially for midwives? (3) Was bimanual compression of the uterus possible per abdomen? (4) How long should the third stage of labour be allowed to continue in the absence of haemorrhage?

Dr Flew reviewed the physiology of the normal third stage and said that it appeared that the primary factor causing placental separation was at a maximum at the moment of expulsion of the baby's body, and that the time which lapsed before we considered the placenta ready for expulsion was concerned with the action of the secondary powers and the separation of the membranes from the uterine wall. A badly conducted third stage could cause post-partum haemorrhage, the bad conduct consisting usually in feeble attempts to express the placenta by massage and the pushing of the uterus downwards. This downward pressure of the uterus was considered to be dangerous possibly by its action of causing uterine engorgement. If the uterus was to be touched at all it should be held with a wide grip suprapubically and, if anything pushed upwards rather than downwards. It was suggested that the midwife should not be discouraged from using ergometrine as the danger of a constriction ring was more apparent than real. Midwives in all districts should be allowed to carry ergometrine in their bags.

Bimanual compression of the uterus after removal of the placenta was possible with both hands on the abdomen, a broad suprapubic grip on the uterus was maintained while the other hand was placed on the posterior wall of the uterus per abdomen. Unless the patient was grossly fat it was surprising how efficiently the placental sinuses could be compressed by this method. In the absence of bleeding, and if the third stage of labour had been well conducted the placenta should be removed within one hour of the baby's birth. Properly conducted bimanual removal of the placenta was not a dangerous operation. Dr Flew warned against holding the baby high above the level of the mother before clamping the cord since by doing that it was possible to transfuse the placenta with baby's blood.

Professor H L Sheehan (Liverpool) pointed out that his remarks dealt with the failures in treatment and not the successes. The cases he mentioned were those dying following retained placenta, or as a result of post-partum haemorrhage in the fourth stage, apart from cases of ruptured uterus, serious lacerations, etc. Two thirds of these patients died from haemorrhage and shock in the first 12 hours after delivery, and the other one-third recovered temporarily but died later in the puerperium.

There were four main groups of cases of retained placenta: (1) Placenta separated completely but held *in utero* by a constricting ring—not usually a sufficiently serious condition to be a cause of death. (2) Placenta not separated though normally attached to uterus. One part, the lower was usually separated and had caused considerable haemorrhage. There was no anatomical reason for the retention, since the remainder of the



placenta easily separated. The cause appeared to be poor retraction of the uterus. (3) Placenta morbidly adherent at one or two places, due to structural abnormality of the attachment. Usually in this type of case a piece of placenta was retained *in utero*. (4) Placenta morbidly adherent all over—placenta accreta.

There were three factors to be considered in cases of death (usually within eight hours of the birth of the baby) due to retention of the placenta—namely, blood loss, traumatic shock due to the manner of removing the placenta, and the length of the third stage of labour. Blood transfusion was of no value in cases of shock without loss of blood. Obstetric units where active interference in the third stage was the treatment enforced had been compared by Professor Sheehan with units where no interference was countenanced, and the results showed little or no difference. Most of the deaths were of patients left for three to seven hours with the placenta *in utero*.

Dr P. L. Mollison (London) discussed the rhesus factor, the importance of transfusing women with Rh negative blood and of treating immediately haemolytic disease of the newborn. It had been shown that infants born to women who had been sensitized as a result of blood transfusions were more severely affected than the average and in fact had a mortality rate of approximately 50%. When an Rh-negative woman in whose serum anti-Rh had been found went into labour it was important that facilities for treating the baby were prepared. Since a proportion of these infants were in a critical condition at the moment of birth it was a wise precaution to have ready an oxygen tent in which the infant could be placed immediately after birth.

Opening the general discussion Mr F. R. Stansfield (Ipswich) made a plea for the planned use of the abundant knowledge we already possessed. He had investigated ten deaths due to post-partum haemorrhage, and had found that in each and every case the fatal outcome was due primarily to delay. He outlined a set plan of campaign for treating such cases. Dame Louise McIlroy (London) was of the opinion that slow extraction of the baby's head (up to 20 minutes) and slow extraction of the placenta when separated were important steps in the conduct of labour. She advocated a suprapubic pad with a many-tailed binder in the treatment and prevention of post-partum haemorrhage. Mr G. G. Lennon (Oxford) illustrated important steps and dangers to be avoided in manual removal of the placenta. He stressed the necessity for getting to the fundus of the uterus as a first step in order to diagnose constricting ring, and to begin separation from above downwards so that the uterus might retract down on the sinuses opened up. Other speakers advocated early manual removal of the placenta while the woman's condition was good.

Dr Flew, in summing up, said that there had been a great measure of agreement on the necessity for using oxytocic drugs and early manual removal of the placenta in the treatment of post-partum haemorrhage.

## SECTION OF DISEASES OF THE CHEST

Thursday July 1

### Upper Respiratory Disease and Certain Lung Conditions

With the president, Dr R. R. Trail (London), in the chair, Dr W. Paton Philip (Cambridge) opened the discussion by stressing the essential unity of the upper and lower respiratory tracts in relation to diagnosis and treatment of respiratory diseases. Certain broncho-pulmonary conditions were described which coexisted with or might be ascribed as due to infections of the upper respiratory tract, including especially the paranasal sinuses. The pulmonary conditions were often transient, but were frequently recurrent unless efficient and often prolonged treatment was directed to the paranasal sinus infections. Co-existing pulmonary conditions were largely or most frequently due to lobar collapse or atelectasis, lobular collapse, broncho-pulmonary segmental collapse, or partial deflation by bronchial emboli. Examining doubtful radiological shadows in the lung they should remember that the aphorism of Twining "Think atelectasis," was sound doctrine. Radiological investigation should include the lateral and lordotic views.

The site of election was in the lower lobes and right mid-lobe, as opposed to the upper lobes. Pulmonary abscess with

"pneumonitis" in this series was conspicuous by its absence. Tuberculin testing in the case of children in the series had given consistently negative results. His study was based on personal experience extending over 25 years, and included 372 cases annually occurring among an annual average attendance of 2,375 new cases referred to an out-patient chest clinic for opinion by general practitioners, school medical officers, and ENT surgeons. Sinus infection, with resulting atelectasis, if not relieved may prove to be the forerunner of frank bronchiectasis.

Dr R. R. Trail emphasized that lung abscess was not found associated with paranasal sinus infection. Dr F. H. Young said that he found lipiodol in a paranasal sinus immediately after a bronchogram had been made. There was evidence to suggest that, as the paranasal infection might cause the lung infection, so an established lung infection might cause or prolong a paranasal infection. In reply to a question by Dr Young, Dr Paton Philip said that in routine examinations it was sufficient to x-ray the frontal sinuses and antra.

Opening a discussion on "The Present-day Treatment of Pneumonia," with Dr F. H. Young (London) in the chair, Dr Lindsey W. Batten (London) asked whether, treatment apart, lobar pneumonia was the disease it had been 30 years ago? Had it, before chemotherapy, already become, like some other acute infectious fevers, a disease of waning intensity?

Before the day of chemotherapy the problem had been not to cure a self-limited disease but to sustain the patient's resistance until he had recovered. The length of the course had been all-important, exhaustion the danger most feared. Rest, nourishment, and economy of exertion had been first objectives, and expert nursing in hospital the obvious means to their attainment. Chemotherapy, by greatly shortening the course of fever and toxæmia, had largely eliminated the danger of exhaustion in those not handicapped by age or serious incidental disability. Home, not hospital, might be the place of choice and the management of pneumonia at home thus assumed a new importance.

Many details of management were still open to discussion—e.g., temperature of room and relative importance of ventilation and warmth, the allocation of priority among sleep, food, and drugs, hot, tepid, or cold water for sponging, the patient's position in bed, the drugs for relief of pain and cough, for sleep, and as aperients, the usefulness or futility of poultices, the place of oxygen and of cardiac or respiratory stimulants in treatment. Chemotherapy was not standardized. No close agreement appeared between recent authorities on the choice or dosage of sulphonamides, the precise place of penicillin in treatment and even the method of administration had probably still to be determined. Finally, the considerable minority of pneumonias benign or virulent, untouched by chemotherapy must not be forgotten.

Dr F. H. Young produced evidence, based on the number of cases referred to a consultant, which suggested that pneumonia had begun to decrease in clinical severity before the use of sulphonamides. It appeared that one did not see now the classical type of lobar pneumonia.

Dr R. R. Trail said that any statistics of pneumonia in general practice must depend on two main factors—the prevalent infections in the doctor's area and the criteria he set up for treatment at home as against treatment in hospital. There was a definitely improved prognosis of all forms of pneumonia since the introduction of the sulphonamides, moreover, these agents were now given in most cases in the earliest possible stages, and it might well be that many of the so-called non-bacterial types were arrested developments of what would have proceeded to a full-blown pneumonia. There was also nowadays an increasing use of x-ray diagnosis. A third factor to be considered was that during the war all chest conditions in young people had a much greater chance of early admission to service hospitals. Published results on the proportion of bacterial to non-bacterial pneumonia did not help with regard to the general population. American estimates varied from 15 to 75%. Possibly the age of incidence was higher and symptoms and signs were changing somewhat—e.g., rusty sputum was said to be much less common than it had been some 10 years ago.



Dr G S Haynes (Cambridge) agreed that orange juice, glucose, and fluids were sufficient food for cases of pneumonia. Dr R G Anderson (Cheltenham) said that his impression was that, whereas empyema had been as frequent or perhaps more frequent when sulphonamides had first been used, it was now becoming rare. Could this be the result of penicillin treatment?

Dr Lindsey Batten, in summing up, said that the main difference from former times was that the present type of pneumonia did not become full-blown. Some people were more liable to repeated attacks of pneumonia than others—e.g., those with sinus infections, and others who might have low resistance in the lower air passages. The present type of disease did not progress to rusty sputum production. When he used the term pneumonitis he referred to a presumed pathological state of a portion of lung. By pneumonia he referred to a general state of illness of a patient.

## SECTION OF ORTHOPAEDICS

Thursday July 1

### Operative Treatment of Recent Fractures

With the president, Professor T P McMurray (Liverpool), in the chair, Mr Bryan McFarland (Liverpool) opened a discussion on the operative treatment of recent fractures, which he divided into three categories. First, those in which operation was *essential*, secondly, those in which it was *permissible*, and thirdly, those in which it was, to say the least, *inadvisable*. As a result of treatment the patient should be at least no worse off than if he had been left alone, and to justify open operation there must be a reasonable probability that the result would be better than if a closed method had been used. The added risk of interference must be balanced against the probable benefit either in time or in degree of relief. The separation of the three groups might vary with the skill and experience of the surgeon, but no cases should be put into the first group because of fear of the possible results in inexperienced hands. No such hands should be permitted the opportunity of prejudicing what was otherwise perfectly good practice.

Mr McFarland gave the following examples of fractures in which open operation was essential. In fracture of the lateral condyle of the tibia with separation of a large fragment which was irreducible because of interposed material operation was essential in order to restore shape, movement, and stability. Fragments from a comminuted patella must be excised and the extensor mechanism repaired, a similar repair was required in transverse fractures whatever method was used to deal with the bone. Operation was also essential in fracture-dislocation of the humeral head, fracture with rotatory displacement of the lateral humeral condyle, incarceration of a medial epicondyle within the elbow joint (but without transposition of the ulnar nerve), fracture of the olecranon, in which small fragments were excised and the larger ones fixed by a screw, and fracture of the radial head with comminution. Operation was *permissible* for fracture-dislocation of the tarsal scaphoid, grossly comminuted fracture of the os calcis, when excision of the fragments relieved the tension and partial ischemia of the foot, unstable oblique fractures of the tibial shaft, irreducible supracondylar fracture of the femur, intertrochanteric fractures in which external fixation might be impracticable on account of the age and condition of the patient, transcervical femoral fractures, Monteggia's ulnar fracture with dislocation of the radial head, single oblique fracture of the lower third of the radius, and occasionally for fractures of both bones of the forearm. Operation should *not* be performed for comminuted fractures of the os calcis without gross displacement, Pott's fracture-dislocation, simple fracture of the tibial shaft, comminuted fracture of the tibial condyle, or for fracture of the shaft of the femur. In the latter the anatomical perfection of end to-end alignment did not justify the risks of delayed union which plating might produce. Fracture of the carpal scaphoid did not require operation, the results had been very disappointing. It was obvious that many other common fractures such as Colles's fracture should not be operated upon. He felt that the great advantage of open operation was when one fragment was so small or so shaped that it could not be replaced or retained and it was clear that persistent displace-

ment or non-union would prejudice function to a serious extent.

Mr James Patrick (Glasgow) said that the radiographic appearances were of no importance if the clinical result was perfect, therefore he agreed that the simplest method with least risk to the patient should be adopted in almost all cases. Where open operation was necessary the introduction of ordinary steel was bad because it corroded and led to devitalization of the adjacent bone and possible later spontaneous fracture. The use of two dissimilar metals accelerated the disintegration. The metals most suitable were stainless steel or vitallium. Mid shaft fracture of the radius alone, often considered a simple problem, was an example of the need for particular care because of the possibility of late displacement and consequent derangement of the inferior radio ulnar joint. If this occurred early open fixation was required. In fracture dislocation of the upper end of the humerus he believed that open operation would be needed less often if traction was applied to the arm in 90° abduction and 40° forward flexion with the patient half supine. An incarcerated medial epicondyle could be extracted from the elbow joint without open operation by the application of faradism to the flexor muscles while the patient was anaesthetized.

Mr A L Eyre-Brook (Bristol) said the indications for operation ranged from those which were essential, as in open fractures, through less essential grades, such as fractures requiring internal fixation to obtain union, small fragments in fractures involving joints, and cases showing failure to maintain adequate reduction of two major bones in one limb. In the final group operation was *elective* as for example, when it was employed to reduce the period of immobilization. Dangers still existed in spite of penicillin. Good judgment was needed and the good surgeon would plan his treatment not only upon his own ability but also upon the circumstances in which he was working.

Col H R Sheppard, R A M C, said that because operation delayed union more prolonged immobilization was required with splints afterwards than when closed methods were used. Mr W R D Mitchell (Rugby) said that operations, if necessary, should be done within the first two or three days. Both Mr B Whitchurch Howell (London) and Mr Norman Capener (Exeter) stressed the value of operative fixation of fractures in the region of the femoral trochanters as giving an easier convalescence for the elderly patient. Mr A D Le Vry (London) describing a recent visit to Professor Küntscher's clinic, stated that 5% of the nailed cases became infected and this and the large amount of x-ray screening necessary were major drawbacks from a British point of view. Mr R W Butler (Cambridge) made a special plea for operative treatment in old people, it could at times give them freedom from irksome fixation. Mr James Russell (Glasgow) considered that Mr McFarland had presented a well-balanced statement of the operative treatment of fractures in general, and he felt that the aim must always be to attain the maximum of function with the minimum of risk.

Mr McFarland, in reply, said that, while operation would still be necessary where function would otherwise be impaired, he wished to say as emphatically as possible that wholesale operations on closed fractures were to be utterly and completely condemned.

### Treatment of Acute Haematogenous Osteomyelitis

Dr J Trueta (Oxford) said that acute haematogenous osteomyelitis was caused by pyogenic bacteria, most commonly the *Staphylococcus aureus*. The organism usually reached the bone in the blood of the nutrient artery. Thrombosis was an early phenomenon of the infection, and the extent of damage to the bone depended on the area deprived of its blood supply. This area was determined by the position in the vessel of the original focus, by the spread of the thrombosis, and later by the spread of the pus into the subperiosteal space, where by the stripping off of the periosteal vessels, the cortex was also deprived of its remaining blood supply. Modern treatment aimed at the preservation of as good a blood supply to the bone as possible and achieved it by the combination of early intensive and sufficiently prolonged penicillin treatment, early relief of the intra-osseous and subperiosteal pressures by limited conservative surgery, and correct immobilization of the affected

part Success depended on the prompt use of these three therapeutic elements, and the main prerequisite for effective treatment was early diagnosis It was necessary that every clinician and general practitioner should be aware of this urgency, since in the last resort success or failure of the treatment was determined by the time elapsing between the first symptom and the patient's arrival in the surgical ward of the hospital Multiple drill holes were made throughout the extent of the lesion into the medullary cavity Penicillin was given generally by intramuscular drip to the extent of 400,000 units in twenty-four hours for the first three days, 300,000 units on the fourth day, and 200,000 units on the fifth day and onwards, these amounts being varied according to the weight of the child It was important to have the full resources of a pathological laboratory for the isolation of the organism and for testing its sensitivity

In the subsequent discussion several speakers referred to the supposed difference in incidence as between rural and industrial populations Dr Trueta, in reply, said that it was essentially a matter of 'soap and water' Where standards of cleanliness were high the incidence of osteomyelitis was low

## SECTION OF PATHOLOGY

Thursday July 1

### Acute and Subacute Hepatitis

With Professor Dorothy Russell (London) in the chair, Professor H P Himsworth (London) opened the discussion and said that the clinical picture of acute, subacute, and chronic hepatitis (cirrhosis) did not entirely correspond to the pathological findings The clinical features of acute hepatitis resulting from acute or subacute necrosis were well recognized Subacute hepatitis was characterized by anorexia, enlarged liver and spleen, oedema of the ankles, and spider telangiectasis Jaundice might be absent throughout the illness In the plasma there was a low albumin and raised globulin content These patients went on to develop a chronic hepatitis, and cirrhosis was seen at necropsy Subacute hepatitis could be produced experimentally with typical lesions in the liver, leading to irregular scarring, among cases of normal parenchyma Although the causation of many cases was obscure the level of nutrition might determine whether an acute case would recover or go on to the subacute stage

Professor J H Dible (London) described the histological changes revealed by liver biopsy The changes were essentially the same whether the hepatitis resulted from arsenotherapy (54 cases with 2 deaths), 'serum jaundice' (15 cases with 2 deaths), or acute idiopathic (catarrhal) jaundice (23 cases with no deaths) There was a disappearance of cells around the central vein, with swelling and degeneration of surviving cells, there were normal cells at the periphery of the lobule and some infiltration of the portal tracts with lymphocytes plasma cells and polymorphs The reticular pattern was well preserved, and this might play some part in regeneration Although the lobule shrank there was an apparent increase in the supporting framework due to condensation Bile could be demonstrated in the necrotic liver cells and endothelial cells and as bile thrombi in the bile canaliculi The essential lesions therefore were destruction and necrosis which followed the passage of bile into the blood stream and an obstruction by bile thrombi There was a remarkable absence of fat but glycogen was well preserved The usual result was complete cure though death might occur in severe cases, or the process might resolve, leaving a liver scarred by fibrosis In moderately severe cases young fibrous tissue might form between the bile tract and the central vein, leaving rounded islets of liver tissue with surviving cells

Dr G W M Findlay (London) spoke of the effect of malnutrition in the causation of hepatitis, first described in 1500 when Columbus's sailors returned with jaundice as a result of their appalling diet Hepatitis was common in the Tropics, particularly when a poor diet was accompanied by malarial infection Dr Findlay gave statistics showing the higher mortality from hepatitis among natives in West Africa as compared with Europeans, and suggested that this was due to the low protein diet of the natives and the high incidence of malaria He

hoped that records of all cases of hepatitis treated with casein hydrolysate would be collected, as he had seen 5 patients in coma who had recovered dramatically after intravenous casein

Dr J A R Miles (Cambridge) drew attention to the association between bacterial infection and hepatic necrosis and cirrhosis, and particularly to the adjuvant action of bacteria on the toxic effects of chloroform and phosphorus He had produced acute necrosis of the liver in rats on low protein diets, insufficient in themselves to cause necrosis, when chance infection with *Salmonella typhimurium* had occurred Experimental lesions in rats had been produced with infective hepatitis material but had failed after 13 passages Other material, including some from icterogenic serum, had failed to produce lesions

Dr J N P Davies (Uganda) recalled the fibro-fatty liver disease seen in Africans which led to pseudo-monolobular cirrhosis Infective hepatitis and acute necrosis also occurred but led to an intermediate type of lesion similar to that described by Professor Himsworth He thought that infections and abrupt malnutritional episodes in Africans might cause these lesions when superimposed on the fibro-fatty liver changes already present He also suggested that the 'oestrinization' which commonly appeared in male Africans (gynaecomastia and feminization of the skeleton) might play a part in the high incidence of primary hepatic carcinoma in Africans, and thought that the role of the endocrines in liver disease should be studied

Dr J Gillman (South Africa) said that the genesis of cirrhosis was different in South African natives from that in India and the USA He made a plea for a world survey of cirrhosis in different groups in different states of nutrition

### Prophylaxis of Virus Infections

With Dr R I N Greaves (Cambridge) in the chair, Dr C H Andrewes (London) opened the discussion and said that vaccines made from viruses inactivated by formalin or ultraviolet light might give useful and safe protection—for example in influenza—but this protection was not of long duration Attenuated living viruses gave protection for a longer period and the 17D strain yellow-fever vaccine was an ideal vaccine with a trivial general reaction and long immunity Many viruses grown on eggs altered enough to allow of suitable prophylaxis without reaction—e.g., influenza, mumps, and measles The existence of numbers of serological strains, however complicated the task In influenza strains A and B were unrelated antigenetically and epidemiologically, A being responsible for epidemics every two to three years and B every four to six years Some success with influenza vaccines was achieved in 1943 and 1946, but they were a complete failure in the 1947 epidemic To study variations and to collect strains from all sources the World Influenza Centre had been set up at Hampstead He described the experimental production of immunity by the interference phenomenon Ferrets infected with an influenza B strain which had little effect on them were later infected with known virulent influenza A with no ill effect Later contact exposure was also without effect This might be a pointer to artificial virus immunity, as the phenomenon also occurred with serologically unrelated viruses He described the recent developments in the field of prophylaxis against mumps, measles, rubella, rabies, and the common cold The work on the common cold at the Salisbury centre had not yet reached a conclusion He described attempts at prophylaxis of the common cold with bacterial vaccines as flogging a dead horse, and thought that the volume of controlled scientific evidence available was enough to have killed the horse

Professor R Hare (London) agreed that it was still impossible to protect humans against many of the commoner virus infections The study was difficult because of the lack of susceptible animals and of the technical difficulties in the preparation of large quantities of virus vaccines even from eggs—themselves in short supply Inactivated viruses on the whole were less satisfactory than attenuated vaccines Even if they appeared to protect animals they often fail to protect humans, especially under field conditions

Professor W I B Beveridge (Cambridge) was more optimistic in his suggestion that, while immunization was judged by its poor results in the individual, herd immunity might be greatly

Dr G S Haynes (Cambridge) agreed that orange juice, glucose, and fluids were sufficient food for cases of pneumonia. Dr R G Anderson (Cheltenham) said that his impression was that where empyema had been as frequent or perhaps more frequent when sulphonamides had first been used, it was now becoming rare. Could this be the result of penicillin treatment?

Dr Lindsey Batten, in summing up, said that the main difference from former times was that the present type of pneumonia did not become full blown. Some people were more liable to repeated attacks of pneumonia than others—e.g. those with sinus infections, and others who might have low resistance in the lower air passages. The present type of disease did not progress to rusty sputum production. When he used the term pneumonitis he referred to a presumed pathological state of a portion of lung. By pneumonia he referred to a general state of illness of a patient.

## SECTION OF ORTHOPAEDICS

Thursday July 1

### Operative Treatment of Recent Fractures

With the president Professor T P McMurray (Liverpool) in the chair, Mr Bryan McIrland (Liverpool) opened a discussion on the operative treatment of recent fractures which he divided into three categories. First those in which operation was *essential*, secondly those in which it was *permissible*, and thirdly those in which it was to say the least *advisable*. As a result of treatment the patient should be at least no worse off than if he had been left alone, and to justify open operation there must be a reasonable probability that the result would be better than if a closed method had been used. The added risk of interference must be balanced against the probable benefit either in time or in degree of relief. The separation of the three groups might vary with the skill and experience of the surgeon, but no cases should be put into the first group because of fear of the possible results in inexperienced hands. No such hands should be permitted the opportunity of prejudicing what is otherwise perfectly good practice.

Mr McIrland gave the following examples of fractures in which open operation was essential. In fracture of the lateral condyle of the tibia with separation of a large fragment which was irreducible because of interposed material operation was essential in order to restore shape, movement, and stability. Fragments from a comminuted patella must be excised and the extensor mechanism repaired; a similar repair was required in transverse fractures whatever method was used to deal with the bone. Operation was also essential in fracture dislocation of the humeral head, fracture with rotatory displacement of the lateral humeral condyle, incarceration of a medial epicondyle within the elbow joint (but without transposition of the ulnar nerve), fracture of the olecranon, in which small fragments were excised and the larger ones fixed by a screw, and fracture of the radial head with comminution. Operation was *permissible* for fracture dislocation of the distal scaphoid, grossly comminuted fracture of the os calcis when excision of the fragments relieved the tension and partial ischaemia of the foot, unstable oblique fractures of the tibia, high irreducible supracondylar fracture of the femur, intertrochanteric fractures in which external fixation might be impracticable on account of the age and condition of the patient, transcervical femoral fractures, Monteggia's ulnar fracture with dislocation of the radial head, simple oblique fracture of the lower third of the radius, and occasionally for fractures of both bones of the forearm. Operation should *not* be performed for comminuted fractures of the os calcis without gross displacement, Pott's fracture dislocation, simple fracture of the tibia shaft, comminuted fracture of the tibia condyle, or for fracture of the shaft of the femur. In the latter the anatomical perfection of end to end alignment did not justify the risks of delayed union which plating might produce. Fracture of the carpal scaphoid did not require operation, the results had been very disappointing. It was obvious that many other common fractures such as Colles's fracture should not be operated upon. He felt that the great advantage of open operation was when one fragment was so small or so shaped that it could not be replaced or returned and it was clear that persistent displace-

ment or non union would prejudice function to a serious extent.

Mr James Patrick (Glasgow) said that the radiographic appearances were of no importance if the clinical result was perfect, therefore he agreed that the simplest method with least risk to the patient should be adopted in almost all cases. Where open operation was necessary the introduction of ordinary steel was bad because it corroded and led to devitalization of the adjacent bone and possible later spontaneous fracture. The use of two dissimilar metals accelerated the disintegration. The metals most suitable were stainless steel or vitallium. Mid-shaft fracture of the radius alone often considered a simple problem was in example of the need for particular care because of the possibility of late displacement and consequent derangement of the inferior radio ulnar joint. If this occurred early open fixation was required. In fracture dislocation of the upper end of the humerus he believed that open operation would be needed less often if traction was applied to the arm in 90° abduction and 30° forward flexion with the patient half supine. An incarcerated medial epicondyle could be extracted from the elbow joint without open operation by the application of firmism to the flexor muscles while the patient was anesthetized.

Mr A I Lyre Bock (Bristol) said the indications for operation ranged from those which were essential as in open fractures through less essential grades such as fractures requiring internal fixation to obtain union, small fragments in fractures involving joint, and cases showing failure to maintain adequate reduction of two or more bones in one limb. In the first group operation was *essential* as for example when a screw was employed to reduce the period of immobilization. Disasters still existed in spite of penicillin. Good judgment was needed and the good surgeon would plan his treatment not only upon his own ability but also upon the circumstances in which he was working.

Col H R Stappard (RAMC) said that for the operation of delayed union some prolonged immobilization was required with splints afterwards, then when closed method was used. Mr W R D Mitchell (Pretoria) said that operation if necessary should be done within the first two or three days. Both Mr B Whitechurch (Hull) and Mr N C Penney (Exeter) stressed the value of operative fixation of fractures in the region of the femoral shaft, giving the surgeon a valuable clue for the efficient patient. Mr A D Le Vail (London) described a recent visit of Prof. Dr K Scherzsch who stated that 5% of the total cases became infected. This included the lower third of a ray, requiring removal of a major part of the foot from a British point of view. Mr K W Butler (Cambridge) made a special plea for operative treatment in old people; it could at times give them freedom from external fixation. Mr James Keell (Glasgow) considered that Mr McIrland had presented a well balanced statement of the operative treatment of fractures in general, and he felt that the sum must always be to obtain the maximum of function with the minimum of risk.

Mr McIrland in reply said that while operation would still be necessary where function would otherwise be impaired, he wished to say as emphatically as possible that while the operations on closed fractures were to be pitied and completely condemned.

### Treatment of Acute Haematogenous Osteomyelitis

Dr J Treacy (Oxford) said that acute haematogenous osteomyelitis was caused by pyogenic bacteria, most commonly the *Staphylococcus aureus*. The organism usually reached the bone in the blood of the nutrient artery. The process was a early phenomenon of the infection, and the extent of damage to the bone depended on the area deprived of its blood supply. This area was determined by the position at the vessel of the original focus by the spread of the thrombus, and later by the spread of the pus into the subperiosteal space, where by the stripping off of the periosteal vessels the cortex was also deprived of its remaining blood supply. Mr Treacy stressed aimed at the preservation of as good a blood supply to the bone as possible and achieved it by the combination of early intensive and sufficiently prolonged penicillin therapy, early relief of the intraosseous and subperiosteal pressures by limited conservative surgery, and correct immobilization of the affected

part Success depended on the prompt use of these three therapeutic elements, and the main prerequisite for effective treatment was early diagnosis It was necessary that every clinician and general practitioner should be aware of this urgency, since in the last resort success or failure of the treatment was determined by the time elapsing between the first symptom and the patient's arrival in the surgical ward of the hospital Multiple drill holes were made throughout the extent of the lesion into the medullary cavity Penicillin was given generally by intramuscular drip to the extent of 400,000 units in twenty-four hours for the first three days, 300,000 units on the fourth day, and 200,000 units on the fifth day and onwards, these amounts being varied according to the weight of the child It was important to have the full resources of a pathological laboratory for the isolation of the organism and for testing its sensitivity

In the subsequent discussion several speakers referred to the supposed difference in incidence as between rural and industrial populations Dr Trueta, in reply said that it was essentially a matter of "soap and water" Where standards of cleanliness were high the incidence of osteomyelitis was low

## SECTION OF PATHOLOGY

Thursday July 1

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With Professor Dorothy Russell (London) in the chair, Professor H P Himsworth (London) opened the discussion and said that the clinical picture of acute, subacute, and chronic hepatitis (cirrhosis) did not entirely correspond to the pathological findings The clinical features of acute hepatitis resulting from acute or subacute necrosis were well recognized Subacute hepatitis was characterized by anorexia, enlarged liver and spleen, oedema of the ankles, and spider telangiectasis Jaundice might be absent throughout the illness In the plasma there was a low albumin and raised globulin content These patients went on to develop a chronic hepatitis, and cirrhosis was seen at necropsy Subacute hepatitis could be produced experimentally with typical lesions in the liver, leading to irregular scarring, among cases of normal parenchyma Although the causation of many cases was obscure the level of nutrition might determine whether an acute case would recover or go on to the subacute stage

Professor J H Dible (London) described the histological changes revealed by liver biopsy The changes were essentially the same whether the hepatitis resulted from arsenotherapy (54 cases with 2 deaths), 'serum jaundice' (15 cases with 2 deaths), or acute idiopathic (catarrhal) jaundice (23 cases with no deaths) There was a disappearance of cells around the central vein, with swelling and degeneration of surviving cells, there were normal cells at the periphery of the lobule and some infiltration of the portal tracts with lymphocytes, plasma cells and polymorphs The reticular pattern was well preserved, and this might play some part in regeneration Although the lobule shrank there was an apparent increase in the supporting framework due to condensation Bile could be demonstrated in the necrotic liver cells and endothelial cells and as bile thrombi in the bile canaliculi The essential lesions therefore were destruction and necrosis which followed the passage of bile into the blood stream and an obstruction by bile thrombi There was a remarkable absence of fat, but glycogen was well preserved The usual result was complete cure, though death might occur in severe cases, or the process might resolve, leaving a liver scarred by fibrosis In moderately severe cases young fibrous tissue might form between the bile tract and the central vein, leaving rounded islets of liver tissue with surviving cells

Dr G W M Findlay (London) spoke of the effect of malnutrition in the causation of hepatitis, first described in 1500 when Columbus's sailors returned with jaundice as a result of their appalling diet Hepatitis was common in the Tropics, particularly when a poor diet was accompanied by malarial infection Dr Findlay gave statistics showing the higher mortality from hepatitis among natives in West Africa as compared with Europeans, and suggested that this was due to the low protein diet of the natives and the high incidence of malaria He

hoped that records of all cases of hepatitis treated with casein hydrolysate would be collected, as he had seen 5 patients in coma who had recovered dramatically after intravenous casein

Dr J A R Miles (Cambridge) drew attention to the association between bacterial infection and hepatic necrosis and cirrhosis, and particularly to the adjuvant action of bacteria on the toxic effects of chloroform and phosphorus He had produced acute necrosis of the liver in rats on low protein diets, insufficient in themselves to cause necrosis, when chance infection with *Salmonella typhimurium* had occurred Experimental lesions in rats had been produced with infective hepatitis material but had failed after 13 passages Other material, including some from icterogenic serum, had failed to produce lesions

Dr J N P Davies (Uganda) recalled the fibro-fatty liver disease seen in Africans which led to pseudo monolobular cirrhosis Infective hepatitis and acute necrosis also occurred but led to an intermediate type of lesion similar to that described by Professor Himsworth He thought that infections and abrupt malnutritional episodes in Africans might cause these lesions when superimposed on the fibro-fatty liver changes already present He also suggested that the "oestrinization" which commonly appeared in male Africans (gynaecomastia and feminization of the skeleton) might play a part in the high incidence of primary hepatic carcinoma in Africans, and thought that the role of the endocrines in liver disease should be studied

Dr J Gillman (South Africa) said that the genesis of cirrhosis was different in South African natives from that in India and the USA He made a plea for a world survey of cirrhosis in different groups in different states of nutrition

### Prophylaxis of Virus Infections

With Dr R I N Greaves (Cambridge) in the chair, Dr C H Andrewes (London) opened the discussion and said that vaccines made from viruses inactivated by formalin or ultraviolet light might give useful and safe protection—for example, in influenza—but this protection was not of long duration Attenuated living viruses gave protection for a longer period, and the 17D strain yellow-fever vaccine was an ideal vaccine with a trivial general reaction and long immunity Many viruses grown on eggs altered enough to allow of suitable prophylaxis without reaction—e.g., influenza mumps, and measles The existence of numbers of serological strains, however, complicated the task In influenza strains A and B were unrelated antigenetically and epidemiologically, A being responsible for epidemics every two to three years and B every four to six years Some success with influenza vaccines was achieved in 1943 and 1946 but they were a complete failure in the 1947 epidemic To study variations and to collect strains from all sources the World Influenza Centre had been set up at Hampstead He described the experimental production of immunity by the interference phenomenon Ferrets infected with an influenza B strain which had little effect on them were later infected with known virulent influenza A with no ill effect Later contact exposure was also without effect This might be a pointer to artificial virus immunity, as the phenomenon also occurred with serologically unrelated viruses He described the recent developments in the field of prophylaxis against mumps, measles, rubella, rabies, and the common cold The work on the common cold at the Salisbury centre had not yet reached a conclusion He described attempts at prophylaxis of the common cold with bacterial vaccines as flogging a dead horse, and thought that the volume of controlled scientific evidence available was enough to have killed the horse

Professor R Hare (London) agreed that it was still impossible to protect humans against many of the commoner virus infections The study was difficult because of the lack of susceptible animals and of the technical difficulties in the preparation of large quantities of virus vaccines even from eggs—themselves in short supply Inactivated viruses on the whole were less satisfactory than attenuated vaccines Even if they appeared to protect animals they often fail to protect humans, especially under field conditions

Professor W I B Beveridge (Cambridge) was more optimistic in his suggestion that, while immunization was judged by its poor results in the individual, herd immunity might be greatly

increased by large-scale immunization even though there were failures in individuals. Individual immunity depended on contact between the virus and circulating antibody. If the route of infection was by the blood stream as in yellow fever and the exanthemata a basic immunity sufficed, as antibody production was greatly increased during a long incubation period. Invasion without contact with the blood stream occurred in influenza as the virus was spread over the lung mucosa. Many adults had circulating antibody but no immunity to influenza. He thought that greater attention should be paid to the part played by allergy, which could concentrate antibody at the site of infection. A further field of investigation was the removal of cell receptors for viruses by chemical methods.

Dr M G P Stoker (Cambridge) recalled that during the war there were many instances of severe smallpox in vaccinated patients. Some were due to long intervals since vaccination and others had been vaccinated only after exposure. Many vaccinations failed because the "immediate reaction" was accepted as a criterion of immunity, whereas it was an indication of sensitivity to vaccinia not necessarily associated with immunity. In spite of theoretical objections Nagler's technique for estimating vaccinia antibodies by inhibition of haemagglutination might help in assessing protection. Vesiculation was necessary for an increase in immunity, and primary or accelerated reactions should alone be regarded as successful "takes". Egg virus was satisfactory, and the ratio between active and inactive virus might be important because of the interference set up by inactive virus particles. Most centres agreed that the minimum of active virus laid down by the League of Nations was too small.

Dr G W M Findlay (London) said that in the war 50,000 Europeans and 250,000 Africans had been immunized with yellow-fever virus and the war could not have been won without this great achievement. There were only 3 cases of yellow fever among these Europeans in spite of civilian outbreaks of normal proportions. The French had now immunized between 4 and 5 million people in their colonies, but our programme had now ceased. Jenner had first described the phenomenon of "interference" between two viruses, herpes and vaccinia, is long ago as 1804.

Dr C H Lack (London) asked whether immunity to smallpox was related to the survival of virus at the site of inoculation. He had recovered virus locally after three months, and a Japanese worker recently reported recovery 10 months after vaccination. He also thought that the effects of certain viruses might depend on the presence of hyaluronidase producing cocci which could disseminate the virus over a wider area of susceptible cells.

#### Strangeways Research Laboratory

Dr A F W Hughes delighted the visitors from the Section of Pathology with a beautiful demonstration of mitosis in tissue culture material under phase contrast illumination. A film shown by him indicated the differences in mitosis in such species as the newt and the *Xenopus* as compared with young fibroblasts. Prophase, metaphase, and anaphase were clearly seen as well as the hyperkinetic activity of the nuclear and protoplasmic bodies. Miss M H Hardy produced well formed hair follicles from embryonic mouse skin and showed the several stages in the process.

Dr I Lasnitzky compared the action of irradiation on malignant tissue growing *in vitro* and *in vivo* and pointed out the considerable difference due to the secondary effects *in vivo*. Two thirds of the damage done by irradiation is the delayed vascular effect and only one-third is due to the immediate effect on the cells. Dr A Glusmann and Dr F G Spears demonstrated their method of histological assessment of the radiation treatment of cancer. They base their prognosis on a chart showing the relative numbers of mitotic cells and resting cells as compared with the differentiated cells and the degenerating cells. In a series of 1,000 cases of carcinoma mainly of the cervix and buccal cavity their histological assessment given one or two weeks after radiation had been correct in 90%.

Electron micrograph studies of growing avian tubercle bacilli were shown by Drs E M Brigger and V E Cosslett. The growth consisted of short dark rods which later became elongated. Between these two stages vacuoles appeared in the bacilli.

## SECTION OF PHYSIOLOGY, INCLUDING BIOCHEMISTRY

Thursday, July 1

### Physiological Basis of Neuromuscular Disorders

With the president, Professor A C Chubb (Cambridge), in the chair, a discussion was held on the interpretation of neuromuscular disorders, and in particular the bearing of such interpretation upon the evidence for chemical transmission of the excitatory process from nerve endings. Sir Henry Dale, in opening, said that the theory of chemical transmission at peripheral autonomic endings might presumably be taken as accepted. This had not had much effect on clinical medicine, except on the interpretation of the actions of atropine, physostigmine, and the like. Loewi's observation of the abnormal sensitiveness of the pupil to adrenaline in Graves's disease was recalled and the question raised whether such conceptions as "vagotonic" and "sympathicotonic" could be given a clearer experimental basis. The possibility of "histaminergic vasodilators" was mentioned, but the consideration of their clinical significance belonged rather to the discussion on antihistamine drugs. Of more importance for neuromuscular disorders was the evidence suggesting chemical transmission, by sudden liberation and sudden removal of acetylcholine, at ganglionic and at nerve-end plate synapses. This theory had allowed a much clearer conception to be formed of the modes of action at these junctions of curarine on the one hand and of physostigmine and its analogues on the other. It made it possible to differentiate the action of botulinus toxin paralyzing the actual nerve endings or their mechanism for releasing acetylcholine, from that of curarine, which left the nerve endings and the release of acetylcholine from them unaffected but made the motor end plate insensitive to its stimulus.

The action of tetanus toxin in producing local tetanus could similarly be located at the nerve endings which appeared to lose the power of holding, but not of synthesizing acetylcholine and also lost part of their normal cholinesterase. Recent studies of myasthenia gravis and of the alleviating effect upon it of anticholinesterases afforded the most obvious example of the value of the chemical transmission theory for the understanding of neuromuscular disorders. Sir Henry Dale also mentioned congenital myotonia and recurrent familial paralysis though recent observations seemed to show in both cases that the abnormality of function was in the muscles. To what extent could the mode of transmission at peripheral synapses be carried by analogy to the central nervous system?

Professor F R Miller (University of Western Ontario) showed a number of graphs illustrating the action of acetylcholine on the hypoglossal nucleus and the respiratory centre. He began by summarizing earlier work on the effect of eserine and acetylcholine on the cerebral cortex and masseter muscle of the rabbit. An attempt was then made to determine whether acetylcholine would act locally on a motor nucleus and for this purpose the hypoglossal nucleus was selected. Eserine and acetylcholine were shown to enhance transmission at the connecting synapses. Changes in respiration and convulsive disorders were recorded. It appeared that acetylcholine must act directly on the inspiratory centre. The results were similar to those obtained by the injection of small amounts of acetylcholine into the cord circulation. There appeared to be evidence that the mode of transmission at the peripheral synapses might be extended to the central nervous system.

Dr W S Feldberg (Cambridge) said that cholinergic nerves contained definite but limited amounts of acetylcholine bound to some tissue constituents. Any acetylcholine released by the nerve impulse was at once replaced by synthesis. The nervous tissue however was unable to build up a store of acetylcholine greater than its normal physiological complement. Synthesis therefore was closely linked with and dependent upon the release. The mechanism of the synthesis at the motor endings could be studied in any part of the nerve fibre. He described the synthesis under conditions in which the enzyme remained attached to the tissue and with other methods by which it was brought into solution. The results indicated that some at least of the motor and sensory pathways consisted of chains of neurons which were alternately cholinergic and non cholinergic in character.



Dr Bernard Katz (University College, London) gave a brief survey of the chain of events by which a message was relayed within a motor unit, and discussed the essential differences between unicellular and synaptic transmission of the excitation wave. Three principal links in the neuromuscular transmission chain which could be weakened or broken experimentally were (1) liberation of transmitter, (2) its reaction with the muscle receptors, and (3) initiation of the muscle impulse. Discussing the effect of curarine, he said that curarine blocked nerve-muscle transmission but the block was perfectly reversible. In a weak curarine block a single nerve impulse arriving at the nerve muscle junction produced no effect, but two or more were able to restore the junction.

Dr Andrew Wilson (University College) gave a short account of attempts to influence neuromuscular conduction in patients with myasthenia gravis by inhibiting the cholinesterase activity of the blood with diisopropyl fluorophosphonate (DFP) and with "prostigmin". Small doses of DFP had been given to 9 cases of myasthenia gravis. In 4 cases treatment was abandoned, owing to the patients' tendency to have nightmares and vivid dreams but in the other 5 the favourable effect on the signs and symptoms of myasthenia gravis was maintained for from 16 to 24 months. The clinical effects produced by the intra-arterial and intramuscular injection of DFP were compared with those produced by the similar administration of prostigmin.

Dr C A Keele (Middlesex Hospital) discussed the pharmacological action of the condensed alkyl phosphates hexaethyl tetraphosphate (HETP) and tetraethylpyrophosphate (TEPP), which was very similar to that of eserine and prostigmin. These compounds were powerful anticholinesterases. TEPP was about four times as potent as HETP, and both substances had actions which lasted much longer than those of eserine and prostigmin, but not so long as that of diisopropyl fluorophosphonate. TEPP was effective in the treatment of myasthenia gravis when given by intramuscular injections or by mouth. With single injections it was half as potent as prostigmin, its peak effect occurred in about one hour as compared with twenty to thirty minutes for prostigmin, and after a single injection the effects of TEPP lasted about twice as long. With repeated injections its effect was markedly cumulative. By mouth it was much more effective than prostigmin. The visceral and side effects of the two compounds were similar.

Dr G L Brown (London) was prevented owing to the lateness of the hour from presenting his paper describing recent work on myotonia.

## SECTION OF PREVENTIVE MEDICINE

Thursday July 1

### Acute Poliomyelitis

With Dr F Hall, vice-president, in the chair, Dr William Gunn (London) delivered the opening occasional paper on "Acute Poliomyelitis: Epidemiology and Control," illustrating it by slides and charts. He said that against a background of steadily receding importance in medicine epidemic diseases included at least one which, like the menace of war, remained a persistent cloud on the human horizon. By no means a new disease, acute poliomyelitis had in recent decades acquired special malignant characters that were expressed in periodic explosive prevalence and high clinical severity. Comparison with influenza and possible association of the two with two world wars was inevitable. Differences were more striking than resemblances. In both the causative agent had been isolated, but effective immunization techniques had not ensued. During epidemics both tended to be particularly lethal, with selective preference for young adults. Attacks appeared irrespective of previous health, social class or environment.

Differences between the diseases included immunity from subsequent attack after poliomyelitis, patchy and circumscribed localization of outbreaks, frequent contamination of water supplies, and high ratio of latent or abortive to clinical attacks in comparison with influenza. Nor had the relation to war been uniform. Influenza followed the first world war but unexpectedly failed to materialize after the second.

Vaccines had proved either ineffective or dangerous in cases of poliomyelitis. Passive immunization with immune-serum was applicable only in special circumstances. The greatest success in limiting the spread of infection was based on an assumption that transmission was by droplet nuclei from the upper respiratory mucosa—hence restriction of travel, avoidance of places of close assembly, and segregation of suspects and contacts. The influence of temperature and humidity in evoking or accelerating epidemicity had not been fully investigated. It was of interest that the largest epidemic in our history had coincided with one of the hottest summers on record.

Dr F W Bunting (St Helens) outlined the investigation made into an epidemic occurring in a country area. He emphasized that here was an infectious disease where a few reasonable precautions could be taken by members of the public on their own initiative. Where more rigid isolation of the actual case was required, and during epidemics a firm line should be taken by the authorities to prevent children attending cinemas. A trained team of investigators should be kept in readiness for the onset of a possible epidemic, to work in conjunction with the local medical officer of health and his staff.

Dr J C R Buchanan (Fiji) said that although poliomyelitis was seldom recorded in epidemic form in tropical countries it was not safe to assume that a hot climate *per se* was protective. Recent epidemics in the Solomons reached a known case incidence of upwards of 2 in 1,000. There was more likely to be a latent epidemicity, but we still did not know enough to show what the precipitating factor actually was.

Dr E D Irvine (Dewsbury) said that during epidemic periods dental gas anaesthesia should be better controlled. The use of rebreathing apparatus by numerous persons was a probable risk. Dr J Alison Glover (Berkhamsted) emphasized the impossibility of attempting to isolate carriers. The suspension of tonsillectomy and the effective chlorination of swimming-bath water were obvious measures. Dr Josephine W Webb (Eton) said that registration of carriers, if based on contact and the occurrence of pyrexia, was impracticable.

Dr H S Banks (London) said that notifications of poliomyelitis in recent years had included a large number of non-paralytic cases and that factor should be allowed for in comparing recent with former notifications. The abortive case could not be diagnosed with any degree of accuracy in this country, at least by an agglutination test. It was also too optimistic to say that the cell-protein dissociation factor in the spinal fluid clinched the diagnosis in the non-paralytic case, since there were many exceptions. Did the epidemiological facts warrant the assumption that the virus in the pharynx was more highly infective than that in the faeces? Field studies might be directed to that point with a view to determining the limits of the usual infective period of the disease. Was the fact that virus might persist in the stools as long as 10 weeks of little importance in infectivity? There was no real evidence that serum or gamma globulin had any place in prophylaxis.

He deprecated the issue of the many instructions from public health departments in 1947 for the control of the disease that were unjustified by existing knowledge. When poliomyelitis was epidemic nothing was gained by attempts at sterilization of faeces in the home. Prohibiting public meetings even of children was unwarranted without more exact knowledge of its efficacy. Little could be done in the administrative control of the disease except to avoid tonsillectomy (but not necessarily other throat, nose, or dental operations) and to encourage general hygiene, especially the washing of hands.

### Morbidity Statistics

In a paper on "Ascertainment and Use of Morbidity Statistics" Dr P L McKinlay (Scottish Health Department) spoke of a growing dissatisfaction with the inadequacy of our basic health information. Available sources of routine statistics fell far short of the desirable in failing to cover important sections of the population, in omitting minor ailments, and by appreciable inaccuracies, especially of certified cause of illness. In addition to machinery for the provision of routine data there should be facilities for carrying out special morbidity inquiries to elucidate points emerging from analysis of routine information. Hospital data, because of their selective nature, gave a distorted picture of frequency, type, and severity of illness. Recording in hospitals should be directed principally to the



solution of special problems associated with particular diseases and assessment of therapeutic measures

Dr J Maddison (Twickenham) spoke of the many factors which might have to be considered in trying to arrive at the cause of illness. That made it difficult for any medical man working single-handed to institute special inquiries or to carry out the research himself. It was desirable for clinicians to understand more about statistics so that they could give effective co-operation. Medical officers of health should have available the assistance of a team of investigators comprising a research medical officer, a statistician, clerical assistants, punch-card machinery, a calculating machine, and field workers for special inquiries. Just as to day the M.O.H. referred clinical cases to experts, so should he refer his statistical and research problems.

Mr W P D Logan (London) briefly outlined how the General Register Office dealt with morbidity statistics for sickness surveys, registration and follow-up of cancer, hospital investigations, and school absenteeism.

## COMBINED MEETING OF SECTIONS OF CHILD HEALTH AND RADIOLOGY

Friday July 2

### Malignant Disease in Infancy and Childhood

A combined meeting of the Sections of Child Health and Radiology discussed malignant disease in infancy and childhood, with Sir Leonard Parsons (Birmingham) in the chair. Opening the discussion, Professor Wilfrid Gaisford (Manchester) said that the importance of malignant disease in paediatric practice had been thrown into relief by the decline in mortality from infectious diseases. Most children dying from malignant disease were under 5 years of age. Not all malignant cases were curable. Certain forms of malignancy if treated early carried an increasingly good prognosis. The majority of curable cases of cancer also occurred in children of less than 5 years. Intracranial tumours, leukaemia, and kidney tumours were the three commonest forms of malignancy. Astrocytoma and medulloblastoma were the commonest intracranial tumours and were often curable. Radiotherapy gave good results in cases of medulloblastoma and neurosurgery in cases of astrocytoma. Improvement of symptoms within a week of beginning radiotherapy was suggestive of medulloblastoma. In cases of medulloblastoma, unlike other intracranial tumours, the basal metabolic rate was raised. Diagnosis was often delayed. Staggering was a common first symptom, and others were vomiting, headache and pains in the legs. Vomiting might persist over weeks and months and was cyclical in character in 4 out of a series of 14 cases, 9 of these children were alive three years after the diagnosis was first made.

Abdominal swelling in an infant called for examination to exclude Wilms's tumour. In a series of 15 patients with Wilms's tumour 10 died within two years and 5 were alive three years after the diagnosis. The first symptoms or signs were swollen abdomen (6), haematuria (4), abdominal pain (3), and a palpable tumour (2). Wilms's tumour might give rise to unexplained pyrexia. Suprarenal neuroblastomata were extremely radio-sensitive, Wilms's tumours were not. A painless enlargement in the scrotum should raise the question of carcinoma. The inguinal glands were enlarged in the absence of scrotal involvement. X-rays would reveal lung metastases, which were not uncommon. The prognosis was good in the absence of metastases. Statistics suggested that leukaemia was on the increase, early diagnosis was difficult. In contrast with leukaemia lymphosarcoma and Hodgkin's disease were radio-sensitive. Cure could only be hoped for in lymphosarcoma. The presence of a cardiac bruit, fever, and limb pains in leukaemia could lead to confusion with rheumatism. Professor Gaisford said that some tumours (mainly sarcomata) were congenital. Others, such as retinoblastoma and neurofibromatosis appeared to be influenced by genetic factors. Neoplasms appearing in childhood might affect growth and metabolism. Treatment might be curative or palliative.

### Radiological Diagnosis

Dr C G Teall (Birmingham) emphasized that radiology was not a short cut to diagnosis. Radiographic examination

could not establish the exact nature of a lesion or whether it was or was not malignant in the early stages of disease. Kidney tumours in the early stages showed a dense uniform shadow which might displace the intestine. Intravenous pyelography revealed renal deformities but could not differentiate embryoma from neuroblastoma, though it might assist greatly in assessing the condition of the opposite kidney. In the late stages Wilms's tumour was suggested by lung metastases, and neuroblastoma by secondary deposits in the skull and long bones. A retro-peritoneal sarcoma displaced the kidney forward. The kidney shadow was large or small according to whether the radiograph was taken with the patient supine or prone. X-rays were of value in localizing intracranial tumours, the majority of which were subtentorial. Increased intracranial pressure with a rapidly growing tumour might bring about opening of the sutures. Ventricular dilatation resulting from back pressure could be demonstrated by ventriculography. Erosion of the dorsum sellae in the presence of cerebral tumours was less common in children than in adults. A high proportion of tumours of Rathke's pouch showed calcification. Osteogenic sarcomata could not be differentiated radiologically from Ewing's tumour in the early stages, and either might be indistinguishable from inflammation. Osteogenic sarcomata were radio-insensitive, Ewing's tumour might benefit from radiotherapy. The use of biopsy should be accepted in order to make an early diagnosis. Certain bone changes, including a form of irregular cortical absorption were typical of leukaemia. Dr Teall said greater use should be made of radiological investigation in doubtful cases.

### Radiotherapy

Professor J S Mitchell (Cambridge) said the treatment of malignancy in children emphasized the shortcomings of modern radiotherapy. It was probable that gross structural chromosome changes formed the basis for the degeneration and death of cells following irradiation. Inhibited synthesis of thymonucleic acid might explain the mitotic inhibition induced by radiation. The associated disturbed nucleic acid metabolism might be related to increased cell differentiation. The formation of a heparin-like anticoagulant was specially important in children in relation to dosage. In children as compared with adults special care was necessary in considering the effects of radiation upon the epiphyses, the endocrine glands and the lens and in producing late vascular changes. The distinction between radio-curability and radio-sensitivity was accentuated in children. It might be assumed that effective radiotherapy in children called for methods of fractionation and for time factors differing from those employed in adults. The treatment of choice for renal tumours was surgery followed by irradiation in early cases and pre-operative irradiation and surgery or radiotherapy alone with a long over-all time in late cases. Surgical treatment with post-operative irradiation in cases of retinoblastoma was discussed. In unilateral retinoblastoma excision of the eye and extensive removal of the optic nerve were essential. If the optic nerve was involved a radon seed should be implanted. For bilateral ocular involvement radon seeds might be stitched to the sclera. In cases of cerebellar medulloblastoma irradiation of the anterior cerebrum should be omitted owing to the possibility of delayed vascular changes. Ewing's tumours called for radical treatment. Professor Mitchell discussed a small series of cases of malignancy in children and adolescents. The series included a case of radio-curable rhabdomyosarcoma in a boy aged 17 years. All apparently cured cases of malignant disease in children should be systematically followed up. The use of radioactive isotopes in children was contraindicated even for the purpose of tracer investigations.

### Pathology

Dr A M Barrett (Cambridge) grouped tumours in childhood into those more common in childhood than adult life, those occurring at any age, and those which were more frequent in the adult subject. The embryonic tumours were unlikely to result from exposure to external carcinogenic factors. Recent studies had emphasized the multicentric rather than the unicentric background to these tumours.

Dr Frances Braid (Birmingham) mentioned a case of Wilms's tumour in an infant of 7 weeks. The symptoms suggested pyloric

stenosis. The baby was alive 2½ months after radical surgery. Dr R M Mayon-White (Cambridge) mentioned the necessity for the minimum of handling of a Wilms's tumour in the interval between diagnosis and the commencement of therapy. Professor G B Fleming (Glasgow) drew attention to the difficulties of differentiating these tumours from tuberculomata and from abdominal tuberculosis. Professor R W B Ellis (Edinburgh) emphasized that although malignant disease was rare in children benign tumours—for example, naevi—were extremely common. Certain benign tumours were potentially malignant in later years.

Replying to Dr Janet Roscoe (Cambridge) Dr Teall said that intravenous pyelography was practicable in infants aged 2 and 3 weeks. Dr S Cochrane Shanks reinforced Dr Teall's plea for co-operation between clinicians and radiologists and instanced the value of discussions.

### The Weights of Normal Neonates

In the afternoon a demonstration was arranged at the Cambridge County Maternity Unit. Dr Janet Roscoe (Cambridge) described preliminary studies carried out on the weights of normal neonates in the first ten days of life. All feeds had been complemented with dried milk in 203 infants during the first three days of life, 130 infants received breast milk only. The post-natal weight loss was less in infants receiving complementary feeds. Recovery from initial weight loss was more rapid in infants fed on the breast alone, and on discharge on the ninth day their weights compared favourably with the weights of babies on complementary feeds.

## SECTION OF RADIOLOGY

Thursday July 1

### A—RADIODIAGNOSIS

#### The Small Intestine in Nutritional Disorders

With the president, Dr S Cochrane Shanks (London), in the chair, Dr R A Gregory (Liverpool) surveyed the physiology of intestinal movements. He said that the motility of the small intestine determined to a large extent the normal progress of digestion and absorption by mixing the intestinal secretion with the food and bringing this into contact with the mucosa, and by moving the contents down the intestine at a rate commensurate with the progress of digestion and absorption. The results of observations and experiments on humans and animals indicated that certain forms of movement were consistently found during digestion: (1) "pendular" movements, consisting in gentle waves of contraction which pass repeatedly down a segment of intestine causing it to lengthen and shorten rhythmically; (2) peristalsis, a strong slowly moving double wave of contraction above and relaxation below some point of stimulation; (3) "segmentation," the repeated and rhythmical division of a length of intestine into several segments by relatively stationary contraction-waves; and (4) "rush waves" a rapid vigorous contraction extending for considerable distances down the bowel, seen characteristically in diarrhoea and similar conditions as well as during normal digestion. The gut as a whole was "polarized" in that the movements tended to pass downwards.

The evidence that peristalsis resulted from a local reflex (myenteric reflex) in the enteric plexuses, while segmentation and pendular movements were of myogenic origin was discussed in relation to the structure of the enteric plexuses and other work. The extrinsic nerves normally exerted a mutually antagonistic influence on the general activity of the intestine, complete denervation of the small intestine was followed by a "paralytic" increase in tone and motility lasting several days. The splanchnic nerves formed the reflex pathway for intestinal inhibition (ileus) produced by afferent impulses from the peritoneum, abdominal organs, etc., splanchnic section or anaesthesia of the abdominal ganglia or of the spinal cord abolished the inhibition. A number of observations indicated that the passage of intestinal contents down the gut was controlled by the acidity, and perhaps also the chemical composition via reflexes originating in chemoreceptors in the mucosa.

Dr F R Berridge (Cambridge) had examined 78 cases in north Germany in 1946 under the auspices of the Medical Research Council. There were many nutritional disorders. All his cases had at some time suffered from famine oedema and many were oedematous at the time of examination. In the radiological examination he gave by mouth 100 g of barium sulphate suspended in 100 ml of normal saline. The Miller-Abbot tube was time-consuming and had no special advantages. The patients were all examined lying down. In the normal subject the mucosal folds decreased in height and number from the upper to the lower end of the small intestine. The lumen of the gut narrowed from above downwards and movement decreased from above downwards. Normally the barium entered the small gut in a continuous stream and remained as such until it reached the colon.

Of the 78 German cases 32 were normal and 46 abnormal. The latter showed fragmentation of the barium column, mostly in the mid-jejunum and upper ileum. The rugae, whose normal width was about 2 mm, were widened to 4 mm and were more widely separated. Flocculation also occurred—i.e., fragments of barium remained in the jejunum and ileum after the main mass of barium had passed on. Previously this feature was said to occur only in steatorrhoea. Another feature he found, also seen in steatorrhoea, was a smooth outline of the upper jejunum.

The only common factor in all the abnormal cases had been loss of weight and at some time famine oedema. The vitamin deficiencies had been so various that no particular one could be attributed as cause.

Dr Wilfrid Sheldon (London) contributed a paper on coeliac disease. He said that the term "coeliac syndrome" was criticized adversely because it was maintained that by clinical examination and laboratory investigation other causes of steatorrhoea, abdominal distension, and wasting in young children could be differentiated. Those conditions included abdominal tuberculosis, *Lambia* infection, chronic septic infection, and fibrocystic disease of the pancreas. He accepted the value of analysing the enzymes in the duodenal juice, and of trypsin in particular, in distinguishing between pancreatic fibrosis and coeliac disease, and he outlined the dietetic treatment of the former condition. He questioned the customary interpretation of faecal-fat analysis and the flat oral glucose absorption curve in coeliac disease. While faecal-fat analysis might have some diagnostic value in coeliac disease it was not a good guide to treatment.

Dr D A K Black (Manchester) said that the most important small-gut disease in adults was steatorrhoea—a bad name for the defect was certainly not limited to fat absorption. Glucose was also poorly absorbed, and in severe cases of sprue even water and salt were poorly absorbed. Deficient fat absorption was partial at least 50% being absorbed, and in many cases as much as 70%. Unabsorbed fat might irritate the colon and thus cause diarrhoea. That could be checked to some extent by administering calcium salts, which probably precipitated the soluble soaps, which were less irritant.

One of the features of steatorrhoea was its pleomorphism. Some cases might have normal stools and no diarrhoea. Sprue might present as a refractory anaemia, not necessarily of the macrocytic type. This made diagnosis very difficult, and radiological investigation, particularly with the aid of drugs, was necessary.

Professor A C Frazer (Birmingham) said that he and his colleagues had attempted to produce an abnormal pattern of barium in the small bowel of normal subjects. By adding products of fat digestion to barium sulphate they had constantly succeeded both by the oral method and by intubation. Giving ordinary fat with barium did not cause segmentation of the meal. One must hydrolyse the fat. The segmental pattern could be restored to normal by giving calcium, which removed the fatty acid.

#### The Pancreas

In the afternoon Dr Kemp Harper (London) spoke on calcification calculi, and cysts of the pancreas. In ordinary radiological practice calcification was rarely seen in the pancreas perhaps partly because plain films of the abdomen were relatively rarely taken. Ludin had x-rayed 2 000 cadavers and had





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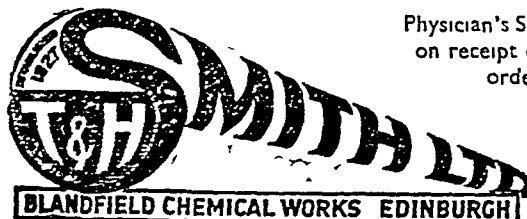
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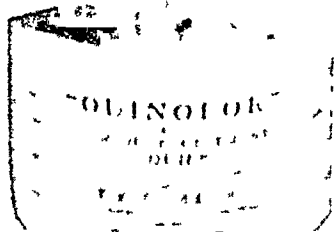
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**Radio iodine (8-day,  $I^{131}$ )**—Physical properties half life 8 days Radiation negative beta rays and gamma rays Energy beta rays, maximum 0.6 Mev, mean 0.205 Mev, gamma rays, 0.367 and 0.08 Mev (85-90%), 0.65 Mev (10-15%) Range in water of beta rays maximum 0.22 cm 1 millicurie per gramme of tissue delivered 7.83 r per minute, so that without excretion 1 microcurie destroyed per gramme gave a dose of 130 r, or, assuming an effective half life of 6.32 days to allow for excretion, this dose was reduced to 103 r It should be noted that the normal thyroid weighed  $25 \pm 5$  g and contained 10-15 mg of iodine

An example of the type which might occur in practice was hyperthyroidism—for 80% fixation of  $I^{131}$  in a thyroid weighing 60 g, 4 millicuries administered by mouth would produce a total dose of approximately 5,500 r in a mean time of 9.1 days, carcinoma—assuming in this case 50% fixation in a tumour weighing 300 g, 58.4 millicuries gave a total dose of about 10,000 r

In the discussion which followed Dr Leo Wislicki asked how to relate doses of radioactive elements to the weight of various types of goitre, and also if it was possible to measure the distribution of radioactive elements in the different parts of the living animal

Professor Mitchell agreed that most calculations and work done with models of thyroids were subject to very serious limitations, and great accuracy was not to be expected, all gave results based on an average concentration assuming uniform distribution Dr McFarlane replied that there was considerable information on distribution and mentioned particularly sodium and iodine although most of the results were based on animal experiments With an external counter the accuracy of localization was not very high Dr C. J. L. Thurgar (Newcastle upon Tyne) wanted to know what happened in the treatment of carcinoma of the thyroid by radioactive iodine, to that proportion of the iodine which was not fixed by the tumour He stated that to deliver a dose of 10,000 r to the thyroid with  $I^{131}$  it was necessary to give between 50 and 60 mc of the isotope of which 50% was fixed Was the remainder excreted rapidly, and did the heavy dosage employed result in any undesirable side-effects using either of the radioactive isotopes of iodine? Professor Mitchell explained that part of this was excreted fairly rapidly, although the possibility of renal damage in the process and storage elsewhere must always be considered Dr F. T. Farmer (Newcastle upon Tyne) said it seemed clear that except in the case of iodine the selective absorption of isotopes in various parts of the body was very slight and held little promise for the treatment of tumours The alternative possibility of preparing an organic compound which was taken up by the body and concentrated into tumour tissues, and which could be made radioactive by the inclusion of a suitable isotope was one which seemed to hold considerable promise, and he asked what progress had been made in this direction Professor Mitchell replied that much work had been done, with negligible results An alternative approach was the use of inactive substances to increase

the subsequent uptake of the radioactive materials, an example being the administration of thiouracil

### Discussion

Dr Frank Ellis (London) referred to the example quoted by Professor Frisch of K-electron capture in vanadium<sup>50</sup> followed by the emission of  $\gamma$  radiation, and asked whether it would be possible to obtain an element suitable for absorption in tissue and transforming in this way with the emission of characteristic radiation of wavelength about 4 Angstrom units, which would be expected to be most effective for chromosome breakage Professor Mitchell thought the substances of this type would be difficult to obtain, but drew attention to the possibility of using isotopes emitting alpha particles with energies of the order of 6 Mev and a range of 15  $\mu$ , which would have a high efficiency in chromosome breakage Professor Frisch emphasized that K-capture transformation occurred mainly with elements heavier than calcium—for example, in the region of zinc and nickel—but that consequently the characteristic radiations were harder than was desirable Dr Ellis asked Professor Mitchell about the genetic effects likely to be caused by tracer amounts of isotopes Professor Mitchell explained that such effects would be limited to a small fraction of the population and in most cases would be of the nature of deleterious recessives and so not visible for generations, also translocations and semi-sterility would be probable types of changes Dr Ellis described work which had been started at the London Hospital with thorium X injected into the bladder in order to make use of the short-range alpha particles It had been found that the thorium X was deposited on the bladder surface, and the resulting intimate contact made it possible to use smaller amounts than was at first expected When phosphorus<sup>32</sup> was used in the hope of getting greater radiation penetration there was no similar "sticking" to the surface, and much larger quantities were required It was hoped that by the choice of a suitable phosphorus compound this could be improved It was found that, for such intracavitary applications as in the case of the bladder, thorium X had advantages over the normal use of  $\alpha$  rays

## SECTION OF OCCUPATIONAL HEALTH

Friday July 2

### Aviation Medicine Applied to Civil Aviation

Professor Ronald E. Lane was in the chair when Air Marshal Sir Harold Whittingham, opening the discussion said that aviation medicine was divided into two main sections, one which dealt with ground staff and concerned a variety of trades common to many branches of industry, while the other appertained to flying proper Emphasis was laid on the physiological, psychological, and hygienic problems concerned, particularly with regard to selection of air crew and the maintenance of their efficiency during flight He stressed the importance of safety and comfort for both air crew and passengers in civil flying and gave a brief review of the main advances in aviation medicine as applied to civil aviation These advances were divided into two groups—namely, those which had originated in Service researches during the war and those now being undertaken by research workers employed by the British Airways Corporation working in collaboration with their Service colleagues at the R. A. F. Institute of Aviation Medicine The chief items discussed were air sickness, air conditioning of pressurized aircraft, oxygen equipment, aircraft accidents—with a plea for backward-facing seats, flight schedules and their relation to fatigue, retiring ages for various members of air crew, seat design, safety belts, and life jackets, the maintenance of safe water and food supplies on air routes and the use of the deep-freezing technique for pre-cooked foods, and the disinsection of aircraft and other quarantine problems, including the standardization of vaccines and the technique of preparation and inoculation

### Physiology of Stratosphere Flying

Wing-Commander A. K. Stewart (Farnborough) said that, as compared with ordinary military or civil flying at altitudes up to 30,000 ft, stratosphere flying would probably be characterized by little turbulence, in addition, the moisture content





The significance of refraction in relation to general and ocular diseases was then discussed. Diabetes mellitus was the disease most commonly affecting refraction, though it was strange that, according to Sir Stewart Duke-Elder only 10% of diabetics noted any change. The change was probably due to alterations in the size of the lens, since in one unilateral aphakic patient the changes occurred in the normal eye only. Spectacles, he said, should not be ordered until the diabetes was fully stabilized.

Patients with psychosomatic disorders affecting accommodation might complain of dimness of vision due to temporary failure or irritability of accommodation. When occurring in otherwise healthy young adults this might be cured by glasses for close work only. A case of Mr H. Neame's was quoted of a girl with myopia whose sight was partially improved by glasses, but after leaving home to do war work which she enjoyed the myopia disappeared and the sight became normal. Other causes for changes in refraction included pressure on the globe by small tarsal cysts or lacrimal gland swelling, mild degrees of conical cornea, and central serous retinitis. Glaucoma was said to cause premature presbyopia, but he had never seen a case. Finally, he considered errors of refraction which might be the direct cause of eyestrain, defective vision and imbalance between accommodation and convergence. The latter was the undoubted cause of a number of squints, and in these cases defective vision might result in amblyopia ex anopsia. Psychological disorders might occur in children from defective vision, and eyestrain might set up a chain of events leading rarely, to murder or suicide. A rational view of the patient's symptoms must therefore be given him as well as a pair of spectacles.

The third speaker, Mr. Victor Purvis (London) began by saying that a busy clinic refractionist could not allow himself to remember that refraction was more than a rapid retinoscopy and a sick subjective test, but that even if time were taken to examine the patient carefully there was a difference between practice and precept and an extraordinary disparity between one surgeon and another. Refraction was an estimation of the patient's ophthalmic equipment and ocular requirements, therefore it was a matter for congratulation that prescriptions were so much alike. The aim was ocular comfort for the patient without making the test too strenuous either for the patient or for themselves. The method of retinoscopy was unimportant so long as the results were the same. Without a cycloplegic retinoscopy was inaccurate as the refraction was not taking place along the true axis, to reduce the error so far as possible the right eye should be used for the patient's right eye and vice versa.

Mr Purvis went on to discuss the advantages and disadvantages of cycloplegics, favouring the use of oil as opposed to watery homatropine. Atropine he reserved for squinting children. He admitted that cycloplegics took longer to act in the coloured races and when the iris was dark. He prophesied that non-luminous mirrors would soon be outdated by the electric retinoscope. Agreeing with Mr. Recordon that speed in testing was essential since the basis of the test was contrast, he went on to say that the examiner must take charge of his patient. The attention of the ciliary muscle and of the mind must never be allowed to wander. The most accurate subjective testing was carried out with the aid of crossed cylinders, especially for estimating astigmatism with a duochrome test for the final checking. He would not put any person into glasses if they were comfortable without, whether they could see 6/5 or not, excepting the growing child who in this competitive age should be given as good sight as his fellows.

During the discussion which followed Miss Margaret Dobson (London) said that she thought prisms were useful for exophoria but not for esophoria. Mr. R. F. Lowe (Melbourne) thought the relations between ophthalmologists and opticians required clarification since the surgeon could not be responsible for the refractions undertaken by opticians, who were not always accurate. Mr. Lister disagreed with this, he thought the work of the majority of opticians was most accurate. Dr. Jamna V. Dhurandhar (Bombay) said that many cases of presbyopia took maximum reading corrections at the age of 45. Mr. Recordon replied that in his opinion this was due to distance under-correction.

Mr. O. G. Morgan (London) thought that presbyopic corrections were generally too strong and that a patient should be

encouraged to leave off his glasses whenever possible. Dr. J. Berkson (Liverpool) said that in presbyopes often retinoscopy suggested that cylinders were not needed, but the addition of half a dioptre cylinder would increase the vision. Dr. Ryan (London) believed that more time should be devoted to the teaching of refraction and especially the interpretation of retinoscopy findings. Mr. L. G. Scouler (London) had found that 60% of patients had the left eye higher than the right and this should be taken into consideration when ordering glasses with cylinders. Dr. Duncan (Leicester) brought up the question of postural headache, and pseudo myopia in children, and Dr. M. L. Mistry (Bombay) cited the case of a woman with bilateral dilated fixed pupils.

In the afternoon a clinical meeting was held at Addenbrooke's Hospital and films on the following subjects were shown: operations for detachment by Stallard, intra- and extra-capsular cataract extraction, strabismus and glaucoma.

## SECTION OF ANATOMY AND ANTHROPOLOGY

Friday, July 2

### Present Position of Primate Anatomy

With the president, Professor H. A. Harris (Cambridge) in the chair, Professor Frederic Wood Jones (Royal College of Surgeons of England) opened a discussion on the present position of primate anatomy. He gave a provocative review against a strong historical background and emphasized the gradual growth of that cocksureness and conceit which characterized the zoologists at the end of the nineteenth century, when it was generally accepted that Charles Darwin and Thomas Henry Huxley had filled the cup of anatomical knowledge to the full. It was only at the beginning of this century that doubt was cast on their pronouncements and the renewed use of scalpel and forceps invalidated many of their assumptions and provided facts which were at variance with Darwin's *Descent of Man* (1859) and Huxley's *Man's Place in Nature* (1863).

Professor Wood Jones said that Darwin had no first-hand knowledge of the anatomy of any primates and what he retained at second hand was strangely inaccurate. Huxley's sole contribution to the study of primate anatomy was one small paper on the brain of *Ateles* the spider monkey, and his knowledge of primate anatomy was meagre. Yet at this very epoch Richard Owen, the master of comparative anatomy, and St. George Jackson Mivart, the master of primate anatomy, had provided accurate information on the anatomical structure of certain primates. Their findings were entirely at variance with the anecdotal type of information dispersed by Darwin and Huxley. Moreover, Robert Bentley Todd published his great *Cyclopaedia of Anatomy and Physiology* from 1835 to 1859 and it contained Vrolik's accurate article on the "Anatomy of the Quadrumana". The speaker pointed out how Darwin confused the maxilla and premaxilla with the malar bone and how all his notions of the entepitrochlear foramen in the humerus of man were faulty through lack of anatomical examination. Reference to Todd's *Cyclopaedia* would have saved both Darwin and Huxley from their mistakes. Professor Wood Jones traced the final failure of the morphological school from Darwin and Huxley through Haeckel and Bland-Sutton, and showed how the armchair analysis of atavistic structure became fashionable. He gave a rapid survey of the accurate workers in the field from Tyson (1669) on the gorilla, Burmeister (1846) on *Tarsius* and Alan Thompson (1839) on the ovum to modern times. In particular he stressed the manner in which accurate published information on comparative anatomy was neglected so that the re-examination of the platitudes of the morphological school was long overdue. He made a plea for the recording of the complete anatomy of a wide series of members of the primates so that clarity of thought might replace the illogical discussions on man's place among the primates.

Professor H. A. Harris (Cambridge) dealt briefly with the use of radiography in tracing the comparative features of growth in the primates. As he had prepared an extensive demonstration of primate specimens with their radiographs, he limited himself to a brief discussion of the growth of the skull and the face and the eruption of the deciduous and permanent dentition indicating how the order of eruption differed in primates and man. He mentioned the wide variation in the pattern of



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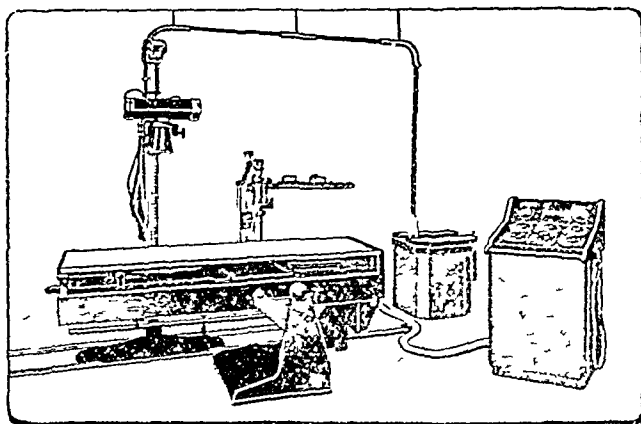


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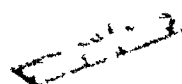


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actions. He quoted Schild's demonstration that sensitized guinea pig muscle, suspended in a bath, contracted in response to histamine, after exposure to a large dose it was unaffected by a further application of histamine. Nevertheless addition of the antigen caused contraction, thus the cell responded to intrinsic histamine but not to extrinsic histamine. Such a conception might explain why antihistamine substances were good for vasomotor rhinitis but not for spasmodic asthma.

Discussing the release of histamine, Sir Henry said that the blood had been regarded simply as a vector of histamine, it should be studied as a tissue which itself might liberate histamine from eosinophil and other cells. Finally he referred to the possibility that histamine had a normal physiological function being released in small quantities to regulate the local blood supply and to Rein's statement that carbon dioxide potentiated the action of histamine. Care should be taken that antihistamines should not be used so as to interfere with this function.

Professor J. H. Gaddum (Edinburgh) said that the antihistamine substances were discovered in Paris largely by the work of Daniel Bovet, at a time when he was looking for anti-adrenaline substances. Co-operation between pharmacologists and chemists had resulted finally in the introduction in 1944 of 'neoantergan' (anthisan). In spite of the more recent introduction of other antihistamine substances, anthisan remained the best pharmacological tool, since it was more specific against histamine and less active against acetylcholine. Clinically the extreme specificity of anthisan against histamine might not be so important. Professor Gaddum described methods of testing antihistamine compounds, and pointed out that they reduced all histamine effects except its action on gastric juice. They had in addition local anaesthetic properties and a quinidine-like action on the heart.

Dr R. B. Hunter (Edinburgh) discussed the clinical uses of antihistamine substances. He emphasized the need for comparative antihistamine studies in man before a new substance was introduced for clinical use. These could be carried out on the skin or related to the effects of intravenous histamine. For example the incidence of toxic effects with R.P. 3277 was much greater than with anthisan. The beneficial action was best seen in urticaria. There was a diminution of the number of lesions within thirty minutes of the first dose. Dr Hunter showed the effect of increasing the daily dose of anthisan from 0.4 to 0.6 g daily at which point the urticaria was fully suppressed. In the course of treatment the daily requirement might diminish—for example from 0.7 to 0.2 g. It was not wise to stop treatment suddenly, or there might be a rebound effect. There was some evidence that 'benadryl' was better than anthisan for the relief of itching. Antihistamine substances had little effect on established lesions and when there was oedema of the tongue or glottis adrenaline was still required. When desensitization was necessary it should still be carried out. In severe cases of hay-fever desensitization followed by the use of antihistamine drugs during the season had produced complete relief in 95% of cases. In perennial rhinitis some relief was given by dummy tablets to 34% of a group of patients but 50% obtained complete relief by taking anthisan, a relief which was accompanied by the reversion of the allergic nasal mucosa to normal.

Dr R. P. Warin (Leeds) said that the side effects of R.P. 3277 passed off before the antihistamine effects. This substance had therefore been given in urticaria in one dose at night. Side effects had not been seen the next day and the urticaria had been controlled. Observations made on 20 patients for six to nine months had shown that tolerance to antihistamine substances did not occur so far as could be seen from the size of histamine wheals in the skin.

Dr J. Shlosberg (Salford) and Dr H. G. J. Herxheimer (London) thought that antihistamine substances diminished the severity of asthmatic attacks in some cases. Dr W. Feldberg (Cambridge) said that the fact that antihistamine substances did not affect the gastric secretion might be related to the connexion between histamine action and carbon dioxide. If an animal was overventilated it was impossible to produce gastric secretion with histamine. Dr W. N. Leak (Winsford) said that the possibility of reducing the dose during treatment suggested that these antihistamine substances might lessen the formation of histamine as well as antagonize it. He mentioned the

case of a farmer who suffered from severe asthma for twenty years and recovered after the removal of a perforated appendix.

Dr Hunter replying to some discussion of the relief of itching said that the local analgesic action of antihistamines was short, while their effect on itching lasted for hours.

### Antidiuretic Hormone

With Professor A. C. Frazer (Birmingham) in the chair, Professor E. B. Verney opened a discussion on agents influencing the functions of the pars nervosa of the pituitary. He described the diuresis produced in a dog by giving water by mouth and the inhibition of the diuresis by a sensory stimulus. With O'Connor he had shown that this inhibition was due to the liberation of antidiuretic hormone from the pars nervosa. The pars nervosa received impulses from nerve cells in the supra-optic nucleus, and it was presumably through this nucleus that the sensory stimulus caused a discharge of antidiuretic hormone. Professor Verney said that the normal function of this mechanism was to keep the osmotic pressure of the plasma as nearly constant as possible. If an injection of hypertonic sodium chloride was made into the carotid artery of the dog then an inhibition of diuresis occurred and the greater part of this inhibition disappeared after removal of the posterior lobe. The response to sodium chloride was determined by the change in osmotic pressure and the term "osmoreceptors" had been introduced as a name for the receptor elements which were somewhere in the vascular bed of the internal carotid artery. The results of long-period intracarotid infusions showed that the osmoreceptors were freely permeable to and not affected by urea, less freely permeable to dextrose, and relatively impermeable to sodium chloride and sucrose. The local increase in osmotic pressure required in a forty-minute infusion on one side to reduce the urine flow during water diuresis to about 10% of its maximum was about 18% only. Water diuresis was aptly described as a condition of physiological diabetes insipidus, the antidiuretic secretion of the neurohypophysis being a hormone in the sense that its liberation was governed by the concentration of osmotically active substances, like sodium chloride, in the plasma.

Dr Mary Pickford (Edinburgh) described experiments in which the injection of acetylcholine into a dog during water diuresis caused inhibition of the diuresis. These experiments were performed when the dog was fully atropinized. The inhibition was not seen when the posterior lobe was removed. It had been possible to demonstrate that the site of action of the acetylcholine was the supra-optic nucleus. This was accomplished by making the injection directly into the nucleus. It was found that a very small amount of acetylcholine caused inhibition provided that it was injected into the nucleus, but not outside it. The precise point of injection was determined by mixing Indian ink with the acetylcholine solution. By the injection of DFP, the potent anticholinesterase, into the nucleus, a state of complete anuria had been produced followed by a period of polyuria and thirst for two to three days. Thus a temporary diabetes insipidus had been created.

Professor J. H. Burn (Oxford) said that the effect of acetylcholine on the supra-optic nucleus must be a nicotine-like action, since it occurred in the atropinized animal. They had therefore tested nicotine in the rat and had found that it produced inhibition of a water diuresis, an inhibition which was not seen in the rat after hypophysectomy. Next they had observed that inhaling the smoke of one or two cigarettes exerted an antidiuretic effect in man and that a similar effect was produced by the intravenous injection of the amount of nicotine inhaled in smoking one or two cigarettes. They had found that the inhibition produced was similar to that caused by 50–100 milli-units of posterior lobe extract. This corresponded to 10–20 milli-units per litre of blood. Further experiments by Dr E. Bulbring and Dr J. M. Walker had demonstrated that the intravenous infusion of nicotine into an anaesthetized dog led to coronary constriction. In observations on the heart-lung preparation of the dog they had found that the amounts of posterior lobe extract which when added to the venous reservoir were just sufficient to cause coronary constriction were 10–20 milli-units per litre, a concentration of the same order as that produced in the blood by smoking. Hence the evidence indicated that smoking might cause coronary constriction.



Dr W J O Connor (Cambridge) described experiments in which salt was given to dogs before and after diabetes insipidus was produced by section of tracts from the supraoptic nucleus. He said that the absence of the antidiuretic hormone did not influence chloride excretion, but the neurohypophysis determined the concentration of chloride in the urine, enabling the body to retain water during the excretion of salt. His evidence showed that only a small fraction of the maximal capacity of the neurohypophysis was required to control the full range of kidney function.

Dr G W Theobald (Bradford) said that, since very minute amounts (0.005-0.01 unit) of post pituitary extract inhibited water diuresis in man, it seemed logical to assume that amounts of the oxytocic hormone of the same order would stimulate uterine contractions. In Bradford it had been found possible to induce labour subsequent to rupture of the membranes and to augment the force of contractions in uterine inertia by means of a 1 in 10,000 solution of pituitrin given intravenously at a rate of 1 ml per minute.

Dr W Feldberg (Cambridge) said that he had obtained additional evidence for the suggestion that the nerve fibres impinging on the supraoptic nucleus acted by releasing acetylcholine since the brain in this region had a high capacity for acetylcholine synthesis.

### ORDER OF ST JOHN OF JERUSALEM

The *London Gazette* has announced the following promotions in, and appointments to, the Venerable Order of the Hospital of St John of Jerusalem.

As *Knights* Brigadier Sir W S Duke Elder, KCVO, MD, FRCS, and Dr Christopher Armstrong. As *Commanders (Brothers)* Lieutenant-Colonel W S Copeman, OBE, MD, FRCP, and Surgeon Rear-Admirals Sir H E Y White, KCVO, OBE, MD, FRCS, KHS, and C E Greeson CB, MD, KHP. As *Associate Commanders (Brothers)* Major-General A N Sharma, IMS, and Drs K B A Hamid, MBE, and P C Roy. As *Officers (Brothers)* Surgeon Captains W Colborne, FRCS, and F G Hunt, CBE, MB, RN, Prof P Farrugia, MD, Messrs F W Law, FRCS, and N G W Davidson, OBE, FRCS, Drs C Hibbert, J D Ingram, R G Selby, E K Macdonald, OBE, J L Johnston H Scholefield, J A Davies, J P J Jenkins, OBE, TD, G W H Townsend, T Hampson, MC and R Paton. As *Associate Officers (Brothers)* Lieutenant Colonels D P Nath, MB, and G D Malhousir, OBE, MB, IMS, and Captain K B N J Vazifdar, MBE. As *Associate Officer (Sister)* Dr Chit Tin. As *Serving Brothers* Surgeon Commander C N H Joynt, MB, and Surgeon Lieutenant Commander W S Miller, MB, RN, Messrs R M Hill, MD, FRCS, and R E M Pilcher, FRCS, Drs P N Grimling, E F Brown, J G Billington, K A Boughton-Thomas, R Rodger, J S Laurie, J G F Hoslen, J Pereira, N R H Holmes W W J Lawson, A Macinnes H I Marriner, J V Tollington, Thomas Jones F J Rees, and J F Scales. As *Associate Serving Brothers* Drs A Nath, J Shikbo, and V Aye Pe. As *Serving Sisters* Drs Annette G T Anderson, Marian Mixwell Reekie, Marjorie C Chappel, and Sylvia M T John.

## Nova et Vetera

### AN EARLY WORK ON MEDICAL JURISPRUDENCE

I have come across an interesting book, published in 1815, the title of which is *Elements of Medical Jurisprudence or A succinct and compendious description of such tokens in the human body as are required to determine the Judgment of a Coroner and Courts of Law in cases of Divorce Rape Murder etc to which are added directions for preserving the Public Health*. It is by Samuel Farr, MD, and includes an essay by Dr William Hunter on observations on the uncertainty of the signs of murder in the case of bastard children. The first edition was printed in 1787, and it is claimed to be the earliest work published in England on medical jurisprudence. The book is a small one, the eight chapters on medico-legal matters, the chapter on public health, and Dr Hunter's essay occupy together less than 200 small octavo pages.

The eight chapters on medical jurisprudence deal with pregnancy, parturition, divorce, rape, murder of infants, homicide, insanity, and malingering. The chapter on public health is

particularly interesting for it was written over 50 years before the first Public Health Act of 1848, the centenary of which is being celebrated this year. It is there suggested that magistrates should consult physicians of the first eminence with the idea of vesting powers in proper authorities for a general public health service—an excellent vision of things to come. Three general principles are laid down: (1) to prevent everything which may injure public health, (2) to see that sick people are properly treated, (3) to prevent the spread of infectious disease. These are three excellent propositions.

Under heading (1) fresh air, pure water-supply, and fresh and wholesome food are advocated. Unqualified practice is severely disapproved. Farr's observations on quacks are worth quoting. No one can tell how much they injure society by violent medicines the effects of which they do not see. They may introduce some fatal disease, and by inefficacious ones they prevent the effects of those which are proper. Many years ago a tax was laid upon quack medicines in England, which, it was presumed, would rather tend to suppress the sale of such articles, the contrary, however, has been found to be the effect for every quack now professes that his medicine has the sanction of Government and thus is the public the more easily deluded.

Under heading (2) he advises the provision of more hospitals and the better training of medical men, and under heading (3) the segregation of the infectious, the institution of quarantine and the destruction of infected clothing are among the measures advocated. There are a few suggestions which will appear quaint to us to-day. "Chewing tobacco and other herbs should be used. Flowers should be introduced in sick-rooms." The introduction of flowers and herbs, especially in Law Courts where great distemper prevails, are among the suggestions made. It is still a custom to present the presiding judge at many of our courts with a bouquet—a remnant of the old measure for protection from infection.

Remarkably foreseeing as these proposed measures were, it is strange that the whole subject of public health in 1815 could be contained in seventeen small pages of a book.

The chapters on medical jurisprudence on the whole contain few statements which could not be incorporated with accuracy in a textbook issued to-day. But there are a few assertions made which would not be considered as holding good to-day. For instance under rape I doubt if this extract can be accepted as correct: "But the consummation of a rape, by which is meant a complete full, and entire coition which is made without any consent or permission of the woman, seems to be impossible unless some very extraordinary circumstances occur." Again, it is stated that if absolute rape is perpetrated pregnancy is unlikely. This is not in accordance with fact.

In speaking of abortion Farr makes the statement that there is no drug known which by itself will cause abortion. This is perfectly correct if one adds the words "without grave risk to the health or life of the mother."

The book concludes with a chapter by William Hunter on the uncertainty of the signs of murder in the case of bastard children. The distinguished author of this essay makes an eloquent plea for a more merciful treatment of women accused of infanticide of their illegitimate offspring pointing out the necessity for much more careful and scientific examination of the dead child before deciding it has been killed and has not died naturally.

This little book, published first over 150 years ago, is remarkable in that almost all contained in it is in accordance with orthodox medical jurisprudence and public health to-day.

L A PARRY

The British Council is arranging a programme for Lieut-Gen. Kim Cheung, Dorn of the Army Medical College Shanghai, who is visiting Britain to see methods of undergraduate and postgraduate medical training in hospitals and universities, the medical organization of the British Army, and military medical training. He is also interested in elementary and secondary education. A graduate of the National Army Medical College, Peking, and an MD of Berlin University, Lieut-Gen. Kim Cheung was Surgeon General of the Chinese Army for several years during the war, and a member of a mission to the USA to study medical education and training in 1947-8. During his two and a half months' stay in Britain he will visit Cambridge, Oxford, Edinburgh, Glasgow, and Liverpool.

## Correspondence

### Status of the Academic Worker

SIR—It is surprising that many medically qualified academic workers are not yet aware of the Full-Time Non-Professorial Medical Teachers, Laboratory or Research Workers Group of the British Medical Association. Short notices dealing with the proceedings of this group appear from time to time in the *Journal* and yet somehow fail to catch the eye of many of the Association's members working in laboratories.

It is particularly unfortunate that at this time of change and uncertainty so many should be unaware of the group that represents their interests. The need for such a body is overwhelming, especially for the more junior members at present occupying demonstratorships or equivalent posts. This class of worker, unless possessed of private means, seems to day to be in an almost impossible position. After spending some three years taking a high-class honours degree in natural sciences (in common with general science students), followed in some cases by a year of preliminary research, he proceeds with the usual three years' hospital training and a year in house posts. Then on returning to the academic sphere he realizes that the medical degree he once thought to be only an advantage is in reality a mixed blessing. His colleagues, who are not medically qualified, have four years' seniority in teaching and research experience. After a further five to ten years' work he finds that he is, under present conditions, unable to provide a reasonable household for his family or to educate his children in the way he desires. His misfortune is that often his outlook precludes any active steps to alter his conditions of service or reward. Whilst the Inter Departmental Committee puts forward recommendations dealing with the remuneration of practising consultants and specialists, and the NHS (whatever its failings may be) deals with the remuneration of the general practitioner, the medically qualified academic worker is apparently forgotten.

Unless some change in conditions occurs it seems inevitable that this valuable member of the community will disappear. Present workers will probably be unwilling to change their mode of existence, but lack of replacement will lead to extinction of this branch of the profession. If an academic career is planned, a medical degree will be regarded as an unnecessary refinement. If a medical degree is obtained, the financial attractions of specialist or general practice will be too strong to resist. The medically qualified preclinical teacher will cease to exist. This is a very real and grave danger, and would seriously affect the standard of medical education in this country. At least a few medically qualified pathologists, physiologists, pharmacologists, biochemists, and anatomists are essential. The condition of survival of these teachers is largely dependent on their activities as a corporate body. For this reason I feel the lack of knowledge in academic circles concerning the existence of the only body of this kind—viz., the Full-Time Non-Professorial Group—is to be greatly deplored—I am, etc.

Cambridge

GEOFFREY W HARRIS

### Prevention of Venereal Disease

SIR—The latest Report of the Ministry of Health (for the year ended March 31, 1946) has to acknowledge an alarming setback in venereal disease that has dismayed everyone who understands its significance. The Report of the Ministry says "During the year 1945 the incidence of syphilis and gonorrhoea increased appreciably." This has happened after large sums of public money have been spent by the Government, through the Central Council for Health Education, in telling the public of the dangers of VD, and in trying to conquer VD by fear and persuasion, coupled with treatment after the illness has developed. The public has not been allowed to learn the vitally important fact that a great deal of VD is easily prevented. This is a scientific fact and it has been known for forty years.

During the great wars the fighting services all over the world, owing mainly to the persistent efforts of this Society, were protected (more or less, according to the enthusiasm of the

officer-in-charge) against these diseases by the preventive measures we have advocated for thirty years. But the civilian population all the time has been kept in ignorance, and so VD is on the increase.

The statement by the Government-appointed Trevethin Committee (1922) that "properly and promptly applied disinfection would almost certainly prove effectual" has been ignored, and up to the present no Government has had the courage to translate these findings into action. It has been left to us, a voluntarily supported society, to work alone. And not only do we have to fight disease but very often violent prejudice as well.

Our policy is threefold: (1) to educate the public with regard to the fact that VD can be prevented by simple, scientific measures; (2) to supply all interested persons with details of such measures; (3) to secure the necessary alteration of the law to enable preventive materials to be sold together with instructions. This Society cordially supports any and every method whereby VD can be combated, but it is confident that VD will be eliminated only by practical prevention. Without practical prevention any campaign against VD is doomed to failure.

About 100,000 men and women sufferers from VD will be treated at clinics this year, and there will be a great number of infected persons who will not go to clinics. We are planning a great campaign to set the people free from VD and from the prejudiced tyranny that has kept them in ignorance of the facts. The scope and magnitude of this great attack depends upon the support we receive from the profession and from the general public. Let us show you how you can help—I am, etc.,

HORDER,  
President

47 Nottingham Place  
London W 1

National Society for the Prevention  
of Venereal Disease

### A Tribute to Former Officers of the LCC

SIR—As an addendum to Sir Allen Daley's wholly admirable article on "The Health and Municipal Hospital Services of London" (July 3, p. 19), I should be grateful if you would allow me to pay my humble tribute to the truly magnificent services rendered to the LCC Hospital Service between 1930 and 1939 by the principal medical officers of those years, Dr William Brander and Dr H W Bruce (general hospitals), Dr J A H Brincker (special hospitals), and the late Miss Bannon CBE matron-in-chief. I should also like to add Dr W B Knobel who, working in close co-operation with the Supplies Department of the Council, was responsible for the building up and development of an extremely important section of the Hospital Service.

Not one of these ever received any public recognition of their great services to London—all the more reason therefore for their old chief to take this opportunity, when the LCC Hospital Service has come to an end, of placing on record the great debt of gratitude due to them by all Londoners—I am etc.

London W 8

FREDERICK MENZIES

### Test of Death

SIR—The alteration in the contour of the pupil on pressing with the finger over the ciliary region of the eye, as mentioned by Dr G P Bletchley (June 26, p. 1257), depends on the intraocular pressure. In the normal eye this sign is present in life. It is more easily noticed in eyes with relatively low pressure, and is made use of by ophthalmic surgeons to provide evidence of the state of the intraocular pressure. It is less easy to detect if the pupil is small, but it is nevertheless present. If one eye is covered the pupil of the other dilates slightly, and the change of shape is more easily seen. As soon as the blood supply to the eye ceases, as in death, the intraocular pressure falls and the alteration in shape on pressure is then obvious and might be made use of as a "test of death," but it is hardly correct to state "that it is impossible to press the pupil out of its circular shape during life." It seems open to question whether such a test would be reliable in the kind of case in which a test of death is required—I am, etc.,

Edinburgh

H M TRAQUAIR

### Voluntary Euthanasia

SIR—Cardinal Griffin's outspoken condemnation of voluntary euthanasia at a service for delegates to the B M A meeting at Cambridge held in the Roman Catholic church has received considerable notice in the Press. One of his grounds for condemnation was that "a doctor's duty is to save life and not to destroy it", and "if it were recognized as part of his duty to inflict death he would rightly deserve to lose any confidence that the public had ever placed in him" (I quote from a report in the *Manchester Guardian*). May I point out that doctors have many other duties besides saving life, also that under our Bill—the Voluntary Euthanasia Legalization Bill—introduced into the House of Lords by the late Lord Ponsonby, it is not proposed that any general practitioner should ever be called upon 'as part of his duty' to administer voluntary euthanasia. On the other hand it is expressly laid down that only a doctor who has obtained a special licence for the purpose may do so—I am, etc.,

Leicester

C KILLICK MILLARD  
Hon Sec. Voluntary Euthanasia  
Legalization Society

### BCG Vaccination

SIR—In a recent letter Prof. G. S. Wilson (June 26, p. 1254) pleaded for "a properly controlled investigation into the value of BCG vaccination under English conditions. I thoroughly agree with him and believe that this would be a most valuable piece of research."

But he also suggests that the BCG should not be released for use in this country until this experiment, which he has estimated may take from five to ten years, is concluded. Though I made a similar suggestion myself in 1934, much has happened since then, and I do not now see on what grounds we can continue to be one of the few remaining countries in the world in which this vaccine is not obtainable.

Well over three million children have been vaccinated over the last 26 years, and it is now generally conceded that the vaccine is safe, moreover at the recent Congress International du BCG in Paris, at which thirty-five countries were represented and over eighty papers read, no instance was reported in which the BCG failed to produce immunity. As I have shown elsewhere,<sup>1</sup> BCG vaccination can be added at little expense to our organization for fighting tuberculosis without in any way interfering with the existing scheme.

It has been pointed out that in this country there is a tendency to a decline in the incidence of tuberculosis without the use of BCG, paradoxically this very decline is resulting in an increasing number of young adults leaving school and entering factories with a negative Mantoux. Need they, together with the children who are forced to remain in contact with tuberculosis through the present lack of institutional accommodation, await the result of the British experiment before receiving the benefit, however statistically unproven, of BCG vaccination?—I am, etc.,

Henley-on-Thames

K. NEVILLE IRVING

#### REFERENCES

- <sup>1</sup> *British Medical Journal* 1947, 2, 855
- <sup>2</sup> *The BCG Vaccine* 1934, Oxford University Press
- <sup>3</sup> *Practitioner*, 1917, 159, 50

### Prevention of Dust Diseases of the Lung

SIR—After perusing recent articles on pneumoconiosis, anthracosis, and affections of the lungs due to the inhalation of dust and irritant particles (May 29, p. 1015, June 5, pp. 1065 and 1087), one is again lost in wonder that no mention is made of the simple and sure means of prevention and protection—that is the use of a small light pad over the nose and mouth, as worn by nurses in the operating theatre, children's wards, etc. The pads, of course, are merely some six folds of butter muslin or gauze, with tapes to tie behind the head, and could be provided in unlimited quantities to be discarded after use. Grit and dust particles cannot be inhaled through such a protection, and all workers under dusty conditions could be assured that no harmful results could possibly occur if so protected. The application to coal-miners is, of course, particularly significant at the present time.

By all means let us diminish or eliminate as much as possible the creation of dust and grit in trade processes, mining, etc., but surely real prevention of anthracosis, silicosis, or any form of pneumoconiosis can be obtained only by providing any exposed worker with a simple shield which will prevent any dust particles from ever gaining access to his respiratory system. The Director of the Pneumoconiosis Research Unit states that pneumoconiosis is a preventable disease and calls for imperative administrative action. How very right! But is it too much to hope that such action might be directed towards preventing the condition arising by the simple expedient suggested rather than setting up a costly organization to deal with the crippling and often fatal, after-effects?—I am, etc.,

Nottingham

LEONARD W. HEARN  
Senior Tuberculosis Officer

### Gastric Herpes Zoster

SIR—I read with interest the two cases of so-called gastric herpes zoster reported by Dr R. V. Stone (May 8, p. 882) and by Dr P. E. Fitzpatrick (June 19, p. 1206). However, I should like to point out that neither the epigastric parietes nor the stomach itself is innervated by fibres from T 9 and 10. There is still no unanimity on abdominal topography, and I strongly advise the acceptance of the recommendations of Brown and Smith.<sup>1</sup> They advocate a modified Glisson's method of subdividing the abdomen. If this were used, then it is easy to map out the cutaneous innervation. The epigastrium is innervated by fibres from T 5, 6 and 7, the umbilical region by fibres from T 8, 9 and 10 and the hypogastrium by fibres from T 11, 12 and L 1. Brown and Smith have shown that the umbilicus is an unreliable landmark and should never be used as such.

Brown has put forward the interesting theory that many organs (e.g. diaphragm, appendix, and testis) receive their nerve supply before migration and that once innervation is established future migration makes no difference to localization of pain. I believe that this also applies to the whole of the alimentary canal. In this case the stomach develops well cranially, probably opposite somites corresponding to T 5, 6 and 7, small intestine opposite T 8, 9 and 10 and large intestine opposite T 11 and 12 and L 1. One would expect pain from an ulcer at the lower end of the oesophagus to be "felt" in the distribution of T 4. Clinical observation shows this to be the case—the patient always pointing to an area in the midline above the xiphisternal joint. Similarly pain from a gastric ulcer is felt high in the epigastrium and duodenal ulcer low in the epigastrium (corresponding to T 5, 6 and 7). Small intestine pain is felt in the umbilical region (corresponding to T 8, 9, and 10)—the appendix corresponds to T 10 low in the umbilical region. Large intestine pain is felt in the hypogastrium (corresponding to T 11 and 12, and L 1).

It should be noted that the early pain is always felt in the midline—the early embryonic position. Accurately localized abdominal pain other than in the midline is always secondary to peritoneal peritoneum irritation—e.g. appendix pain in the right ilio fossa and gall bladder pain at the 9th rib—and is much later in onset—I am, etc.

Dundee

K. MILNE

#### REFERENCES

- <sup>1</sup> *Lancet* 1945, 1, 10
- <sup>2</sup> *Ibid.* 1948, 1, 386
- <sup>3</sup> *Gray's Anatomy* 1946, W. B. Saunders, London

### Pain in Childbirth

SIR—The correspondence regarding pain in childbirth indicates that too little is known of the value for the emotional life of women of the experience of childbirth. My work for the Sheffield Marriage Guidance Council brings me in touch with cases where chronic unhappiness, constant ill health and marriage breakdown are clearly due in part to the wife's unsatisfactory sexual achievement. This is frequently associated with failure to achieve orgasm during intercourse, but this is in fact so common that the problem is not as simple as it may have appeared.

Woman's sexual satisfaction is not necessarily achieved only during intercourse, but also during the whole sequence—pregnancy, parturition, and lactation—which brings a development

that is not only biological but has the highest personal qualities. It is therefore not so much a question of the experience of pain only, but of the experience of a profound and severe sensation. The anaesthetized Kaffir buck which has been alluded to felt nothing at all and naturally found difficulty in understanding the situation. The human mother can be persuaded that the babe is indeed the one she has been bearing but even then, unless labour has been long and difficult, she has at least a greater pleasure in being conscious and co-operative during what is after all a woman's major creative activity—the creation of another life.

Dr G. Dick Read's suggestion (June 26, p. 1256) that childbirth can be a wholly positive, responsible achievement should do much to redress the present tendency in some sections of the population to under-value the experiences of childbirth and the effort to over-stress the experience—sometimes disappointing—of intercourse, and to postpone conception indefinitely. Naturally there is a widespread reaction from the ignorance and proliferation of past generations and some couples find it wise to achieve a good married relationship before pregnancy but women need to find a balance and a new integration between their erotic and maternal sexual activity and the wider emotional and intellectual life of which they are capable. The over-possessive mother, of whom we are so afraid, may be compensating by a distortion of mother-love for an inadequate experience, at the proper stages of the sexual possibilities of marriage and motherhood. I know several cases where wives have more desire and a more successful relationship to their husbands after childbirth undertaken with Dr G. Dick Read's routine. I would not decry wholesale the use of anaesthetics in labour, but the case has been made for a reconsideration of this question.

The abandonment of moral standards and the appalling breakdown rate of marriages, with the resulting effects upon the health and happiness of the community, might well be checked by a higher value being set on woman's contribution to society. Economically and intellectually she has rightly achieved a position equal or nearly so to that of man but if her creative life lacks feminine development and expression not only she but our society as a whole will suffer distortion and frustration. Hence any contribution to our understanding of the experience of childbirth will be a help not only to obstetricians and psychiatrists—I am, etc.,

Sheffield

HELEN B. HERALOTS

SIR—I should like to thank Dr. Grantly Dick Read for his letter (June 26, p. 1256). I believe Dr. Read's approach to be the right one. Certainly his results are impressive and his technique should be investigated on an extensive scale.

In spite of the frightful scandals revealed in the 1937 maternity mortality report this country still steadfastly refuses to give our mothers proper attention. No serious attempt whatever is being made on a national scale to present motherhood to our girls as a wonderful experience and achievement. We are content that it shall remain a nightmare of horror for thousands of young women, and in this nightmare their spirit and their health is too often ruined—I am, etc.,

New Barnet, Herts

J. E. ELAM

### Lower-segment Caesarean Section

SIR—Mr. B. C. Murless has described in your columns (June 26, p. 1234) the ingenious instrument he has invented to help him in the extraction of the head from the lower uterine segment in caesarean section. When working without an assistant some such apparatus should prove exceedingly helpful. May I suggest to him the following manoeuvre when an assistant is available?

After the abdomen has been opened and the self-retaining retractor inserted, the operator puts both hands into the pelvis and elevates the head. His hands are then replaced by the assistant's left hand, which with the tips of the fingers (and with the wrist strongly dorsiflexed) keeps the head in the elevated position. The surgeon now incises the peritoneum in the line of the utero-vesical fold, sponges it down together with the bladder, and then cuts down on the head until the membranes are reached. These are picked up and cut with the scissors. The head immediately begins to present at the opening, and with a snick of the scissors in an

upward direction at either end of the wound sufficient room is available for the delivery of the head. While the incision is being made into the uterus the anaesthetist injects 1 mg. of ergometrine intravenously—I have entirely given up the use of "pitocin" for this purpose—and with the head directed into the wound the uterus does the rest.

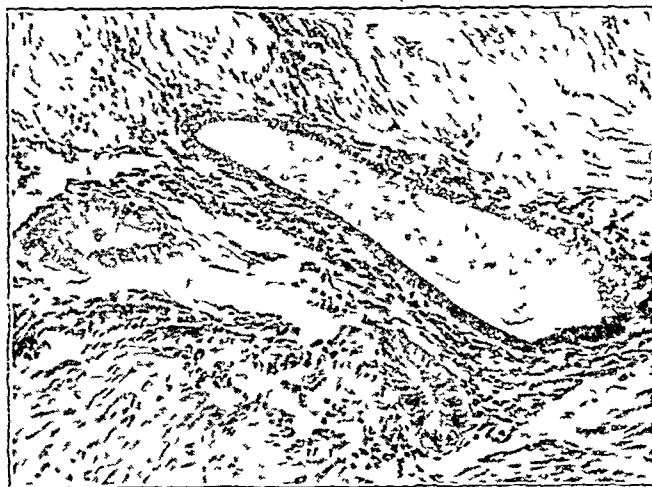
The only occasion on which any awkwardness may arise is when the assistant has an insufficiently supple wrist but after a little practice a sufficient dexterity is quickly acquired—I am, etc.,

Torquay

B. VENN DUNN

### Aberrant Endometrial Tissue and Intussusception

SIR—Dr. E. M. Southern (June 19, p. 1178) reports my case of irreducible intussusception at the apex of which was found endometrial tissue. He concludes that the chronic intussusception probably gave rise to the stimulus which caused serosal metaplasia. I submit that the ectopic endometrial tissue caused the intussusception. Since the menarche at 14 years this patient, now 23, had vomited on the first day of each period which necessitated her spending this day in bed. Since I resected the affected portion of the intestine she has had normal periods, free from vomiting. The history of recurrent attacks of intussusception was only three months. Part of the section (I enclose a photomicrograph) shows blood in the



endometrial tubules. My view is that her vomiting and pain on the first day of each period were due to this menstruation into the ileum. During the three months before operation this had caused sufficient swelling to form the apex of an intussusception, at first spontaneously reducible, finally irreducible. The fact that she no longer has dysmenorrhoea implies that all ectopic endometrial tissue has been removed—I am, etc.,

London N 19

G. C. DORLING

### Medical Photography

SIR—Having previously written to the *Journal* on the above subject I was interested in the letter by Dr. J. H. Twiston Davies (May 22, p. 1001). In the *Journal* of Oct. 20, 1945 (p. 548), Dr. S. Watson Smith wrote advocating the photographer-physician combination, and I agreed with him and gave some technical details of colour photography in the issue of Nov. 17, 1945 (p. 704), and also on the taking of colour photomicrographs with an ordinary camera in the *Journal* of Jan. 29, 1944 (p. 164).

During the past 22 years as a dermatologist I have done a good amount of clinical photography in this special branch. For the last nine years I have been converted to colour photography in particular, as it is undoubtedly the best medium on which to record skin cases. I know there are some snags and difficulties with colour work, but difficulties are made to be overcome, and when one remembers the early efforts at x-ray photography and compares them with the present products of that branch of medical photographic art, even on the 35 mm. mass radiography films now fairly popular, one must realize

that things have improved. I know that some dermatologists who have not been successful with colour photography say they would rather have a good black-and-white picture, but then the real answer should be that they ought not to have taken a bad colour one.

One of the present day troubles of acting as photographer-physician is that it is very difficult in these days of hard drudgery and work in dermatological out-patient departments (where often most of our best pictorial provender is provided) to find time to take any photographs. Hence, much as I dislike it, I have tried at different times to get a professional photographer to take photographs of a case for me. The result has always been most disappointing or a complete failure, even though the photographer has been a most highly qualified technical person. In my experience professional photographers are often somewhat fussy and pedantic, and more inclined to think of a studio portrait or picture than a clinical one. The latter may be taken solely to bring out some particular point—e.g., the burrow or acarus in scabies on the foot of an infant.

"Hospital photography departments are often an absurdity," as Dr Twiston Davies states. Furthermore, the so-called clinical camera is often an antique abomination and an anachronism totally unsuitable for its object. Usually it is a bulky half plate affair with a small aperture, poorish quality lens capable of only some prolonged exposures, and unable to reproduce true details in anything like reasonable time. Its bulkiness does not permit rapid change of position when taking a quickly moving object, and one would find it impossible to take such an object as an unruly child with eczema of the face, etc. It cannot conveniently be used anywhere in the hospital owing to its size, and is not suitable for use either at the bedside or in the out-patient department.

Having been somewhat destructive in my criticism, let me now offer some constructive ideas. For good clinical work I think a camera made on the combination of the ideas incorporated in either the "Leica" or "Contax" with the "Reflex Koralle" and provided with a good-quality lens capable of doing clinical work with an F 3.5 aperture would be valuable. It should be capable of taking a good detailed picture in artificial light using F 3.5 aperture at not more than one thirtieth of a second. If made on the above principle it should not be bulky or heavy in weight, and could readily be held in the hands if necessary for bedside work and also for taking photomicrographs in colour.

There are obvious advantages in using 35 mm film for clinical work, including convenient size, cheapness, and the fact that it is possible to get all varieties of film in this size. In the USA it is possible to get copies and enlargements in colour from 35 mm colour transparencies, and those I have seen are quite good, but owing to monetary difficulties in this country at present it is not feasible to get this done here. Perhaps later on it may be done, and in any case it is an accomplished fact.

With regard to a properly equipped photographic department in a hospital, there is always a certain amount of routine work that could be effectively carried out there, such as the taking of pictures of pathological post mortem specimens, photomicrographs of sections, copying, enlarging, and reducing prints and negatives, developing and printing, etc.

The other day, when I was at a certain hospital I was told the committee had sanctioned the purchase of photographic equipment up to £200 in all, and they thought this was an enormous sum for the purpose. I can assure them that this is not so. It might buy the very minimum required on the second hand market to start with but no more—I am etc.

Leicester

F A E SHOCK

SIR,—The criticism of my remarks by Mr William Gissane (July 3, p 53) in no way alters my opinion for from long experience, but on much more modest lines, I found that medical photography tended to useless extravagance particularly when the enthusiast did not bear the cost. As we are told that some 5,000 prints "are confined to less than 2% of the patients we treat," are we to assume that the rate of progression indicated by the figures quoted will continue with expansion of the department until 100% are photographed? I cannot help but think that research workers would benefit by memorizing Hamlet's advice to the players. Even if all the "hoped for" results could be so achieved, it would be well at this time, before launching out into expansions of ancillary services, to remember that we have run through the American loan of £937,000,000 in 18 months, and further loans threaten seriously to lower the already very low standard of living.

Nothing would have pleased me more than to have received the co-operation which would have permitted me to feel that I had earned the credit Mr Gissane so generously bestowed

No one knows the practice in modern fracture practice better than he but I have repeatedly warned clinicians of the folly of taking unnecessary risks, which they do by purposely avoiding rather than seeking the co-operation of radiologists. It is regarded as negligence in the courts if the doctor has failed to have x-rays taken in cases of possible bone and joint injury, but it should be realized that an equally serious charge may be sustained if it is proved that the radiography was insufficient or showed evidence readily recognized by the expert which had been overlooked. It would not help matters to urge that the hospital had available a competent radiologist—I am, etc.

Edgbaston Birmingham

JAMES F BRAILSFORD

### Surgery of the Heart

SIR—Everyone must be greatly interested in the newest approach to the surgery of the heart as detailed by Mr R C Brock (June 12 p 1121). His achievement at once reminds me of the foresight and vision of the late Sir Lauder Brunton (died 1916) who in 1902 wrote a "Preliminary note on the possibility of treating Mitral Stenosis by Surgical Methods" (*Lancet* 1902 1, 352).

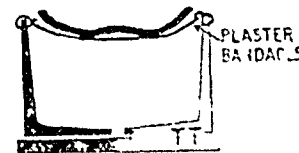
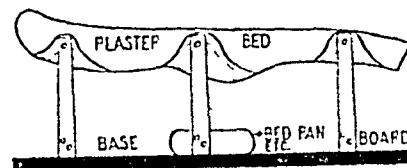
It was some years afterwards I heard that physician speak on the idea of its possibilities. Had he been with us to day he would indeed have been fascinated and glad to know that some surgeons have come so near to attaining what he envisaged—I am, etc.,

Maldenhead

G GREY TURNER

### Slings Plaster Beds

SIR—I am enclosing details of an extremely simple and very efficient method of slinging plaster beds etc. It lends itself to a variety of uses and simplifies the nursing problems. It is cheap and the parts can be used again. Also an infinite



Uprights are 10 in x 12 in domestic shelf brackets obtainable at any ironmonger's.

variety of cross bracing and strengthening is possible, even after the patient is in occupation of the cast—I am etc.

London NW4

ROBERT HUNT COOK

### Suggested Substitute for Talc

SIR—I have read with interest the three papers and your annotation (June 5, pp 1077, 1078, 1079 and 1090) on siliceous granuloma produced by talc when used as a dusting powder for rubber gloves in surgical operations. May I suggest that a suitable substitute for talc might be light basic magnesium carbonate in which the particles have been coated with magnesium stearate? The fatty acid content of the magnesium carbonate is about 4%. By this means the physical characteristics of talc are largely reproduced—its softness and slip. The apparent density is much lower than that of talc and therefore a smaller weight is required for dusting a given surface.

I do not think the magnesium carbonate would have any undesirable effect should any accidentally get into the wound but I am not sure about the small quantity of stearate. Alternatively, plain light magnesium carbonate might be sufficient for the purpose. Both these products are used in the rubber industry as dusting powders and are readily available—I am etc.

Washington Chemical Co. Ltd  
Washington Co. Durham

J S F GARD

### Acute Deficiency Diseases

SIR—In the pamphlet issued by the Nutrition Subcommittee of the Colonial Medical Research Committee on the treatment of acute deficiency diseases, referred to in a recent issue (June 26, p 1247), there appear to be some important omissions

1 Nutritional oedema is not mentioned yet experiences recorded by medical officers who were P O W s in the Far East show that not only was this more common there than wet beri-beri but had been frequently mistaken for that condition

2 Besides Wernicke's encephalopathy due to vitamin B, deficiency there is the pellagra encephalopathic syndrome described by Jolliffe and others which does not respond to vitamin B, but to high doses of nicotinic acid

3 No mention is made of central cord syndromes, which may or may not be associated with nutritional retrobulbar neuritis. Incidentally may one call attention here to the morbid histology of these conditions illustrated by H H Scott in his fatal cases of central neuritis (*Ann trop Med Parasit* 1918, 12, 109)?

An impression remains also that some of these deficiency states have been rather over-simplified, for in spite of our advances in knowledge some of the causes are still largely unknown even if others can be excluded—I am, etc,

Cheltenham

D FITZGERALD MOORE

### Inquests and the Press

SIR—Were it not a tragic sign of the times, it would be comic to see the British Medical Association becoming permeated with the most pernicious of all socialist ideas—that man must be guided, directed, bullied, exhorted, and, above all, protected from the hard world

I refer to the proposal to seek a limitation on the reporting of suicide cases on the grounds that others are tempted to do likewise, and I write not as a journalist wishing to report all the details for the sake of a "story," but in defence of the right of the responsible citizen to a newspaper which mirrors life in full, and not just so much of it as his legislators and their officials, and it now seems his medical advisers, think is good for him

Surely it is their preoccupation with mental illness that has made these members of such a body as the B M A subscribe to the current doctrine that the world must be made safe for the weak-headed. Must they not on reflection realize that the responsibility of the individual is the foundation on which rests the survival of mankind?—I am, etc,

Sheffield Telegraph

TUDOR I THOMAS,  
Chief Sub-editor

### "Young" Doctors

SIR—I and my contemporaries have to thank you for publishing Dr Hopkins's pathetically true letter (June 26, p 1258). What he complains of, in brief, is the premium of protracted penuriousness that continues to be placed on academic and clinical self-improvement, the result of the scandalous wages paid for "superior" appointments. The persistence of such a state of affairs is obviously the economic result of blind, thoughtless competition of the fierce present-day type. The shameful, unexaggerated truth of Dr Hopkins's statements is not in doubt from any quarter. If we, his fellow-sufferers, cannot unite in drawing the forceful, fecund attention of the profession and the public to this matter, we have only ourselves to blame—I am, etc,

London NW 3

A GUEDATARIAN

### The Homosexual in the Courts

SIR—The letter from Dr Eric Coplans (July 3, p 53) properly draws attention to a state of affairs which many of us regard as urgently needing full and frank discussion between doctor and lawyer. The situation such as Dr Coplans describes is no doubt distressing. I would submit that the situation of the homosexual who seeks advice on account of his homosexuality and recognizes that not only is he not as others but that a way of life which is to him desirable is barred to him

is in an even worse position. Such people suffer from a distress of mind which is profound and yet may in no way be aggravated by any threat of punishment

Study of these cases over a number of years leads me to suppose that there are certainly a variety of groups, including those in whom the activity is prosecuted in a manner suggesting depravity, those in whom the innate deviation has been successfully controlled until some additional factor breaks down that control, those in whom the innate deviation is recognized and deplored, and finally those in whom the innate deviation is present but not recognized or at a conscious level

There can be few of us who would not agree that assaults whether heterosexual or homosexual, upon children should be punishable but whether it should now be recognized that in homosexual as in heterosexual "assaults" an "age of consent" should obtain is a matter surely for careful debate. The law has been accused of lagging behind public opinion but recent events in both Houses have surely shown that careful study of medico-legal questions from all angles is necessary before any change in the existing penal code be considered—I am, etc

Turron Somerset

R SESSIONS HODGE

### Biography of Sir Bernard Spilsbury

SIR—I am collecting material for a biography of my father the late Sir Bernard Spilsbury, and would be most grateful to anyone who can supply any information which would be helpful. Any documents or photographs will be copied and returned immediately—I am, etc,

8 Eton Hall, Eton College Road,  
London NW 3

EVELYN STEELE

### A Medical Reply to the Minister

SIR—The Minister (July 3 p 1) sends a pleasant message to the profession on the eve of inaugurating the new Service. He lives on a plane remote from the hard and cruel facts of human suffering. His views are provocative

When during the past year the Minister and profession have been joined in battle, for him to say that the Act "has not had an altogether trouble-free gestation" is a travesty of truth. Nor is the money factor irrelevant to the doctor-patient relationship, though the manner of its transfer may need adjustment

He recognizes the stigma of "panel doctoring," but his Act offers to extend this degraded standard of practice to the whole nation. The conditions of the panel which prevent good work are aggravated by his legislation. Doctors are already over-worked and will be no more numerous but their surgeries more crowded. The undertaking is novel in taxing all classes but there will still be "two grade service under the Act," because like the Minister, many citizens disapprove of panel doctoring and, where able, will pay extra to obtain the advantages of a private doctor. This is as regrettable as it is inevitable. Sir Lionel Whitby cheers us by his erudite address following the Minister's message in the *BMJ* by impressive figures on the cost of elaborate modern medical services, prohibitive for the individual but now to be borne by the State. This is tantalizing as the benefits are not there to be paid for but merely a place on ignominious waiting lists. He quotes interesting historical precedents for State control of medicine, but omits mention of the disappointment that has followed recent efforts in other countries

The profession in the last decade expressed its whole hearted desire for a comprehensive national service, but between that great conception and the creation thereof we know by our knowledge and experience of health problems that a lengthy pregnancy must intervene. Had we been consulted in planning reformation the nation would have been spared the disgrace of last week's abortion. An "ambitious adventure" need not be precipitate. Some prominent doctors claim that the B M A has in recent weeks gained "a victory," but this is a misnomer for removing a few ugly excrescences off a sham castle

Let us go forward undaunted with the Minister to build a national health service, but it must be founded on truth and proceed by stages—I am, etc

Bristol

A WILFRID ADAMS



### Safeguards in Service

SIR,—As a member of the B M A who has been compelled, like many others, to join the National Health Service under economic pressure, I would like to ask our leaders the following questions

1 As we have now surrendered on all the points for which we fought, exactly what legal safeguards has the B M A secured for the doctor entering the Service against unfair dismissal or victimization on ideological or other grounds, seeing that we have surrendered the right of appeal to law against the decisions of an arbitrary authority? An Amending Act to prevent the institution of a salaried State service is obviously no sort of protection against injustice of this kind

2 In the event of one of its members being the victim of injustice and tyranny of this sort, exactly what action would the Association be prepared to take on his behalf?

3 Exactly what concessions (apart from the so called Amending Act) has the B M A secured for us from the Minister in return for the surrender of our fundamental rights as free men?

4 What grounds has the B M A for believing that, now we have surrendered completely, the politicians intend to carry out their obligations towards the profession in an honourable manner? For example, what guarantee have we from the Minister that the proposed capitation fee will under no circumstances be ever reduced?

5 What steps the leaders of the Association are taking to secure for our profession the same rights and privileges as those of other workers—i.e., the 48-hour week holidays with pay, guaranteed full employment, and so on

Would the leaders of the Association please issue a clear statement in answer to these questions?—I am, etc

London S E 6

G TAYLEUR STOCKINGS

### Film Propaganda and the NHS

SIR—Amidst the deluge of propaganda which the authorities deem necessary to herald the new Service, I wish to deplore the misrepresentation of medical practice and the general practitioner in the film features showing in the cinemas at present. The latest Ministry of Information effort shown in the local cinema suggests that the general practitioner is ineffectual and obsolescent—a purveyor of doubtful medicines, inadequate in the simplest diagnosis, quite ignorant of modern medicine and, in fact, a menace to the sick. But after July 5 public toleration of this state of affairs will be relieved by the large army of specialists waiting to rectify his ignorance and treat the ill; their misguided colleagues have left unrecognized for so long.

This is the content of a film shown to a vast section of the community, readily influenced by visual impressions, and which until recently had a certain loyalty to and faith in the family doctor. It seems an inopportune moment for an attempt on the integrity of general practice—that “backbone of the profession” we are so often reminded of—at a time when confidence is so badly needed in it. Can we afford to ignore the spirit of this indelicate publicity, or is it part of a campaign to relegate general practice to the level of that suggested in the film—condoned by whatever medical advice the producer necessarily enlisted? This is yet another example of Ministerial publicity in keeping with the “widow of the roads” poster, and made so much worse by the irresponsibility of the members of the profession who so encourage such nonsense—I am, etc,

Rugeley Staffs

S DILLON

### Professional Secrecy

SIR—In the debate in the Northern Ireland Parliament on June 23 on a motion to annul Health Service regulations, Mr S T Irwin, F R C S, M P, said in relation to professional secrecy between doctor and patient, “In regard to records, I quite agree with the Minister that there has been a lot of rubbish talked about that point”, and again, “I should see no objection whatsoever to any record, even a full record, with the patient's name, being sent to the Ministry if they so desire” (NI Hansard Vol 32, No 36)

Mr Irwin may have voiced the opinion of the consultants, though I do not think so, but he certainly did not voice the opinion of the G P, nor, I think, that of the great majority of the public and it is decidedly interesting to speculate that while these deplorable sentiments were in course of utterance Sir Ernest Graham-Little may have been writing the admirable letter published in your issue of June 26 (p 1259) which so adequately refutes them—I am, etc,

Belfast

W LYLE

### The Part-time Consultant

SIR—Mr G Lowe and Dr T N Rudd (July 3, p 24) have produced a most interesting and excellent defence (if indeed one was needed) of the part-time consultant. I was a little disappointed to see no mention of what may well be regarded as the point on which this method of specializing is most open to criticism.

The part-time surgeon operating on one of his own cases becomes the sole executor of that patient's fate. Of course this might also be applied to almost every contact made by a G P with his patients, but operative work is on a different footing in that the risk of a patient's life being made or marred—or even lost—is rather more formidable. The full-time specialist sees the patient at the behest of the family doctor, he decides to operate, and the G P, seeing the outcome is in a position to vet the surgeon's work. If he is not happy about it he calls someone else next time. The part-timer operating on his own cases has no one to call a halt, for anyone with experience of the handling of patients and their relatives knows them to be very bad judges of professional merit. As often as not the patients one has done most for are quite ungrateful, while an unexpected death may well be met with most glowing tributes from the relatives. Certainly one's professional standard could not be expected to rise to any great heights if such a capricious tribute—however much “at close quarters”—is accepted by the part-timer. I must confess that I can find no answer to this criticism, unless the part time consultant refrains from providing specialist treatment for patients who have come to him primarily in his capacity as a G P—I am, etc,

Redhill Surrey

N E PITT

### Remuneration of Consultants

SIR—Apart from the “prizes” suggestion no one will quarrel with the Spens Report on the remuneration of future consultants and specialists from their (consultant) infancy to their majority, but it appears that no recommendations have been made for present established consultants nor is there any differentiation between the senior man, in charge of beds and responsible for a team (in accordance with modern concepts of specialization) and the junior members of that team, with less responsibility. I submit that present senior consultants should qualify now for the maximum salary and “prize” and that the basic salary be paid to the assistant surgeons in his team, and that some method other than the “prize” should be evolved gradually to increase the assistant surgeon's salary until he becomes senior. In this way the senior surgeon would have his experience, training, and controlling of his team suitably rewarded, and would receive approximately the same amount as the general practitioner who is undertaking the training of an assistant with the maximum list—e.g., general practitioner with assistant and list of 6 400 £5,760, senior consultant basic salary £2,500, plus maximum prize, £5,000—I am, etc,

Middlesbrough

D C DICKSON

### Remuneration of Teachers

SIR—Your correspondent, Professor Samson Wright (July 3 p 47), discusses the discrepancy between the salaries of specialists in the medical profession and of teachers of medical students. He is rightly concerned that low salaries should not drive able men away from teaching.

This issue has wider aspects than those already raised and they must be taken into account when the future of medical teaching is being considered. Professor Wright mentions specifically anatomists, physiologists and biochemists, he implies that their remuneration is inadequate. Many, probably most of them, are university teachers. But medical students in

the preclinical stage are also taught (and, we hope influenced in the way Professor Wright desires) by chemists and physicists who are also university teachers. They too are recruited from "young idealists," and, if not subject to the temptations of the salaries offered by the National Health Scheme they could readily command higher salaries outside teaching than those which they receive from the universities.

It would therefore hardly be possible to increase the remuneration of teachers in one science department of a university without doing so in all others. It will readily be seen that similarly there could be no differentiation between the science faculties and the arts faculties. Thus a consideration of the conditions of service in teaching departments of medical schools must ultimately lead to a consideration of the whole of university teaching. Many of us in the universities would welcome this. My immediate point, however, is to suggest that medical teaching cannot be considered apart from university teaching as a whole—I am, etc.,

University College Hull

J J KIPLING

### Remuneration of Research Workers

SIR—Professor Samson Wright (July 3, p 47) has drawn attention in a striking manner to the contrast between the present remuneration of teachers of the basic medical sciences and that proposed for consultants and specialists in the Spens Report. It cannot be denied that the consequences he foresees if the conditions of service in teaching departments are not urgently reconsidered, are not unlikely to be fulfilled. I would like to point out that the contrast applies with equal force to whole-time medical research workers, whether they work in the universities or in research institutions, and more or less irrespective of their employers (except for a few industrial concerns). Medical research also may cease in the future to draw its share of the ablest medical graduates as it has in the past.

The contrast is of course not new, but there are two novel features in the present situation. The first is that the salaries proposed for consultants have been given wide publicity and the disparity is now clear to many people rather than to a few only. The second is that the conditions of service under the National Health Service are likely to remove a number of factors, such as the worries of building up a practice and of collecting fees, which in the past have decided able persons in favour of a career in teaching or research rather than in consultant practice. These two reasons apart from any considerations of proper rewards for service to the community, make a reconsideration of the position of medical teachers and research workers particularly urgent.

The problem does not end with medically qualified persons however. The possession of a medical degree may well affect the position attained by a teacher or research worker in his line of work, but it does not affect the ability or value of scientists without medical qualifications who are already doing good work in these fields. They will have to be treated equally with their medical colleagues. How far beyond medicine the repercussions may extend is a matter requiring much clear thinking and one to which the Association of Scientific Workers is giving considerable attention—I am, etc.,

ROY INNES

General Secretary

Association of Scientific Workers

London W1

### Medical Records

SIR—Now that most general practitioners are committed to practising under the new Health Act they will be supplied with large numbers of medical record envelopes, not only for actual patients needing treatment, but for all others who are not patients but have registered with them. In most cases these will amount to some thousands of bulky record cards and I trust all necessary steps will be taken to induce the Ministry of Health to supply us with suitable cabinets to house these cards satisfactorily. Clerks in Government offices are not expected to supply filing-cabinets for the cards they work with, and there is no reason why an exception should be made in the case of the medical profession—I am, etc.,

Slough Bucks

H TUDOR EDMUNDS

### Post Office Medical Officers and NHS

SIR—While one may sympathize with P O M O s in their loss of income consequent on the introduction of the NHS the terms "anomaly" and "injustice" can hardly be applied to a part of the Act which extends the right of free choice of doctor to considerable numbers of the adult community who have hitherto been denied this privilege. On the contrary, many P O employees (and doctors) may feel that this is one of the few anomalies and injustices which the Act will remedy.

It would be a serious mistake for the B M A to ask for a restoration of the *status quo* (and presumably that is the only action they could take in the matter), since any request that a certain section of the community be denied free choice of doctor could be interpreted as a move towards that type of service which permits "direction" of the patient and disallows the doctor his right of refusal—I am, etc.,

Cookridge Yorks

CLIFFORD T ROBERTS

### Chemists' Working Hours

SIR—Dr M Mundy (June 19, p 1208) has given prominence to the fact that pharmacies are not open at a late hour to serve patients with urgent medicines, and he has stressed the efforts which he made to remedy this position when a member of the Middlesex Insurance Committee. On behalf of the committee of the Harrow Branch of the Pharmaceutical Society, which represents all sections of pharmacy in this area of Middlesex, I can assure Dr Mundy that the problem which he discusses is of no real significance. Some of our members live over their pharmacies, others have informed the police when and where they are available should the need arise, but all of them rightly resent an extension of their working hours for no apparent purpose. In a few instances cases have come to our notice where so called "urgent" prescriptions were issued two or three days previously, and an analysis of 151 prescriptions dispensed after closing hours over a period of 15 months showed only three forms which were marked "urgent" by the physician—I am, etc.,

H W TOMSKI

Hon. Secretary

Pharmaceutical Society (Harrow Branch)

Pinx Middlesex

### POINTS FROM LETTERS

#### Pain in Childbirth

Dr H M DENHOLM-YOUNG (Farningham Kent) writes: Several young mothers have told me that at the moment of delivery they felt no pain or discomfort, but a physical sensation of ecstatic pleasure. We know that delivery often means the utmost agony and an anaesthetic must surely be at hand, but if a woman is experiencing pleasure and refuses anaesthesia at the last moment it can only be unconscious jealousy on our part if we insist on giving it. May it be that our tenacious belief in the agony of birth is a desire that the mother should pay for possessing a child? One notices frequent unintentional cruelty by doctors, nurses, and teachers towards mother and child, expressed in possessiveness, bossiness, sneering at mother love, and devious excuses to separate mother and child in hospital and in school. We should always be aware and wary of this in ourselves.

#### Staircases and Ceilings

Dr RICHARD BELL (Haydon Bridge, Northumberland) writes: In modern times public health authorities have steadfastly directed that ceilings should be eight-and-a-half feet from the floor. The economic factor has always limited the size of rooms. From this it follows that staircases in modern houses are always too steep. This fact becomes more strongly impressed on one as middle age approaches.

There is absolutely no reason whatever why ceilings should not be lower and the floor space of rooms greater, if only one could break with the tyranny of custom. Then could the aged climb gently to their bedrooms.

#### Vaccination

Mr W K FITCH (London, WC) writes: I was interested in Surgeon Commander Smith's warning (July 3, p 54) that immunity to smallpox is not necessarily shown by the failure of vaccination "to take". One of my sons joined the Merchant Navy in 1942. His first voyage was to India, and at the first port of call he, another cadet, and several of the ship's officers were vaccinated. In no instance did it "take". According to the master of the ship it wasn't supposed to "take," for what did my son think would happen if everyone on board went sick with a sore arm? Needless to say, on his return to the UK he was immediately vaccinated, and there was no doubt that it "took".

## Obituary

Dr JAMES THOMAS MOORE GIFFEN died at his home near Chester on March 11 at the age of 84. Of Ulster stock, Dr Giffen was born and brought up in Co Antrim. He studied medicine at Glasgow University, and qualified in 1887. In 1892 he took the FRCSEd. Immediately after qualifying he served as surgeon to the Cunard Line before settling in Chester, where he continued to practise until his retirement in 1924. During the first world war he acted as surgeon to the Red Cross Hospital at Hoole Bank, where he did much useful work. Apart from this his professional work was entirely in general practice. He was for many years one of the leading and most popular doctors in Chester, and his name is still revered and spoken of with affection by his old patients. An enthusiastic fisherman and keen naturalist, the earlier years of Dr Giffen's long retirement were largely occupied in fishing and country rambles. Latterly, debarred from these occupations by advancing years and failing health, his time was mainly spent in serious reading. To the last he kept abreast of advances in medicine. From 1890 he was an active member of the British Medical Association, and in 1929-30 was chairman of the Chester Division. His honorary membership after fifty years was a source of much gratification to him. He was predeceased in 1946 by his wife, formerly Miss Bretherton, of Crabwall Hall, Chester. A devoted couple, they left no family.

Dr THOMAS ADRIAN GREENE, one of the leaders of Irish psychiatry during the first forty years of this century, died at his home at Killyleagh, Co Down, on June 26. Dr Greene, who came of landed stock in the west of Ireland, qualified in 1894, and first entered the mental hospital service as assistant medical officer to Ennis Mental Hospital. In 1909 he was promoted, at a comparatively early age, and became superintendent of Carlow Mental Hospital, a post which he held until his retirement in 1938. Dr Greene's contribution to psychiatry was essentially in the realm of administration, and throughout his active career he was always many years ahead of his colleagues. Carlow Mental Hospital, with its beautifully laid out grounds and gardens—Greene was an expert gardener—and its pleasantly decorated wards, was always the show-place of provincial mental hospitals. Here Greene instituted occupational therapy and the wide use of parole long before either of these systems was generally adopted. The Royal Medico-Psychological Association fully recognized Greene's contribution to psychiatry, and it was a keen disappointment to many of his colleagues that he felt obliged, purely for health reasons, to decline the highest honour which the association could bestow upon him. His great gifts of hospitality would undoubtedly have made his presidential year a memorable one. In the Irish division of the R M P A Greene was for many years an outstanding personality, and his chairmanship is still vividly remembered. His mental dexterity, ready wit, and somewhat unorthodox approach to what appeared to be difficult problems made each meeting at which he presided a mental tonic. Greene was a man of imposing presence. Well over six feet in height, and built in proportion, his physical dominance was matched by a mental dominance that to strangers was almost overwhelming. In manner he could be extremely brusque, especially if he detected any sham or pose, but this only made his word of praise, which he often gave generously to juniors, all the more appreciated. Even in retirement at his beautiful home in Co Down, Dr Greene's services were largely availed of, especially during the war years, when he gave freely of his time and energy to the training of A R P personnel and to the Red Cross Nursing Association. To those intimate friends who realized his frail state of health this effort takes on a new meaning. The sympathy of all who knew Dr Greene will be extended to his widow and his daughter—R T.

By the sudden and unexpected death of Mr S L JACKSON on July 1 the firm of H K Lewis and Co loses one of its directors, and Mr H L Jackson, chairman for over thirty years, his only son. Mr S L Jackson had many friends in the medical profession, and through his work for the Booksellers' Association was well known to many publishers as well as to booksellers. He served during the 1914-18 war in the West Yorkshire Regiment, and was acting captain at the time of his capture. He returned to the company early in 1919. He was in his fifty second year.

## Medico-Legal

### NULLITY DECREE ON BLOOD-GROUP EVIDENCE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

Blood grouping has not figured very prominently in matrimonial cases. Its chief field of legal usefulness is in cases in which a woman asks magistrates for an affiliation order on the ground that a named man is the father of her illegitimate child and the man denies paternity. In such a case a blood group test will sometimes, if the man is really innocent, exclude him. The principle, broadly, is that the characters which determine a person's blood group are inherited as Mendelian dominants and therefore every character which a child possesses must have come from one of his parents. Ergo, if a child has a particular blood group which is not accounted for either by his mother or by the man who is said to be his father, another man must be looked for. There have been divorce cases in which a husband has won a decree by blood-group evidence which proved that a child borne by the wife could not have been his, and in at least one most interesting case a husband, summoned before the magistrate for failure to maintain his wife, has accused her of adultery on the basis of a test which excluded his paternity. In that case Mr Claud Mullins took the bold step of going against a report by Dr David Harley, although he was in general very receptive of scientific evidence and appreciated it with great understanding. In the end the parties were reconciled and the husband accepted the child as his own, and, let us hope, they lived happily ever after, but the champions of blood-grouping evidence, particularly in the United States, have never really forgiven either this *Journal* or its correspondent for agreeing with Mr Mullins over that particular case.<sup>1</sup>

A recent nullity case was decided largely on blood-group evidence. By Herbert's Act—the Matrimonial Causes Act, 1937, Sect 7 (1)—it was made a ground for a nullity decree that the wife was pregnant by another man at the time of celebration of the marriage if the husband did not know of the fact. In this case<sup>2</sup> the husband said that he had intercourse with the wife before marriage. This took place in June, 1945 and he married her in August, a full-term child was born in January 1946. Blood-group tests (done, of course, with the consent of the wife) showed that the child's blood group was A but both spouses were in group O, and therefore the husband could not be the father. Lord Merriman, president of the Divorce Division, granted a decree on this evidence corroborated by other facts.

There was a similar case<sup>3</sup> in 1942 when a decree of nullity was granted to a young officer whose blood group was OM, while that of his wife was BM, and of her child ABN. In expert hands the tests are for all practical purposes infallible, and it is a pity that lack of knowledge and suitable legislation has prevented their extended use in England. In many other countries the courts have for years been only too glad of their help in a very difficult class of cases.

<sup>1</sup> *British Medical Journal*, 1944, 1, 134

<sup>2</sup> *Liff v Liff* 1948 *Weekly Notes* p 128

<sup>3</sup> *British Medical Journal* 1942 1, 776

## The Services

Lieutenant John McLenachan, R A M C, has been awarded the George Medal in recognition of gallant conduct in carrying out hazardous work in a very brave manner.

Major-General Sir Ernest M Cowell, K B E, C B, D S O, T D, K H S, has been appointed Honorary Colonel 44 (Home Counties) Infantry Division, R A M C, T A.

The following appointment and mentions in dispatches have been announced in recognition of distinguished services in Palestine.

*O B E (Military Division)*—Acting Wing Commander R A Fleming, R A F V R.

*Mentioned in Dispatches*—Acting Group Captain D A Wilson, R A F, Squadron Leader B R Little, R A F V R.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

The honorary degree of D.L. is to be conferred on Thomas Benjamin Davie, M.D., F.R.C.P., Principal and Vice Chancellor of the University of Cape Town.

On June 23 the degrees of M.B., B.Chir. were conferred, by proxy, on D. J. Morton.

D. Girdner, D.M., and G. K. Harrison, M.D., have been recognized as Lecturers in the Faculty of Medicine.

### UNIVERSITY OF LONDON

John Leonard D. Silva, D.Sc., Ph.D., M.B., B.S., M.R.C.P., has been appointed to the University Chair of Physiology tenable at London Hospital Medical College, from Oct. 1.

Charles Horace Gray, M.Sc., M.B., B.S., A.R.C.S., F.R.I.C., has been appointed to the University Chair of Chemical Pathology tenable at King's College Hospital Medical School, from April 1.

Henry Adolph Magnus, M.D., has been appointed to the University Chair of Morbid Anatomy tenable at King's College Hospital Medical School, from April 1.

Sir Francis Fraser, M.D., F.R.C.P., Director of the British Postgraduate Medical Federation, has been reappointed Deputy Vice-Chancellor of the University for the year 1948-9.

Reginald Stephen Stacey, M.D., has been appointed to the University Readership in Therapeutics tenable at St. Thomas's Hospital Medical School, from June 1. From 1932-5 he was first assistant to the professor of medicine at St. Thomas's Hospital and from 1935-47 he was professor of pharmacology and therapeutics in the Royal Faculty of Medicine of Iraq, Bagdad, and physician to the Royal Hospital, Bagdad.

Herbert Edmund Vincent, M.D., has resigned the post of Chief Invigilator of the University, an appointment he has held for the past 40 years. Dr. Vincent qualified M.R.C.S., L.R.C.P. in 1887 and took the London M.B., B.S. in the same year, proceeding M.D. in 1888.

The following representatives of the University on the governing bodies of the institution indicated in parentheses are announced: V. E. Negus, M.S., F.R.C.S. (Institute of Laryngology and Otology), L. V. Cargill, F.R.C.S. (King's College School, Wimbledon), C. E. Newman, M.D., F.R.C.P. (West London Hospital Medical School), Ruth E. Proctor, M.B., Ch.B. (Battersea Polytechnic Training College of Domestic Science).

The following candidates have been approved at the examination indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY—Part I: F. A. Adcock, H. S. Ali, J. M. Burbury, D. McC. Gregg.

### KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

The King's College Hospital Medical School announces the foundation of the Wiltshire Memorial Research Scholarship and the Legg Memorial Lecture.

The Wiltshire Memorial Research scholarship was founded this year to commemorate Harold Waterlow Wiltshire, D.S.O., O.B.E., M.A., M.D., F.R.C.P., Physician to King's College Hospital from 1910 to 1925, and its primary object is to encourage research in cardiology. The holder must be a registered medical practitioner and will be called the Wiltshire Memorial Research Scholar. The appointment will be made by the council of the school on the recommendation of a selection committee of five to be appointed by the council. The appointment, which is part-time, is tenable for one year but may be renewed annually on the recommendation of the selection committee. The honorarium is at the rate of £250 a year, payable quarterly, and the scholar will be expected to carry out research under the direction of the physician in charge of the cardiology department. Leave of absence will be granted for six weeks each year.

The Legg Memorial Lecture also founded this year, is in memory of Thomas Percy Legg, C.M.G., M.S., F.R.C.S., Surgeon to King's College Hospital from 1910 to 1930, and will be given annually on a surgical subject on the invitation of the council of the medical school. The honorarium is the annual interest on £1,000 (at present about £25).

### UNIVERSITY OF MANCHESTER

The Council of the University has appointed Edward William Anderson, M.D., F.R.C.P., D.P.M., at present physician to the Maudsley Hospital, London, Professor of Psychiatry and Director of the Department from a date to be arranged.

### ROYAL COLLEGE OF SURGEONS IN IRELAND

The following candidates have received the Diploma of Fellowship: G. I. Fenton, E. A. McGivern, S. N. Rutherford, E. F. Shanahan.

## Medical Notes in Parliament

### NATIONAL HEALTH SERVICE

Mr. BEVAN stated on July 8 that by July 5 well over 30 millions of the total civilian population of 42 millions in England and Wales had been accepted by doctors under the National Health Service Act. He said there was a flood of forms still in the hands of doctors and executive councils which had not been counted.

#### Dental Service

On July 8 Mr. LIPSON asked the Minister of Health whether in view of the large number of dentists who had decided not to take part in the general dental service under the National Health Act, he would invite the Dental Consultative Committee to meet him again in order to try to find agreement on outstanding differences.

Mr. BEVAN said he would not do so. In his opinion the terms of service offered to dentists were generous and reasonable. He believed that most individual dentists would feel the same.

Mr. LIPSON then reminded Mr. Bevan of the happy result which had followed his gesture to the doctors. He asked whether the Minister would make a similar gesture to the dentists, so as to ensure that the benefits of the dental part of the Health Service reached the people at the earliest possible time.

Mr. BEVAN said he was convinced from the figures of the dentists joining up that very soon almost all dentists would be taking service under the Act. He added, "In any case we cannot submit to what may become, unless we are careful, blackmail."

#### Capitation Fee

Sir HENRY MORRIS-JONES asked how the amount of the capitation fee to medical practitioners under the National Health Act would be arrived at, what deductions came out of the 15s. 6d. per head, and how the amount for each area would be computed having regard to the proportion of the population who had not selected a doctor.

Mr. BEVAN said that detailed arrangements were still under discussion with the British Medical Association.

Sir HENRY reported that a large number of general medical practitioners were perturbed about this. They gravely feared their total emoluments would be considerably reduced below the pre-National Insurance income and they wished to know whether the total pool would be available to them.

Mr. BEVAN thought these doctors should await the result of discussions with representatives of the medical profession.

#### Hospital Boards and Committees

Sir IAN FRASER asked if regional and group hospital boards had power to co-opt extra members.

Mr. BEVAN replied that they had no such power, but regional hospital boards, hospital management committees, and boards of governors of teaching hospitals had power to appoint committees and subcommittees consisting partly of outside members and to delegate functions to them.

Mr. HEATHCOAT AMORY asked whether the Minister of Fuel and Power had authorized the granting of petrol allowances to members of the new hospital committees and boards on a scale sufficient to cover the requirements of this voluntary work.

Mr. ROBENS said adequate allowances would be made available, but, in common with all other supplementary allowances granted by the regional petroleum officers, the amount of the standard ration would be deducted if this had not already been done in respect of some other supplementary allowance issued for the same car.

#### Doctors and Patients under the Act

Mr. BOSSOM asked on July 2 whether Mr. Bevan before the National Health Service came into operation would ensure that lists of the doctors in the Service would be available in post offices and libraries so that patients could choose their doctor before July 5.

Mr. BEVAN said he had asked the executive councils to get these lists into the post offices on or as soon as possible after July 21. Some councils had already done so, but others including London, had not yet succeeded although they would do so as soon as possible. Any member of the public in an area where a list had not appeared could apply to the executive council for names of doctors on the list in his neighbourhood.

Mr. BOSSOM said that he himself had had trouble to find a doctor. He went to a post office but was told to go to the library and look up the *Medical Register*. He took the first three names on the local list, but found that the first address was a bombed site and that the other two doctors had gone away.

Mr BEVAN said he had always expected there would be inconvenience as a result of the tardiness of many doctors to sign on these lists. The official propaganda of the profession had told doctors there was no hurry to sign. The consequence had been a rush of doctors in the last few days which made it impossible for executive councils to complete the lists in time. Many local medical committees had asked those councils not to put up incomplete lists as to do so would be unfair to those doctors who had not yet signed. In many cases the delay was entirely due to the consequences of the propaganda of the medical profession. Mr Bevan said that he refused to accept responsibility for it. On doctor's lists up to June 26, 7,500,000 patients had already signed and 20,000,000 on the panel were automatically transferred.

Mr ASHETON was sorry Mr Bevan had put the blame on the doctors. The Opposition could not agree to that course. He asked where communications should be addressed in order to reach the executive councils.

Mr BEVAN said the names of doctors and addresses of the executive councils were placed in post offices and public libraries and so were available. Part of the difficulty lay in classifying doctors in areas such as London, where 1,000 general practitioners were involved.

Major BEAMISH said there was no more public-spirited body than the doctors and it was unfair to put the whole blame for the delay on them. The cause for the delay was Mr Bevan's obstinacy in the past.

Mr BEVAN said he put no blame on individual doctors, but the present difficulty must have been expected when the profession's propaganda clashed with the instructions given by the Ministry of Health. The position was perfectly clear to the public. It was essential for the doctor to be on the list before July 5 but the public could join at any time after.

Mr GALLACHER said the general opinion was that Mr Bevan had been, if anything, too generous and considerate to the doctors. He asked him to show equal consideration for the Scottish chemists.

### The Amending Bill

Sir HUGH LUCAS-TOOTH asked on July 1 when Mr Bevan expected to receive the report of the Committee which had been set up to advise him on certain clauses in the National Health Service Act and when Mr Bevan intended to introduce legislation giving effect to his undertaking so to amend the Act as to make it impossible to institute a full-time salaried medical service by regulation alone.

Mr BEVAN said he hoped to receive this report by the end of September. Amending legislation to cover anything necessary in the light of the report, together with the point mentioned by Sir Hugh, would be introduced as soon as possible thereafter.

Sir HUGH LUCAS-TOOTH asked whether Mr Bevan did not agree to the fact that the doctors were entering the Service before the settlement of the vexed question involved was an indication of their strong desire to give the Service a good start? He requested Mr Bevan to give a definite undertaking that he would implement the recommendations of the Committee when in due course they became known, and that he would not increase the salary element before legislation was introduced?

Mr BEVAN was glad to be able to say that despite the prophecies of certain pessimists the doctors were entering the Service in very large numbers, which was an indication of their confidence in the word of the Minister of Health. Before many years, or it might be months, Conservative members would claim credit for the Health Act, although they had voted against both the Second and Third Readings.

Mr WALTER ELLIOT retorted that the Health Service was due to the proposals of the Coalition Government. Conservative votes had been directed to the elimination of certain features.

Mr BEVAN said the fact was that the Opposition had been unable to secure the co-operation of the medical profession in any proposals.

### TUBERCULOSIS IN SCOTLAND

In the Scottish Standing Committee on July 1 the estimates for the Department of Health, Scotland, and for the National Health Service, Scotland, were considered.

Mr WALTER ELLIOT said he wished to discuss particularly the recent increase in tuberculosis in Scotland. Other important health questions would come up later. These would include the representations from doctors previously employed on the outdoor medical service of the Glasgow Corporation who considered they had received scurvy treatment in the new Health Scheme. These men after twelve years' service and at an average age of 50 found themselves rather stranded on the coming into force of the new Act. He noted that in discussing Scottish health the Committee had no figures later than December, 1946, in the Report before it. The maternal mortality rate had continued to fall in 1947, but the infantile mortality rate had risen

from 53.8 to 56. The tuberculosis rate had decisively changed for the worse. Deaths from tuberculosis in Scotland were the worst for twenty years, although figures for non-pulmonary tuberculosis continued to move in a satisfactory direction.

Deaths in Scotland from pulmonary tuberculosis in 1938 were 2,581. During the war the figures rose and fell again slightly, but in 1945 there were 2,932, in 1946 there were 3,231, and in 1947 there were 3,389. These figures contrasted with the general trend of tuberculosis throughout the world. The same trend was beginning to show in the industrial northern regions of England. In Scotland the death rate in 1946 was 64 per 100,000, a higher figure than any since before 1930. The so-called slump years, 1930-31-32 had figures of 63, 62, and 61. Notifications continued to rise. In 1945 notifications were 7,316, in 1947 there were 7,943. This compared with notifications in 1938 of 4,793. The Chief Medical Officer for Scotland had said there was probably no simple explanation of the increase, but Mr Elliot contended that the rise demanded some further inquiry. He did not believe that 2,700 calories per person was adequate, and it might be that a scale of diet adequate for clerical occupations was not adequate for the heavy industries.

He mentioned the shortage of accommodation in sanatoria. This was not really a shortage of beds, but a shortage of staff. There was nearly a 50% deficiency of nurses in sanatoria and the isolation of infected cases was not taking place. It was rash for the Secretary for Scotland to push through everyone's letterbox a leaflet saying, 'If you need it, you can have treatment in hospital either as an in-patient or as an out-patient.' That pledge could not be implemented. For comparison, Mr Elliot mentioned that the deaths from tuberculosis were falling in England as a whole but were going up in Durham, Lancashire, and the West Riding, though not in the more agricultural counties of Cumberland and Northumberland. The increase was less well shown in Liverpool and Manchester and was not shown at all in Sheffield and Leeds. These figures required investigation and all the more so because an inquiry by the Medical Research Council at the instance of the Ministry of Health into tuberculosis in Germany reported that the rates for Hamburg were considerably less than those obtaining in Glasgow.

### Government Reply

Mr FRASER replying for the Government, said the Scottish Health Report for 1947 had been in the hands of the printers for some time. Colonel Elliot had compared the present figures for deaths from pulmonary tuberculosis with those in the slump years, but this was a disease the germs of which might remain quiescent for ten years or more and then become active. It might be that the undernourishment of people in Scotland in the early thirties had something to do with the rise in tuberculosis notifications and deaths in the war years. Among young women in Scotland between 20 and 25 years of age who died from tuberculosis in recent years were persons who contracted the disease ten, fifteen, or more years ago. The same was true of men up to 45. The standard of nutrition in Scotland among industrial workers was comparable with that of such workers in England, and therefore the Committee had to look beyond nutritional standards for the cause of the continuing high incidence of tuberculosis in Scotland. It was true that the incidence in Hamburg was on a downward curve, but in Berlin and other parts of Germany a different story would be told. It was regrettable that they had got back to the 1920 level of notifications. Deaths, too, had increased, but not so markedly. The continuing increase in contrast with the increase during the war period was very nearly peculiar to Scotland. Mass radiography had discovered more than 1,000 cases in Scotland, but the death figures were the really important ones. Hospital accommodation for treatment was there if the nursing staffs were available. They had at present 2,324 sufferers on the waiting list in Scotland, compared with 771 in 1942. The number of beds occupied by tuberculous patients at the end of 1947 was 5,493, an increase of 277 during the year. In general hospitals and other hospitals more beds could be made available for these patients if there was the nursing staff. In December, 1946, 1,245 nurses were in sanatoria and the tuberculosis wards of infectious diseases hospitals. There was only a very small number of part-time nurses. By March 31, 1948, the whole-time staff had gone up to 1,318 and the part-time staff to 599. The estimated additional requirement for sanatoria and infectious diseases hospitals was 1,300. The overall shortage of nurses in Scotland was estimated to be about 5,000, although nearly 3,500 more whole-time nurses were employed in Scotland than before the war. Superintendents of sanatoria and general hospitals in Scotland agreed that the way to get nurses for tuberculosis work was not to isolate them and not to give hospitals over completely to the treatment of tuberculosis, so that there could be a frequent interchange of nurses between general wards and tuberculosis wards.



Col HUTCHISON said the incidence of tuberculosis among nurses allotted exclusively to that work was lower than among nurses undertaking general hospital work, and that both had a lower incidence of tuberculosis than the same groups in outside life.

Mr FRASER said he could not confirm this at the moment. The most important long-term remedy for tuberculosis was improved social conditions for the mass of the working people of Scotland.

Mr JOHN HENDERSON said he was told by eminent medical men in Glasgow that of all branches of medical science the treatment of tuberculosis had made least progress during the last twenty-five years. Yet the Government had been responsible for almost the entire payment for this treatment which was more or less carried out by the local authority on a policy laid down by the Government. That did not indicate a happy future for the nationalized medical service. He suggested that infection had been increased during the past winters by the keeping of the windows of houses closed because of the difficulty of getting sufficient heating.

### BCG and Streptomycin

Col HUTCHISON doubted whether there was a valid argument in saying that cases which became apparent now could be traced back over ten years. There was a remarkably low rate of tuberculosis in Scandinavia where BCG immunization was being used. This did not prevent the disease but made resistance to it much stronger.

Mr SCOLLAN testified that as a young man he had been cured of tuberculosis by a South African native root called 'umckaloabo' brewed like tea and administered to the patient.

Sir BASIL NEVEN-SPENCE said that in Shetland the mortality rate was 104 per 100,000 as against an average county mortality rate in Scotland of 55. Yet bovine tuberculosis had been completely eradicated in Shetland. He was perfectly sure that in the Highlands and Islands the key to the problem was housing.

Mr NIALL MACPHERSON spoke of mass radiography and said that at Edinburgh University the students had an annual check-up. Was it intended to do the same in schools and when men went to register for national service? It seemed to him necessary that miners should be examined periodically. The Scottish Estimates spoke of the purchase of streptomycin for research but his information was that that drug was severely restricted in this country because owing to the shortage of dollars, the Government was not prepared to purchase it. He believed that only one thoracic unit had been established in Scotland, at Mearns-kirk. Were others being established?

Mr WOODBURN said tuberculosis spread more easily under conditions of overcrowding but it did not necessarily follow that overcrowding brought tuberculosis. The cause was probably not so much that people were overcrowded but that they developed certain habits of living too close together without fresh air. People stayed in the tenements and never came into the fresh air. Most of the tuberculosis in Western Scotland came from contacts with infected people. A good deal had still to be done in making improvements in order to get a greater recruitment of nurses. It seemed that Highland people were less immune if they came to Glasgow than the people who were born and bred there. Yet in the Highlands and in the Outer Isles people lived closely in their houses and shut out the fresh air. The Department of Health for Scotland was opening hospitals and trying to get better sanatoria. It was investigating BCG immunization and streptomycin but had to be careful about rising hopes until cures were certain. The Department might save many lives by sending the children of patients into residential educational centres and getting nurses to nurse the children even if they would not nurse the patient. The question of overcrowding and other matters could be discussed when the Committee came to the Health Estimates.

### FACTORIES BILL

The debate on the second reading of the Factories Bill was resumed on July 2. Mr PIRATTIN, discussing the supervision of canteens in factories, pointed out that local sanitary inspectors had some responsibility for the supervision of kitchens, and asked the Minister to say in which way the two sets of inspectors would work together. The provision of washing facilities was one of the most abused sections of the existing Factories Act. It was not a matter of introducing new Clauses but primarily one of implementing them.

Mr ASSETON said it was now clear that the transfer of the duties of the factory inspectorate from the Home Office to the Ministry of Labour had proved to be successful. The department of factory inspection was a fine one and the men in it performed their duties to the satisfaction of both sides in industry.

Dr MORGAN said the Government had brought in a National Health Service Act, and the complement to that should have been the introduction of an Industrial Medical Service Act. The trade union movement disapproved of the provisions in Clause 7 concerning examining surgeons. A doctor selected by employers or the industrial medical officer appointed by the employer in a factory would under the Bill have the option of being appointed as a factory doctor and would be able to undertake all the duties formerly imposed on the examining surgeon. This Bill enabled that doctor appointed by the employer to have the decision not only about the diagnosis in an individual case but on the fitness of a recruit for work. Representations had been made to the Minister by the Trade Union Congress to prevent this from happening. Dr Morgan suggested that the Minister should take Parliamentary authority to say that the company's doctor should not usually be appointed as factory doctor but that the Minister on the advice of his inspectors and medical officers should have the right in particular cases to make this appointment. Dr Morgan complained that there was no general industrial medical service and too few medical factory inspectors. There was no scheme for the appointment of medical officers for the smaller factories in which there were industrial risks. When the employer's doctor, who was also made the factory doctor was to conduct examinations, who could guarantee the confidential relationship between the recruit to industry and the doctor? Who would guarantee that the records of the doctor would be kept secret? They would presumably be kept somewhere in the factory. In spite of these dangers the medical profession had not raised an objection to the risk of this confidential information being disclosed. If the Minister could do nothing else he could insist that permission must be obtained in cases where the employer's doctor would act for the employer against the man.

Major HAUGHTON said urgent representations had been made to him that there was a great shortage of protective clothing and that in consequence serious trouble arose in certain industries.

Mr WEITZMAN was glad to see that in the provision of seating facilities the frailty of males was recognized. He could have wished that the opportunity had been taken in the Bill to prohibit or limit the conversion of dwelling-houses or parts of them into workrooms for small factories. It was necessary that the definition of "factory" should be extended. Injuries had occurred in technical colleges and in institutions which did not come within the definition of a factory.

Mr SPARKS said a case could be made out for the establishment of an industrial medical service and the Bill did not go far enough in that direction. He thought that enough was not done to ensure that young people were advised to enter the kind of industry suited to their health and physique. A case could be made for bringing the railways within the scope of the Factory Acts.

Mr ISAACS replied to the debate. He had a great deal of sympathy with Dr Morgan's point about factory doctors, although he believed that a doctor who was the firm's doctor would not be swayed from his professional ideals. In moving the second reading he had given an undertaking to examine carefully any amendments which might be brought forward on the issue of certificates that diseases arose out of a man's employment. The Government did not wish to spoil the value of the factory doctor by having doubts cast upon his independence. He assured Dr Morgan that he would not have introduced the Bill if it were likely to retard the coming into operation of a full industrial medical service.

The Bill was then read a second time.

### Medical Examination of Prisoners

During the Report Stage of the Criminal Justice Bill in the House of Lords on June 29, on Clause 29, which concerns Remand for inquiry into physical or mental condition, Lord BALFOUR OF BURLEIGH moved to leave out "physical or". He pointed out that in the 1939 draft of the Bill the Clause dealt only with mental cases. An assurance had then been given in the House of Commons by the Solicitor-General that no physical examination of common prostitutes was contemplated. He was alarmed because the inclusion of physical examination in the Bill was simultaneous with the new National Health plan, which involved changes in the whole service for treating venereal diseases. Some safeguard was needed against abuse. The Ministry of Health had issued a circular to local authorities stressing the importance of treating information about persons under treatment for V.D. as confidential "even though the revocation of the 1916 Regulations repeals the statutory requirement to this effect." Lord Balfour could not understand why the statutory requirement should have been repealed. What was to be the position of a medical officer of health when the



magistrate asked for the information? He would no longer have the statutory protection of secrecy. It might be that the divisional surgeon would have to give the information.

Lord CHORLEY said there was at present power to remand a person in order that an examination whether physical or mental, might be made. In the past there had been prisoners who could not afford a medical examination at their own expense, and as a result the courts refused bail. The Clause gave opportunity to remand the man and for the court to see that the medical examination took place. In the case of prostitutes there was no alteration in the law, and the practice followed in the past would be followed in the future. That practice was never to submit them to a vaginal examination without their consent. Replying to Lord LLEWELLIN, Lord Chorley went on to say that the Government was unwilling to accept an amendment providing that no physical examination of a remanded prisoner should be made without consent. Under prison rules provision was made for examination. The provision for examination of women charged with soliciting was exactly the same as for any other person charged before the court. That prisons never subjected a woman to a vaginal examination without her consent was a well-understood principle, though not written into the prison rules. To that principle the Government intended to adhere.

The LORD CHANCELLOR said that if someone had only one lung it was relevant for the court to know that before deciding what punishment to give. The more intimate examination which had been mentioned had never been made and would not be made save with the consent of the prisoner.

Lord CALVERLEY said that in any large prison persons on remand could be found either in the verminous section or in the V.D. section.

Lord GODDARD said a physical examination was made of all young offenders who might be sent to Borstal.

Lord Balfour of Burleigh's amendment was negatived.

## EPIDEMIOLOGICAL NOTES

### Discussion of Table

In *England and Wales* increases in the number of notifications of scarlet fever 107 and acute poliomyelitis 12 were recorded and decreases in whooping-cough 283, acute pneumonia 83, measles 53, dysentery 27, and diphtheria 21.

The rise in the incidence of scarlet fever was mainly confined to the midland counties; the largest increase was Lancashire 27. The decrease in the notifications of whooping cough was general throughout the country; the largest falls were Kent 77 and London 56. No large fluctuations were recorded in the local returns of acute pneumonia and in most areas there was a small decline.

The trends of measles varied considerably. The largest decreases in notifications were Kent 106, Sussex 88, Derbyshire 84 and Middlesex 52, the largest increases were London 125, Monmouthshire 61, Yorkshire East Riding 59, and Hertfordshire 49. The largest local fluctuation in the trends of diphtheria was a decrease of 15 in Lancashire.

The returns of dysentery were the lowest for six months. The chief centres of infection were Lancashire 14, Yorkshire West Riding 13 and London 10. Notifications of acute poliomyelitis were the largest for eighteen weeks. The countries with more than one case of poliomyelitis were London 7 (Westminster 2, Woolwich 2), Yorkshire West Riding 5 (Darton U.D. 3), Middlesex 4 (Heston and Isleworth M.B. 3), Essex 2 and Cheshire 2.

In *Scotland* a decrease was recorded in the incidence of most infectious diseases and the only exception was an increase of 20 in the notifications of scarlet fever. In the county of Lanark a decrease of 34 in the notifications of scarlet fever was reported. In Edinburgh the notifications of dysentery increased from 1 to 10. An outbreak of gastroenteritis occurred in Paisley during the week and 7 infants have died.

In *Eire* an increase of 23 was reported in the notifications of diarrhoea and enteritis, while decreases were recorded for scarlet fever 22 and whooping-cough 19. Of the 46 cases of diarrhoea and enteritis 37 were notified in Dublin C.B. An outbreak of infective hepatitis involving 29 persons was notified from Tipperary, Shevardagh R.D.

In *Northern Ireland* the notifications of scarlet fever in the two county boroughs increased by 6 but a decrease of 11 was reported in the remainder of the country.

### Week Ending July 3

The notifications of infectious diseases in *England and Wales* during the week included scarlet fever 1 532, whooping-cough 2 907, diphtheria 141, measles 8 987, acute pneumonia 359, cerebrospinal fever 42, acute poliomyelitis 36, dysentery 69, paratyphoid 6, and typhoid 6.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 26.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland. Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	34	1	17	4	1	57	8	24	1	—
Diphtheria Deaths	137	17	44	6	1	182	15	47	31	5
Dysentery Deaths	64	10	39	1	—	66	7	14	—	—
Encephalitis lethargica acute Deaths	—	—	—	—	—	2	1	—	—	—
Erysipelas Deaths	—	—	21	9	1	—	—	31	7	—
Infective enteritis or diarrhoea under 2 years Deaths	33	1	11	46	—	76	3	18	56	4
Measles* Deaths†	10 571	880	165	144	66	9 377	439	104	142	8
Ophthalmia neonatorum Deaths	47	9	11	—	—	62	6	12	—	1
Paratyphoid fever Deaths	8	1	2(B)	—	—	10	—	1(B)	1(A)	—
Pneumonia influenzal Deaths (from influenza)‡	373	19	1	14	—	342	20	3	—	3
Pneumonia primary Deaths	114	14	142	26	4	—	27	155	5	8
Polio encephalitis acute Deaths	4	1	—	—	—	11	2	1	—	—
Poliomyelitis acute Deaths§	27	7	2	1	—	56	5	5	5	2
Puerperal fever Deaths	—	2	12	—	—	—	3	13	—	—
Puerperal pyrexia   Deaths	109	13	5	—	—	94	10	12	—	2
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 649	103	394	40	36	947	69	110	25	38
Smallpox Deaths	—	—	—	—	—	2	—	—	—	—
Typhoid fever Deaths	3	—	3	1	—	10	—	1	5	7
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2 803	217	38	86	12	2 052	188	78	73	5
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	256	40	46	17	8	365	56	65	22	16
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4 018	615	586	151	137	3 982	657	562	140	122
Live births Annual rate per 1 000 persons living	7 743	1246	1015	448	246	9 012	1404	1096	459	265
Stillbirths Rate per 1 000 total births (including stillborn)	241	35	26	—	—	272	27	30	—	—

\* Measles and whooping cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county) will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio encephalitis for England and Wales, London (administrative county) are combined.

|| Includes puerperal fever for England and Wales and Eire.

## Medical News

### Peckham Health Centre

Queen Mary, the Prime Minister, Sir Stafford Cripps, and other distinguished persons were present at the showing of a film produced by Mr Paul Rotha on the Peckham Health Centre and afterwards at the centre itself. The centre is an interesting experiment in the healthy use of community leisure, the family being the unit of membership of a club providing facilities for swimming, gymnastics, badminton, dancing, billiards, and so forth, and medical supervision and advice. The film has a certain pathos in showing the isolation of a family in the wilderness of houses that make up a "conurbation," but it fails to convey any idea of the experiment the directors of the centre are trying to carry out. The centre itself is so much better than the film that those who see only the latter are unlikely to be roused to enthusiasm. Whether any observations of real scientific value will emerge from the Peckham experiment remains to be seen. But there can be little doubt that similar centres—properly called "health"—in our large cities would do much to promote health and happiness among those who, through sheer density of population, must find it difficult to maintain the sense of belonging to a community.

### Empire Medical Advisory Bureau

The Empire Medical Advisory Bureau set up by the British Medical Association was formally opened on the afternoon of Tuesday, July 13, by Lord Addison. Among the many distinguished guests present at the opening ceremony and at the sherry party which followed were representatives of the High Commissioners for Australia, Canada, New Zealand, India, Pakistan, Ceylon and Southern Rhodesia. The Empire Medical Advisory Bureau is directed by Dr H A Sandiford and is intended to assist in every way practitioners from the Dominions and Colonies who want to take advantage of the facilities available in this country for post-graduate study.

### Entered NHS

The Ministry of Health announces that 19,096 doctors in England and Wales had joined the National Health Service by July 5, and 2,245 in Scotland by July 3.

### World Health Organization

On July 12 the Executive Board of the World Health Organization was elected by the World Health Assembly. Under the constitution one third of the members retire each year and it was therefore decided by drawing lots which States should serve for one year and which for two. Australia, Ceylon, the United Kingdom, United States, Norway, and Persia will serve for one year. Brazil, China, Mexico, France, Russia, and Egypt for two years. And White Russia, India, Poland, South Africa, the Netherlands and Yugoslavia for three years. It had previously been unanimously decided that the headquarters of the World Health Organization should be in Geneva. This decision is subject to final confirmation by the General Assembly of the United Nations but is not likely to be opposed.

### Whole-time Salaried Specialists

A special general meeting of the Association of Municipal Specialists was held on June 28 to discuss the future of the association under the National Health Service. It was unanimously agreed that the association should continue to serve whole-time medical specialists and in future the association will be known as the Association of Whole-time Salaried Specialists. All whole-time specialists will be eligible for membership. Further information can be obtained from the office at 45 Lincoln's Inn Fields, WC2 (Telephone HOLborn 3474).

### Medical Photographers

A meeting of medical photographers was held at the Institute of British Photographers on June 11. Mr L J Hibbert, Principal of the School of Photography Polytechnic Regent Street and chairman of a committee of medical photographers presented a report which the committee had prepared on the necessity for medical photography, its scope, the training and qualifications required, and the salaries that should be paid to qualified persons. The report will be submitted to the Ministry of Health. The meeting then agreed to start a register of medical photographers. It will be limited to members of the institute and those who have been in practice as medical photographers for not less than two years. The meeting concluded by deciding to form a medical group of the Institute of British Photographers and its organizing committee was appointed.

### Sir Alexander Fleming

At Canada House London, on July 6 the High Commissioner for Canada presented Sir Alexander Fleming with the Gold Medal of the Canadian Pharmaceutical Society in recognition of his work for humanity in the discovery of penicillin.

### Royal Medical Psychological Association

The annual dinner of the Royal Medical Psychological Association was held at the Café Royal on July 7 with the President Dr W Rees Thomas in the chair. There was a good attendance of members and their guests and delegates from the USA, Australia, France, Belgium, and India were present. The toast of the association was proposed by Mr John P Edwards, MP Parliamentary Secretary to the Ministry of Health who referred to the help given by the association to the Ministry when the mental health side of the National Health Service was being planned. Mr Edwards stressed the determination of the Ministry to remove mental hospitals for all time from their previous position of isolation. Dr Rees Thomas in his reply, said that psychological medicine was at a disadvantage compared with other branches of medicine because it was tied up with the law. Workers in this field were to some extent in the hands of the legislators whose task it is to give conditions which would lead to sound mental health. On the clinical side he believed that progress would be hastened by a wide development of the outpatient clinic system. The toast of the guests, among whom were the Presidents of the Royal College of Physicians and the Royal College of Obstetricians and Gynaecologists was proposed by Dr R Strom Olsen. Miss D M Smith, Chairman of the General Nursing Council, in her reply, congratulated the association on its decision to hand to the statutory body the responsibility for conducting the examination of nurses who worked in mental hospitals. The toast of Medicine was proposed by the Bishop of Lincoln, and replied to by Dr A Pool. Both speakers, while by no means in favour of all forms of so-called faith healing, referred to the very real value of spiritual healing and welcomed the agreement which had been reached between the Council of the BMA and the Churches Council of Healing (see *Supplement*, Nov 8, 1947, p 112).

### Cameron Prizewinner

After receiving the Cameron Prize in Edinburgh for his outstanding work on the effects of drugs on the thyroid gland, Professor E B Astwood, endocrinologist at the Pratt Diagnostic Hospital in Boston, U.S.A., is in London until July 23 lecturing for the British Medical Association and visiting endocrinological departments under the auspices of the British Council.

### Sickness Benefit

If a medical officer of health considers it advisable to exclude a person from work because he or she is under observation as a contact or carrier of infectious disease, he now has power, under Ministry of Health Circular No 115/48, to issue a certificate which will enable the person concerned to claim sickness benefit from the Ministry of National Insurance.

### Occasion

With its current number the *Practitioner* celebrates its 80th birthday since it was started in 1868 under the editorship of Dr F E Anstie, of the Westminster Hospital, and Dr H Lawson, of St Mary's. Sir Heneage Ogilvie reviews the changes that medicine has undergone since that time from clinical impressions to statistical inquiry, from polypharmacy to a more precise therapy, from individualism to organization. Professor Ryle writes on one of medicine's newest branches—social medicine—and Dr Leslie Banks of the Ministry of Health expounds the National Health Service Act.

### Mr R W Raven

Mr R W Raven, OBE, FRCS, has been elected a corresponding foreign member of the Roman Surgical Society.

### Superintendents of Mental Hospitals and Institutions

Because the Lunacy Act, 1890 was repealed on July 5 and the Mental Deficiency Regulations 1935 are being rewritten the Minister of Health has made a regulation requiring the appointment of superintendents of mental hospitals or institutions for mental defectives administered by Regional Hospital Boards. The superintendent will normally be a medical practitioner, if a Board considers that an institution might have a lay superintendent it should inform the Minister of its views. The superintendent will be responsible for the general management of the hospital or institution subject to the direction of the Regional Hospital Board or hospital management committee, and he has power to suspend any officer.

**Chevalier of the Legion of Honour**

The President of the French Republic has conferred the decoration of Chevalier of the Legion of Honour upon Mr C Bowdler Henry, MRCS, LRCP, LDS, in recognition of services rendered during the war

**Brahan Convalescent Home of Perth Royal Infirmary**

Speaking at the opening ceremony of the Brahan Convalescent Home of Perth Royal Infirmary on June 12, Sir Andrew Davidson, Chief Medical Officer, Department of Health for Scotland, said that we were on the eve of great new developments in the health services. The opening of that beautiful new convalescent home seemed to deny the contention that local interest and initiative were likely to disappear from the great national hospitals. Another misconception which it destroyed was that there was no place in the health services nowadays for voluntary effort. Never, in fact, had there been more need for service—in the true sense of the word—as in these days when the horizon of health effort was widening so rapidly. The administration of the National Health Service was built on voluntary service. In Scotland five Regional Hospital Boards and 25 local executive councils, all comprising voluntary members expert in various branches of the work, were already wrestling with problems of organization and administration of the National Health Service, the Central Health Services Council set up to advise the Secretary of State on all matters concerning the Service—also comprising experts giving voluntary service—had been constituted and had set to work, and the preventive services of local authorities were administered by health committees consisting of members giving freely of their time and energy.

**Award of Scholarships**

The following scholarships have been awarded at the Royal Free Hospital School of Medicine for the year 1948-9: *A M Bird Entrance Scholarship* Miss S J R Stockton, Queenswood School, Hatfield; *Mabel Sharman Crawford Scholarship* Miss J E Arnott, Shrewsbury High School; *Lieut Edmund Lewis (RAF) and Lieut Alan Lewis (RNAS) Memorial Scholarship* Miss M C Lewin, Royal Free Hospital School of Medicine; *A M Bird Scholarship for Clinical Studies* Miss B I Bing, Royal Free Hospital School of Medicine; *Sir Owen Roberts Memorial Scholarship* Miss M W Sturges, Royal Free Hospital School of Medicine.

**Wills**

Sir Henry Lindo Ferguson, of Dunedin, New Zealand, left estate in England valued at £8,490 12s 8d. He left £1,000 to the New Zealand Medical Benevolent Fund to provide annuities for aged and incapacitated medical men and their widows. Dr James Herbert Wright, formerly MOH for Sutton Coldfield, left £13,431. Dr Edward Deanesley left £42,265. Dr John Duncan McVean left £22,909, and Dr Egerton Allen Ferguson, of Salford, left £8,806.

**COMING EVENTS****British Standards Institution**

The annual general meeting of the British Standards Institution will be held on Wednesday, July 21, at 3 p.m., at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, WC2.

**Royal Institute of Public Health and Hygiene**

The president and council of the Royal Institute of Public Health and Hygiene will give a reception to the Empire delegates to the International Congress on Physical Education, Recreation and Rehabilitation at the institute (28, Portland Place, London, W) on Thursday, July 22, at 6 p.m., when the guests will be received by the president, the Rt Hon Walter Elliot, MC, FRCP, FRS, MP.

**Biochemical Society**

The 268th Meeting of the Biochemical Society will be held at the Biochemical Department, the University, Glasgow, on Friday and Saturday, July 23 and 24, starting each day at 11.15 a.m.

**Edinburgh Lectures**

In connexion with the postgraduate course in medical sciences which began on July 5 a series of open lectures has been arranged by the Edinburgh Postgraduate Board for Medicine to be given in the anatomy lecture theatre of the University of Edinburgh. On July 12 Professor A C Frazer spoke on "Fat Digestion and Absorption" and on July 15 Sir Jack Drummond, FRS, discussed "The Practical Significance of Wartime Experience in the Field of Nutrition." The remaining lectures will be announced in the diary column of the *Journal* week by week. All graduates and students are invited to attend the lectures.

**SOCIETIES AND LECTURES****Wednesday**

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Anatomy Lecture Theatre, Edinburgh University, July 21, 3.30 p.m. 'Blood Flow Through Extremities' by Prof H Barcroft

**Thursday**

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, WC—July 22, 5 p.m. 'The Changes in Volume and Distribution of Body Water under Conditions of Stress' Bernhard Baron Lecture by Prof John Bantle

**Friday**

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Anatomy Lecture Theatre, Edinburgh University, July 23, 4.30 p.m. 'The Neutral 17-Ketosteroids' by Professor G F Marrian

**Saturday**

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11 Chandos Street, London, W, July 24, 2.30 p.m. Annual general meeting. Election of officers, etc. 'The Pathology of Gonorrhoea,' Address by the President, Dr A H Harkness

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

Crawford—On July 1 1948 at Edgbaston Maternity Nursing Home, Birmingham to Mary (née Seton) wife of W Cowan Crawford LRCP & SEd L R F P S Glas a daughter  
Crockett—On July 9 1948 at Lansdowne House, Lansdowne Road, London W to Joan and Dr Gerard Crockett a son  
Devlin—On June 27 1948 to Dr Audrey (née Conyngham) and Dr H R T Devlin 18a Woodlane Falmouth, Cornwall a daughter—Melian  
Dobson—On July 6 1948 at Tany Bryn Imperial Road, Matlock to Mary Belle wife of Dr R B Dobson of Matlock a daughter  
Griffiths—On June 12 1948 at Kidderminster to Fifi (née Gurdon QARNNS) wife of Dr P D Griffiths a daughter  
Jeanes—On July 1 1948 at Woolwich War Memorial Hospital to Joyce (née Johnson) wife of Dr C W L Jeanes a son—David Lloyd  
McDonald—On July 3 1948 at 9 Grosvenor Street, Edinburgh to Margaret wife of Surgeon Lieutenant R S McDonald a daughter  
Marsh—On July 1 1948 to Bobbie (née Robinson) wife of Dr Alan Marsh 3 Clannicarde Gardens, Tunbridge Wells a brother for Susan—Michael Rupert  
Mitchell—On July 7 1948 at Dudley Road Hospital, Birmingham to Elsie wife of Gardiner Mitchell FRCS Ed twin sons  
Tabbush—On July 1 1948 at St Chad's Hospital, Hagley Road, Birmingham to Anne Jacqueline wife of Dr Henry Tabbush a son—Paul Martin  
Watson Jones—To Ann and Dr K Watson Jones of Sheldon, Birmingham a daughter

**MARRIAGE**

Marsden—Coope—On July 3 1948 at St Augustine's Church, Farnth, Henry Basil Marsden MB ChB to Pamela Jill Coope MA BChir by the Rev G H A Stephens MA

**DEATHS**

Alexander—On June 30 1948 David Alfred Alexander MB ChB of 112 Pembroke Row, Clifton, Bristol  
Bidwell—On July 4 1948 at Bloemfontein, South Africa Charles Hugh Bidwell MRCS LRCP aged 76  
Cookson—On July 7 1948 at Heatherdown, Blagdon, Somerset Reginald George Francis Cookson LRCP CSI&LM of Clifton, Bristol  
Crawford—On July 8 1948 Herbert de Lisle Crawford MD MCh FRCSI of 60 Russell Square, London WC son of the late Rev William Crawford Dublin  
Davis—On July 5 1948 at 70 Brighton Road, Worthing Everard Inceal Davis MRCS LRCP aged 74  
Douglas-Webster—On July 2 1948 in South Africa Edgar Maurice Douglas Webster LRCP & SEd L R F P S Glas  
Forbes—On July 8 1948 at Rochester John Turnbull Thomson Forbes MRCS LRCP Wing Commander RAFMS retired  
Green—On July 5 1948 at 266 Stockport Road, Manchester Edwin Alan Thomas Green MC MRCS LRCP LDS  
Greene—On June 26 1948 at Killybegh Co Down Thomas Adrian Greene LRCP & SI&LM JP  
Jacobs—On July 5 1948 Lawrence Jacobs MB ChB of 43 Circus Road, St John's Wood, NW  
Kitchen—On July 4 1948 Harold Ernest Kitchen BA MRCS LRCP of 4 Auckland Terrace, Ramsey, Isle of Man aged 71  
MacArthur—On July 5 1948 at Glasgow Royal Infirmary Duncan S M MacArthur MB ChB  
McClenehan—On June 30 1948 at 14 Shanslieve Drive, Newcastle Co Down James Martin McClenehan MB BCh BAO DPH  
Pepper—On July 9 1948 Charles Edward Pepper MB ChB Ed of 4 Park Hill Road, Croydon aged 71  
Simon—On July 1 1948 Ewald James Simon LRCP & SEd L R F P S Glas of 12 Bewick Road, Gateshead aged 56  
Smith—On July 10 1948 Hugh Bernard Willoughby Smith FRCS of Gainsborough, Lincs aged 68  
Symons—At Church Crookham, Hants Sir Thomas Henry Symons KBE CSI KHS MRCS LRCP Major General IMS retired Late Director-General IMS aged 76  
Wright—On June 27 1948 Stanley Ninian Wright MSc MB ChB DPH of Ravell's Upland Road, Spital Park, Bromborough aged 58

## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

### Adenosine in Angina of Effort

**Q**—Adenosine and adenosine phosphate are reported to relax smooth muscle dilate the coronary arteries and cause a fall in blood pressure. In addition they slow the heart presumably thereby reducing its oxygen requirements. Have these drugs ever been used in angina of effort? Possibly the increased coronary diameter would be offset by the decreased aortic pressure. Could adenosine then be used with ephedrine or adrenaline?

**A**—There does not appear to be any reference to adenosine or adenosine phosphate as a therapeutic agent for angina of effort. In 1929 Drury and Szent-Gyorgyi isolated adenylic acid, a closely related compound, from cardiac muscle. Adenosine phosphate is present in all muscle and plays an important part in its metabolism. Many drugs with an effect on the heart—for example, pilodyn and licarnol—contain a certain amount of adenosine and their action probably depends on this.

Much experimental work on heart preparations, uterine muscle, and living animals has been done, especially by A. M. Wedd (*J. Pharmacol.* 1933, 47, 365). Given intravenously adenosine decreases the rate of the heart and causes dilatation of the coronary and peripheral vessels; there is also a paralytic action on unstriated muscle tissue which lasts only a short time. In man adenosine given intravenously results in a heaviness in the chest, breathing is increased in depth and frequency, and there is a sensation of heat in the head and body generally. A momentary rise in pulse rate is followed by a bradycardia, depending in degree on the dose of drug used. The PR interval is prolonged, Wenckebach phenomena occur, and heart-block ensues. The T wave is lowered. These changes are induced more easily if cardiac defects already exist. Kalra (*Acta med. scand.* 1938, Suppl., 89, 239) reports the treatment of a case of paroxysmal tachycardia; his results were not convincing. He refers to two similar cases successfully treated by Jagichis in 1933. Experimentally produced auricular fibrillation has been successfully treated with adenosine.

Structurally related drugs are theophylline and theobromine; these have the advantage of being effective by mouth. The action of adenosine on the coronary vessels takes place in the presence of mecholyl, pitressin and barium, which normally diminish the coronary blood flow. There is no reason why it should not be tried intravenously in the correct dosage for angina of effort. One would hesitate to use adrenaline or ephedrine in an attack of angina of effort because of the danger of inducing ventricular fibrillation.

### Idiopathic Cheiropompholyx

**Q**—Is idiopathic cheiropompholyx always due to an external irritant? If not can it be due to the ingestion of some antigen to which the patient is sensitive—for example an antigen in eggs or egg powder? Are any vitamins of use in preventing attacks? Would stilboestrol help a woman of 67 in preventing attacks? What can be done to cure this distressing complaint?

**A**—Idiopathic cheiropompholyx is a constitutional affection of emotional and nervous origin. It is associated with hyperidrosis and often with an anxiety state, though hot weather predisposes to the eruption. The condition can be evoked upon occasion by contact with external irritants, more particularly with substances to which the patient is sensitized. It can upon occasion arise as an 'ide' reaction usually secondary to ring-worm infection of the feet. It can also be simulated by a small pattern of toxic erythema limited to hands or hands and feet and due to the ingestion of foods or drugs or to toxins, to which the patient has become sensitized. Eggs are not a very likely cause of the eruption and vitamins have no particular

prophylactic value, though on general grounds vitamin B therapy is of value in neurodermatitis.

In a woman of 67 a careful general overhaul would be necessary, and it is unlikely that stilboestrol would be indicated in treatment. In the absence of any organic factor the emotional state should be given attention, and symptomatic relief might result from the taking of phenobarbitone in small doses from fractional doses of superficial x-ray therapy, and from bland local applications such as calamine liniment.

### Sulphonamides and Agranulocytosis

**Q**—(a) Is the simultaneous administration of barbiturates and sulphonamides more likely to induce agranulocytosis than the use of the latter alone? (b) Is the administration of pyridoxin with sulphonamides used in preventing agranulocytosis?

**A**—(a) There is no evidence that this is so. On the other hand, a sedative which should never be given during sulphonamide treatment is amidopyrine. (b) Pyridoxin has been used successfully in preventing granulocytopenia during treatment with thiouracil. If there is no information about such an effect during sulphonamide treatment (and apparently there is not) it is because sulphonamides so rarely affect the bone marrow that proof of efficacy in this connexion would be hard to obtain.

### Hypersensitivity to Wasp Stings

**Q**—I have a friend who lives in dread of wasps. He was first stung at the age of 16 when a finger was attacked and the whole hand became swollen and painful for hours. The second time when he was about 25 he was stung on the back of the hand; his whole arm swelled and his speech was blurred. The third time his lips and eyes closed almost immediately and he was unconscious for twenty minutes. He was then 35. Can he be successfully desensitized?

**A**—Extreme hypersensitivity to the stings of wasps and bees can be eliminated usually for a period of years, by a series of specific injections. Few successful cases have been recorded in the literature, but details can be obtained from the classical work of Benson (*J. Allergy*, 1929, 1, 105, *Arch. intern. Med.* 1939, 64, 1306).

### Angina Pectoris

**Q**—Is spa treatment either in this country or abroad of any value in the treatment of angina pectoris which has not responded to prolonged rest and routine treatment?

**A**—If adequate treatment and rest at home have failed to achieve any improvement in a case of angina pectoris it is doubtful whether spa treatment anywhere will produce any good result. The travel and excitement might in fact do harm. On the other hand, emotional circumstances at home may induce attacks which can be relieved by an enforced holiday away from home, and this may also effect complete severance of the patient from preoccupation with business affairs. Moreover, where there is a strong higher centre element, and when reduction of weight is part of the treatment, the quiet and ordered calm and regime of a well-managed spa may secure results which could not be expected in the home environment.

### Children Travelling to the Congo

**Q**—What are the risks and what prophylactic treatment would you advise in the case of two children aged 4 months and 2½ years whose parents contemplate taking them to the Congo at an early date? Is malaria likely in children so young?

**A**—Children in the Tropics may be exposed to the ordinary risks of infectious disease, such as diphtheria, against which it is always advisable to immunize children, while in addition they may be exposed to more specifically tropical infections. Children going to the Congo should be vaccinated against smallpox and inoculated against the enteric fevers and yellow fever. Malaria is quite likely in young children, therefore they should be protected so far as is possible against the bites of mosquitoes by the use of mosquito nets, and they should also be given some suppressive antimalarial drug, in the case

of children aged 4 months and 2½ years, 10 and 20 mg of paludrine respectively every other day would probably be suitable suppressive treatment. If they are in a heavily infected sleeping sickness area the question of chemoprophylaxis by pentamidine might be considered.

#### Yellow Fever in 1865

**Q**—How did the outbreak of yellow fever at Swansea in 1865 occur since the disease is spread by a type of mosquito not known in this country and the fever is not infectious man to man?

**A**—Once an *Aedes* mosquito becomes infected with yellow fever it remains infective for the rest of its life. The outbreak at Swansea in 1865 was due to mosquitoes brought by the *Hecla* from Cuba. These mosquitoes were either already infected in Cuba or were infected from infected members of the ship's crew.

#### Glucose Injected Intravenously

**Q**—What is the fate of glucose injected intravenously? How and where does the body use it?

**A**—When glucose is injected into the blood stream it may cause a considerable rise in the blood sugar. If the latter is greater than 180 mg per 100 ml, the usual level of the threshold, some glucose will be excreted in the urine and lost. The glucose which remains in the blood will be taken up by the muscles and liver and laid down as glycogen. It is not possible to say how much is taken up by each of these two depots.

#### Normal Blood Pressure

**Q**—What is the normal blood pressure in a healthy man aged 55? What variation can there be within normal limits?

**A**—A great deal depends on the circumstances under which the blood pressure is taken. When the patient is at home and at rest, and he knows the physician, basal readings will be obtained. Casual estimations under other circumstances will show considerably higher readings in the same patient. The normal basal blood pressure readings for an adult are usually taken to be between 105 and 145 mm Hg systolic, and 60 and 90 mm diastolic. Age plays only a slight part in determining blood pressure, which tends to rise slowly with advancing years. The upper limit for a normal man of 55 would be 155 mm systolic.

#### Insect Bites

**Q**—What is the nature of the irritant injected by midges and clegs? What is the most effective antidote?

**A**—The irritation caused by the bites of midges and clegs is presumably due to the injection of their saliva, which usually causes irritation with blood-sucking insects. Little is known about the constitution of insect salivary juice, so that no specific remedies can be given. The secretion commonly contains foreign protein and may elicit an allergic response, so that the effects of bites vary widely in different people. Treatment can only be symptomatic.

#### Mechanical Aids for Incontinence

**Q**—Would any mechanical contrivance help the distressing incontinence in a case of tuberculous cystitis?

**A**—Incontinence is not a usual complication of tuberculous cystitis, although frequency of micturition may be so great in the advanced stages of the disease as to simulate true incontinence. The only mechanical contrivance which such a patient could wear is a rubber urinal. This is an awkward and uncomfortable appliance, and many patients prefer a towel.

#### Macrocytic Anaemia in Eunuchs

**Q**—Can you give particulars of a form of macrocytic anaemia occurring in eunuchs which responds to treatment with testosterone?

**A**—Experimental castration or hypophysectomy in rats leads to a fall in the red cell count and in the percentage of reticulocytes. Testosterone restores the latter, there being an immediate brisk reticulocytosis. Recently Watkinson and others (*Lancet* 1947, 1, 631) described two males with the Snapper-Witts syndrome (hypogonadism, alopecia, and anaemia associated with hypopituitarism). In one case a macrocytic anaemia

failed to respond to liver, and in the other a microcytic hypochromic anaemia failed to respond to liver or iron, nevertheless both responded to testosterone. In the former the testosterone was effective alone, in the latter the testosterone was effective only when given with iron.

#### Nystagmus and Albinism

**Q**—A child aged 2 has had nystagmus from birth due to albinism. Strabismus and refractive errors have been corrected by glasses with tinted lenses since the age of 9 months. What treatment should now be given for these two conditions and what is the prognosis?

**A**—It is not uncommon for albinos to show physical defects other than lack of pigment. Nystagmus is, however, a constant feature in total albinism, and is believed to be secondary to maldevelopment of the maculae. The squint is likely to remain controlled by glasses. The nystagmus must be regarded as permanent.

#### Intrathecal Penicillin

**Q**—What are the indications for administering intrathecal penicillin and what precautions are necessary to prevent possible complications?

**A**—The indication for the intrathecal administration of penicillin is meningitis due to an organism sensitive to penicillin but insensitive to the sulphonamide drugs. Meningeal infection by pyogenic cocci is thus the usual reason for such treatment. It is inadvisable to exceed an intrathecal dosage of 20,000 units daily, as there is danger of causing convulsions and a sudden increase in intracranial pressure. The most serious sequel of repeated intrathecal injections is secondary meningeal infection by such organisms as *Str. viridans*, *Ps. aeruginosa*, and coliforms which resist all forms of antibacterial treatment. Scrupulous asepsis alone avoids such complications.

#### NOTES AND COMMENTS

**Apparatus for Mounting Stairs**—Dr T. PEARSE WILLIAMS, London, W1, writes: I wonder if one of your readers could advise me whether there is any apparatus devised which would enable a patient with almost complete ankylosis at the knee joints and very deficient movement at the hips to mount stairs which have a double right-angled bend two thirds of the way up. To construct a lift would be a complicated business and very expensive.

**Joseph Thomas Digby**—Professor JOHN BOSTOCK of the Department of Medical Psychology, University of Queensland, Brisbane, writes: I have been engaged in writing the history of Australian psychiatry prior to 1850. In this connexion a Mr Joseph Thomas Digby and his wife left England in 1837 from St Luke's Hospital to become the first superintendent and matron of the newly erected Tarbrin Creek Asylum in New South Wales, Australia. Having finished their work in 1850, they were said to have left for England about 1851. We have no record of their life prior to their leaving England or after their departure from Australia. Mr Digby did yeoman work in psychiatry, and it would be greatly appreciated if any reader could give me any information concerning his life before and after his stay in Australia.

#### Corrections

There was one omission in the article on "Ministers of Health" which appeared in the *Journal* of July 3 (p. 41). Sir A. S. T. Griffith-Boscawen was Minister of Health from October, 1922, to March, 1923.

In the leading article on the Prophit Survey (June 19 p. 1189) it was stated that the work was carried out by three Prophit scholars—Dr Ridehalgh, Dr Daniels, and Dr Springett. These workers were, in fact, the authors of the report "Tuberculosis in Young Adults," but it was not made clear that the results of work done by the fourth Prophit scholar, Dr I. M. Hall, were included in the report.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Attilology*. Western London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1, on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Britmedads*. Western London. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. Telegrams: *Mediseca*. Western London. B.M.A. SCOTTISH OFFICE: 7 Drumshugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 17 1948

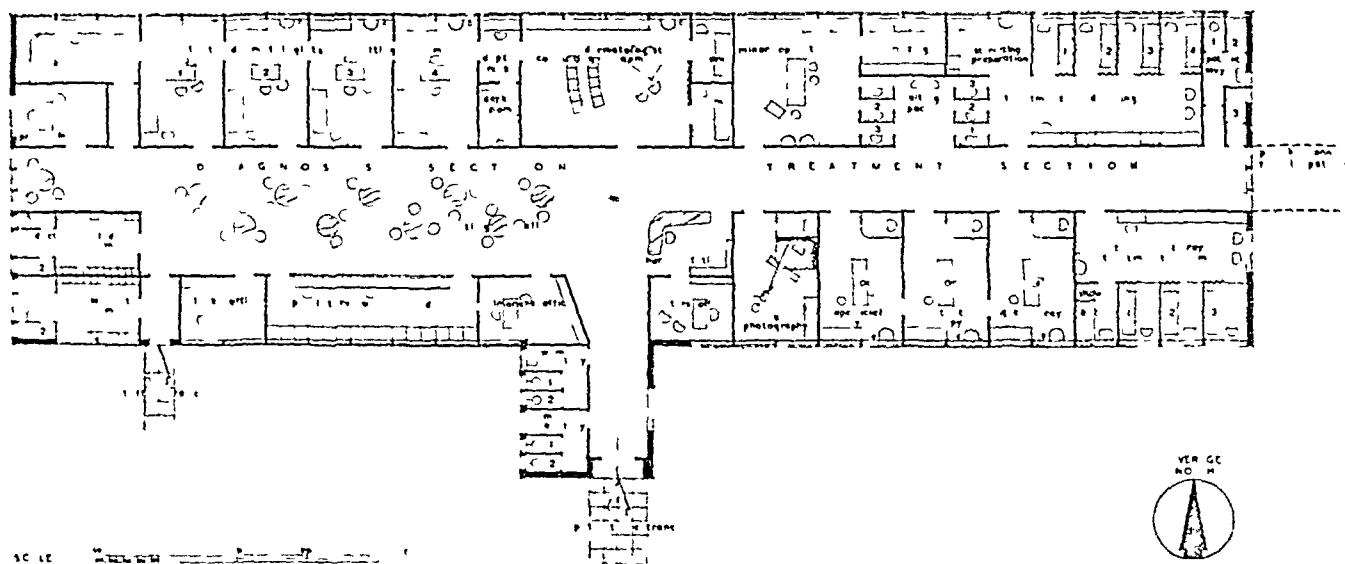
## THE PLANNING OF NEW DERMATOLOGICAL DEPARTMENTS

On several occasions the Committee of the Dermatologists Group of the British Medical Association has discussed the provision of adequate accommodation for a modern dermatological department. Their interest in this matter has been stimulated by the knowledge that the efficiency of any department must depend to some degree on the adequacy of its equipment and accommodation. In their discussions they have borne in mind the fact that in some hospitals other departments may have to use the accommodation when the dermatologists are not working and it will be seen from the plan that a considerable part of the accommodation could be used by

medical facilities in an out patient department containing other specialist departments of comparable size.

It is appreciated that this plan will not suit in all cases and in this sense its use is limited. It may, for instance, be considered desirable that the whole of the diagnostic suite should be reversed and the senior dermatologist's consulting room should be adjoining the laboratory and private interview room or that the laboratory should be bigger. Such variations and amendments can be incorporated to suit particular and local requirements, and the plan has been conceived on the unit principle to make such adjustments possible.

So far as the type of plan is concerned, this has been designed to conform to a structural grid which would apply to a department designed as a floor of a multi-story building or alterna-



colleagues interested in other branches of medicine. The plan as presented is one which can be modified considerably to meet local conditions and local demands.

On behalf of the Committee I have to thank the Council of the British Medical Association for their permission to obtain technical advice in this matter, and Mr S E T Cusdin, OBE ARIBA AADip of Messrs Easton and Robertson who has devoted much time to the preparation of the following report. It is hoped that a model of the Dermatological Department will be made and will be kept at B M A House where it will be available for examination by those interested.

R M B MACKENNA  
Chairman Dermatologists Group

Report Prepared by Messrs. Easton and Robertson, Architects  
54 Bedford Square London WC1

We have pleasure in submitting Report No 2 on the basic plan for an out-patient dermatological department. The aim has been to produce a basic plan of a department for one senior dermatologist and four assistants and capable of diagnosing and treating 200 patients per day. It is assumed that the flow of patients would be controlled by an appointment system. The plan as shown is not deemed to include full teaching facilities for undergraduate and postgraduate courses but limited teaching facilities have been shown in connection with the diagnosis of patients in the senior dermatologist's consulting room. It has been assumed that this department would be working in conjunction with the normal complement of technical and

tively as a single-story structure. In the latter case the plan could be interpreted to fit into standard precast concrete frame buildings. The proposals are illustrated by a detail plan to 1/8 in scale and a schedule of the accommodation with sizes and the area of each room, is set out in the appendix.

The rate of flow of 200 patients per day in a department of this size does not call for a continuous one-way circulation. In order that the patients can be kept under supervision whilst attending either the diagnosis or treatment section, one patients entrance has been provided immediately between the two sections. The patients on entering the department would register at the records office and the record forms would be passed for completion to the dermatologists and the staff. It is envisaged that a system would be evolved for the rapid screening of the patients by a doctor to decide to which of the dermatologists they are to be directed. It is visualized that the largest group of patients is likely to accumulate in the diagnostic section the main waiting space has therefore been planned in this area and has been designed in an informal manner on the lines of the recent examples on the Continent and not in the rigid institutional manner so common in existing out-patient departments. After examination by the doctor the patients would be free to pass to the dressing-rooms for bandages or to any other of the treatment rooms.

The almoner's office is planned at the patients entrance which is also the exit in order that she may interview the patients either on entering or before leaving. It might be considered desirable in certain cases to link the treatment section



of the out-patient department to the in-patient accommodation in the hospital. This connexion is shown directly off the main corridor of the treatment section of the department. The main lavatory accommodation for patients is by the main entrance. There is a separate entrance for the medical, nursing, and administrative staff, complete with locker rooms and lavatory accommodation.

#### Detail Planning

The department divides itself into three main sections—viz, (a) nursing and administrative, (b) diagnostic, (c) treatment.

##### (a) Nursing and Administrative

The accommodation for the sister and nursing staff has been placed centrally in the plan in order that they may supervise all the activities of the patients and be in direct access with the medical and treatment staffs. A separate office has been provided for the sister for private discussions with the doctors, nurses and patients. The records office is shown along one side of the main waiting space, with a hatch into the almoner's office and into the departmental clerk's office. A station is also provided here for the medical officer concerned with the preliminary screening of new patients. The records office would be separated from the main waiting space by a glazed screen 6 ft 6 in. high in which there would be openings at which the patients would register and draw the necessary documents.

##### (b) Diagnostic

The diagnostic section consists of a large consulting-room for the senior dermatologist, and four separate rooms *en suite* for his assistants. All these rooms are intercommunicating. The main consulting room has two examination rooms and immediate access to a dark-room, in which would be installed the Woods appliance. This dark-room is also available for the assistants. The consulting-room would be fitted with a lavatory basin, a blackboard, and a work and demonstration bench. It is laid out so that the senior dermatologist would be able to see his assistants through the glazed screens and to have his patients in the full light from the windows, and at the same time be able to address a small group of students on his right-hand side.

Each of the examination cubicles should be fitted with an examination couch, chair, and necessary arrangements for the hanging of patients' clothes.

Each of the assistant doctors consulting rooms is fitted with a lavatory basin, small work-bench and notice-board. The room is laid out so that the patients are under the full light from the windows. An examination couch, chair, and hook for patients' clothes are shown as part of normal furniture of these rooms. A small laboratory and private-interview room are available for any of the medical staff to assist in their consultations.

A clinical photographic room has been provided with a small undressing cubicle for patients. The fittings would include the necessary special photographic lighting platform, behind which there would be arrangements for changing the texture of the background, and a small work-bench fitted with laboratory sinks, storage cupboards, etc.

##### (c) Treatment

The treatment section consists of minor operations theatre, treatment and-dressing room, on one side of the corridor, and the x-ray and ultra-violet-ray rooms on the other.

Adjoining the minor operations theatre and the treatment-and-dressing room are six undressing-rooms for patients. Facilities are available in the minor-operations room for surgeon's scrub up, and immediately off the theatre there is a small sterilizing room. The treatment-and-dressing room has been designed with a sterilizing and preparation recess for the nursing staff, and four cubicles for patients, the cubicles have been provided so that a number of patients can be receiving treatment concurrently. Each cubicle is designed with a couch, chair, and clothes hooks. In the other part of the treatment room is space for the laying-out of dressings, trolleys, etc.

The x-ray suite consists of separate rooms for superficial and contact therapy and for the Grenz-ray apparatus. Each of these rooms has an undressing cubicle for patients. The fittings to the room include a lavatory basin and work-bench. The

ultra-violet-ray room consists of three cubicles for the treatment of patients and a bathroom complete with shower, etc. and space for preparation, fitting, and storage of the apparatus. There is a separate suite of patients lavatories in the treatment section.

#### Summary of Accommodation

The total area of the out-patient department is 8,460 square feet, made up as follows:

	Area in Square Feet	Percentage of Total
Nursing and Administrative	702	8
Diagnostic	2,007	24
Treatment	2,181	26
Net Area of Department	4,890	
Circulation, including waiting space, lavatories, etc.	3,570	42
	8,460	100

#### APPENDIX SCHEDULE OF ACCOMMODATION

	Size in Feet	Area in sq ft
<b>(a) Nursing and Administration</b>		
Nurse's Station	12×9	108
Sister's Office	12×9	108
Almoner's Office	12×9	108
Records Office including Doctor's Desk	30×9	270
Clerk's Office	12×9	108
Total		702
<b>(b) Diagnostic Section</b>		
Senior Dermatologist's Consulting room	24×18	432
2 Examination Rooms, each	9×6	108
Dark-room	9×6	54
Clerk's Desk	9×6	54
4 Assistant Dermatologists Consulting rooms, each	18×12	864
Private interview Room	13×9	117
Laboratory	18×9	162
Photographic Studio	18×12	216
Total		2,007
<b>(c) Treatment</b>		
Minor-operations Theatre	18×18	324
Sterilizing Recess	12×8	96
3 Dressing-rooms, each	5×3	45
Treatment-and-dressing Room, including 4 cubicles	30×18	540
Sterilizing Recess	12×8	96
Superficial X-ray Room	18×12	216
Contact-therapy Room	18×12	216
Grenz Ray	18×12	216
Ultra-violet ray Treatment Room, including bathroom and 3 cubicles	24×18	432
Total		2,181
<b>(d) Circulation</b>		
Corridors, waiting space, lavatories, locker-rooms, etc.		3,570
Grand Total	8,460 sq ft	

#### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Tottenham, Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Tyldesley

## Annual Meeting Notes

### ACCIDENT AND OPPORTUNISM IN RESEARCH

Sir Henry Dale's Popular Lecture

Almost the last event of the Annual Meeting was the Popular Lecture, which was delivered by Sir Henry Dale, O.M., in the Large Examination Hall, Bene't Street, Cambridge, on Friday evening, July 2. The President of the Association, Sir Lionel Whitby, was in the chair.

Sir Henry Dale began by saying that accident and opportunism must go together if accident was to be anything but a nuisance in research. Perhaps it was essential that a man should know whether what appeared to be an accident—a phenomenon presenting itself inexplicably—was a nuisance and the result of a trivial error or whether it offered the possibility of a discovery of real importance. It had been said that accidents happened only to those who deserved them. Accident had played some part, though not so large a part as popular rumour suggested, in the great discoveries of the 'nineties by Roentgen and Becquerel which did so much to launch physics into the new era in which we were living to-day.

Medical research might be said to be a recent development, beginning to get on its way at the beginning of the present century, but earlier than that advances were made by great physicians who used to the full the opportunities they encountered by accident in their practice, observing the regular recurrence of symptoms or the association of signs and symptoms with certain conditions which others had passed unnoticed. Here Sir Henry Dale referred to the work of Jenner which laid the foundation of vaccine therapy, and the discoveries of Pasteur out of which the science of bacteriology grew.

Sir Henry Dale next turned to the work on hormones and vitamins. The beginning of scientific endocrinology might be found in the brilliant use which physicians in the middle of the nineteenth century were making of the opportunities presented to them by the accidents of practice for correct observation at the bedside and in the post-mortem room. In considering the early recognition of the vitamins the lecturer mentioned a name famous in Cambridge, that of the late Frederick Gowland Hopkins, and spoke of his researches and those of his disciples, and their use of what appeared to be accidental findings, which gave shape to modern biochemistry. He also mentioned how a train of accidents brought about the development of Ringer's solution, the discovery of adrenaline, and the finding by accident of acetylcholine while search was being made for something else. He described the researches in which he himself had been concerned with regard to histamine. It took many years before it was established that histamine was a natural constituent of most of the cells of the living body, normally harmless, but refused to produce its characteristic effects if the living cells came into contact with some substance to which they had become abnormally sensitive or allergic. Finally he referred to the discovery of penicillin.

"Many other instances could be mentioned," said Sir Henry Dale in conclusion, "and there must be innumerable cases of which we know nothing because they have never been recorded. I hope, however, that you will not think that accident is a principal factor in research of any kind and in medical research in particular. Accidents of this sort do not often happen to the merely fanciful speculator. They happen to the men who, while continuously busy, do not close their minds to matters outside their principal aims and objects, and who keep their interest and attention alert for the unexpected. I do not believe that any research work of value is done without a great deal of hard, systematic, and conscientious toil, nor do I think that mankind would have been left in permanent ignorance through default of the accidents which precipitated great discoveries."

The President remarked on the fascinating interest of the address and asked the audience to signify their thanks, which they did with acclamation.

*We hope to publish Sir Henry Dale's Lecture in a subsequent issue of the Journal.*

### MEDICAL MISSIONARY BREAKFAST

Another of the Annual Meeting events which made a pleasing reappearance was the breakfast arranged by the Medical Prayer Union. This was held at the Pitt Club, Cambridge, on July 2. The Vice-Chancellor, who presided, said that he had always regarded the partnership of doctors and clergy as perhaps the most promising outcome of that reunion of science and religion for which some of them had been working.

An address was given by Sir Henry Holland for so many years in charge of the Quetta Mission Hospital, Baluchistan, on recent events in India. He said that the population movement in India last year was the biggest mass evacuation that had ever taken place. Some ten million people had been on the move. Emergency surgery was carried out extremely well by mission hospitals and civil hospitals in the various districts, but the aftermath of the massacres was almost more tragic than the murders themselves. The refugees had been herded together in camps containing 200,000 to 300,000 people, some had walked 600 miles trying to find shelter. The appalling condition of the camps was no fault of the Government, it was almost impossible to cope with the situation. Dysentery was nearly universal, cholera was very much in evidence, and the effects of starvation were everywhere pronounced. The medical missions stepped into the breach and relief units were formed which went to all the big centres. The Red Cross sent a large unit out from Great Britain, the Government machine got to work, and gradually the situation improved.

Sir Henry Holland added that far-reaching plans had been made for a medical and hospital service in India and for the care of the blind, it would be particularly the responsibility of European doctors to see that the standards of hospital care and of medical education were maintained. An enormous amount of material for study was available, and India offered great opportunity not only for enhancing the reputation of British doctors in India but for winning the soul of India for Christ.

### ROMAN CATHOLIC SERVICE

A service was held at the Roman Catholic Church, Hills Road, on July 1, when an address was given by His Eminence Cardinal Griffin, Archbishop of Westminster. After the address Benediction was given.

Cardinal Griffin said that the future of medicine in this country would depend upon whether doctors considered their profession as a trade or as a vocation. A man traded for material gain, he followed a vocation for the service of others. I should rather like to stress this point to-day, the Cardinal continued, "because I see from the papers that your conference has been discussing whether or not doctors should form themselves into a trade union. The use of the term 'trade union' as applied to the medical profession may easily create a totally wrong impression. Priest and doctor have very much in common. We are both concerned about the welfare of human beings, you mainly about their temporal well-being and we about their eternal life. In many cases, and especially in cases in which there is mental illness, we need each other's help. I always like to feel that we are moved by the same desire to help others who are in need of our help, and that we aspire to the same high service—in fact, without such high ideals it would be difficult to explain the devoted lives of many doctors."

There was always a danger that the patient might be considered merely as a case—merely as a heart, or a head, or a kidney, or an appendix, and not as an individual with personality, capable of becoming the son of God. They were often told that there was a conflict between science and religion. Such conflict existed only in the minds of those who misunderstood much of one or of the other or of both. Science was coherent systematized knowledge based on observation and verified by experiment, and medicine, which was a science, took note of all that should come under the observation of science and could be exactly recorded. Religion, on the other hand, was the sum total of the knowledge of God and of divine things. "Always remember that you are dealing with a patient who is both body and soul, who has divine rights and privileges, and in proposing or applying any remedy never forget those rights and privileges which are his."

Cardinal Griffin touched upon the ethics of abortion. "The child in the womb has an equal right to live with the mother, and

the best medical practice will prescribe a remedy which will safeguard the lives of both mother and child." He also mentioned euthanasia. "Do not let us give way to sentimentalism—the sort of sentimentalism which would recommend the abolition of the death penalty for the murderer and would recommend the death penalty for an innocent and helpless patient. The doctor's duty and privilege is to save life, not to destroy it, and if destruction were one day recognized as part of his duty he would rightly deserve to lose any confidence which the public places in him."

In conclusion he reminded the congregation that both in home and hospital treatment the Catholic Church had been in the forefront in the welfare of the sick. Long before states interested themselves in these matters the voluntary service of the Church through the monks and nuns set an example unparalleled in the history of medicine.

At the close of the service a reception was held in the adjoining Houghton Hall.

## **PATHOLOGICAL MUSEUM**

The Pathological Museum which was visited by many of those attending the Annual Meeting at Cambridge, was divided into four main sections. The historical section included a collection of maps, prints, and photographs assembled in the department of pathology by Dr G S Graham-Smith. They showed the development of the Cambridge Medical School and more particularly of the department of pathology. The new museums were built on the site of the old Botanic Gardens and some beautiful specimens of plants of pharmaceutical interest were added to this section. The enormous growth of the department, which now has offshoots in the Field Laboratories, the Department of Animal Pathology, the Papworth Village Settlement and the Cambridge Research Hospital, now the Strangeways Research Laboratory was illustrated by photographs, aerial photographs, and charts and there was shown also a list of the distinguished professors of pathology.

The Pathological Museum contained 30 specimens from cases of sudden death associated with cardiovascular disease collected by the late Lt-Col A Whitmore. Among the recent additions to the Museum was an acardiac monster whose twin was normal apart from a facial paralysis. The outstanding demonstration in this section was a series of lungs cut in complete sections and mounted on paper or in fluid in a thin case of "perspex." The paper sections were in their natural colour, and the wet mounting was done in hydrosulphite solution. The collection demonstrated clearly the different changes associated with simple pneumoconiosis with a focal distribution of dust lesions, and in infected pneumoconiosis with massive fibrosis. Bronchiectatic lungs, tuberculous lungs, and tumours of the lungs were all superbly shown. The same method has been used for other organs and several cerebral tumours were displayed with a clear picture of their orientation and spread. This method has great advantages in the saving of materials and storage room.

Dr A B Bratton demonstrated the thymic changes in myasthenia gravis and Dr P L Mollison showed the technique of Rh testing, some typical blood films, and the apparatus for exchange transfusion. Dr J N P Davis (Uganda) showed several hearts obtained from natives dying with congestive heart failure. The lesions were mixed endocardial and myocardial with a moth-eaten appearance of the muscle which showed hydropic degeneration microscopically. The aetiology was not known, but there was probably a nutritional deficiency, though not of thiamin.

In the dermatological section the newer methods of demonstration were used and there were many excellent enlarged colour photographs of typical lesions. Transparencies from Dr Anderson (Aberdeen), Dr Silcock (Leicester), and Dr H J Twiston Davies (Manchester) were also an advance on older methods of recording. Coloured drawings depicted such varied conditions as Paget's disease of the nipple and a "turban tumour." The best colour prints were shown by P G Hennell, of the Metal Box Co., Ltd., whose collection would make excellent teaching material. Among a host of pictures of sensitization dermatitis an outstanding example of lipstick dermatitis with a positive patch test was shown by Dr E Ritter (Lincoln). Rodent ulcers, epitheliomata, and naevi were numerous, but so were the rarer conditions of Kaposi's varicelliform eruption and mycosis fungoides.

The Pharmaceutical Society's exhibit was an elegant demonstration of careful preparations of penicillin and other materials.

Methods of assaying penicillin were also on view. A home-made pH-meter was used for checking the final pH of buffered solutions made for eye drops, etc. The complete process from the plant to the crude drug and to the purified active principle was also well set out and illustrated by digitalis and curare. The simple and effective machines for making emulsions and tablets were constantly in action.

## **FACULTY OF OPHTHALMOLOGISTS**

The following have been elected as officers of the Faculty for 1948-49: *President*, Sir Stewart Duke-Elder, *Vice-President*, Mr J J Healy, *Honorary Secretary*, Mr Frank W Law, *Honorary Treasurer*, Mr O M Duthie. Mr J H Doggart has been co-opted to the Council of the Royal College of Surgeons of England for 1948-49 as the representative of the Faculty.

Representatives of the Faculty have met representatives of the Ministry of Health to discuss several points connected with the supplementary ophthalmic service, including the use of drugs by opticians. The Ophthalmic Benefit Approved Committee have recently authorized the use of certain drugs by opticians in national insurance work. The Faculty's representatives have made it clear that they are strongly opposed to the use of drugs by opticians and the Ministry's officials, while not committing themselves, have suggested that for the supplementary eye service no regulations about the use of drugs by opticians should be laid down, but that a commission which has been appointed to consider registration of opticians should make a decision on the matter. The standard of vision required on examination by opticians and the need for a report to the patient's general medical practitioner if that standard was not attained have also been considered. The Faculty's representatives put forward the opinion that 6/6 for each eye examined should be the standard. The Ministry's officials considered that this would be too high a standard for incorporation into regulations, and agreed that guidance on this matter should be given in a handbook to be issued to opticians, the relevant portion being first submitted for the Faculty's comments.

The question of whether ophthalmologists should see patients in their own consulting-rooms under the supplementary ophthalmic service has been discussed by the Council. It is the policy of the Faculty that State patients should be seen in clinics under the supplementary service or in hospital clinics under the permanent service, and that this latter service should be inaugurated as soon as possible, because it is the Faculty's view that no supplementary ophthalmic service clinic should be held in hospital. Where there is no clinic available it will presumably be unavoidable for patients to be seen in private consulting-rooms under the supplementary ophthalmic service, though it is likely that this practice will result in a destruction of private practice.

Nominations for the ophthalmic services committees of local executive councils throughout the country have been discussed with an assistant secretary of the British Medical Association. Various fusions, modifications, and additions have been agreed which will all appear on the final list.

## **ROYAL MEDICAL BENEVOLENT FUND**

The Annual General Meeting of the Fund was held on June 29 and the following honorary officials were re-elected: Lord Webb Johnson, *President*, Dr C L Batteson, *Honorary Treasurer*, Mr Victor Riddell, *Honorary Secretary*.

The Honorary Treasurer, presenting the balance sheet and accounts for the year, said that it was a great pleasure to record an increased subscription income, in fact, the figure of £20,797 was a record. In addition there were some special donations amounting to £1,330. The financial improvement was due partly to the fact that some medical bodies whose activities had ended had handed over their credit balance to the Fund. They could not look forward, however, to future gifts from those donors, and they hoped the loss would be made good by other well-wishers.

Mention must be made of the wonderful response to the President's Christmas appeal, which constituted a further record. It enabled them to distribute Christmas gifts of £5 each to all the regular beneficiaries—a sum amounting to £2,300, and to carry forward a small sum to 1948.

Last year he asked subscribers to give additional help to the Fund, without further cost to themselves, by signing a seven-year covenant. No fewer than 343 new covenants had been signed. It might be an encouragement to other subscribers to know that over 1,150 covenants had now been signed. These facts to some degree accounted for their larger income, but there was another factor of even greater importance. He was convinced that the whole profession was realizing more and more the absolute necessity of the Benevolent Fund, and consequently there was an ever increasing willingness by many to come forward and help in the work by becoming annual subscribers. Since the last report no fewer than 143 newly qualified members of the profession had become subscribers.

"My Report, as Treasurer, would not be complete without recording the wonderful generosity which is shown to us by the Medical Insurance Agency. During the year we received a magnificent cheque of £2,520 17s 3d. This sum being paid under covenant enables the Fund to recover income tax, thereby vastly increasing the value of the gift. There are many others who have shown us great kindness, but they are too numerous to mention by name, but our thanks are very sincere to the Committee of the B.M.A. Charities Trust Fund for their generous allocations each year.

"I make a special plea for subscriptions and legacies for our new venture—namely, 'Westmoreland Lodge'—which is the residential house for some of our aged beneficiaries, because we wish to extend this side of our work. All cheques and legacies should be drawn to the credit of the Royal Medical Benevolent Fund, but those desiring their contributions to be towards our residential house, or perhaps, in the future our residential houses, should signify their wish. Finally, I ask all kind subscribers to help us in our office work by (a) using banker's order, (b) signing seven-year covenants, (c) sending subscriptions early in the year."

## MATERNITY MEDICAL SERVICES

### PAYMENT WHERE ARRANGEMENTS WERE MADE BEFORE JULY 5

The Minister of Health has considered the question of the arrangements to be made and the payments due where midwifery cases were booked before but the confinements are not expected until after July 5 (or occurred shortly before July 5). The Ministry states that a doctor on the special obstetric part of the medical list will be able on July 5 to make arrangements for carrying on and for providing maternity medical services to the patient under the new Scheme (using Form E.C. 24 suitably adapted), and in that event he will be entitled to appropriate remuneration from the council for services given on or after the date on which he accepts the patient, for services given before July 5 the doctor would look to the patient for payment. A doctor not on the special obstetric part of the medical list but who is attending a patient on his own general medical services list will also be entitled to make similar arrangements (using Form E.C. 24A suitably adapted), and the position as regards payment is similar. In neither case would the doctor be entitled to charge the patient herself for services given on or after July 5 if the patient is on his own list (or the list of a partner or assistant).

The payments will be as follows. Column 1 refers to the doctor who is on the special obstetric part of the medical list, Column 2 to the doctor who is not on the obstetric part of the list but is attending a patient on his own general medical services list.

1 Doctor on Special Obstetric Part of Medical List	2 Doctor on General Medical Services List Only
Confinement on or after July 5	
Period II fees of 4½ gns plus 10s 6d for each antenatal examination after July 5 with maximum of 7 gns	Period II fees of £3 7s 6d plus 7s 6d for each antenatal examination after July 5 with maximum of 5 gns
Confinement before July 5	
Where confinement takes place	Where confinement takes place
(i) within one week before the new arrangements are made 3 gns	(i) within one week before the new arrangements are made 2 gns
(ii) within 2 weeks before the new arrangements are made 2 gns	(ii) within 2 weeks before the new arrangements are made 1½ gns
(iii) within 6 weeks before the new arrangements are made 1 gn	(iii) within 6 weeks before the new arrangements are made 15s

## SUPERANNUATION IN N.H.S.

*The following statement on the option open to medical practitioners holding life assurance policies and on the extension of pensionable age for practitioners has been issued by the Health Service Superannuation Division of the Ministry of Health.*

It was recognized when the National Health Service (Superannuation) Regulations, 1947, were made that many doctors and dentists (referred to here as practitioners) who come on to the lists of executive councils at the inception of the National Health Service would already be committed to paying premiums on insurance policies taken out to provide for themselves on retirement, or for their wives or dependants in case of death.

The option enabling a practitioner who is already adequately covered by insurance to contract out of the Health Service scheme is available *only* to those doctors and dentists who (a) hold a contract of insurance or policy of insurance with a life assurance company on July 5, 1948, and (b) are on the list of an executive council on that date. The choice lies between (a) becoming liable for contributions and eligible for benefits under the Health Service scheme and (b) remaining outside the scheme and receiving an amount equal to 8% of his "net" remuneration (i.e., the payments for general medical or dental services less a percentage for practice expenses) towards the maintenance of approved insurance policies.

The exercise of the option will be subject to the following conditions, discussed with representatives of the medical and dental professions, intended to secure that the payments shall be related to current policies giving cover broadly equivalent to that in the Health Service scheme.

(a) The policies must be endowment assurances or deferred annuity policies.

(b) The policies must not mature at an earlier age than 60. Where a policy would under its original terms have matured before age 60, it can be recognized if its terms are modified so that it matures at or after age 60.

(c) (i) The premiums (or total premiums) must not be less than £150 per annum. (ii) Alternatively, if the total annual premiums on existing policies are less than £150 per annum but not less than £50 per annum, these policies will be recognized on condition that the practitioner takes out forthwith a further policy which will bring the total premiums to at least £150 per annum on policies satisfying the conditions set out in (a) and (b) above.

(d) The policies must not be assigned to any other person, or surrendered before maturity.

(e) Payment by the Minister of an amount equal to 8% of the practitioner's remuneration will continue only so long as the premiums on the policies continue to be payable.

(f) The policies must be produced for inspection on a request made to the practitioner by the Minister or by the executive council on his behalf. Alternatively, a statement from the assurance company on the nature of the policies may be submitted.

(g) Premium receipts must be submitted to the Minister or to the executive council for examination within one month after the date on which each payment of premium falls due.

Before deciding whether or not to exercise this option a practitioner will wish to weigh the relative advantages of the courses open to him. Attention is therefore invited to the booklet 'Superannuation Scheme for those Engaged in the National Health Service—An Explanation,' a copy of which will be supplied free of charge by the executive council. Sections B and C of that booklet outline the contributions and benefits, and paragraphs 1, 5, 7, 16, and 25 deal with special conditions applicable to practitioners who are subject to the scheme. Paragraph 16 of the booklet shows how benefits are calculated in the case of practitioners and should be borne in mind when reading the other paragraphs in Section C.

A practitioner who can satisfy the conditions stated here and who wishes to rely on his insurance policies and not come into the superannuation scheme must send a written request to his executive council within the period from July 5, 1948, to October 4, 1948. A form for this purpose can be obtained from the council.

### Extension of "Pensionable Age"

"Pensionable age" is the age at which contributions cease to be payable and service ceases to count under the regulations. This is normally 65 years of age, but a practitioner who has attained the

age of 60 can apply to the Minister of Health for an extension to a later age, not beyond the age of 70. This does not affect the age at which a practitioner *may* retire with benefits under the Scheme, this is on or after age 60, with a pension if 10 years' service has been completed, or with a lump sum retiring allowance after five years, and retirement can be *after* "pensionable age". There is no time limit for applying, and any practitioner now under 60 may apply when he reaches that age.

The extension will be of particular value to those practitioners who enter the National Health Service late in life. For instance, it will enable practitioners of just under 60 years of age at entry to put in the 10 years' service required to qualify for a pension on retirement. It would also give a higher rate of incapacity pension in the case of a practitioner who is over 45 years of age when he enters the Service (see paragraph 11 of the booklet). In considering an application the Minister will consult the practitioner's executive council, asking them to obtain the views of the local medical committee or the local dental committee as the case may be. The Minister may also require to be satisfied as to the health of the practitioner. If an extension of pensionable age has been allowed it cannot subsequently be varied.

Applications for an extension of pensionable age should be addressed to the Ministry of Health, Health Services Superannuation Division, 28, Princes Gate, London, S W 7.

## Correspondence

### The Changing Face of Medicine

SIR,—In his Presidential Address before the B.M.A. Sir Lionel Whitby (July 3, p. 2) speaks of the economic factor as having been "potent in hastening the inevitability of a State medical service", and he then gives "a few facts and figures" which "will serve to establish the point". I feel strongly that Sir Lionel has done no more than show that a few illnesses are so expensive that most of the sufferers need financial assistance from the State, but he has certainly not shown that this makes a State medical service inevitable. Most of the ills to which man is heir are dealt with more rapidly and cheaply than ever before, and it would have been only equitable if Sir Lionel had given a credit column as well as a debit one in his accounts.

"A few facts and figures will serve to establish the point". Gonorrhoea can be cured so quickly that most sufferers need lose no time from their work, pneumonia no longer causes months of ill health, meningococcal meningitis has lost most of its terrors, and even surgical operations, expensive though they may be, do not as a rule cause the prolonged periods of absence from work that they used to do. But it must be admitted that if every pyrexia of uncertain origin is to be the subject of intensive investigation the cost will be very great, and most of the patients will have recovered long before the laboratory investigations have been completed.

There has arisen in many minds, both medical and lay, a remarkable confusion between research and the practice of medicine. For instance, the clinical researcher is, very properly, more interested in the *genesis of symptoms and signs than in the diagnosis and treatment of the individual sufferer*, but that is no reason why every case should be investigated in such detail. What earthly reason could there be for wasting time and money in carrying out a daily reticulocyte count on every case of pernicious anaemia during the early stages of treatment, important though such a procedure is in testing the potency of liver extracts? How, in fact, is it possible to justify the great majority of investigations that are carried out in the common maladies? I would assert that it is impossible to do so, and that the only reason for doing them is because some patients, as the result of "an enormous expansion of the Press during the past 50 years," have come to believe that they should be the directors of their own treatment.

Surely Sir Lionel would not assert that the innumerable laboratory examinations demanded by house physicians (because they fear their chiefs' wrath) are really necessary. It is our duty to see that the cost of illness is kept as low as possible, but who can deny that the tendency in recent years has been exactly the opposite?—x-rays for record purposes, blood counts for the sake of completeness, Wassermann tests because a few people have syphilis, although most have not, complicated and time-consuming tests of kidney function, when simple ones would serve the practical physician's purpose and,

last but not least—the latest extravagance—clinical photography for the purpose of filing with records, most of which will never be looked at again.

SIR, if we are sensible, a State medical service is not, even now, inevitable. True enough the N.H.S. is here, but that is not *sensu stricto* a State medical service. We all have to pay for it, but we do not all have to use it, and, if we make sure that our patients are not subjected to endless unnecessary tests, we shall find that many of them will prefer the old method of continuing to pay for what they get as and when they require it. The persistence of private and public schools in spite of a State educational scheme should serve as an example to us—I am, etc.,

London W 1

A. PINEY

### Reduced Incomes

SIR,—Can it be that the Association is really going to accept the terms offered by the Minister? We have been entertained by much talk about the purity of our principles and how far our spokesmen have succeeded in securing their admission by reluctant bureaucrats. That is all very well, but so far we of the rank and file have heard nothing definite about the attitude of the Negotiating Committee to the financial proposals and are left considering how on earth we are going to carry on if our future remuneration is to be at a standard rate of fifteen bob (and sixpence) a nob.

Circumstances vary within such wide limits between place and place and between individual practices that it would seem to be impossible to secure fair play by enforcing a rigidly uniform system of payment throughout the whole Service. As usual in these days, when, regardless of the laws of biology, all men and women must be considered simply as units, the rules have been formed as if all the people in this country were herded into great cities with populations of hundreds of thousands. Even on this reckoning the proposals of the Minister are designed to encourage all that is worst in the practice of medicine. The only way open to the earning of a reasonable living is to take on patients by the thousand without any regard to what sort of treatment can be given to them. It is ridiculous to pretend that any one man can give anything like adequate attention to 4,000 persons, men, women, and children. The only way one could hope to cope with such a multitude would be to push off anyone who is really ill to the nearest hospital, in other words to pass the buck to someone else at the earliest opportunity.

I have practised for a number of years in a seaside health resort with a population of 22,000. The Minister would have us believe that a force of four or five doctors should be sufficient to deal with all the needs of such a community, yet we have found that the work has always been sufficient to keep 12 to 15 doctors in full employment. We are also on the staff of our local hospital and follow our patients through all their illnesses with the help of visiting surgeons and physicians. Within our limits we carry out, I think quite successfully, a number of emergency major operations and all minor surgical procedures ourselves. This I admit has added enormously to the interest of general practice and has acted as a spur to keep us constantly on our toes. The place being what it is, many of our patients are either old or invalid and consequently require considerably more attention than an equal number of the young and fit. The Minister apparently takes no account of this but relies on the simple counting of heads in the assessment of the value of our service. It is true that an offer is made to create a staff fund of £25 per bed, based on the average number of occupied beds per annum, but if this is intended as compensation for the number of hours spent in the operating theatre giving major anaesthetics, carrying out post-operative treatment, and dealing with casualties one can only describe this offer as farcical.

The cheap press has given the public the idea that in the new Service all doctors will be enjoying incomes of £3,000 a year and upwards, and the powers that be in the Association have not yet so far as I am aware taken any steps to enlighten the people on the facts of the case. It is all very well saying that we practitioners must now do all we can to make the new Service a success. I submit that the first requisite for the attainment of that worthy object is to ensure that those who have to work the Service are happy and contented. Until that object is attained, and it cannot be so long as many of us are faced with a steep decline in our incomes, one can only view the future with the greatest alarm and despondency—I am, etc.,

Bridlington

C. J. GORDON TAYLOR



### Superannuation Scheme

SIR,—I feel disgusted at the way the profession has been brow-beaten into a scheme which the majority view with alarm and distrust. Not only have we to serve, but furthermore we have to contribute to an insurance scheme from which we get little or nothing in return. We have accepted with complacency an arrangement whereby our homes have become the public's health centres for wives and families slaves, and our relative remuneration falls. Now we have a superannuation scheme (which requires the comprehension of a financial wizard) thrust upon us to deplete still further our already rapidly dwindling incomes.

You may be assured that if united resistance is not forthcoming further burdens will be added. Surely the time has now passed for ever when a free man could think and act according to his own judgement as to how he should arrange his affairs to best suit his wife and family's future. We are reduced to following the herd. Initiative is destroyed. The profession will live to rue the day it sold its heritage—I am, etc.,

S. Withport Lanes

BERNARD SAMUELS

SIR,—Medical practitioners must compulsorily take part in the superannuation scheme of the NHS, except that under certain conditions (at present unknown) there is an option to practitioners holding life assurance policies to remain outside the scheme by giving notice in writing within three months of July 5.

From 1932 onwards many practitioners like myself contributed to the pension scheme for national health insurance practitioners sponsored by the Insurance Acts Committee. The insurance companies concerned naturally will be interested in retaining business, and any opinion from that source must be regarded as biased.

I hope the appointed trustees, on learning the contents of the promised leaflet SDD, will publish their considered opinion in our columns. Practitioners with other forms of life and endowment assurance would equally welcome guidance. In particular, practitioners who have taken policies to cover loans against purchase of practices are vitally concerned. Already paying large premiums, are they to pay a further 6%, or may they opt out, and, if so, is it in their best interest?—I am, etc.,

Birmingham

THOMAS J. CRONIN

An abstract of leaflet SDD appears at p. 47 of the Supplement—Ed. BMJ

### The Greatest Safeguard

SIR,—For many years I have been a loyal supporter of the BMA and recently have been present at Special Representative Meetings on the National Health Service Act for the past two years. Up to April, 1948, I was quite satisfied with the way in which negotiations were being conducted on behalf of the profession, though I had slight misgivings over the omission of any real assistance on the terms of remuneration. I thought, however, that once our principles were conceded the negotiators would turn their attention to this point before advising the profession to accept service.

I was profoundly shaken in April by the hurried plebiscite, which seemed to me quite unnecessary in view of our then existing position in relation to the Minister of Health and the result of the previous plebiscite. I attended the Special Representative Meeting on May 28, when a majority showed that they disapproved of the holding of the April plebiscite.

Representatives were told at this meeting that the decision to hold the plebiscite was made by a majority of the Council, but no one present succeeded in ascertaining either by what majority in the Council the decision was made or which members of the Council voted for or against the decision. A few members of the Council had the courage to state their views, which is greatly to their credit, but the majority remained silent.

It seems to me now that those members of the Council who voted for holding the April plebiscite should resign in view of the resolution passed at the May Special Representative Meeting. My reason for saying this is because I feel more than ever that a strong and united BMA and a Council completely trusted by the members is the greatest safeguard the profession can have and the only protection against encroachment on its liberty and freedom by the Government now or in the future.

Another disquieting feature is the undue emphasis which the BMA has allowed to be placed on the pronouncements of the Royal Colleges during the negotiations. These Colleges only represent a small portion of the profession and do not in any way or at any time, pretend to consult the views of the many thousands of members and licentiates of the Colleges who in this case have been vitally affected by the Presidents' stated views.

It is true that Lord Horder's motion criticizing the Council of the BMA was defeated by a large majority. Thus, I think was due to a feeling that if the complete Council resigned as a result of passing this motion the BMA would be split at a most critical time.

Thousands like myself have now been forced to enter this Service, which we dislike but which we feel could have been made very satisfactory both to patient and doctor, by the financial threat of loss of compensation if we did not enter by July 5. Surely our negotiators should not have advised us to go into this Service when this very unfair weapon was being held at our heads—I am, etc.,

Eastbourne

P. W. MATHFW

### The Public Not Informed

SIR,—So the trouble has started 'already'! This morning—July 2—I opened my *BMJ* and read the Minister's honeyed message on p. 1, later in the day I opened my evening paper and read the Minister's outburst in the House when he blamed the BMA for the sign-on muddle. Meanwhile what has happened to recommendation C passed at the SRM on May 28, "That the public be adequately informed that the profession cannot hold itself responsible for the Government's promises"? So often we have been told of the stacks of propaganda provided by the Public Relations Department which lie at Tavistock Square, yet none of it seems to escape to the outside world for which it was designed. True, Dr. Dain said at Cambridge that half a million leaflets were ready to go out after July 5. But why wait six weeks after it has been sanctioned by the RB? Why let the Minister get the first word in when it was perfectly obvious that he would lose no opportunity of blaming us as and when it suited him?

In the same speech Dr. Dain explained that it was a considerable undertaking to circularize all doctors with these leaflets for them to hand on to their patients and he suggested that it might be done through Divisional public relations secretaries. It is not plain why these overburdened and unpaid people should be saddled with this when they need all their time to earn a living by doctoring, especially as there is an enormous and highly paid secretariat at Headquarters to do the job. Dr. Charles Hill and his assistants were quite capable of organizing a plebiscite with a haste for which the profession had no liking, yet when it comes to implementing the expressed wish of the RB in the simple matter of circulating some leaflets to doctors we meet with interminable delays and excuses. There seems to be a feeling at Headquarters that no matter what the RB passes or what the profession wants, it is for the secretariat to decide what shall be done with enthusiasm and dispatch and what shall be allowed to die through inertia—I am, etc.,

July 2 London NW1

R. HALE-WHITE

\* \* The Secretary of the BMA writes: "There are no excuses and there is no unnecessary delay. Headquarters, despite the many heavy burdens now falling on it, is doing its job 'with enthusiasm and dispatch'." 'Inertia' is hardly appropriate to a staff which is working 'all out'. No one who has not tackled this problem has any idea of the physical difficulties nowadays involved in the production of large quantities of leaflet and poster material. In a wide variety of ways, including the supply of background information to the Press, the Public Relations Department has acted on the SRM's resolution. Within two hours of the Minister's statement on July 2 the following rejoinder was issued to the Press:

It is difficult to understand Mr. Bevan. He announces with pride the numbers of doctors who are joining the Health Service. At the same time he cries to Heaven in indignation that doctors are not joining. Really, Mr. Bevan must not begin to blame the doctors for his troubles. As soon as the BMA decided to co-operate, doctors were advised they were free to join the Service. They could hardly be given that advice while the dispute was still on. The doctors didn't choose July 5 anyway. Why blame them if local executive councils are not ready with lists of doctors, which in any



case cannot be complete until after July 5? After all, it was Parliament which gave doctors until July 5 to decide."

The Chairman of Council has dealt with the point in a letter to *The Times* and in speeches, the Secretary has emphasized it in three public speeches.

In the past few weeks 600,000 copies of "The Private Patient" leaflet, which deals with one aspect of the sign-on muddle, have been dispatched from this office, mostly in small packets to individual doctors. At the moment it is going out at the rate of 10,000 copies a day.

The leaflet on "The New Health Service and You" was approved by the Public Relations Committee on June 17 and then sent to the printer. Printing and paper difficulties are great, and in fact many problems still remain. This leaflet will be issued direct to individual practitioners as soon as is humanly possible. 40,000 copies of a poster on the same theme for display in doctors' surgeries have been promised by the printer within a week or so. The leaflet is in the following terms:

#### THE NATIONAL HEALTH SERVICE AND YOU

July 5, 1948, was a notable occasion in our history. On that day the National Health Service started—the foundation of a comprehensive service for the entire community. The medical profession pledged itself at the start to do everything it could to make the Service a success. But—and there is a very big "but"—the Service cannot be a success unless the three parties concerned help to make it so. Doctors, nurses, and the other workers in the Service, the Government and the administrators, the public. All have a part to play. Each should try to appreciate the others' difficulties.

Remember, no fury wind was waved on July 5 to create new hospitals, new doctors, and new nurses overnight. Did you notice that to many of the benefits promised in the Government leaflet describing the Service a warning phrase was added—"*as national resources allow*"? This was added with good reason. It is vital that everyone should understand the facts and not expect miracles.

**The Family Doctor**—Under the new Service 28 million more persons suddenly became entitled to medical treatment without payment of fees. But there are no more doctors than there were before. Therefore, if there is a "run" on the surgeries just because the Service is "free at the time," doctors will be unable to give as much attention to each patient as they would wish. No one can give his best if he is overworked.

After the panel system started in 1911 the average number of times the average doctor had to see each patient suddenly rose from under twice a year to  $3\frac{1}{2}$  times a year, and that number has since risen to over 5 times. Even more heavy is the new burden falling on doctors now that the number of persons entitled to a free Service has shot up from 22 millions to 50 millions.

To carry out all the objects of the National Health Service Act and to provide reasonable conditions of work for doctors many more doctors are needed. To train a doctor takes at least five years. There can be no hope for a long time to come of providing all the doctors necessary.

**Health Centres**—The building of health centres, once described as the "keystone" of the new Service, has been postponed indefinitely because of the building situation.

**Hospitals and Specialists**—The hospitals are unable to cope with the demand on their services. On July 5, 61,000 beds were empty in the hospitals of Great Britain through lack of nurses and domestic staff. The country is short of 45,000 nurses, and there is no immediate prospect of finding them. Until this problem is solved there can be no substantial increase in hospital beds. Recently 33,000 patients were waiting for admission to the London hospitals alone. Many patients with tuberculosis have to wait a year or more before they can be admitted to a sanatorium.

There is an even more serious shortage of specialists in some branches. This again must make itself felt in the running of the hospitals at the start of the new Service.

**Appliances**—The free provision of spectacles, false teeth, hearing-aids, artificial limbs, and other appliances are benefits under the Act. But again, there is a shortage of all these things, and patients are waiting long periods for them. Inevitably this waiting time will greatly increase.

**How Everyone Can Help**—It is fair to the public that they should be told the truth about these and other deficiencies. The doctors will work then hardest to have them removed. So will every body else. But it will all take time. Do not expect too much too quickly.

Meanwhile, there are ways in which everyone can help his or her doctor to get round his work.

**Please**—Ask the doctor to call *only* if you can't get to his surgery and you really need him. Wherever possible, if you want the doctor to visit you, ask him before he starts his rounds. This helps him to plan his day, avoids needless journeys, and makes the best use of his time.

#### Public Relations

SIR,—The "Private Patient and the New National Health Service" pamphlet has been hailed as a fine piece of work, probably the best piece of work that has been done by the Public Relations Department. There have, however, been grumbles: (1) That the idea was too late, (2) that dispatch from B.M.A. House was too slow, (3) that distribution to individual members was too great a job for local public relations secretaries. Let us examine the facts before we jump to hasty conclusions.

1. Could the pamphlet have been issued to the public earlier? The answer is definitely no. We must not forget that until the S.R.M. at the end of May the profession was actively engaged in opposing service under the Act. How could we at one and the same time issue propaganda material (a) which in effect urged the public to boycott the Service and support the doctors in their fight, and (b) which stressed the advantages of remaining as private patients *within* the Service while continuing to draw all the other benefits?

2. *Early in May* specimen copies were issued to Divisional public relations secretaries, who were asked to state how many copies would be needed by the doctors in the Division if the profession decided to join the Service. Replies were slow in coming—in fact, some Divisions have only just sent in their first orders. However, 100,000 copies had been printed and the first bundles dispatched to doctors a few days before the S.R.M. The Ministry of National Insurance then issued fresh contribution figures which made the pamphlet inaccurate and it had to be revised, and having overcome paper shortage difficulties 450,000 copies of the revised pamphlet were obtained from the printers. Two members of the B.M.A. staff were detailed to do nothing else but bundle up and post them to Divisions. After two or three weeks, as orders were coming in very slowly from public relations secretaries, a copy was sent to each Division secretary, who was also asked to estimate the number needed and to order them. Yet what do we find? Some Representatives at the Annual Conference told me that they had not even heard of the pamphlet in their Divisions. If blame lies anywhere it is at Divisional level rather than at the Centre.

3. Surely Divisional distribution could have been from one or more centres, such as hospitals or nursing-homes or even doctors' houses? Stocks could have been left at each centre and the usual Divisional machinery could have been used to notify each member where to go to collect as many copies as he needed. This worked well in some areas and obviated a great deal of packing and posting for the Secretary. It also put some of the responsibility and initiative on the individual—surely not a bad thing in these days, when a few seem to be taking the burden of responsibility for the many—I am, etc.,

Bristol

WALTER WOOLLEY

#### A.R.M. Report Correction

SIR,—In the *Supplement* (July 3, p. 2) you print an account of the debate in the Representative Body on the motion by Dr. Breach (Bromley) asking for the formation of a committee to consider the conduct of the profession's case in 1948. You quote me as seconding the motion, and you go on to report verbatim the remarks of the Chairman of Council and of Dr. Gregg in which they "attack the mover and seconder" (to quote the Chairman's opening words) and wherein they indicated with considerable emphasis and heat their opinions that the reasons given by Dr. Breach and myself for the proposition were other than we stated. What you do not do is to publish my personal explanation given in the course of the debate that I did not second the motion but that the seconding was allocated to me by the Chairman of the Representative Body when he announced my name to speak, an error for which he subsequently apologized to the meeting.

As a result of a conversation with the Chairman of the Representative Body over the luncheon table I wrote a note to Dr. Hill stating that, as I had only seen the motion for the first time a few minutes before it was proposed and had specifically refused to second it when asked to do so, I must ask for my name to be withdrawn from the minutes as seconder. This was done, and I accordingly request you to print this letter as a correction and amplification of your account of the debate. In conclusion I would observe that, judging from your quotation in the leader of that issue of Mr. Churchill's saying, "The more one looks back the farther one can look forward," I appear to have been in good company in speaking in favour of such a principle—I am, etc.,

Harrow, Middlesex

J. B. WRATHALL ROWE

## SOME ASPECTS OF THE TREATMENT OF SKIN DISEASES

BY

JOHN T INGRAM MD FRCP

Physician in Charge Skin Department General Infirmary at Leeds  
Lecturer on Diseases of the Skin University of Leeds

All dermatological affairs assume an importance greater than appears on the surface because they are a reflection of the same problems as concern medicine as a whole. They are a little complicated by external influences, but the fundamental principles which apply to medicine apply to the skin and are there made manifest. So it is with the problems of treatment which more seriously test the ability of the physician as a healer of the sick than do most other departments of medical practice. It is an aspect of practice which each one of us should bring under review from time to time in a broad way and this is perhaps more than ever necessary when therapeutic advances proceed as rapidly as has been the case in the past few decades.

There are certain fundamental principles which have guided the wise physician through the ages. They have a basis in careful clinical observation and are built upon sound experience. They have stood the test of time and satisfy the simple demands of common sense, and should form the basis of all our treatment. To these principles are attached in fashionable abundance a number of therapies, sometimes empirical, sometimes founded upon interesting and valuable scientific discovery, and sometimes mere fads, but there is ever present the danger that these accretions may obscure the sound principles in the hurly-burly of medical practice.

### Some General Principles in Treatment

A first essential in treatment is to make an accurate diagnosis, to grasp the full significance of that diagnosis and often to convey that significance to the patient. Diagnosis is not covered by a tabulated series of labels and the attachment of a particular label to a particular manifestation. Treatment does not consist merely in the administration of a certain drug filed under the heading of such a label. Diagnosis and therefore treatment, rests almost entirely upon a careful history and a complete examination of the patient including his whole skin. Special tests necessitating elaborate technical facilities are of very secondary importance and need not concern us here. In a considerable proportion of cases effective treatment demands no more than this taking of a history and clinical examination except that it shall be shared and understood by the patient.

### The Organic Group of Skin Diseases

We find in dermatology that diseases fall broadly into two distinct groups. The first may be described by the old-fashioned term organic. These are structural changes with little disturbance of function and include congenital abnormalities, infective diseases and neoplasms. This constitutes the smaller group of dermatological ills seen by the doctor and for each disease in this group there is a more

or less specific line of treatment to be modified according to the characters and circumstances of the patient. In this field the physician may claim that it is he who treats the patient and that success depends almost entirely upon his knowledge and ability.

One or two examples may make my point clear. The diagnosis of erythema nodosum is not difficult. It is a reaction in a sensitized individual to organisms which have recently gained access to the blood stream from some focus of infection. Those are two very significant points. It is recognized that in this country more than 70% of those who suffer from erythema nodosum under the age of puberty do so by reason of a tuberculous infection. That then, is one major aspect of the problem, and if treatment goes no further than a careful overhaul for active tuberculous disease in the patient and in those around him it has been to some purpose. Warty tuberculosis of the skin results from external contact with the tubercle bacillus. But again, though it may do no more than point to the occupation of the patient, it may on the other hand mean that the patient himself or someone in his family or in a wider circle of contact is the subject of open pulmonary tuberculosis and is the source of the organism. If the lesion is on the buttock it is almost certain that the patient is himself infected in lung or bowel or ischio-rectal region.

Erysipeloid is a common infection of the hand in those who handle pork, fish, game, rabbits, etc., and is due to *B. rhusiopathiae suis*. It does not cause abscess formation, lymphangitis, or adenitis, and is responsive to penicillin therapy. To make an error of diagnosis and diagnose pyoderma or cellulitis and to incise may lead to sepsis and unfortunate sequelae.

So simple an affection as impetigo is not just a matter of a label and specific treatment. Its presence about the head and face often indicates an underlying pediculosis capitis or a focal infection such as a fissure or aural or dental sepsis. Furthermore those in greasy or wet trades and those with greasy and wet skins are known to be particularly prone to sepsis, and treatment should be guided by these facts. Whatever the medication a first indication is to keep the parts dry and avoid greasy applications.

These illustrations in the field of organic disease demonstrate the importance of an accurate diagnosis and all that it means in effective treatment.

### The Functional Group

In the second group of dermatological ills comprising perhaps 70% of all skin diseases the stress is upon function, and structural changes play a minor part. In the first group we can almost imagine the disease pursuing its course independently of the patient. In the second group the disease is the patient; it is essentially individual, and merely expresses the functional response of that individual to the particular circumstances in which he finds himself.

\*Based on a lecture delivered at Staincliffe County Hospital, D. 14, on March 18, 1948.

e attach a number of labels to certain patterns of functional reaction which bear certain features, labels like eczema and urticaria, seborrhoeic dermatitis and psoriasis, but it is a grave error to imagine that the label is the disease and carries with it the implication of a definite course of treatment. To make a diagnosis here it is necessary to know something of the patient's background and inheritance, something of his health and temperament, his circumstances, his home and work, and to consider all those environmental influences which may bear upon and affect his reactions. To carry that diagnosis through to effective treatment it is necessary to convey to the patient an understanding of all these factors so as to enable him with appropriate assistance, to achieve an adjustment and stability in relation to his environment. It is indeed the patient who treats himself.

Infantile eczema is an illustration of this type of disorder. The child has a sensitive skin provoked to functional disturbance—itching—by external factors such as exposure, or by internal disturbances such as teething, which would not annoy the normal child. Protective and antipruritic applications such as tar paste are employed, and sedative measures are prescribed internally. But the problem is not quite so simple. There is not only a sensitive skin or even a sensitive ectoderm but a sensitive patient manifest in all his emotional and nervous reactions. This calls not only for great care and understanding in management immediately, but for consideration in relation to the training and rearing of the child and choice of school and career.

Such a child will generally be the offspring of a parent or parents of similar temperament, a likely aggravation for the patient and often responsible for an atmosphere of unrest and anxiety round the child. It may be necessary to remove the child, at least for a period, from the atmosphere during his early life. In any case success in treatment must be difficult if the parent cannot be brought to understand the nature of the disturbance.

Rosacea is another label that is entirely inadequate unless the significance of the reaction is appreciated by doctor and patient. A variant of blushing, it is clearly subject to emotional and endocrine imbalance such as occurs at puberty or the menopause. Not only the psychological but all those influences external and internal which can bear upon blushing and flushing must be brought under review, and the possibility of hypertension as another expression of vasomotor instability must not be overlooked, for, if present, it will be the major symptom. Fortunately this very embarrassing symptom, rosacea, is readily responsive to simple measures—small fractional doses of x rays with a mild sulphur and salicylic ointment locally and phenobarbitone internally. But success will be short-lived if the wider psychological and environmental aspects of each case are not dealt with and the patient given insight into them.

So it is with all affections in this large group of ills. The label of industrial dermatitis or psoriasis, of sycosis barbae, pruritus ani, or eczema is not sufficient to indicate treatment. The same treatment may upon occasion be applicable to all, for the cause of the disturbance may turn upon a question of domestic harmony, malnutrition, or endocrine dysfunction, or other endogenous influences of greater importance than the apparent external factor. All aspects of the problem must receive careful assessment in each case, for it is this integrity in diagnosis that is essential to treatment. This was often unconsciously appreciated by the wise physician of old, the good family practitioner. It is something which in the face of rapid scientific progress we are apt to lose, and it is something which cannot easily be reconciled with an ordered, scientific, and regimented medical service. At the same time its recognition in a big

way rather than on the individual plane constitutes one of the major advances in treatment through the development of psychological and social medicine.

#### An Important Point

A second point of major importance in treatment is to remember that the disease affects a human being and not a laboratory apparatus, that the disease has a natural history and tends to run a natural course of its own further, that its presence automatically sets in action a variety of defence mechanisms about some of which we may understand a little but about many of which we certainly know nothing. It is undoubtedly these defence mechanisms which ultimately effect a cure and we must be careful not to interfere with or harm their activities and must cut across them only with caution. In short, even with the most modern and scientific weapons it is still the patient and not the disease that must be treated.

In this regard it is pertinent to mention the value of rest, to stress the harm caused by interference, and to encourage a masterly inactivity. There is every inducement to practise the reverse. The patient urges us to do something, and to do something different. We are encouraged by a spate of medical literature not always based on a broad clinical experience. Such a wealth of medical preparations is placed at our disposal and so many are the diseases of uncertain aetiology that there is ever present the temptation to try one of the new drugs which seem to exercise magical powers. Sometimes the magic works, sometimes it does obvious harm, but how often it does unseen harm it is not possible to tell.

If dermatology reflects what happens in other spheres of medical practice—and I do not doubt that it does—this ability of the physician to create harmful disease should be stressed. The dermatologist constantly sees, and himself often produces, extensive dermatoses or disabling illnesses that have their origin in little or nothing and are literally created by an excess of treatment and misdirected zeal. We are ourselves in large part responsible for this—encouraging patient and worker to attack with treatment the most trivial of lesions, forgetful of or having lost faith in the healing powers of nature and particularly of the skin, and unmindful of the fact that this is the age of therapeutic danger. Antiseptics, sulphonamides, penicillin, and adhesive plasters readily convert a harmless abrasion into an area of eczematous dermatitis, and immediately a serious offence is created.

These problems are all too familiar. I may quote three cases. The first is that of an old lady of 84 who had never suffered from her skin in her life. Six months previously she was burnt by a poultice applied to relieve pain in her chest. This burn was treated with penicillin and sulphonamides locally. The resulting sulphonamide dermatitis was treated with tar, to which she was sensitive and now after six months she is distracted with a widespread eczema and intolerable itching.

The second case is that of a man of 48 who scratched his leg two months ago. This was treated with sulphonamides and penicillin in the ambulance room at his works, and now he must be admitted to hospital for at least six weeks to treat the dermatitis and oedema of the leg and the generalized spread resulting from treatment.

If nothing had been done in these cases it is probable that the patients would have recovered rapidly.

The third case, that of a middle-aged woman with a widespread dermatitis from the use of a liniment to relieve pain in a joint, is less unreasonable perhaps but we should always be alive to the harm that may result from interference.

The skin is slow to forgive eczema begets eczema and what is produced in a few days may take months or years to subside. The inherent sensitiveness of the skin, the powerful sensitizing properties of the metabolites which such reactions evoke, the effects upon the blood chemistry and upon the mind to mention only a few of the major influences which are set in motion are profound and we understand very little about them.

In dermatology and no doubt in other spheres it is of importance to be able to recognize the ill-effects of treatment is opposed to the evidences of the disease itself. I try to remember in practice to suspend all treatment in a case that is getting worse under seemingly rational treatment and especially in a case that is getting out of hand. It is always instructive to watch the effects of no treatment at all and one's measure of success should always be judged against that yardstick. It may be wise for the inactivity to take the form of some bland medicament and there are still many to be obtained, even though this is not as easy as in the days before the war for 'austerity' substitutes are apt to misquerade under the guise of old labels especially in relation to oils and fats.

Very many of the dermatological ills of which I have been speaking are themselves the expression of a patient's loss of confidence in himself. Whether or not that is the case it is very easy for the subject of a functional disorder of the skin as eczema or psoriasis to become anxious and feel insecure and doubtful of the future, more particularly if his disease seems to be a mystery to himself and his doctor.

Treat with confidence. It is probably true to-day as it has ever been in the past that the more able and experienced the physician the fewer and the simpler his therapies. With a full and careful diagnosis—and this rarely demands much technical assistance—and if the nature of the remedies prescribed is known the physician should treat his patient with complete confidence and not be disturbed from that course without serious consideration.

### Local Treatment

The question of the use of soap and water is always an intriguing one for the patient. Few skin affections are infectious or contagious, and so far as the attendant upon the patient is concerned the nurse or doctor ordinary soap and water toilet cleanliness is desirable and necessary, but nothing more. The lavish use of antiseptics is unwise, and the wearing of rubber gloves is an offence which may do much harm in the field of treatment confirming the patient in his feeling of being in outcast.

So far as the patient is concerned the use of soap and water must be guided by common sense. In some affections it is essential to wash thoroughly as in seborrhoeic disorders not associated with eczematous dermatitis. Seborrhoeic pityriasis and acne vulgaris respond to washing and the addition of one of the modern soapless detergents to the washing water by cleaning the skin more thoroughly of its excess of grease will hasten the response. Expressions of skin sensitiveness like rosacea and eczematous dermatitis are aggravated by this procedure and it is often wise entirely to avoid washing the affected parts. It is of importance that the patient shall understand his ill and shall not approach it as a leprous offence of which he must be cleansed by vigorous scrubbing. The patient will often comment upon the injustice of his having skin trouble when he is so much more careful about his toilet than his neighbour. It is just that type of patient who is most likely to show a skin disorder by reason of his temperament but it is essential that his false approach to the problem should be corrected.

The same yardstick of common sense should be applied to the use of protective barrier creams before starting work in the factory or the home and to the use of cleansing agents after work. The suitable employment of such measures can be most beneficial but if employed without understanding and intelligence they may do great harm.

I want now to turn to some particular aspects of dermatological treatment. Local applications are rarely to be employed as therapeutic weapons, seldom is it desirable to attack. The purpose of local treatment is commonly to support and protect the skin to effect its own recovery to improve the conditions under which it is functioning. For that reason the character and form of the application, its physical qualities, and the manner in which it is employed and applied are of more importance than the ingredients.

Local or general baths and lotions are valuable, especially for infected and eroded surfaces but they should be applied for only a limited period for fear of softening and macerating the tissues. They should not be irritant as regards either temperature or ingredients; they should be isotonic and not unduly astringent. Normal saline is excellent for most purposes. As a mild astringent and antiseptic potassium permanganate 1 in 8,000 is valuable. Solutions of the dyes are bland antipruritic, antiseptic and astringent, but are not to be used to the point of producing scales or scabs which prevent the discharge of infected exudates.

Wet dressings are occasionally of value in soothing and reducing the acute oedema which may accompany sensitization reactions. Cold-water bandages are suitable, but should not be used for more than twenty-four to forty-eight hours.

Fomentations should not be left in place for four hours under oiled silk or they will macerate the skin, and if employed in the treatment of infections they will encourage spread. A session of three or four fomentations applied in the course of an hour once or twice a day, is the better routine. The starch and boric acid poultice is soothing and cleansing for sore and infected surfaces but a session of two or three replaced every three or four hours before they have set hard, is preferable to a twelve- or twenty-four-hour application followed by the tearing of the stiffened starch from the skin.

Calamine lotion is a useful application when properly employed. It should not be used as a wet dressing but should be applied to the skin like whitewash, with a brush and should be allowed to dry before bandaging. A thin stockinet sleeve (of the type used as padding in the orthopaedic departments) is an admirable dressing. If the lotion is applied with cotton-wool the powder which should be on the skin remains in the wool. The lotion must contain sufficient powder and I would suggest a prescription of the following proportions:

R/ Calamine	}	aa 40 gr (2.6 g)
Zinc oxide		
Glycerin		30 min (1.8 ml)
Aq calcis		ad 1 oz (28.4 ml)
		Ft lot

If too astringent this may be alternated with or replaced by the following elegant liniment:

R/ Calamine	}	40 gr (2.6 g)
Lanolin		30 gr (2 g)
Ol oliv		
Aq calcis		aa ad 1 oz (28.4 ml)
		Ft lin

By far the most valuable local application however is Lassar's paste. Soothing and protective, it rests the skin protects it from changes of temperature and from the

ing fingers of patient, nurse, and doctor and from inquisitive eyes. Containing as it does 50% bland powder it does not heat the skin or interfere with respiration or secretion, and it can—as can calamine lotion and liniment—carry a mild antipruritic such as 2% carbolic acid or tar or a mild mercurial antiseptic. The paste should be smeared on the skin so as to obscure the affected areas and should be covered with stockinet and left undisturbed, further paste being applied when necessary. The virtue lies in the physical character of this stiff paste, and it is important that it should be well dispensed, as is true of most applications used on the skin.

I have never subscribed to the view that doctors were efficient dispensers of dermatological preparations, and have some sympathy with the patient who complains that the hospital preparations are not the same as those which he obtains from his doctor.

A nurse or patient may destroy the value of a paste by heating it for greater ease of application. It should be applied patiently, gently, and evenly with the finger, and to the skin and not to a piece of lint.

The soft paraffin available at the moment is of an inferior quality and lower melting point. The pastes dispensed from this material are unsatisfactory, and the value of treatment is thereby impaired. Psoriasis, which will clear rapidly on Lassar's paste with dithranol 2 gr to the ounce (4 mg/g), may show no response to a paste dispensed with this paraffin. The addition of anhydrous lanolin has helped to correct the fault. Titanium dioxide is a bland powder with valuable properties, and can be usefully combined with soft paraffin and an emulsifying base to form a paste.

It is, I think, this important fact of the physical characters of the application rather than the ingredients which accounts for disappointment over the introduction of emulsified bases. These have not, in my experience, made much difference to the local treatment of skin diseases. In theory they are more penetrating and carry the medicaments into more intimate contact with the skin, but, as I have suggested, this is not nearly so important as the protection and support afforded by the preparation, and in this regard soft paraffin remains an invaluable base. The great value of the emulsified base often incorporated in ointments and pastes is that it facilitates their removal, and this is appreciated in treating the scalp.

I would suggest, however, that a practitioner should rarely go beyond the range of those simple and tried remedies which I have enumerated. I would particularly deprecate the use of the anaesthetic ointments and applications now on the market. They readily provoke a sensitization dermatitis which may become widespread and distressing and may leave the skin in a highly sensitive state for a long period.

There is a general feeling that a great increase has occurred in the number of cases of sensitization dermatitis, and not only to these recognized sensitizing agents. I believe this is true, and that eczematous dermatitis is often much more intractable than it was before the war. It has been suggested that diet may play a part in this, and it is possible though my temperament would incline me to regard emotional and nervous frustration over the past decade as a more potent influence. I would not, however, dismiss the part which may be played by the increasing introduction of sensitizing drugs into topical applications—anaesthetic drugs, sulphonamides, and penicillin being placed high on the list. I have already referred to the intractable character of epidermal sensitization once it is set in motion, and this is an added reason for the limitation of local therapy to simple measures.

### Sulphonamides and Penicillin

When sulphonamides or penicillin are considered necessary it is preferable that they should be given by mouth or parenterally, for sensitization by this route, though it may not be helpful, is not such an intractable problem as epidermal sensitization.

Though these drugs have saved lives and proved their value in surgery and in war, that does not justify their promiscuous and irrational use in other spheres and the ready production of disabling dermatoses.

In dermatology it is almost always desirable to employ sulphonamides by mouth and not locally. I believe that the period over which the drug is given should bear some relation to the natural course of the disease. I believe also that dosage should be reasonable and not massive or toxic and should not be such as to embarrass the natural defence mechanisms of the body, and particularly of the skin, but should assist that natural defence. It is apt to be forgotten that there is a patient when these relatively simple skin infections are attacked, and with minds charged with chemotherapy, we too often disregard other important factors in the case which relate to the soil which has fallen victim to the infection.

I should qualify this and state that I believe that in certain sites and under certain conditions pathogenic organisms may thrive on a skin or mucous membrane surface without infecting that surface, and a topical application may then serve a useful purpose.

Penicillin has a very small place in ordinary dermatological practice. As a local application, and particularly as a cream or ointment, it is a menace, and penicillin dermatitis has become a common diagnosis in the out-patient department and is a very troublesome affection. It would seem rarely to be necessary to employ the drug for the majority of surface skin infections where there are other effective remedies, and its use in eczematous affections, whether infected or not, carries a high risk of serious aggravation. There would seem to be some clinical evidence that in the parenteral treatment of deeper infections like boils and carbuncles the drug may cut across the natural defence mechanisms and leave the patient, after the cure of the initial lesion more vulnerable than he was previously.

In this field let me again stress the undesirability of unnecessary interference. Pustules, boils, and carbuncles are better left alone. Squeezing and surgical interference aggravate. Dry heat, short-wave therapy, and x-rays are better local measures.

### X-ray Therapy

I cannot leave the field of local therapy without a word about x-rays. When used in small fractional dosage, unfiltered and at low voltage (indeed, as Grenz rays if available), they are invaluable in the treatment of all disorders of function in the skin. Dosage and the spacing of treatments must be accurate. The treatment must form part of a scheme of general treatment, for it is only local therapy and is wasted if not supported by general measures. For fear of inadvertent overdosage great care should be taken to ascertain whether the patient has previously received superficial x-ray therapy.

Every patient undergoing x-ray therapy should receive a card recording the dosage given and should be warned to present that card whenever further x-ray treatment is under consideration. This is particularly necessary when giving more than a fractional dose, as in the treatment of ring worm of scalp, keloid, and benign or malignant tumours. Grenz rays are relatively safe, and it is to be hoped that

the full sun be made available and will be more widely employed in place of rays.

Thorium X has not in my hands been of much value. It will fade but not clear a port-wine stain though it is the only measure that may be effective in that rare dermatosis, naevus port-wine. Theoretically thorium X as a source of light particles should be a useful and safe measure in the treatment of superficial affections but it has proved disappointing.

### General Treatment

My previous remarks indicate the stress I would place upon the general approach to and investigation and understanding of the dermatological problem as a part of treatment. I would equally stress the importance of general as against local treatment and general treatment may include the administration of drugs.

I have time for only a word or two upon a few of the drugs more recently introduced most of them dangerous drugs about which we still have much to learn. They should be used with caution and only where the character, gravity or intractability of the affection justifies it, and patients so treated should be kept under close clinical observation.

I have mentioned the sulphonamides which can help considerably in the control of pyogenic affections and in some other ills such as dermatitis herpetiformis, where the effect would appear to be along some other channel than the combating of infection.

Penicillin is of limited value in dermatology, but will sometimes clear or relieve cases of chronic or recurrent eczema or chronic lymphangitis and elephantiasis. One of the distressing effects of penicillin therapy—viz., pruritus and urticaria—may be controlled by another type of drug the antihistamines. These again are of more interest from the laboratory and experimental point of view than the clinical but they may be helpful in cases of allergic reaction of known cause and limited course. We cannot feel entirely happy however in introducing agents into the system which counteract so essential a metabolite as histamine.

I must say a word about the use of calciferol in massive dosage as employed in the treatment of lupus vulgaris. As a vitamin it may be regarded as harmless but in this dosage it is dangerous and should not be employed over any long period in the treatment of trivial affections. The effects in lupus vulgaris and in sarcoidosis may be quite remarkable but a careful watch has to be kept upon the blood chemistry and particularly upon renal function.

The general treatment of disorders of function calls for a careful assessment of the patient as a whole and his adjustment to life and his environment. That assessment must be appreciated and understood by the patient if treatment is to achieve success. I have already referred to this.

Symptomatic treatment will often assist and encourage the patient in his efforts but it must be sustained and be employed as a help and not as a direct or specific therapy to be prescribed for a limited period. In ideal circumstances the patient employs such symptomatic remedies as the doctor suggests in the light of his understanding of his problem and of the purpose of those remedies. Again it is important that the patient shall find benefit from and not be disturbed by such measures. They may serve as a supplement to the diet, a substitute for a holiday, an antidote to overwork, worry, or fatigue or even to counter the stress of an unsuitable climate. They are not of themselves cures for a disease but rather comforts for the patient and should be recognized as such and should be employed in a very individual manner and with proper discretion.

## GLOBIN INSULIN: A CLINICAL STUDY

BY

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Globin insulin (GI) was introduced in 1943 as a slow acting insulin intermediate in duration of action between protamine-zinc insulin (PZI) and soluble insulin (SI). It is in many respects similar in action to Hagedorn's original protamine or delay insulin. It has been slow to gain recognition in this country, but from the patient's point of view offers the obvious advantage of simplicity and now that the management of diabetes has become the inculcation of a *modus vivendi* rather than a *regimen valetudinis* it is important to eliminate time-consuming or fussy procedures so far as is possible.

### Material

This survey is based on the records of 366 ambulant patients under regular observation who have been taking globin insulin for one to four years. They are drawn from the diabetic clinics of the Royal Sussex County Hospital and the New Sussex Hospital, Brighton, and from private practice. At the present time 68% of those attending one clinic and 66% of those attending the other are on globin insulin. The majority of the patients already attending the clinics were balanced on a combination of PZI and SI given before breakfast. It was recognized that in order to obtain the expected action of SI it must not be mixed in the syringe with PZI (Wauchope 1940, Peel 1943) and most of the patients had been taught either to inject one kind of insulin immediately after the other through the same needle or to give two injections. When patients mixed the two kinds of insulin in the syringe the dose of SI was equal to or greater than that of PZI and was difficult to assess owing to variations in the amount of mixing (Wauchope, 1940). A few patients were satisfactorily balanced on one dose of PZI, and a few older people of regular habits remained satisfied with two doses of SI a day.

At the time globin insulin was introduced the war was in its fourth year, air raids were frequent and almost all the diabetics attending the clinics were in full work in factories, civil employment, household duties etc. Many were air-raid wardens in addition. Their hours were irregular, their sleep interrupted, and the insulin had often to be given in poor light. In these circumstances from late 1943 onwards new patients were started on a single dose of globin insulin usually before breakfast; they were balanced as out-patients unless their illness was first recognized by the onset of coma.

The diet utilized the protein and fat allowed by the Ministry of Food which together with the bicor and egg-rations supplied about 1400 calories. C 120, P 28.0, F 103.5 (C 30 g, P 70 g, F 115 g). The rest of the calories required were made up mainly of carbohydrate and such protein on points as was available. A start was made with 200 g of carbohydrate which was added according to the needs of the patient. In practice very few eat the whole of the fat ration and many have at least one meal a day at a canteen or restaurant.

The results were unexpectedly successful and gradually GI became the insulin of choice. Many patients who had been on PZI and SI and who for one reason or another needed readjustment were changed to GI.

The times of the clinics allow for a routine blood-sugar estimation about four hours after insulin and breakfast; the patients test their own morning and evening specimens of urine and bring a chart or notebook for inspection.



The criteria for a satisfactory balance are (1) the comfort and well-being of the patient, (2) the attainment and maintenance of a reasonable weight, (3) absence of thirst or polyuria at any time during the 24 hours, (4) absence of ketosis, (5) absence of insulin reactions, (6) a normal blood sugar before the midday meal, and (7) small amounts of sugar in the morning and evening specimens (green reaction to Benedict's solution). Points 1 to 4 have been almost universally maintained in the absence of complications, points 5 to 7 naturally vary from time to time.

### Age

The patients may be considered under three categories according to the age at which they came under observation: (1) the young, who range from 2½ to 20, (2) the active working population, from 21 to 64, and (3) the old, from 65 onwards. The numbers of patients in each category and the dosage of insulin are set out in Table I.

*The Young (under 20)*—It was expected that these would do well on G I. Hagedorn's delay insulin had often been found useful for those whose last meal was at 5 or 6 p.m. and who were therefore prone to insulin reactions at night on P Z I.

TABLE I

Age	Dosage of Globin Insulin in Units						Total No of Cases	Under 40 Units	Over 40 Units
	0-20	21-40	41-60	61-80	81-100	100+			
Under 20	3	7	11	4	2	0	27	37%	63%
Active workers 21-64	90	84	52	10	0	2	238	73%	27%
Retired persons over 65	52	32	9	5	0	3	101	83%	17%
Total	145	123	72	19	2	5	366	73%	27%

The buffer substance of which 1 ml was put into each bottle of delay insulin, had occasioned difficulties, first because the amount was not always accurately measured and there was not enough for the last bottle of insulin, and secondly because each issue of insulin had to be in multiples of six bottles, which did not accord with the times of the visits. Moreover soluble insulin had often been combined with the delay insulin so that two kinds were used. Globin insulin given alone was therefore a great advance in simplicity, and was welcomed by the mothers and by the children and young people themselves.

*Active Workers (21-64)*—The great majority (65%) are in this group, their occupations do not differ from those of the non-diabetic population and include professions and trades, indoor and outdoor employment, clerks and farm labourers. There is even one serving soldier. Most of those who worked in factories during the war are now in other employment not involving night shifts. Many of the women are housewives responsible for families: there are school teachers, nursing sisters, nurses in training, typists, shop assistants and domestic servants. Their lives are not without incident, but they have been remarkably free from severe reactions.

*Retired Persons (over 65)*—Many are of the stable type of diabetic who would do well on any kind of insulin. Some are too fat but most are normal in health and weight. As would be expected the majority (83%) are on small or moderate doses (under 40 units).

### Dosage

It will be observed from Table I that the majority of patients of all ages (73%) are taking less than 40 units of insulin, this is, of course, not peculiar to globin insulin.

It has been suggested (Malins, 1945) that globin insulin has a limited use for patients on small or moderate doses, it is pertinent, therefore, to consider those on the larger doses. In this series the only category in which the majority are taking over 40 units is that of the young people, the dosage is, however, not high, only two patients taking over 80 units (88 in each case).

One is an overgrown thin lad now 18 who came under observation in 1941 at the age of 10. He was difficult to

balance, having a low renal threshold, and for five years was first on P Z I and S I and latterly on a combination of P Z I delay insulin, and S I (total dosage 88 units) in an attempt to avoid reactions. He began G I in January 1946, and has been much steadier on 80 to 88 units, he has left school and is working as a newsagent.

The other patient is the daughter of a farm labourer in a remote country district where supervision and a satisfactory diet have been impossible, she came under observation in 1942 at the age of 10 and during the next two years was often admitted to hospital for rebalancing after insulin reactions or ketosis. She has been on globin insulin since January, 1944 and has had no reactions beyond an occasional shakiness before meals. She has just left school at 16 and is working as a daily domestic.

The largest individual doses in this survey are taken by patients in the category of active workers—two women on 156 and 176 units.

One is an example of the case whose needs rise steadily. She is an energetic housewife now aged 53, and has had no illness or reactions. The only complication is benign vascular hypertension. From 1936 to the end of 1941 she was on two doses of S I, the total was raised from 48 to 100 units to balance blood-sugar readings of over 300 mg per 100 ml. From January, 1942, to August, 1944 she was on P Z I and S I, which was raised from 96 to 120 units, the blood sugar being again over 300 mg per 100 ml on many occasions. From September, 1945, till the present time she has been on G I starting with 120 units, she reached a maximum of 180 units in 1946 and is now on 156 units. The blood-sugar estimations have been more reasonable, 218 mg per 100 ml being the maximum in 1947, with a minimum of 87 mg. Her weight 9 st 6 lb (59.9 kg) in 1936 is now 10 st (63.5 kg).

The other is a stout hard-working ward maid now taking 176 units. Her blood sugar is usually in the region of 175 mg and her needs have been high from the outset in 1946. She began with 80 units of G I and was raised fairly quickly to 170 to 180 units on which she has remained steady.

Of the old people 83% are taking less than 40 units, but it is surprising to find three women on doses of over 100 units.

The first is a thin old person of 78 who has been on 120 units for the last two years and who comes to the clinic from a neighbouring town 10 miles away. The second, on 156 units, is now 64. She has had diabetes for over 20 years and came under observation 16 months ago with thirst, loss of weight, and lassitude. She was on 60 units of S I in the morning only, and her blood sugar four hours afterwards was 300 mg per 100 ml. She was balanced on G I and has taken 112 to 120 units since September 1947 with excellent control. The third, a woman of 65, was an in-patient at the National Hospital for Nervous Diseases for the investigation of a cerebral lesion when glycosuria was discovered in 1946. She returned home and her diabetes was balanced on 100 units of G I. She has been fairly stable on 104 to 108 units since early in 1947.

The patients on the larger doses of globin insulin do as well as those on moderate or small doses. There is no clinical difference, and none in this series are of the unstable type of case. They are not subject to reactions, and apart from the third case, just mentioned, have no complications. It will be seen that in Case 13 (Table II) 124 units of G I gave a steady level throughout the day, the patient was sent home on 128 units.

### Insulin Reactions

Among 150 patients whose notes are well documented over several years, 40 (27%) reported reactions and 110 did not. Most of those who reported any reactions have had many during the years of observation. Eleven who were formerly on a different insulin have had reactions on both, in two cases they were severe on P Z I and S I but slight on G I. In addition six reported reactions on other insulins.

and none on G I. Of the whole number of reactions reported, only three were severe. These cases were (1) a corporation labourer who mistook the strength of insulin supplied injected a double dose, and was brought to hospital in coma, (2) a man driving a car who omitted his mid-morning lunch, was summoned and deprived of his driving licence, (3) a woman on G I since 1944, reported being taken home incapable in a police car at tea-time. She has always been subject to reactions, and when on PZI and SI had many severe attacks, in one of which she was admitted to hospital in coma.

The incidence of reactions is not related to the age of the patient nor to the dosage of insulin, the young people have had few and the old have not been free. The third patient just mentioned, who had more reactions than any in the series, is a married woman of 53 taking about 40 units—one would suppose a moderate case. It is generally difficult to relate the reactions to the carelessness of the patient.

**The Time of Reactions**—The times of 126 reactions on globin insulin taken before breakfast, as reported by the patients, are: midnight to 7 a.m., 12, 10.30 a.m. to 1 p.m., 75, 3 to 6 p.m., 30, 7 to 10 p.m., 9. It is perhaps surprising, in view of the reputed slow action of globin insulin, to find that by far the greatest number of reactions occurred from 2½ to 5 hours after taking it. A mid-morning lunch is as necessary with G I as with PZI and SI. The next common time is in the afternoon about tea-time, so that it is a mistake to omit or be late for tea. A few reactions have occurred between midnight and breakfast but in most cases it is unnecessary to take a late buffer meal. The fewest reactions were reported in the late evening before and after supper, and this is the time of day when the blood sugar is usually at its highest.

Patients appear to dread nocturnal reactions though to an observer it would seem to be a safer and more convenient time than when out and about. Many have spoken of the relief from this dread afforded by globin insulin. Local reactions have been inconspicuous and mainly due to error in the technique of injection, a few patients complain of more stinging than with other kinds of insulin.

### Examples of Satisfactory Control

It is difficult to demonstrate by figures the success or otherwise of insulin control. A few clinical examples of satisfactory balance are given.

**The Ordinary Case**—A cowman aged 45 came under observation in 1944. His symptoms had been present for one month. He was tall and thin and weighed 11 st 7 lb (73 kg). No physical signs of disease were found. A radiograph of the chest revealed fine fibrosis at the base of the left lung but no evidence of pulmonary tuberculosis. There was moderate hypochromic anaemia. His blood sugar was 240 mg per 100 ml and there was heavy glycosuria with traces of ketones in the urine. He lives in a village 18 miles away from the hospital and continued at work. He was balanced in a few weeks and has remained on G I 54 to 56 units since November 1945. He has had no reactions and the range of blood-sugar estimations has been from 100 to 150 mg per 100 ml. He now weighs 12 st 6 lb (78.9 kg). His work is extremely hard, he rises in the dark in winter to milk and works till sunset in the harvest. His appetite is enormous, and he eats mountains of bread and potatoes.

**The Man Working on Shifts**—A police constable aged 35 came under observation in November 1944. His symptoms were of 10 days duration: thirst, polyuria, loss of weight, lassitude, inability to run upstairs. He was 6 ft 2 in (1.85 m) in height and weighed 10 st (63.3 kg). No physical signs of disease were found. There was heavy glycosuria but no ketosis although the blood sugar was 660 mg per 100 ml. He was off work for three weeks, and was balanced as an out-

patient on G I 54 units. Since January, 1945 his insulin needs have varied between G I 50 and 56 units. The blood sugar taken at intervals of one to two months, has been twice above normal limits—250 and 220 mg—and has otherwise varied between 115 and 180 mg. He has had no reactions, his weight is now 11 st 9 lb (73.9 kg). His only sick leave was on account of a Colles's fracture sustained in the course of his duties. His shifts vary from week to week: (a) 6 a.m. to 2 p.m., (b) 2 to 10 p.m., (c) 10 p.m. to 6 a.m. the time of taking insulin is varied accordingly.

**Various Types of Insulin**—A girl who came under observation in 1927 at the age of 19 was balanced in hospital on SI three times a day. She remained on this system from December 1927 to December, 1939. The diet was 2,000 calories with about 60 g of carbohydrate. Her weight increased from 8 st 8 lb to 11 st (54.4 to 69.8 kg). There was persistent glycosuria and her blood sugar varied from 275 to 480 mg per 100 ml except for an isolated occasion when it was 150 mg. She was admitted in pre-coma in 1928 and 1932 and appendicectomy for acute purulent appendicitis was performed in 1932. In 1936 radium was applied for menorrhagia and after this she began to have bad insulin reactions on SI 70–80 units a day in three doses. Blood sugar estimations of from 77 to 350 mg were recorded during the years 1936 to 1939 inclusive. In December, 1939 a mixture of PZI and SI was given in the morning with at first SI in the evening the total dosage varying from 75 to 38 units. The carbohydrate of the diet was increased to 150 g. She continued to have many reactions, the blood sugar ranged from 71 to 283 mg per 100 ml and she was admitted in insulin coma in 1941. In 1942 and 1943 she was rather more steady. In 1944 she underwent hysterectomy for menorrhagia due to fibroids. After this she began globin insulin and apart from one admission in diabetic pre-coma owing to an intercurrent illness has been much steadier and has reduced the dose from 72 units to 34. She has had no reactions, is taking 250 g of carbohydrate, weighs 10 st 6 lb (66.2 kg), and is in full work as a housekeeper.

This remarkable case which has been in the hands of many physicians and surgeons is noteworthy for four reasons. First, the long duration; secondly, the persistence of hyperglycaemia during the first 12 years of the patient's diabetic career; thirdly, the successful weathering of two major operations; and, finally, the present well-being, reduction of insulin needs and hard-working capacity at the age of 40.

**A Child**—John D. came under observation in 1942 at the age of 5. He was balanced as an in-patient on 14 units of delay and 14 units of soluble insulin. His weight was 3 st 3 lb (19.3 kg). He went to school and was inclined to have reactions on the way home so that the soluble insulin was gradually eliminated but it was again found necessary in 1943. At the end of 1943 his weight was 3 st 7 lb (22.2 kg) he was on DI 20 and SI 10 units and his blood sugar had varied during 1943 from 268 to 507 mg per 100 ml while reactions at tea time were reported. In January 1944, he began globin insulin and has continued satisfactorily. He is now 11 is 4 ft 7 in (1.4 m) in height, and weighs 5 st 2½ lb (32.8 kg). He has had no reactions for a year. This case illustrates the difficulties of insulin treatment of a child in a large family and the relief afforded by a simple procedure. He is the sixth in a family of seven, his father is a working man who gives the insulin (G I 40 units, 80 units to the ml) at 7.15 a.m. before he goes to work. His mother prepares breakfast for the father, two youths at work and five children for school. It may be supposed that John's diet is free, he has dinner at school and comes home to tea at 5 p.m.

### Control Throughout the Day

In order to obtain a view of the control during the day the records of patients who have been in hospital for some complication and whose blood sugar has been estimated before leaving are shown in Table 11. It will be seen that in most cases the blood sugar rises in the evening, falls during the night, and is lowest before midday dinner. This is consistent with the experience of out-patients in the times

TABLE II

Case No	Age	Globin Insulin in Units	Blood Sugar in Mg per 100 ml			
			6 a m	Noon	6 p m	10 p m
1	37	32	175	125	200	
2	30	60	116	—	131	
3	7	38	75	256	118	
4	16	120	112	85	225	
5	65	16	162	—	150	
6	57	60	156	131	93	
7	51	16	150	—	193	
8	50	32	137	143	100	
9	70	40	106	112	243	
10	70	20	106	187	87	
11	55	12	100	131	181	
12	61	42	168	212	137	
13	68	124	181	231	187	
14	63	32	62	93	181	
15	12	28	112	112	125	
16	42	24	106	225	106	
17	19	36	193	100	200	
18	36	32	131	234	156	
19	64	12	112	162	212	
20	21	68	112	140	131	
21	21	68	474	137	200	394

of their reactions. The control was reasonably good, though in some of the cases a readjustment of the dosage or the times of the meals was made before the patient left hospital—e.g., cases 3, 13, 14

### Failures

In a few cases there is an escape of control in the late evening, sometimes lasting all night and causing nocturnal polyuria. Often a redistribution of the times and amount of food rectified it, or a temporary evening dose of 8–12 units of soluble insulin while the globin is being adjusted is indicated, this can be left off gradually after a week or two. Case 21 (Table II) shows this escape—Case 20 is the same patient after readjustment.

In those few cases in which the blood sugar is low at noon and the evening dose remains necessary a transfer to PZI alone may solve the difficulty. This has been successful in the cases of two boys.

### Discussion and Conclusions

It has been questioned whether, since PZI and SI in various combinations give good results, there is need for a third type of insulin. Rabinowitch *et al* (1947) discuss this, and after careful studies of ambulant patients on PZI or GI alone, PZI and SI in separate syringes, or SI twice a day found that the fasting blood sugar was lower with PZI alone than with GI alone, but the postprandial level was lower with GI. They obtained the best control with GI in the morning and PZI in the evening. Roberts and Yater (1947) in a survey of 97 cases recorded a better control with GI than with PZI in 70. Malins (1945), in a clinical study of 36 cases, considered that globin insulin has a limited place in the treatment of mild and moderately severe cases.

My impression has been—and a survey of the notes confirms it—that all types of patient do as well on a single dose of globin insulin each day as on other kinds of insulin, singly or in combination. From the doctor's point of view it is easier to adjust the dose than with the varying combinations of PZI and SI even when they are given separately, when they are mixed in the syringe a stable balance is always difficult.

The speed and efficiency of the clinic is increased. The opportunities for mistakes and confusion in measuring the dose are greatly lessened, as is the time consumed in teaching the patient self-administration. PZI given alone has the same advantages, but, owing to the longer time which elapses before it begins to act and the prolonged duration of the action, is of limited application.

Nearly all patients who have transferred from another type of insulin to GI prefer it on account of its simplicity

Many who, for one reason or another—e.g., being admitted to other hospitals—have been rebalanced on PZI and SI have asked to return to GI. They say that they feel safer from reactions and that it is much easier and quicker to take.

Globin insulin is, I believe, likely to become the insulin of choice in ambulant uncomplicated cases. It achieves the maximum degree of simplicity so far attainable—one dose of one kind of insulin once a day. Soluble insulin remains the type for use in all emergencies.

### Summary

The notes of 366 diabetic cases treated as out patients with globin insulin are reviewed, the dosage of insulin in different age groups and the incidence and times of reactions are recorded, and an attempt is made to assess the degree of control obtained.

The opinion is put forward that globin insulin alone is the best type of insulin available at present for uncomplicated ambulant cases of diabetes.

It is a pleasure to thank Dr. Prowse and the other physicians and surgeons of the Royal Sussex County Hospital and those of the New Sussex Hospital, for the use of notes of cases seen by them before they came under my care.

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## RENAL COMPLICATIONS IN DIABETES MELLITUS

WITH SPECIAL REFERENCE TO THE KIMMELSTIEL-WILSON LESION

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In the prolonged observation of patients under treatment for diabetes mellitus one of us has been impressed with the relatively frequent occurrence of albuminuria. In a number of these cases clinical and laboratory evidence of progressive renal failure was observed, and the condition was often complicated by retinal changes and hypertension. These changes were earlier interpreted as evidence of progressive vascular degeneration in most instances, but the observation made by Kimmelstiel and Wilson in 1936—that a pathological change in the glomeruli of the kidney seemed to be a typical finding in diabetes—suggested a review of this problem.

Kimmelstiel and Wilson (1936) observed hyalineization of intercapillary connective tissue in the kidney in eight patients, all of whom except one had suffered from diabetes and in whom terminally, oedema and renal failure had occurred. They named this condition intercapillary glomerulosclerosis. Following on this observation several workers contributed further examples from both the pathological and the clinical aspect. Anson (1938) found six diabetic cases with similar lesions. Derow, Altschule, and Schlesinger (1939) reported a further example, and in the same year Newburger and

Peters (1939) published a review of nine cases, with post-mortem evidence in four. Herbut (1941), in a review of 2 000 consecutive necropsies at the Jefferson Hospital, Philadelphia, found a further nine cases fulfilling all the requirements previously described. Porter and Walker (1941) published the results of an analysis of the clinical and laboratory features of eight cases, with post-mortem verification in six of them. Siegal and Allen (1941) found the characteristic glomerular lesion in 35 out of 105 diabetics, and Horn and Smetana (1942) recorded the finding of 33 cases out of a total of 144 diabetics. Since then there have been publications on this subject by Mauser, Powe, and Michael (1942), Laipply, Eitzen, and Dutra (1944), and Bell (1946). The last-named devotes an entire chapter of his monograph to it.

In spite of these contributions there seems to be as yet no general recognition of this complication in the diabetic life and so far as we are aware no review of this subject has appeared in the British literature. This may not be surprising, since most of the work appeared in America during the war years.

### Presentation of Cases

The material analysed in this paper consists of data collected from 24 patients suffering from diabetes mellitus in whom progressive renal complications have been observed and in seven instances followed to necropsy. In the majority

the clinical manifestations were diabetes for a longer or shorter period followed by hypertension, arteriosclerosis, retinopathy, albuminuria, and chronic uraemia, although not always definitely in that order.

The cases, presented in the accompanying Table, are provisionally divided into groups, although in a few instances overlapping may occur: (1) twelve patients showing the onset of hypertension and renal failure after a prolonged diabetic state; (2) three patients who developed symptoms and signs of subacute nephritis during the course of diabetes; (3) six patients who at the time of their initial complaints were found to have coincident diabetes, arteriosclerosis, retinopathy, and renal damage; (4) three patients with diabetes and intercurrent urinary infections resulting in renal failure.

### Group 1

All the patients in this group with one exception were over 50 years of age, and all with one exception had a long history of diabetes, having been observed over the course of the disease by one of us. The average duration was 10 years. The degree of diabetes was moderately severe in all but two cases. The incidence of diabetic coma as an episode was low in this group. In Case 2 the onset of the disease was with severe diabetic acidosis and in Case 3 diabetic coma had occurred once. Incidents of sepsis occurred occasionally, but only in Case 2 could these be classed as numerous.

### Details of Cases

Case No	Age and Sex	Diabetes		Hypertension		Retinitis Duration Years	Urine			Urea Conc Test Max Value	Blood				Oedema	Effusions	Mode of Death	Necropsy Reports
		Duration Years	Insulin Units	B P	Duration Years		Albumin	Crystals	R B C		Urea	Proteins	A/G Ratio	Haemoglobin				
Group 1	62 F	17	15-15	190/100	12	10	++	+	—	—	75	—	—	86	+	+	Uraemia	K W lesions Grade 1 Nephrosclerosis
2	43 M	13	28-28	155/85	3	2	+	+	+	1.6	60	5.4	1.7/1	82	Slight	—	Coronary thrombosis	
3	52 F	13	30-25	175/105	3	1	++	+	—	1.04	126	—	—	—	—	—	Uraemia	K W lesions Grade 1 Pyelonephritis Nephrosclerosis
4	60 F	12	24 P Z I	250/110	1	1	+	+	+	1.74	106	7.6	1.9/1	76	—	—	Alive	
5	59 F	3	15-15	250/110	4	2	+++	++	+	1.3	120	5.5	1.3/1	94	+++	+++	Uraemia	K W lesions Grade 3 Subacute nephritis Nephrosclerosis
6	67 F	10	15-15	205/105	5	Present	++	+	—	1.56	49	—	—	98	+	+	Congestive heart failure	K W lesions Grade 2 Nephrosclerosis
7	55 F	11	17-17	170/110		2½	++	+	+	0.94	93	6.1	0.54/1	81	+	—	Cerebral haemorrhage	No P M
8	66 M	14	30-30	208/100	17	Present	++	++	+	1.38	64	—	—	—	+	—	Cerebral thrombosis	No P M
9	61 M	7	12-12	160/100	4	—	++	+	+	1.0	207	—	—	—	+	—	Uraemia	No P M
10	66 M	17	30 P Z I	190/130	8	8	++	+	+	—	66	—	—	—	+	+	Uraemia	No P M
11	69 F	7	Nil	240/110	6	2	++	+	+	—	71	—	—	—	—	—	Uraemia	No P M
12	71 F	15	10 P Z I	165/95	Not known	Not known	+++	—	—	—	135	—	—	60	++	—	Uraemia	No P M } Died out of hospital K W lesions Grade 3 Nephrosclerosis
Group 2	38 M	15	32-32	174/110	12	—	++	++	+	2.1	71	4.85	—	—	++	++		Subacute nephritis
13	28 M	14	32 Globin	145/100	1	2	+	+	+	—	—	—	—	—	+	—		No P M Died out of hospital
14	34 F	18	28 P Z I	170/105	7	Nil	+	+	—	2.5	1	6.56	1.5/1	76	+	—	Alive	
Group 3	75 M	1	Nil	168/80	1	1	++	+	+	1.4	46	7.61	2.2/1	100	Slight	—		
15	61 M	4	24 P Z I	255/100	4	Present	Trace	+	+	—	40	—	—	—	++	+		
16	40 F	4	14 P Z I	190/110	4	½	++	++	+	1.4	60	—	—	66	Slight	—		
17	56 M	2	12 P Z I	205/105	2	2	+	+	+	1.8	186	—	—	68	+	—	Uraemia	No P M Died out of hospital
18	61 F	10	8-8	200/110	10	1	+++	+	+	—	47	5.6	1.5/1	100	++	++	Coronary thrombosis	No P M
19	60 F	2	18 P Z I	190/90	2	No known	++	+	—	1.0	—	—	—	90	+	—	Uraemia	No P M Died out of hospital
Group 4	66 F	12	16 P Z I	210/110	5	4	+	+	Organ B prot	—	132	—	—	64	+	—	Alive	
20	62 F	1½	18-18	—	—	Nil	+	+	B coli	1.7	74	—	—	70	—	—	Uraemia	K W lesions Grade 1 Pyelonephritis Nephrosclerosis
21	70 F	8	6	230/120	8	Nil	+	+	B coli	1.7	93	6.86	1.4/1	64	++	—	Alive	

Hypertension was of the more severe degrees in all except three instances, and only in two was the diastolic pressure below 100 mm Hg. In seven instances hypertension appeared relatively late in the disease, from five to ten years after the onset of diabetes. Retinal changes usually appeared at periods of one to two years after hypertension was observed. Albuminuria was noted quite early in the disease in several instances, being sometimes transient but usually present when hypertension was established. Evidence of failing kidney function could nearly always be found by urea-concentration or urea-clearance tests in the earlier stages. Moderate increases in blood urea were usually present for about three years. The later stages of renal failure were nearly always accompanied by hypochromic anaemia of mild degree. Oedema, at first of the feet, occurred early in the onset of renal failure and was usually accompanied by hypoproteinaemia where this was investigated. In most cases generalized oedema occurred and in three cases was severe, being accompanied by ascites and pleural effusions. Detailed descriptions of Cases 1 and 5 illustrate the course and mode of termination of this group.

### Case 1

This patient was first seen in 1926 complaining of loss of weight, thirst, polyuria, and pruritus of a few months' duration. The urine contained sugar but no acetone or albumin. Both eyes showed central conical nebulae, but peripheral fields were full and no fundal changes were present. A sugar-tolerance test showed moderately severe diabetes with blood sugar values of 0.202, 0.256, 0.271, 0.306, 0.271%. The patient was treated by diet alone and continued in fair health for the next five years. In 1931 she was admitted to hospital complaining of pain in the left renal angle. There was a moderate degree of cardiac enlargement and the blood pressure was 172/94. No evidence of a renal calculus was found. Treatment with insulin (15+15 units) was started and the blood sugar was kept within the limits of 0.142 to 0.177%. Examination of the eyes showed a few retinal haemorrhages.

From 1931 to 1934 the patient attended the diabetic clinic regularly. Her weight increased from 138 to 142 lb (62.6 to 64.4 kg) during this period. The blood sugar remained within the limits of 0.139 and 0.201%. The Wassermann reaction was negative and a test meal showed achlorhydria. No albumin was found in the urine during this time. The blood pressure increased to 185/100. Vision showed gradual degeneration from lens opacities, vitreous opacities, retinal haemorrhages, and exudates. The blood urea was 21 mg per 100 ml.

In 1935 and 1936 the blood sugar was less easily controlled, the value increasing to 0.279%. The blood pressure rose to 190/100 and the blood urea increased to 44 mg per 100 ml. During 1937 to 1939 the patient began to lose weight and to

under good control' (in the region of 0.1%), but the blood urea had increased to 63 mg per 100 ml. In 1943 the patient was admitted to hospital, weak, tired, drowsy, and with sickness, vomiting and oedema. The blood sugar was normal and the blood urea 75 mg per 100 ml. The urine showed much albumin and numerous hyaline and granular casts. She lapsed into coma.



FIG 2—Case 1 Composite photomicrograph  $\times 140$  H and E

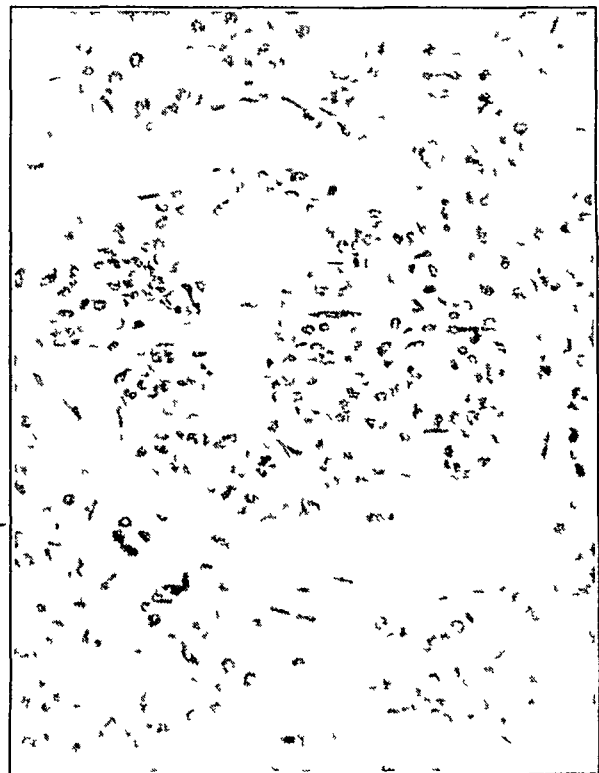


FIG 3—Case 1 Photomicrograph  $\times 260$  H and E

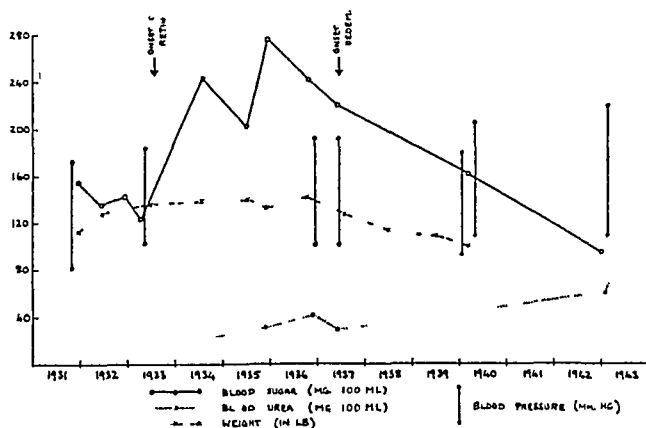


FIG 1—Showing progress of disease in Case 1

have transient oedema of the ankles. In 1940 her weight fell to 110 lb (49.9 kg), there was oedema of both ankles, sepsis of the right great toe, and albuminuria, with pus cells and granular casts in the urinary deposit. The blood sugar was kept

of the uraemic type and died. Graphically the course of the disease is presented in Fig 1.

At necropsy oedema of subcutaneous tissue, pleural effusion, and gelatinous oedema of the meninges were found. The kidneys were enlarged, firm, and tense under the capsule. The naked-eye appearance was of chronic nephritis or nephrosclerosis with subacute glomerulonephritis superimposed. Dr Jane Davidson's report on the microscopical changes was: 'The glomeruli are of very unequal size, some hypertrophied and others completely functionless and transformed into hyaline foci. Many of the glomeruli show the presence of homogeneous eosinophilic material, which does not stain for amyloid and presumably represents hyaline thickening of the glomerular capillaries. Some of the afferent arterioles show thickened walls in which the same eosinophilic hyaline material is present diminishing their lumina.' Figs 2 and 3 illustrate the pathology of the kidney.

In summary, this case showed diabetes of moderate severity for 17 years, with onset of hypertension and retinopathy after five years and of albuminuria after 14 years—low-grade subacute nephritis terminating in uraemia with oedema and the kidneys showing changes which are now described as intercapillary glomerulosclerosis.

#### Case 5

This patient, aged 59, visited the Eye Institute complaining of failing vision in February 1945, and a diagnosis of diabetic retinitis was made. Questioning elicited a history of polydipsia, polyuria, and neuritic pains of some months' duration, and she was referred to the diabetic clinic, where the diagnosis of diabetes mellitus was confirmed. At this time there was a trace of albumin in the urine. A diet of 1,500 calories was prescribed, and during the next year the patient's condition improved, the albuminuria disappeared and glycosuria was minimal.

On Jan 2, 1947, she was admitted to hospital with swelling of the legs and abdomen, fatigue, and frequency of micturition. She had not been adhering strictly to her diet. She was plethoric and dyspnoeic, but there was no cyanosis. The blood pressure was 250/110, with a pulse rate of 100. A small effusion was present at the right base, with bilateral basal rales. The heart was enlarged to the left clinically. The abdomen showed oedema of the abdominal wall and ascites. The liver edge though just palpable, was not tender. Fundal examination revealed macular changes and numerous haemorrhages—a diabetic retinopathy. A lens opacity was noted on the right side. The urine showed much sugar and albumin but no acetone, and microscopy revealed epithelial cells, pus cells, and granular casts. The blood sugar was 0.306%, blood urea 38 mg per 100 ml, plasma CO<sub>2</sub> 58 vols %, total plasma proteins 5.41 g %, with an A/G ratio 2.7/1. Radiograph of chest showed fluid at both bases.

Insulin, 15 units twice daily, was prescribed, and within one week the urine became sugar-free and the blood sugar fell to normal levels. The albuminuria persisted throughout the course of the illness and the oedema and ascites increased in spite of mercurial diuretics, paracentesis, and the intermittent application of Southey's tubes to legs and thighs. During April, 1947, 20 pints (11.36 litres) were withdrawn by these methods and in May, 1947, 42 pints (23.86 litres) were evacuated. The blood pressure remained high.

A urea concentration test was carried out on May 7 showing a maximum concentration of 1.3% with a standard clearance of 17%, and the blood urea rose slowly to 120 mg per 100 ml. The specific gravity of the urine varied from 1010 to 1020, and the urinary deposit always showed hyaline and granular casts and occasionally epithelial cells, pus cells, and red blood cells. The plasma CO<sub>2</sub> was continually between 52 and 61 vols %. The protein content of the oedema fluid was 0.7 g % initially, falling steadily to 0.47 g % on June 29. The A/G ratio of the plasma altered from 2.7/1 to 1.3/1 before the patient's death on July 19. Necropsy showed Kimmelstiel-Wilson lesions, Grade 3 nephrosclerosis, and subacute nephritis (Figs 4 and 5).

#### Group 2

This group consists of three patients aged 28 to 38, all of whom developed diabetes in early life and complained

later of swelling of the feet and legs—during the course of pregnancy in Case 15. The clinical picture in the later stages, especially in that of Case 13, was very similar to that of Case 5, with diabetes, albuminuria, and hypoproteinaemia, the intense oedema requiring relief by Southey's

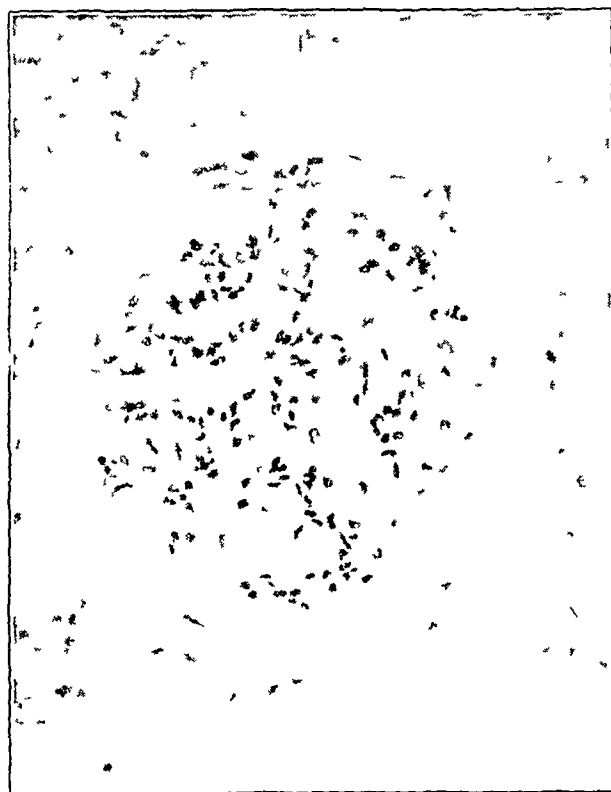


FIG 4—Case 5 Photomicrograph  $\times 260$  H and E



FIG 5—Case 5 Composite photomicrograph  $\times 140$  H and E



tubes and the ascites necessitating repeated paracentesis. The only real difference between the two cases was the absence of retinal haemorrhages and exudates in Case 13 and the lower blood-pressure readings during the later phases of the disease. The course taken after subacute nephritis supervened was similar to the history of that disease in the non-diabetic. So far as the diabetic state was concerned we gained the impression that the diabetes became less insistent (insulin dosage could be moderately reduced) and there was no tendency to the occurrence of diabetic acidosis. Case 13 is typical of this group.

### Case 13

The patient was 24 years old when the diagnosis of diabetes was first made in 1929, the blood sugar then being 0.302%. He was stabilized on a diet of 2,316 calories, with 10 units of insulin twice daily. He was observed at intervals until 1932, and during this period control was good, the urine being usually sugar-free. His weight was 161 lb (73 kg). In 1933

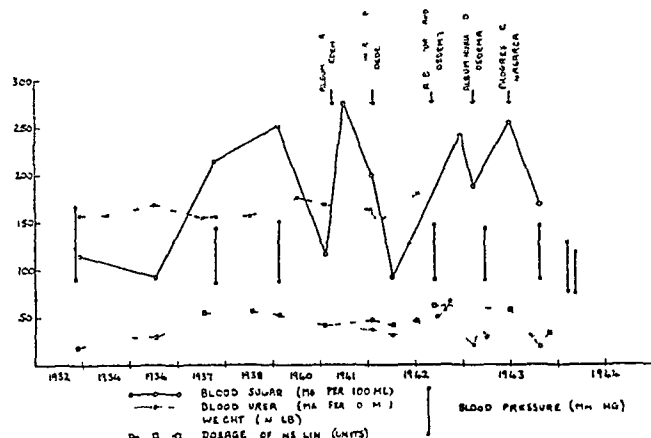


FIG 6—Showing progress of disease in Case 13



FIG 7—Case 13. Composite photomicrograph  $\times 140$ . Right half aniline blue, orange G. Left half H and E.

he had cervical adenitis and, later, an attack of shingles. For a short time thereafter the pulse rate was fast. Between 1934 and 1937 he continued to follow his work as a cabinet maker and his weight increased to 174 lb (78.93 kg).

In 1937 he complained of being easily tired and of weakness of the legs, and was admitted to hospital for observation. Diabetes was found to be well controlled on insulin, 32 units twice daily. There was no oedema, muscular weakness of the legs, or neurological phenomena. The fundus oculi was normal, the pulse rate 80, and the blood pressure 145/80. During 1937 and 1938 the patient was twice admitted to hospital with mild hypoglycaemia, and insulin was reduced from 36 units twice daily to 32 units twice daily. In 1939 his weight had increased to 182 lb (82.55 kg). In 1940 he had German measles, and a few months later developed transient arthritis of the fingers and wrists.

In 1941 he complained of swelling of his feet and was admitted to hospital. There was generalized oedema of a moderate degree. The urine showed much albumin, with a deposit containing epithelial casts. The blood urea was 45 mg per 100 ml, plasma protein 4.13 g%, plasma chloride 555 mg per 100 ml, and blood sugar 0.246%. The oedema disappeared with rest in bed and mild diuretics, and the albuminuria cleared a little later. Insulin dosage was reduced to 20 units twice daily. In 1942 albuminuria recurred with slight oedema. Renal function tests at this time showed urea concentration up to 3.1% and blood urea 31 mg per 100 ml. The albuminuria rapidly cleared on this occasion but recurred six months later, when the patient was again admitted to hospital (September, 1942) with generalized oedema. The blood pressure was 164/115, blood urea 64 mg per 100 ml, and the urine contained much albumin and a number of granular and hyaline casts and red blood cells. The plasma chloride was 526 mg per 100 ml and plasma protein 4.85 g%. Fundal examination showed no abnormality. Insulin dosage was 24 units twice daily. Various methods were tried to deal with the oedema, including mercurial diuretics and Southey's tubes. After six months his improvement was only moderate but he was allowed out of hospital, only to be readmitted later in 1943 with intense oedema which terminated in septic infection of the legs, pleural and ascitic effusions, pulmonary congestion, and terminal pneumonia. The course of the disease is presented graphically in Fig 6. Post mortem examination revealed evidence of subacute nephritis without K W lesions (Fig 7).

### Group 3

This group consists of six patients, all in the later decades with one exception, in these the history of the diabetic state is short, and the whole clinical picture of diabetes, hypertension, retinitis, albuminuria, and renal damage was already present when the cases first came under observation. So far as the clinical manifestations go they are indistinguishable from cases in Group 1 except for the short history of diabetes, but they may be quite different in pathogenesis, the whole picture, including diabetes, being the result of one degenerative process. Since this group is well recognized among clinicians it is deemed unnecessary to describe any case in detail.

### Group 4

In this group are three patients with a diabetic history and urinary infections resulting in pyelonephritis and renal failure. These cases are differentiated by the typical urinary findings, and should not be confused with groups already described.

### Summary of Pathological Findings

Pathological reports on the seven cases which came to necropsy are given below. Focal glomerular lesions of the type described by Kimmelstiel and Wilson are defined on the basis of the criteria suggested by Siegal and Allen (1941) and classified according to the method of Bell (1946), Grade 1 being scanty and Grade 3 frequent.

**Case 1** (Figs 2 and 3)—Both kidneys were enlarged (combined weight 450 g). The capsules stripped easily, leaving a

finely granular surface. The cortices were narrow and the small renal vessels thickened. *Histology*—"Foci of glomerulosclerosis alternate with areas in which there is proliferative glomerulitis. Capsular adhesions are numerous. The glomerular capillaries show hyaline thickening. The collecting tubules contain hyaline casts. Arteriosclerosis and hyaline arteriosclerosis are prominent. Lesions of Kimmelstiel-Wilson type (KW lesions), Grade 1. This is a case of subacute nephritis (associated with nephrotic oedema) probably occurring in a nephrosclerotic kidney."

*Case 3*—The kidneys were small with granular surfaces. The cortices were narrow. *Histology*—"There is severe glomerulosclerosis, much of which is recent, resembling a glomerulonecrosis in the process of hyalinization. Arteriosclerosis and hyaline arteriosclerosis are severe. Pyelonephritis is also present. KW lesions, Grade 1. This is the scarred kidney of a chronic nephritis."

*Case 5* (Figs 4 and 5)—The kidneys were enlarged (combined weight 530 g). The cortices were pale, the medullae congested. The capsules stripped readily. *Histology*—"There is a moderate degree of glomerulosclerosis. The surviving glomeruli show capsular adhesions and hyaline thickening of the capillaries. There is exudate in Bowman's spaces, partially organized in some glomeruli. The collecting tubules contain hyaline casts. Arteriosclerosis and hyaline arteriosclerosis are prominent. KW lesions, Grade 3. This is a case of subacute nephritis (associated with nephritic oedema) which has possibly occurred in a nephrosclerotic kidney."

*Case 6*—The kidneys were of normal size. The capsules stripped easily. There was no abnormality of renal architecture. *Histology*—"There is slight focal glomerular hyalinization. Arteriosclerosis is slight, arteriosclerosis is of moderate degree. KW lesions, Grade 2. This is a nephrosclerosis of trivial degree."

*Case 12*—The kidneys were reduced in size and the capsules were adherent. The surfaces were granular. *Histology*—"There is gross glomerulosclerosis, many glomeruli being only recently hyalinized. Interstitial fibrosis, arteriosclerosis, and hyaline arteriosclerosis are all severe. There is a concomitant pyelonephritis. KW lesions, Grade 3. This is a severe nephrosclerosis."

*Case 13* (Fig 7)—Both kidneys were enlarged (combined weight 420 g). The cortices were wide and pale. The medullae were congested. The capsules stripped easily. *Histology*—"The glomerular capillaries are thick, hyaline and patent. There are frequent capsular adhesions. There is no glomerulosclerosis, and arteriosclerosis and arteriosclerosis are both insignificant. The collecting tubules contain hyaline casts. KW lesions absent. This is a subacute nephritis (associated with nephrotic oedema)—histologically of the 'nephrosis' pattern."

*Case 23*—There was bilateral hydronephrosis, and abscesses were noted in the medulla of the left kidney. *Histology*—"Left kidney—pyelonephritis is marked. There is slight glomerular hyalinization and arteriosclerosis. Hyaline arteriosclerosis is severe. KW lesions, Grade 1. This is a severe pyelonephritis."

### Discussion

During the past decade increasing attention has been drawn to renal failure as a later complication in diabetes. The earlier publications on the subject were largely concerned with observations in post-mortem material of hyaline degenerative changes in the glomeruli of the kidney, to which Kimmelstiel and Wilson (1936) assigned the term "intercapillary glomerulosclerosis." With wider recognition of this condition, attention turned naturally to the clinical manifestations and their correlation with the pathological changes. Newburger and Peters (1939) described four cases showing diabetes, albuminuria, oedema, nitrogen retention, and retinopathy in which the clinical history was known and the typical hyalinization of renal glomeruli was found at necropsy. They also described five other cases, clinically similar, but without pathological confirmation.

Porter and Walker (1941) analysed the clinical and laboratory features of eight cases of intercapillary glomerulosclerosis where the diagnosis was verified in six instances. Albuminuria was severe, blood pressure usually over 200, blood proteins much reduced, oedema of significant degree, and anaemia, nitrogen retention, and retinal haemorrhages were prominent in this group. They suggested that the renal changes represented an instance of a predilective degenerative process in diabetes culminating in the syndrome described. Herbut (1941) reviewed 2,000 necropsies and found nine cases fulfilling all the requirements described and showing glomerular lesions. Albuminuria in these cases varied in amount in direct relation to the degree of oedema, while the occurrence of casts in the urine was unrelated to the presence of glomerular hyalinization. Siegal and Allen (1941) studied 105 diabetic necropsies and correlated the history of hypertension with the presence of glomerulosclerosis. In 60 cases without hypertension glomerulosclerosis occurred 12 times, in 27 with hypertension the lesion was found nine times, and in 18 with the complete renal syndrome glomerulosclerosis was present in 14.

Up to this point it would seem that the authors quoted tended to consider that intercapillary glomerulosclerosis was the cause of renal failure.

Horn and Smetana (1942) pointed out that, although glomerulosclerosis in its more advanced state was seen only in cases of diabetes, it was not of necessity associated with a particular clinical syndrome. Laipply and his co-authors (1944) studied the necropsy reports and clinical notes of 124 diabetic patients and recognized areas of glomerular hyalinization in 79 instances. In general the lesion was relative to the duration of diabetes in its occurrence and degree. Although in some cases hyaline degeneration was of less marked degree and although 64 patients showed albuminuria, the nephrotic syndrome occurred in only five of this series. This would cast some doubt upon the conception that glomerular hyaline degeneration is of prime aetiological significance in the pathology of renal failure in these conditions.

A new point of view was adopted by Bell (1946), who found that glomerulosclerosis was well correlated with arteriosclerosis. In 189 necropsies on patients with diabetes but without arteriosclerosis no glomerular lesions were found. In 148 diabetic cases with arteriosclerosis 67% showed hyaline glomerular lesions. He concluded that in most instances the degree of hyalinization was proportional to the severity of the arteriosclerotic changes.

It is obvious from the conclusions of previous authors that considerable difficulty arises in attempting to correlate clinical signs with pathological findings in this condition.

From the evidence presented in this paper it seems quite clear that, apart from surgical lesions of the renal tract, at least four types of renal failure may occur in the diabetic. The series in Group 1 corresponds closely to most of the material previously described. So far as post-mortem evidence goes in this group there exist in each case examined widespread pathological changes in the kidney, other than glomerulosclerosis of this type, which might result in uraemia. This leads us to conclude that diabetic glomerulosclerosis is in itself incidental and is not the primary cause of renal failure.

Cases in Group 3 show the same clinical picture but with this important difference, that widespread vascular changes and diabetes occur practically simultaneously. Owing to the absence of post-mortem proof it is impossible to say whether the typical pathological renal changes are in fact present. If further evidence shows that glomerular

hyaline degeneration is present in these cases—as is probable—it would seem that this degenerative change is not due to the diabetes itself but to associated vascular lesions. In any case we are of the opinion that widespread arterial degeneration can produce the whole clinical picture within a short space of time.

With regard to Group 2, where incidental oedematous nephritis occurred in diabetes, the differential diagnosis is practically impossible during life. The clinical picture is the same, with the exception of occurrence earlier in life and perhaps the absence of retinal haemorrhage.

**Prognosis**—The onset of albuminuria, apart from that associated with a precomatose state in diabetic patients, is usually of serious import and must be taken as a warning of impending renal complications. When retinitis and oedema occur the outlook is bad, and within two years death usually supervenes from uraemia, cardiac failure, or a combination of both. It is doubtful whether, in the present state of knowledge, any steps can be taken to defer these changes or to deal effectively with them when they occur.

### Summary

Twenty-four cases of renal failure occurring in diabetic patients are described.

Classification shows four groups including those associated with the Kimmelstiel-Wilson lesion.

Pathological details and photomicrographs illustrate the paper.

We are indebted to Mr Norman Mowat for preparing the composite photomicrographs and to Mr George Cheyne for technical help.

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## DIABETIC COMA

BY

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From Jan. 1, 1940, to Jan. 1, 1946, Root treated 188 cases of diabetic coma in the New England Deaconess Hospital with 6 deaths, and from Jan. 1, 1946, to Jan. 1, 1948, he treated 55 cases with no deaths. He has published a very full description of his methods of treatment (Root, 1945). My authority for the recent statistics is a personal communication from him. Few physicians or clinics have published their death rate in diabetic coma, and no recorded results are so good as this.

My essay in discipleship is prompted by the wish to make this line of treatment more widely known, for it has received sadly little attention from writers of textbooks in Europe, and some of the textbooks that are deservedly popular in this country advocate methods which include those very sins of commission and omission which Root has shown to be responsible for failure to save the more severe cases of coma. The chief sin of omission is not to appreciate the urgent need for large doses of insulin and the fact that insulin-resistance increases as the condition

progresses. The chief sins of commission are the early administration of glucose and the use of the oral route for the administration of fluids.

This paper is based on bitter personal experience, for I have made many mistakes myself, and have learnt what happens when sufficient insulin is not given soon enough, when gastric aspiration is omitted or fluids are given by mouth, and when glucose-saline is given intravenously instead of simple normal saline.

Undoubtedly much of the credit for the good results of Root and his colleagues must be given to their personal skill and to the 24-hour laboratory service maintained in their hospital. But even the worst cases can be saved by physicians of less experience and in the absence of blood analysis. Root (1945) states: "No plan of treatment based on mathematical calculations of the blood sugar and carbon dioxide will take the place of constant bedside observation of the patient and adjustment of treatment to the patient's changing condition."

### Nomenclature and Diagnosis

The accepted meaning of the word "coma" is a state in which the patient does not respond to any external stimulus. In this sense of the word the term "diabetic coma" is a misnomer, for it is only very rarely that the patient when first seen is in a state of true coma, usually the mental state is one of mild, moderate, or severe confusion with marked drowsiness.

The term diabetic coma is in fact by general agreement applied to severe rapidly progressive diabetic ketosis, and its diagnostic features are increasing drowsiness and confusion (ending eventually in true coma) with increasing hyperpnoea, dilatation of the stomach, and eventually circulatory failure due to electrolyte and water depletion. The biochemical findings are characteristic. It is readily induced even in the controlled diabetic by acute infections or alimentary tract disturbances. It is not so much a complication of diabetes as the end-stage of diabetes and the treatment of coma is the treatment of diabetes—namely, insulin.

The condition is easy to recognize, a mistake being in fact almost impossible. One essential feature which distinguishes it from other causes of coma in diabetics is that in diabetic coma "unconsciousness" does not supervene till after a progressive and characteristic illness lasting as a rule several days. The diabetic who is found "unconscious" without any preliminary illness may be a case of hypoglycaemia or he may have had a stroke, but he is certainly not a case of diabetic coma.

### Summary of Treatment

In most cases it is possible to bring about a striking improvement in from three to six hours, and during this period constant hard work at the bedside is necessary. The only factor in bringing about this improvement is insulin. Two other measures are important—gastric aspiration and the intravenous administration of normal saline.

The chief point in treatment is to ensure even at the risk of giving more than may be needed, that the patient gets enough insulin within the first three hours. Of course in many cases some infective process is present and must be treated too.

### Insulin Dosage

There are four points of fundamental importance. The first is that it is the insulin which cures diabetic coma though other measures are necessary they are not curative. The second point is that insulin resistance increases so long

as the coma remains inadequately treated, the longer the delay in administering an adequate dose the greater the dose required to cure the patient. The third point is one which is familiar to all physicians who treat diabetic coma, but is not sufficiently emphasized by textbooks. The beneficial effect of an *adequate* dose of insulin is clinically manifest as a rule in less than 15 minutes, if a single dose of insulin fails to produce an obvious improvement within about 15 minutes it may be inferred that the dose was grossly inadequate. The fourth point is also one which has not been emphasized strongly enough—that, if what may later prove to be an unnecessarily large dose be given, a lapse into hypoglycaemia is not to be feared until after the clinical improvement that is bound to follow a more than adequate dose has taken place.

The required dose varies greatly. In general, the longer the patient has been ill and the graver his state the higher the required dose, but it is impossible to know in advance how much will in fact be required. One gives repeated doses and watches the effect. In an early case—that is when the patient can give a clear account of himself—start with 100 units, and if there is no obvious improvement in half an hour give 100 units every half-hour until an improvement is obvious. Even in early cases a single dose of 100 units is usually not enough. If the patient is already drowsy and confused give the same initial dose of 100 units, but do not wait longer than a quarter of an hour before giving the second 100 units, for in a mentally confused patient the early good effect of an effective dose is very obvious. If the patient is inaccessible (“unconscious”) start with 500 units, and be prepared to give more if no improvement is seen at the end of half an hour. When the patient is a child a lower scale of dosage may be adopted, and very often hitherto untreated diabetics in coma need less insulin than long-established insulin-treated cases.

If at any stage a striking clinical improvement has occurred and steady progress is maintained, no further insulin need be given, but the moment any suspicion arises that the improvement is not continuing more insulin must be given. If a clinical relapse occurs—that is if the patient after a short improvement tends to revert to his original drowsiness—*very much more* insulin must be given.

If at the end of the first hour a very obvious improvement has not been produced it must be assumed that the dose of insulin so far given was not merely inadequate but grossly inadequate. It must be remembered that, although some severe cases recover on a few hundred units, dosages of about 1,000 units have sometimes to be given, and even 2,000 units have occasionally been required. Very large doses are particularly likely to be necessary for patients who have before admission been given glucose accompanied by insufficient insulin.

If no improvement has occurred by the end of the first hour doses of 100 units should be given as often as every ten minutes till improvement begins. The chief and most easily detected early signs of improvement are in the mental state and the hyperpnoea.

The less experienced a physician is in the treatment of diabetic coma the more generous should his dosage of insulin be, he must start treatment with the resolution that, whatever happens, he will not allow his patient to die from underdosage. A steadily falling blood sugar is a good indication that the dose so far given is adequate, and a physician who has to treat diabetic coma without blood-sugar estimations should make a point of erring on the generous side with his dosage. An even more trustworthy sign of adequacy of dosage is a steady mental improvement and diminution of hyperpnoea, but the less experienced

physician may find it difficult to be sure that the expected improvement has started. If he is in doubt he should play for safety by giving more insulin, and thus he may expect to find later that he has given much more than was really needed.

So when diabetic coma is treated without blood-sugar control or by relatively inexperienced physicians some cases of hypoglycaemia may be expected to occur, but hypoglycaemia is a minor complication and very easy to deal with. Usually it does not occur until the patient is able to take food by the mouth, but in any case it is easily corrected by an ampoule of concentrated glucose solution intravenously. So far as I know there is no record of a patient ever having passed from diabetic coma into a fatal hypoglycaemic attack.

At the end of three hours there should be marked improvement. The hyperpnoea should have stopped, the blood-sugar should have fallen to near normal, and in many cases the urine will be sugar-free. The pulse rate will nearly always still be rapid. In some cases there will be very much less acetone in the urine, but the rate of improvement in Rothera's test is variable. If the urine was originally copious and pale it should have become less copious and more concentrated. If the urine was scanty or absent (as in extreme cases with grave circulatory failure) the administration of saline should have begun to produce a normal urinary secretion. If the patient is unable to pass urine one must never hesitate about catheterizing at hourly intervals in order to obtain a specimen.

If at the end of the first three hours a striking change for the better has not taken place the sands are running out, and the dosage of insulin must be condemned as very grossly inadequate and very much more be given.

In nearly every case at the end of the first six hours the patient is ready to eat and drink and is asserting his improvement with delight. In the young patient everything should now go smoothly, provided that a watch is kept for hypoglycaemia. In elderly or debilitated patients difficulties in the restoration of the water and electrolyte content of the body fluids may arise.

Relapse into diabetic coma is very rare indeed, but the dosage of insulin required during the few days after recovery is very variable. Many cases, after being sugar-free and almost acetone-free, soon develop glycosuria and slight ketonuria again and need large doses for the next few days, but others may not need any insulin at all for twelve or twenty-four hours after their recovery.

### Gastric Aspiration

In almost every case of diabetic coma admitted to hospital the stomach is dilated, and unless this is dealt with the physician will lose some of his cases no matter how skilful his treatment in other respects may be. In many cases the condition gives rise to abdominal pain, but in others there is no complaint of pain at all. Examination of the abdominal wall does not as a rule give any hint of the presence of this dilatation.

As soon as the initial dose of insulin has been given a stomach-tube should be passed no matter how strongly the patient may object. Usually at least a pint of contents can be aspirated, and in all cases of severe coma they are black, in the less advanced cases they are brown or pink, but sometimes at an early stage they are not tinged with blood at all.

When gastric aspiration is omitted the following sequence of events may occur. Improvement on insulin and intravenous saline takes place and the patient seems to be on the

road to recovery Then, as his mental state improves, just as in a patient recovering from an anaesthetic, he becomes restless, vomits a few ounces of black or coffee-coloured fluid, and within a few minutes marked dyspnoea with numerous rales sets in, the pulse becomes quick and feeble, and the patient dies in cyanosis Post-mortem examination shows gastric contents in the respiratory passages

Unless the patient is mistakenly allowed to drink before he has recovered it is not usually necessary to aspirate the gastric contents a second time, but a second aspiration is occasionally called for A return of abdominal pain or a rising pulse rate should suggest the need for a second aspiration

It should be remembered that the disturbance of the alimentary tract is not confined to the stomach The intestine is often incapable of absorbing a rectal drip, and a rectal saline may be retained in the bowel for some hours before being returned

### Saline

Almost every case of moderately severe diabetic coma needs (if an adult) from 2 to 4 litres of normal saline in the first few hours If the blood pressure has fallen to a dangerously low level 2 litres given quickly will as a rule restore it, but much more may be needed In rare cases with complete anuria even larger volumes have been given with success Root emphasizes that in such cases intravenous saline should be given until urinary excretion begins

It is not easy to know which cases will need intravenous saline and which will recover without it Except in cases of marked circulatory collapse it is not an urgent matter, but once the patient has reached hospital it is wise to give it if the case is of even moderate severity The needle used should be of a bore large enough to allow a rapid flow, but in cases with circulatory failure it may be necessary to cut down a vein Another difficulty sometimes met with is vein spasm In such cases a pump of the rotating cam type which milks the fluid down the tube can be used to start the flow, once spasm has been overcome it is no longer needed In gravely collapsed patients subcutaneous saline should be started at once in order that no time shall be lost while search for a vein is being made

The rate of flow should be fast enough to deliver the initial 2 litres in about an hour In some cases it may be possible to stop then, but as a rule it is safer to leave the needle in for a few more hours and continue to administer at least enough saline to make good the continuing urinary loss until clear clinical signs of recovery appear There is no risk of overloading the circulation by the initial 2 litres, but in elderly diabetics with myocardial inadequacy and potential left-ventricle failure there is a grave risk of delivering fluid too rapidly after the initial extreme sodium and water depletion has been corrected In children the rate of flow must be much slower than in adults

Root's statistics strongly support his claim that normal saline is the only intravenous injection needed in diabetic coma Other authors have asserted that alkalinizing solutions are necessary or that plasma should be used Any physician who has seen elderly diabetics pass the first critical six hours and become sugar-free and ketone-free only to die a few days later from circulatory failure must worry, as I have done, about the adequacy of his treatment But, in view of the very large volume of saline given by Root to some of his cases with ultimate success, the probability is that when others fail to restore the blood volume it is the physician's judgment which is at fault and not the composition of the solution used

Recently it has been pointed out that recovery from diabetic coma is followed by a fall in blood potassium and

blood phosphate levels, and it has been suggested that this fall may be the cause of deaths occurring some hours or days after the cure of the ketosis

There is, in effect, definite evidence that a serious potassium depletion may occur in some cases, and the clinical picture appears to be recognizable If marked asthenia follows an apparent clinical recovery the possibility should be suspected and potassium chloride (or some other potassium salt) given in 0.5-g doses every half-hour Recovery has been recorded as a result of this line of treatment (Holler, 1946, Nicholson and Branning, 1947)

### Glucose

For some years Root and his colleagues have preached against the administration of glucose in diabetic coma Their arguments have been so widely accepted, and they have made so many converts among those who formerly administered glucose as a routine, that it must be admitted that they are right

There is of course no danger in administering glucose if after a successful treatment by insulin a low blood sugar or sugar-free urine suggests that hypoglycaemia is to be expected, but glucose given at an earlier stage is dangerous Admittedly many cases of coma which have been given glucose and sufficient insulin have recovered, but nevertheless glucose given at an early stage exposes the patient to special added risks which may just turn the scale against him

Glucose-saline must not be given instead of normal saline by the intravenous route One litre of glucose-saline contains 50 g of glucose—that is, enough glucose to raise the already very high blood sugar to well over 1% if the injection is given at the usual rate As a result the urinary excretion of water and of glucose tends to rise rapidly, and the degree of both water and sodium depletion may be increased Almost as serious is another result—that the physician is deprived of two very valuable aids to his assessment of progress, the falling blood sugar and the gradual return of the volume and colour of the urine to normal Finally it has been shown that continued administration of glucose may in the end favour the onset of anuria

The notion that glucose is a part of the treatment of coma entails another danger—that the physician may order his patient to drink glucose solution and thus increase the degree of dilatation of the stomach In my experience this is a very common mistake, and the ill effects are very obvious

### The General Practitioner and Coma

Few of us can hope to be in a position to claim, like Root, that we have cured 55 consecutive cases out of 55, but all of us should be able to cure every moderately early case The following suggestions should facilitate early administration of insulin, the point above all others which is decisive

Every patient on one of the slow insulins should stock a couple of bottles of plain insulin for his doctor's use in emergencies, for the doctor called to a diabetic's house may not think it necessary to pack insulin in his bag

Every hospital which is prepared to treat diabetic coma should make it known to all local practitioners and to all its diabetic patients that an acutely ill diabetic is always admitted without even telephone notice, whether it has a vacant bed or not The relatives of all diabetic patients should know that when a diabetic takes to his bed or seems in any way unwell he should be shifted at once to hospital

The doctor called to a case of coma should always give at least 100 units at once before even ordering the ambulance If the patient is inaccessible ("unconscious") he should give

500 units, but in such patients he should aspirate the gastric contents, as extreme gastric dilatation is sure to be present and the patient may improve enough to vomit in the ambulance and inspire his vomit

Any physician who has ever treated diabetic coma in the patient's own home must agree that, though of course one may succeed, the difficulties are so great and the unpleasant surprises so numerous that home treatment should rarely if ever be undertaken

### Summary

The line of treatment of diabetic coma given by Root and his colleagues in Boston is advocated

The essential point is large insulin dosage at an early stage. Physicians less experienced than Root and working in less well-equipped clinics should deliberately err on the side of giving larger doses than the experts, for there is no danger in giving too much and every danger in giving too little

Gastric aspiration must be carried out as routine in every case and nothing be given by the mouth during the critical first few hours

Intravenous saline is needed by many cases and by all the severe cases, sometimes in very large quantities. The syndrome of potassium depletion must be rare, but the possibility should be kept in mind

Glucose must not be given by any route until clinical recovery has been achieved, but after this it may safely be given to prevent hypoglycaemic attacks

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## TREATMENT OF CHRONIC VARICOSE ULCERS BY LUMBAR SYMPATHECTOMY

BY

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Chronic varicose ulcers heal slowly, relapse easily, and remain a source of constant annoyance to those they affect. Some tend to heal in summer, some with or in spite of the application of lotio rubra, scarlet red, sulphonamide, or penicillin powders, some following protection by Unna's paste or "elastoplast", some respond to sclerosing treatment of the causative veins or after Trendelenburg's operation with high and low ties, some even requiring skin-grafting. Yet many, even after this gamut of medical and surgical treatment, remain a chronic antisocial disability to their unfortunate owners

### Case 1

A man aged 49 was admitted to Southend General Hospital in Sept. 9, 1946, with a history of varicose veins in his left leg associated with a large left varicose ulcer for 27 years. He had had a flesh gunshot wound in this leg below the knee in 1917, without peripheral nerve injury. In 1937 a left saphena varix had been excised. In spite of a wide range of local treatment the ulcer never healed even after lengthy periods of rest in bed. The Wassermann reaction was negative.

On June 8, 1946, two varices were excised from the left femoral triangle and several others from the left popliteal fossa. On reporting to the out-patient department on Aug. 17 he complained of the ulcer, which was larger than before,

together with pain and swelling in the left leg. There was thrombophlebitis of the branches of the saphena magna vein. On Sept. 9, there being no improvement, he was admitted. The ulcer, situated just above the medial malleolus, measured 5 by 3 cm.

The leg was elevated and the ulcer covered with tulle gras. Sulphadiazine, 14 g., was given orally for two days. The swelling rapidly subsided and the phlebitis regressed, but the ulcer remained the same. Its cure became the next problem, for it greatly handicapped him in his work as a painter.

On examining him afresh what impressed us most was the coldness of the limb, together with its cyanotic appearance compared with his normal right leg. The cutaneous circulation was obviously poor. It occurred to us that, if only the blood supply to the skin could be improved, healing of the ulcer might occur spontaneously. The ulcer maintained its existence as a result of the state of stagnant anoxia which surrounded it. Almost it was an "anoxic ulcer". Arguing on the analogy that head wounds, with a rich blood supply, heal quickly and remain healed, we decided to try the effect of a lumbar paravertebral block of the sympathetic nervous system in improving the cutaneous circulation. Following the infiltration of 100 ml. of 0.5% procaine solution along the left side of the lumbar vertebral column there was a remarkable improvement in the colour and warmth of the limb which persisted for 24 hours. As we did not have a skin thermometer the exact temperature rise could not be measured, but the patient had no doubt at all that his left leg was warmer.

**Operation.**—After considerable thought, in view of the attendant risks of any operation, we suggested that his ulcer might be "cured" by left lumbar sympathectomy. So far as we were aware at that time, this had not been tried for varicose ulcer before. It was an experiment, and we could not guarantee the result. The patient accepted. On Sept. 27 left lumbar ganglionectomy was successfully performed, the second, third, and fourth lumbar ganglia being removed. In the left leg there was an immediate rise in temperature, which has persisted.

Fourteen days after operation the ulcer was healed for the first time in 27 years. When seen on June 7, 1947, he was extremely fit and well, the skin was healthy, the scar soft. He said he felt ten years younger. On Sept. 11 his leg was still healed. No pulse difference was detected in the femoral, anterior, or posterior tibial vessels of the right and left legs. To prevent swelling he wears a below-knee elastic stocking. On May 13, 1948, he reported that the ulcer was still soundly healed.

### Case 2

A married woman aged 57 was admitted on Dec. 31, 1946, with a left varicose ulcer which had persisted for 15 years, it being the result of a left "white leg". Three years after onset of the ulcer she developed "phlebitis" in her left leg following injection treatment for varicose veins. On Nov. 13, 1945, one vein was tied below the left knee, with slight improvement in the ulcer and surrounding weeping eczema.

Physical examination showed a fit corpulent woman. On the medial surface of the left leg were two chronic ulcers, each 4 by 2.5 cm., surrounded by a large area of weeping eczema and pigmentation extending half-way up the leg, which was cold and blue. There were no large varicose veins now. Her Wassermann and Kahn reactions were negative, and her urine was normal. She was finding the leg an increasing source of annoyance. After a left paravertebral block there was marked vasodilatation.

On Jan. 3, 1947, a left lumbar sympathectomy was performed. By Jan. 16 the ulcer had healed for the first time in 15 years. The patient was discharged with instructions to apply calamine lotion to the varicose eczema and to keep the skin protected with a crepe bandage. When seen on June 7 her ulcer was soundly healed and the skin healthy. She said that eczema still occasionally bothered her. When seen on Sept. 11 the eczema, which was some distance from the healed ulcer, was weeping. The ulcer had healed leaving a thick scar, which later might well be excised and skin-grafted. No elastic support had been worn, but one was on order. On May 18, 1948,



Table of Results

Case No	Sex	Age	Duration of Ulcer	Past Surgical Treatment	Size of Ulcer	Para vertebral Block	Lumbar Ganglionectomy	Healed	Follow up
1	M	49	27 years	1937 left saphena varix excised 8/6/46 2 varices in left femoral triangle excised Deep thrombosis	5 x 3 cm	Good response	27/9/46 L 2-4	11/10/46	13/5/48 healed Wearing elastic
2	F	57	15 years	13/11/45 one varix tied below knee	4 x 2.5 cm	Good response	3/1/47 L 2-4	16/1/47	11/9/47 ulcer healed Eczema persists 18/5/48 eczema healed Ulcer broke down Leg still warm Wearing elastic stocking
3	F	71	39 years	17/1/46 left Trendelenburg	4 x 1.5 cm	Good response	21/2/47 L 2-4	14/3/47	18/5/48 healed Wearing elastic stocking
4	F	56	16 years	23/10/46 bilateral Trendelenburg	7 x 4 cm	Good response	22/5/47 L 2-4	5/6/47	11/9/47 ulcer healed Some eczema 8/5/48 ulcer healed and skin dry Wearing elastic stocking

she wrote that the left leg was still warmer than the right, the eczema was healed, but the ulcer had broken down again, and she was now wearing an elastic stocking

### Case 3

A married woman aged 71 was admitted as an 'emergency' on Feb 18, 1947, suffering from the recent onset of a patch of superficial dry gangrene on the ball of her left foot. She had suffered from bilateral varicose veins and a left chronic varicose ulcer for 39 years. On Jan 17, 1946, a left Trendelenburg operation, with low ties, was performed, with no improvement. On Feb 12, 1947, she complained of the chronicity of the ulcer and of "something wrong" on the sole of her foot which made her limp. This was a source of great inconvenience, as she kept house for an invalid sister aged 76.

On examination the left leg was cold and blue, with a deep chronic ulcer 4 by 1.5 cm extending down to the left medial malleolus. There was pronounced scarring of the surrounding tissue with resulting acquired pes cavus. On the ball of the great toe was a patch of superficial dry gangrene 2.5 cm in diameter. The left posterior tibial pulse under scar tissue was impalpable, the other pulses being present in the right and left legs. The legs were otherwise normal. The Wassermann and Kahn reactions were negative. The haemoglobin was 89%, the blood urea 28 mg per 100 ml, and blood sugar 81 mg per 100 ml. Her urine was normal. A radiograph of her legs showed no vascular calcification.

As there was good response to paravertebral block, on Feb 21, 1947, left lumbar ganglionectomy was performed. There was a dramatic response, the lesion of the sole healing in two weeks. Simultaneously the varicose ulcer improved, being healed in three weeks from the time of operation—the first time in 39 years. When seen on June 7 both areas were soundly healed and the left leg was still warmer than the right. There was now no difficulty in walking. On Sept 11 her leg and sole were still healed. She wears an elastic stocking, without which the left leg swells. On May 18 1948 she wrote that her leg was still healed.

### Case 4

A married woman aged 56 had suffered from bilateral varicose veins for 19 years and a large varicose ulcer with extensive surrounding eczema for 16 years. There was no history of "white leg". The skin had been unsuccessfully treated with many local applications. On Oct 23, 1946, a bilateral Trendelenburg operation was performed without healing of the ulcer, which became covered with hard crusts. The eczema continued to weep.

On examination she was seen to be a large, heavily built woman. The right leg was soundly healed, no varicose veins being obvious. The lower half of the left leg was covered with a weeping varicose eczema. Under thick crusts above the medial malleolus was an unhealed ulcerating area approximately 7 by 4 cm. Though the leg was distally cold and blue the pulses were normal. There was a good cutaneous response to paravertebral block. Meanwhile the skin was treated with eusol compresses.

On May 22 a left lumbar ganglionectomy was performed. As a result the eczema dried and the patient was discharged on June 5 with the ulcer healed.

When seen on Sept 11 the ulcer was still healed, but superficial eczema remained. At times it wept, at times it was dry. There was no swelling of the leg. The pulses on her leg appeared normal, and there was no recurrence of the varicose veins. She had an elastic support on order. On May 8, 1948 she wrote that the leg had been dry since October, 1947. She still wore an elastic stocking.

### Discussion

As Richter (1941) rightly says, varicose ulcers can unquestionably be cured by many methods, and as sure as a sufferer has an ulcer, so his doctor has his own remedy. It is a question of *chacun à son goût*. Essentially, however, one treats the cause, which in the above case was the result of long-treated varicose veins where, though the veins had disappeared after a combination of ligation and thrombophlebitis, the cold cyanotic limb and ulcer remained. Infection played a secondary part in the maintenance of the ulcer. Only because all non-operative and all available operative procedures had failed was sympathectomy considered. In Case 3 an early gangrene of the limb was the reason for operation. The varicose ulcer which simultaneously healed was an interesting and instructive incident.

In his masterly review of the aetiology and treatment of varicose ulcers of the leg Homans (1917) divided ulcers into three groups: (1) ulcers of surface varix, (2) ulcers of surface varix complicated by varicosity of the perforating veins of non-inflammatory origin, and (3) same as Group 2 but post-phlebotic in origin. Groups 1 and 2 differ little except that, whereas the ulcer of Group 1 is near the principal superficial veins of the leg, the ulcer of Group 2 not only rides upon the large veins but tends to appear in the region of the perforating veins. Ulcers of Group 3 are decidedly different. They arise on phlebitis following childbirth, fevers, and operations. The valves of the veins are permanently incompetent. After the inflammation there are changes in the leg, with induration of fat and scarring of deep fascia, thus crippling the local lymphatic system, with resulting oedema. The ulcers tend to be rapid in onset, particularly chronic, bear no relation to visible veins, and have little or no tendency to heal even with rest in bed. We feel that Cases 1 and 2 finally belonged to Group 3, while Cases 3 and 4 were probably Group 2. In cases such as these Homans ligated the varicose veins first, and if no healing occurred he excised the ulcer and skin-grafted the raw area.

Some workers have used lumbar sympathectomy as a means of curing chronic varicose ulcers. The South Americans were early in the field. Gordon (1940) condemns its use, having had ten cases each of which showed initial prompt healing but nine of which recurred in less than one year. He favours excision of deep fascia of leg together with a thick Thiersch graft if the overlying covering is poor.

Gravelle and O'Donnell (1946) in a review of 21 cases of which six had stasis ulcers in contrast to arteriolar and traumatic ulcers, found all the results were "good"—the longest follow-up period being 18 months

Adams (1942) writes "There are two types of varicose ulcers that are particularly benefited by lumbar sympathectomy in addition to indicated therapy of the forms already enumerated. One is seen in the constantly moist sweating leg in which fungous infection is uncontrollable by medical measures. Sympathectomy abolishes the sudomotor activity, makes the skin dry and warm allows fungous infection to be controlled and healing to be maintained. The other type is characterized by multiple punched-out circular ulcers on brawny, cyanotic legs secondary to deep obliterative thrombophlebitis. Although peripheral pulsations may be present and of good quality, a glance at the leg is convincing evidence that the tissue circulation is inadequate to meet its metabolic needs, and hence the ulceration has occurred. Venospasm, lymphatic blockage, and postural stasis all may be contributing factors. The important practical fact, however, is that sympathectomy, by relaxing the spasm and improving the collateral circulation, will sometimes bring healing in this distressing group of cases that we otherwise have been forced to admit are incurable by any methods at our command."

The most arresting fact in our series was the rapidity with which the ulcers, present from 15 to 39 years, healed within three weeks and remained healed throughout two winters

In choosing the method of treatment for recurrent varicose ulcer of the leg it is essential to consider the patient's economic status and the nature of his work. There is no doubt that many find a chronic ulcer a debilitating condition. Young people, especially men, can ill afford to continue losing time and efficiency. Every effort should be made to heal these ulcers quickly, and if sympathetic surgery is indicated it should be tried.

Homans observed that, even after the ulcers had apparently healed with skin-grafting, the grafts sometimes separated when the patient walked again. Cyanosis of the graft and oedema of the ankle were his danger signs. He therefore advised three weeks' post-operative rest in bed, with active and passive leg exercises besides massage, before the patient was allowed up.

Battle (1947), discussing the results of his series treated by skin-graft, likewise mentioned that several cases which at first appeared to have successful "takes" broke down soon after walking was recommenced, usually within six weeks of operation. Surely the answer to this failure is that skin-grafting, like tree-transplanting, requires suitable soil. If the ground is waterlogged and stagnant a tree transplanted there dies. So, too, did these grafts. We believe that with such patients the correct approach might well be first to improve the peripheral circulation by lumbar sympathectomy and then to graft the skin on a favourable "soil." We believe, too, that the wearing of an elastic bandage post-operatively to be very important. It protects the skin from trauma without and from oedema within.

One may well ask, Is such a condition really worthy of such attention and such treatment? The answer, we believe is yes. If these already overtreated ulcers can be healed permanently by this method or by combining it with fascial excision and skin-grafting—and the answer, as with all "cures," still lies a lifetime down the years—then will be removed another source of chronic disability and loss of manpower from humanity. One thing however, is certain—nothing is so profound as the heartfelt gratitude of three of these four people on being thus far released from the tedium of chronic discharging septic sores on their legs.

## Summary and Conclusions

Varicose ulcers may fail to heal even after the entire gamut of usual medical and surgical treatment.

Four such patients, with ulcers present from 15 to 39 years, were found to have cold blue limbs which responded by cutaneous vasodilatation to lumbar paravertebral block.

After lumbar sympathectomy these ulcers healed within three weeks. In three cases they have remained healed.

The value of lumbar sympathectomy in providing an adequate circulation to assist healing is thus demonstrated and its use before skin-grafting suggested.

The importance of continuing to wear an elastic stocking after treatment to protect the skin from trauma from without and oedema from within is stressed.

We wish to thank Mr Rodney Maingot for his encouragement in this work and for his permission to publish these case reports.

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## Medical Memoranda

### Twin Pregnancy with Acute Hydramnios Treated by Paracentesis Uteri

The following is a report of a case of acute hydramnios occurring in a twin pregnancy and resulting in the birth of one live twin and one foetus papyraceus after treatment by abdominal paracentesis uteri.

#### CASE REPORT

The patient, a multiparous gipsy aged 25, was admitted to hospital on May 18, 1947, on account of acute hydramnios. Her last menstrual period had begun on Nov 13, 1946, but instead of being six months in size the uterus had the dimensions of a full term pregnancy. There was a history of sudden abdominal enlargement with discomfort for the past few days, and of severe abdominal pain during the 24 hours preceding admission. The foetal heart sounds could not be heard, and parts were difficult to identify, although external ballottement was just possible. The patient was in considerable pain, requiring an injection of morphine a few hours after admission. The uterus, though distended, tense and tender, was not "board-like" as in concealed ante partum haemorrhage, and it was concluded that the excessive uterine enlargement was due to hydramnios. The temperature was normal (and remained so throughout the patient's stay in hospital), but the pulse rate varied from 90 to 130.

Further investigations revealed mild anaemia (Hb, 75%) and negative Wassermann and Kahn reactions. The blood group was B (III), Rh positive, the blood pressure was 115/85. The urine contained a trace of albumin but no casts or blood cells, and was sterile on culture. Radiological examination revealed a twin pregnancy, with the infants probably of no more than 28 weeks' maturity, one presenting by the vertex and the other by the breech.

The first paracentesis uteri was performed on the day after admission, when 4 pints 16 oz (2.73 litres) of clear liquor amnii was released. Subsequently the patient felt much more comfortable, with the pulse rate stationary at 92-96. A week later the procedure was repeated and 3 pints 2 oz (1.76 litres) of liquor

was withdrawn. In a third aspiration, on June 1, a further 3 pints 15 oz (2.13 litres) was drained, making a total of 11 pints 13 oz (6.62 litres) removed in three weekly sessions. By that time the patient was very well and fit to be discharged from hospital. The foetal heart sounds could now be heard distinctly, although it was not possible to distinguish between two separate hearts.

During the remainder of the pregnancy the woman was seen regularly in the antenatal clinic. She remained in good health, and there was no recurrence of the hydramnios. It was, however, noticed (and confirmed by x-ray examination) that one foetus failed to grow while the other seemed to develop normally. Spontaneous delivery of uniovular twins occurred at full term on Aug. 22: the first was a living female child weighing 6 lb 6 oz (2.89 kg) (vertex delivery) and the second a foetus papyraceus, 12 in (30 cm) long and weighing 11 oz (312 g). There was one large placenta, about a third of which was infarcted and had obviously not been functioning for some time. The living infant was perfectly healthy, and her progress, like her mother's, was uneventful, both being discharged from hospital on Sept. 1.

#### COMMENT

Puncture of the uterus through the abdominal wall in an effort to reduce the amount of liquor amni without terminating pregnancy was first advocated by Schatz (1918) and carried out by Henkel (1919) and Wormser (1920). Textbooks of obstetrics hardly mention the method and generally give a poor prognosis for the foetus in acute hydramnios. DeLee (1943) states that "aspiration confers only temporary benefit," and Taussig (1927) is of a similar opinion. The procedure was advocated in this country by the late Mr. Carnac Rivett (1933), who referred to it as "a rational method of treating hydramnios, since in all cases sufficiently acute to demand interference any other line of treatment would result in a miscarriage or the birth of a barely viable child." He found, however, that even in acute hydramnios the liquor is not under pressure and has to be sucked out. This was certainly not my experience in the above case or in several others in which liquor always drained freely as soon as the cannula was inserted.

The above case resembles those reported by Lloyd (1943) and by Erskine (1944) in that one twin survived while the other died *in utero*. It is submitted that by no other method of treatment could a living mature infant have been obtained in the case described. It is uncertain which of the two gestation sacs was hydramniotic, but it is tempting to argue that the hydramnios failed to recur because of the death of the foetus in whose bag the liquor had previously accumulated. In some cases there is indeed a recurrence of the hydramnios, and it is this observation which has brought the method of abdominal aspiration into disrepute. There is, however, no objection to repeating the process, provided that x-ray examination has failed to show a foetal abnormality. If there is a malformation present surgical induction of labour per vaginam is indicated, and paracentesis uteri can have no place in the management of such a case.

This report is published by courtesy of Mr. David Maxwell, under whose care the patient was admitted and who encouraged me to record the case.

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### Intestinal Obstruction Caused by Faecalith

It is unusual for faecaliths to form in the small intestine. The size of the foreign object and the circumstances of its formation in the following case are worthy of record.

#### CASE REPORT

An ironworker aged 57 was admitted to the Royal Infirmary, Glasgow, on Jan. 22, 1947, complaining of lower abdominal pain of five hours' duration. The pain came on suddenly and was colicky in nature. It was felt mainly in the left iliac fossa, but periodically it passed to the epigastrium. There was no vomiting before admission and the bowels had moved that day. His history revealed no indication of disease apart from some digestive upset described as

an "attack of the bile" occurring three years before and three days. This was the only illness which had kept him off work in twenty years.

On examination he was thin and looked moderately ill. The tongue was clean and moist. The abdomen was somewhat full in the right iliac fossa and there was some guarding in the left abdomen. Tenderness was present over the whole lower abdomen. Rectal examination revealed no abnormality. Conservative treatment was instituted, with limitation of diet to fluids, and an enema was given. Next day he felt better, but he began to vomit in the late afternoon and the pain recurred with greater severity. Slight dis-

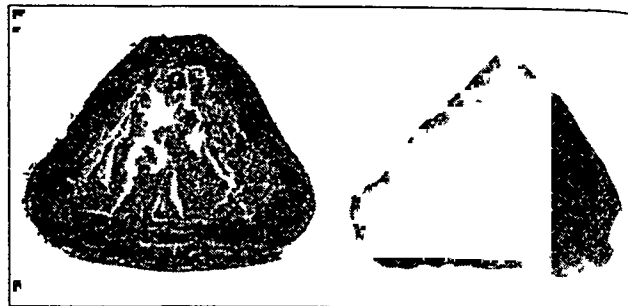


FIG. 1—The specimen after section, showing the core of faeces and the covering of soaps.

tension was noted over the left side of the abdomen. By the morning of Jan. 24, obstructive signs were becoming evident. Vomiting continued, he began to become dehydrated, and the severe colicky pain persisted.

His abdomen was opened by a right gridiron incision on the 24th. A stony hard mass was felt in the terminal ileum about 15 in (37.5 cm) from the ileocaecal valve. The mass could easily be milked up the bowel, which was distended above it. Enterotomy

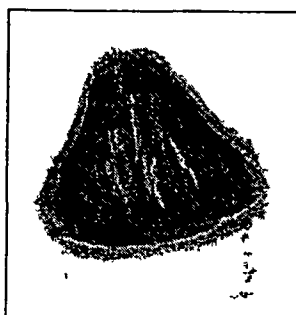


FIG. 2—Radiograph of the stone after removal.

was performed some above the obstructed area and a triangular stone was removed measuring 2 in (5 cm) along sides and 1 in (2.5 cm) in thickness (Fig. 1). A radiograph of the stone after removal (Fig. 2) showed a translucent core with a layer of opaque material round it. On section the calculus was found to have a soft centre of faeces surrounded by a layer of hard chalky material 3 mm thick. Analysis showed the outer material to be calcium soaps. The patient made an uninterrupted recovery.

On Feb. 21 he returned for barium examination of the intestinal tract. This showed no diverticula of the duodeno-jejunal region. In any of these a faecalith might have formed. No other faecaliths were noted.

#### COMMENT

It seems that this man had been developing a faecalith for some considerable time in a large diverticulum of the duodeno-jejunal region. It had caused no symptoms until, for some reason, it dislodged into the lumen of the intestine and passed along it to the comparatively narrow ileum. There it caused obstruction. I have been unable to trace in the literature any other case of this complication of diverticulosis in this region.

I am indebted to Mr. Donald Hay for the photographs.

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F.R.F.P.S.G. D.P.H.

The Association for Hospital Services, which has now moved to larger accommodation at Tavistock House (South), Tavistock Square, London, W.C.1, has issued a pamphlet on its activities from 1941 to 1948 entitled *The Hospital Service Plan*. It includes a from H.R.H. the Duke of Gloucester congratulating the Association on its expansion and wishing continued success. The Association runs a contributory scheme to help middle class men and pay for accommodation in hospital pay beds or in private homes when they fall sick, and Dr. Russell Brain, chairman of the council, points out that the need for such a scheme will continue under the N.H.S. Sir Cecil Wakeley has recently joined the council.

## Reviews

### PENICILLIN FOR SYPHILIS

*Penicillin in Syphilis* By Joseph Earle Moore, M.D. (Pp 319, 57 figures, 27s 6d.) Oxford: Blackwell Scientific Publications, Ltd. 1947

This book may suitably be regarded as a supplement to *The Modern Treatment of Syphilis* by the same author for he discusses the application of penicillin to, and its value in, all forms of syphilis. He considers in turn the chemistry, pharmacology, and toxicity of penicillin, its effect on experimental syphilis and its mode of action, then its use in the various stages and forms of syphilis with and without arsenic, bismuth, and fever. Very rightly he stresses the possible confusion caused by using the antibiotic in other conditions and the absolute necessity of a careful follow-up after penicillin therapy. This work bears the imprint of authority, for Earle Moore has probably treated more cases of syphilis with penicillin than almost anyone and his figures are founded on vast numbers of patients treated on various schedules in numerous clinics in the U.S.A. The lists of references, suitably placed at the end of each chapter, are most useful and cover the period up to October, 1946. Much has happened since then, but, as he points out, if it were necessary to wait till finality had been reached the book would never have been written. The vast majority of the references naturally are to American authors, the names of Fleming and Florey merely receive passing notice.

Perhaps what will strike the reader most is the remarkable efficacy of penicillin in the treatment of the syphilitic pregnant woman and of early congenital syphilis. The original hopes of its effect in early acquired syphilis have been rather dashed by the number of relapses, yet it appears that it is still the fashion in the U.S.A. to rely on penicillin alone in early syphilis except in relapsed cases, whereas in Great Britain the concurrent use of arsenic and bismuth was adopted some years ago both in civilian V.D. treatment centres and in the Services. Perhaps one of the most interesting features of this book is the account of the beneficial effect of penicillin in various comparatively rare conditions which the average syphilologist sees only occasionally, such as optic atrophy, iritis, and nephrosis to mention only three, while the favourable effect of locally applied penicillin in interstitial keratitis will encourage those who often almost despair of obtaining any amelioration of an apparently intractable condition.

The question of the possible danger of Herxheimer reactions in certain conditions such as cardiovascular syphilis is well worth noting, and the careful physician will start treatment with very small doses such as 1,000 or even 500 units in these cases. It is good to hear on such authority that penicillin resistance is little to be feared, but the effect of the antibiotic on serum reactions is somewhat disappointing. We note that, contrary to statements by some authorities in Great Britain, the author considers penicillin plus malaria to be distinctly more effective than penicillin alone in symptomatic neurosyphilis and in optic atrophy. The production of this book is excellent and does credit to both author and publishers. There are many figures and tables and a few photographs. The final chapter is on streptomycin which appears to have little effect on rabbit syphilis.

T. E. OSMOND

### CHEST DISEASES

*Diseases of the Chest With Emphasis on X-ray Diagnosis* By Eli Rubin, M.D., F.A.C.P., F.C.C.P. *The Principles of Surgical Treatment* by Morris Rubin, B.A., M.D. (Pp 685, 355 illustrations with 24 plates in colour, 60s.) Philadelphia and London: W. B. Saunders Company, 1947.

The author's intention is to present the subject of chest diseases in this book so that it will serve both as a reference book for the physician and as a textbook, presumably for the post-graduate student. Throughout he especially emphasizes the radiological aspects of diagnosis. Since radiography can now be considered as an essential part of the routine investigation of intrathoracic disorders, this emphasis reflects current practice. The radiographic illustrations, of which there are many, are well reproduced—well chosen, and contribute to the understanding of the text.

The scope of the book is comprehensive. There is a useful section on the principles of surgical treatment in which the author sets forth the essentials for the physician without unnecessary reference to surgical technique. In certain passages a lack of balance is evident—for instance, in the necessarily brief discussion on the epidemiology of tuberculosis about one-quarter is on pulmonary calcification due to histoplasmosis. A useful bibliography is appended to each chapter, since the book is of American origin, it is perhaps not surprising that the references are chiefly to American publications. It may be doubted whether the 24 colour plates improve the book. These are reproductions of paintings of pathological specimens, often portrayed rather imaginatively in cross-sections of the complete thorax, together with black-and-white reproductions of corresponding radiographs and sometimes with drawings of histological appearances. They would seem more appropriate to a textbook for junior medical students or nurses than to one intended principally for graduates. On the whole, however, the author gives an adequate account of chest diseases, and we can recommend the book.

J. G. SCADDING

### GYNAECOLOGY

*Operative Gynecology* By Richard W. Te Linde, M.D. (Pp 751, 309 illustrations in black and white and 15 subjects in full colour on 9 plates, £5 10s.) London: J. B. Lippincott Company, 1947.

Te Linde's *Operative Gynecology* first published in 1946, was reprinted in January, 1947, and most British gynaecologists will be pleased that the book has been dedicated to Edward Richardson. There are two columns to a page, as in the new De Lee-Greenhill editions. Most of the illustrations are clear and on the whole satisfactory, but they are not all of the high quality of those of Karl Hryjek or of Tom Jones.

One cannot imagine Te Linde writing any textbook without introducing descriptions of pathology and it is with a certain amount of amusement that we find a whole chapter on functional bleeding without any operative descriptions whatsoever. There are also a fair number of photomicrographs. Te Linde quite correctly points out in his introduction that gynaecological surgeons should have a full knowledge of pathology. The surgeons themselves may reply equally correctly that such information can be obtained from textbooks of gynaecological pathology. Similarly, the account of gonorrhoeal disease is more clinical than operative. On the other hand the chapter on the surgical management of abortion is an excellent innovation. The author discusses the operative management of sterility too superficially. His account of vaginal operations is relatively short, and the descriptions do not compare very favourably with those of Peham, Amreich and Martius.

The book is essentially individualistic. It is informative and can be read easily. Any opinion that Te Linde expresses deserves the greatest respect, and his opinion of the merits of myomectomy is most instructive. The main criticism is that the book cannot be regarded as a condensed description of operative gynaecology. Nevertheless it will be widely read and should offer an excellent background for advanced students.

WILFRED SHAW

### MEDICAL STATISTICS

*Principles of Medical Statistics* By A. Bradford Hill, D.Sc., Ph.D. Fourth edition, revised and enlarged. (Pp 252, 10s 6d.) London: The Lancet Ltd., 1948.

A book on medical statistics which passed through three editions between 1937 and 1942, was reprinted in 1945 and again in 1946, and now appears in a fourth and revised edition must have qualities which make praise from a critic superfluous and blame futile. Prof. Bradford Hill set himself the task of explaining to a clinical reader the principles of statistical reasoning without boring or puzzling him with algebraical formulae, and he succeeded so well that other medical consumers, or at least users, of statistics begged to be helped. The author has added sections of more interest to workers in social and preventive medicine than to clinicians but has done this so skilfully that the personal charm of the first edition has not been lost. The book is still primarily an introduction to arithmetic as a tool of logical reasoning which is not a bad definition of statistical method.

The careful and witty exposition of common fallacies will please and instruct many readers who have no passion for sums. It is, in the reviewer's opinion, important that such a book should be widely read by members of our profession. He can well remember the time when most medical men and many biologists despised 'mathematical' methods of handling their data—that time has passed, reverence has tended to replace contempt. From the point of view of the professional statistician this is a change for the better, but as Sir Walter Scott said all reforms bring a rateable proportion of evil. Forty years ago most doctors and medical laboratory workers were satisfied they could handle their data without any mathematical assistance. Now they are apt to think that only mathematical "experts" should handle them. It is true enough that sometimes expert help or criticism is desirable or even essential; it is not true at all that valuable statistical work even work which makes a definite addition to the methodology of statistics can be done only by a highly trained mathematician. Graunt, Farr, and Galton all made contributions to the methodology of statistics of immense value, not one of them, judged by the standard of his own age, was an expert mathematician.

If intelligent men without a natural aptitude for or special training in mathematics are frightened away from statistical work it will be bad for them and bad for statistics. Such a book as Prof. Hill's should, the reviewer thinks, give them courage, but not the spurious courage of the man who is brave because he does not know what the danger is.

MAJOR GREENWOOD

### ESTIMATION OF VITAMINS

*The Biological Standardization of the Vitamins* By Katharine H. Coward, D.Sc. Second edition (Pp 224 38 figures 16s.) London: Baillière, Tindall and Cox 1947

The title of this useful book may possibly convey the impression that it is exclusively about the standards of reference which have been set up by international agreement for the various vitamins. The author certainly gives adequate attention to this important topic, but her main purpose has been to describe in detail the biological methods she has found satisfactory for estimating vitamins in foodstuffs and pharmaceutical materials, and the mathematical procedures which she has used in calculating her results. After two chapters on applying the general principles of biological methods to vitamins and on the breeding and housing of experimental animals, she describes suitable methods for estimating vitamins A, B<sub>1</sub>, C, D, and E. A chapter on the independence of the vitamins follows, and then four chapters on the theory and application of statistical methods. In general she does not describe chemical and microbiological methods, but she has made an exception in briefly alluding to the antimony trichloride method for vitamin A; she also explains the estimation of this vitamin by ultra-violet spectrophotometry.

It will be clear that Dr. Coward's primary aim has been to provide a bench companion for those who wish to follow her footsteps in her own highly specialized field. The general physician particularly if he is interested in nutrition may study it with profit as an object lesson in the extreme care and patience entailed in estimating vitamins by biological methods. It has been the application of such methods over many years by pioneers such as Dr. Coward that has made possible our present detailed chemical and biochemical knowledge of the vitamins. The new edition has been brought up to date by including a chapter on vitamin E, and the chapters on the mathematical treatment of results have been extensively revised.

T. M.

Dr. E. Cunningham Dax, the author of *Modern Mental Treatment: A Handbook for Nurses* (Faber and Faber, 4s. 6d.), gives a simple and concise account of modern mental treatment by physical methods, yet the nurse is not allowed to forget that physical treatment, if it is to be successful, must be integrated into a wider scheme including occupational treatment and psychotherapy in its broadest sense—a scheme in which she plays no small part. One criticism may be made. One of the photographs in the appendix shows a trolley of apparatus for use in insulin treatment. It holds a strange mixture of sterile and unsterile instruments, and is at the same time inadequately equipped for a nasal interruption of coma.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Spasticity* By H. W. Magoun, Ph.D. and Ruth Rhines, Ph.D. (Pp 59 10s. 6d.) Illinois: Thomas 1948

A monograph on the stretch reflex

*Études Médico-Chirurgicales de Gastro-Entérologie Pratique* By Jean Vanier (Pp 180 No price) Paris: Maloine 1948

Clinical observations on a number of abdominal disorders

*The Food and Drink Infections* By the Central Council for Health Education (Pp 62 4s.) London: Central Council for Health Education 1947

Report of the conference held in October, 1947

*Chirurgie de la Surdit * By J. Salomon Danic (Pp 112 250 francs) Paris: L'Expansion Scientifique 1948

A monograph on Lempert's operation for fenestration

*Mental Health in Modern Society* By T. A. C. Rennie, M.D., and L. E. Woodward, Ph.D. (Pp 424 22s.) London: Geoffrey Cumberlege 1948

An account of the lessons about rehabilitation learnt during and after the recent war

*Introduction to Medical Psychology* By L. Erwin Wexberg, M.D. (Pp 171 17s. 6d.) London: Heinemann 1948

An introduction intended for the student and physician

*Conference on Metabolic Aspects of Convalescence* Transactions of Fifteenth Meeting (Pp 163 No price) New York: Macy 1947

Includes a symposium on research with isotopes

*Signs and Symptoms* By C. M. MacBryde, M.D., F.A.C.P. (Pp 439 72s.) London: Lippincott 1948

The clinical approach to diagnosis: references included

*Health Instruction Yearbook 1947* Edited by Oliver E. Byrd, Ed.D., M.D., F.A.P.H.A. (Pp 325 16s.) London: Geoffrey Cumberlege 1947

A compendium of notes on recent advances in health education

*1947 Year Book of Pathology and Clinical Pathology* By H. I. Karsher, M.D., and A. H. Sanford, M.D. (Pp 558 21s.) London: H. K. Lewis 1948

Abstracts from recent papers on pathology with comments

*Essentials of Endocrinology* By A. Grollman, Ph.D., M.D., F.A.C.P. 2nd ed. (Pp 644 60s.) London: Lippincott 1948

Material on recent clinical and experimental work is included in this edition

*Ear, Nose and Throat* By George D. Wolf, M.D. (Pp 523 60s.) London: Lippincott 1947

An outline of signs, symptoms and treatment in clinical practice

*Michael's Wife* By Gilbert Frankau (Pp 544 10s. 6d.) London: Macdonald 1948

A novel

*The Anatomy of the Eye and Orbit* By Eugene Wolff, M.B., B.S., F.R.C.S. 3rd ed. (Pp 440 45s.) London: Lewis 1948

Many new illustrations included

*A Catalogue of Insecticides and Fungicides* By Donald E. H. Frear, Ph.D. Vol. 1 (Pp 203 \$6.50) London: W. Dawson 1947

List of the chemical formulae and use of insecticides and fungicides

*Ilustraciones Obstetricas* By Gerardo Will and Oscar Aguerro (Pp 23 No price) Caracas, Venezuela: Editorial Grafolit 1947

Photographs of maternal and foetal abnormalities

*Epilepsy* By Paul H. Hoch, M.D., and Robert P. Knight, M.D. (Pp 214 21s.) London: Heinemann 1948

The genetics, diagnosis, and management of epilepsy

## BRITISH MEDICAL JOURNAL

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## FEEDING OLYMPIC ATHLETES

Long before nutrition was the subject of serious study as a separate branch of science athletes were obsessed with the importance of their food in helping them to triumph. As Sir Adolphe Abrahams pointed out at a recent meeting of the Nutrition Society reported elsewhere in this issue (p 219), the aim of the old-time trainer was to fill his men with beef and beer and then make them work these vital ingredients "into the system". According to Schenk<sup>1</sup> the feeding arrangements for the 1936 Olympic games at Berlin followed this traditional pattern. The average daily food consumption is said to have been 7,300 calories, provided by three times as much protein, five times as much fat, and one and a half times as much carbohydrate as an ordinary man was supposed to require in those far-off days of plenty. Almost all the competitors are reported to have been heavy meat eaters, and the ingestion of large underdone steaks twice daily was not considered excessive or unusual. The allowance of milk was two pints daily, and liberal amounts of eggs, fruit, salads, sugar, honey, and white bread were consumed.

British competitors in this year's games by way of contrast are to be given one pint above the usual allowance of milk, twice the normal rations of fat and cheese, one and a half times the ration of meat, and three times the usual ration of bread. These amounts are those allowed in this country for heavy industrial workers, but they fall far short of the gargantuan feasts which must have been enjoyed in Berlin in 1936. In those days, presumably, the present weekly meat ration would have disappeared at one sitting. On purely theoretical grounds it is not easy to understand why Olympic competitors should need such enormous amounts of foods. A sprinter may do work corresponding to the output of some 400 calories in his daily training, and in a race lasting ten seconds may use up perhaps 20 to 30 calories. A long-distance runner may use up 2,000 calories in a marathon race, although he will not maintain this level of activity in his daily training. In spite of the greater daily energy output of the long-distance runner, however, his appetite will probably be considerably less than that of the sprinter. It is apparent, therefore, that food is not only needed as a fuel but also for the purpose of building up a musculature appropriate for the particular athletic event. When viewed beside the sprinter, or beside the brawny weight-lifter or heavy-weight wrestler, the long-distance runner often appears so lean as to give an impression of undernourishment.

The need to build up muscle may well explain the athlete's desire for meat even though his energy requirements might be satisfied equally well by carbohydrates.

Other possible theories are that meat may be important as a source of B vitamins, which are necessary to sustain an increased rate of carbohydrate metabolism in the muscles, or of creatine, which is also concerned in muscular contraction. Psychological factors must be borne in mind, too, for athletes who are inclined to worry and fret about their coming ordeal may be consoled and morally fortified by having plenty of good meat to eat. A craving for sugar, which is sometimes experienced by athletes after strenuous exertion, and which is also familiar to mountaineers, is probably associated with a reduced level of glucose in the blood. While most authorities agree that some Olympic competitors have huge appetites, the data reported by Schenk have been received with some scepticism. Doubts have been raised, indeed, whether members of the British teams have ever eaten quite such spectacular quantities of food.

If this year most of our Olympic athletes are subsisting on the diet which has been allowed them by the Ministry of Food, and have not greatly augmented their supplies from other sources, we may well follow their exploits not only with sporting enthusiasm but also with keen scientific interest. A generally high standard of performance on their part must make obsolete the belief that large quantities of meat provide the best foundation for athletic prowess. Dismal failure on the other hand may make us wonder whether the diet which is now consumed by our heavy manual workers is fully adequate to sustain them in their labours.

## MODERN VIEWS ON DIABETES

The modern trend in the treatment of diabetes mellitus is in the direction of standardization and simplification and the elimination of what Dr G M Wauchope, in her paper which appears elsewhere in this issue (p 191), calls "time-consuming or fussy procedures". This process of simplification has been applied both to diet and to the arrangement of insulin therapy—in the former by the use of a more generous allowance of carbohydrate and free protein and fat, and in the latter by the single injection treatment made possible by the introduction of prolonged-action insulins. In both aspects of the treatment of diabetes there is a real danger of over-simplification at the expense of good control of the disease, a tendency rendered the more dangerous by the fact that the consequences of inadequate treatment are often not at once apparent and may become so only after a period of apparently uneventful years, when there may arise irreversible complications such as retinitis and arterial and renal disease. It is important, therefore, that the carbohydrate content of the diet, however large, should be kept relatively constant and that insulin should be given in sufficient quantity and at sufficiently frequent intervals to produce a normal blood-sugar level over the period of maximum insulin action.

Wauchope describes the results obtained in the treatment of 366 ambulant diabetics with a single, morning injection of globin insulin (GI). This substance, as the author points out, resembles Hagedorn's protamine or

<sup>1</sup>*Munch med Wschr* 1936 83 1535<sup>2</sup>*Yale J Biol Med* 1945 17 705  
<sup>3</sup>*Amer J Path*, 1936 12 33



delay insulin, its effect being somewhat weaker and more prolonged than that of soluble insulin (SI) but stronger and of shorter duration than protamine zinc insulin (PZI). It is generally agreed that a single, morning injection of PZI is suitable only for relatively mild diabetics, hyperglycaemia during the day being unavoidable in more severe cases without the addition of SI. The objection to the use of GI for single, morning injections has always been that unless relatively large doses are used the hypoglycaemic action is too short to control the fasting blood sugar, and if large doses are given to overcome this difficulty there is a high incidence of hypoglycaemic reactions in the late morning or afternoon. It is difficult to understand quite why a single, morning injection of GI should be the method of choice for almost all diabetics requiring insulin, as Wauchope seems to suggest, when protamine or delay insulin, whose action she agrees is essentially similar, proved inadequate for this purpose even in the hands of Hagedorn and his co-workers. GI has now been available for five years, and it is interesting and perhaps significant that a recent survey carried out by the Diabetic Association showed that out of a total of 8,775 patients attending 42 diabetic clinics only 316, or 3.6%, were having GI alone, and 22, or 0.25%, a mixture of GI and SI.

The same tendency towards standardization and simplification is to be seen in the treatment of diabetic coma, but with an added element of acute controversy. Much of the discrepancy in results and consequent differences in opinion on the treatment of diabetic coma result from the prevalent misuse of the word coma in this connexion. In his article, which appears at page 200, Dr R. H. Micks correctly defines coma, but then departs from his definition so as to include those cases of severe ketosis which at most should be considered as pre-comatose. It is important at the outset to emphasize the fact that, in a good hospital diabetic department employing the conventional methods of treatment, the mortality rate of cases whose "mental state is one of mild, moderate, or severe confusion with marked drowsiness" but who are not in coma in the proper sense of the word is or should be negligible. It is only in cases of established coma, and particularly those of long duration, that conventional treatment properly applied sometimes fails to save the patient from death due to circulatory failure. It is important that these facts be kept in mind when considering the claims made by Root and others for the use of large doses of insulin in the first few hours of treatment. All authorities are agreed upon the importance of intravenous fluids in the treatment of coma, and there is much to be said in favour of the use of normal saline rather than glucose-saline in the early stages of treatment. The view held by Root and his followers that glucose is fatal in the early treatment of coma is less widely accepted than Micks suggests. Peters,<sup>1</sup> for example, has given good reasons for the early and continued administration of glucose-saline solution.

Far more controversial are the doses of insulin advocated by Micks. He suggests an initial dose of 100 units in conscious cases followed by a further 100 units every half-hour until obvious improvement is observed. Some authorities would hold that this dosage is contrary to accepted standards of safety and would need to be

supported by very convincing results, particularly as dosage is based on clinical improvement of a somewhat indefinite nature which should be apparent in less than fifteen minutes after giving the insulin. It is doubtful whether after so short an interval insulin given subcutaneously to a patient in diabetic coma could be shown by any ordinary chemical test to have had any action. As an initial dose in true coma 500 units is advocated, and in the absence of improvement by the end of the first hour 100 units every ten minutes until improvement begins, the chief signs of which are to be detected in mental state and hyperpnoea. Opinion may differ on the necessity of giving such heroic doses, and it is too early to pass judgment on a method of treatment which in the hands of a man of Root's experience has given good results, but a warning note must be sounded on the question of safety. Those who use such doses of insulin must remember that their hypoglycaemic action may be prolonged. It is true, as Micks points out, that death in hypoglycaemia following diabetic coma has not in the past been commonly reported, but it has occurred nevertheless, and it may occur more often in the future if this type of treatment becomes popular.

Among the irreversible complications already referred to as possible sequelae of inadequate diabetic control the one which has received particular attention in recent years in the USA is renal disease. Since Kimmelsteil and Wilson<sup>2</sup> published their original description of the intercapillary glomerular lesion in long-standing diabetics numerous articles have appeared in the American literature confirming and expanding the original findings. There can now no longer be any doubt of the existence of the lesion and its association with diabetes. It has even been said to be the commonest single pathological finding in uncomplicated cases of diabetes. The appearance, therefore, on page 194 of this issue, of a study of the renal complications in diabetes by Drs W. R. Gauld, A. L. Stalker, and A. Lyall, from Aberdeen, is particularly welcome since it is the first in our literature. The study has been made on a relatively small group of cases, but confirms the findings of earlier workers and helps to throw light on a clinical picture in which albuminuria, hypertension, oedema due to hypoproteinaemia, nitrogen retention, and retinitis are the chief features. In the past the difficulty has been to correlate clinical with pathological findings—a not uncommon problem in renal disease—but the present study indicates the existence of at least four types of renal failure in the diabetic and that the characteristic glomerular lesion, due to associated vascular changes, is incidental to and not the primary cause of the renal failure. The authors conclude on a gloomy note: prognosis is bad and treatment ineffective. While there can be no doubt about the latter, the period of two years from the onset of retinitis and oedema to death in renal or cardiac failure may be extended in some young diabetics. It is significant that the series of 26 cases reported, with the exception of 3 cases of subacute nephritis, consisted of diabetics who were between 50 and 70 years of age. The occurrence of this clinical syndrome in young persons who have had diabetes for ten or more years is becoming increasingly widely recognized and constitutes a grave problem in the treatment of the disease among the young.

## EMPIRE MEDICAL ADVISORY BUREAU

When he formally opened the Empire Medical Advisory Bureau at B M A House on July 13 Lord Addison observed that in no place could a student feel more lonely than in London. The doctor from the Dominions and the Colonies who now comes to Britain will cease to feel like a stranger in a strange land if he takes advantage of the facilities of the E M A B established by the Association and now under the direction of Dr H A Sandiford, who for the past four months has been busy equipping himself with information to turn to good account for our professional colleagues overseas. In spite of the unavoidable restrictions still in force we want medical men and women from the Commonwealth and Empire to visit Britain so that we may get to know them in person and so that they may see at first hand the various sides of British professional life. The E M A B, through Dr Sandiford, is here in the first place to welcome the doctor from the Dominions, to put him wise to our island customs, to advise him on accommodation and travel, and to smooth out the hundred-and-one difficulties facing anybody visiting this country for the first time.

Britain, we believe, has a wealth of medical knowledge and experience to offer the postgraduate student, and most of the medical visitors from overseas come here for postgraduate study, whether for the higher diplomas or for enlightenment in a special subject. The second function of the Bureau is, then, to provide the visitor with information about postgraduate facilities. In doing this it is not, of course, attempting to duplicate or interfere with the activities of postgraduate organizations. The Bureau is a marshalling yard of advice and postgraduate information.

London is fast becoming the most important medical postgraduate centre in the world. There is the Postgraduate Medical School at Hammersmith, and the British Postgraduate Medical Federation, which, under Sir Francis Fraser, has set up Institutes in special branches of medicine designed more for those pursuing advanced studies and not providing prescribed courses for higher diplomas. The Royal College of Surgeons now has facilities for systematic postgraduate courses in the various specialties. Another centre of intense postgraduate study is Edinburgh. This is to mention only a few and only some of the activities of these organizations. An important link with the Bureau's work is London House in Bloomsbury, under the Dominion Students Hall Trust, here the postgraduate enjoys many of the advantages of a student resident in a university college. Similar hostels elsewhere, for example in Edinburgh, would do much to promote a more lively feeling of fellowship with our colleagues from the Dominions and Colonies, and it is to be hoped that benefactors with a strong sense of Empire may not ignore the opportunity of attaching name and wealth to so good a cause.

The doctor overseas who wants to come to Britain to see for himself how we live and work would do well to provide and ask for information well in advance of his visit. To this end he should write to Dr H A Sandiford, Empire Medical Advisory Bureau, at B M A House. Much time and money will be saved if the intending visitor has the ground well prepared in this way. The man who wants to pursue a systematic course of study should give what facts he can about his own career and support his application with an introduction from someone qualified to speak with authority on his behalf. In the face of a high demand for postgraduate work those responsible for organizing it must naturally be satisfied that the postgraduate student may properly claim to take advantage of it. Many doctors from overseas, however, come to Britain not for systematic

courses but for instruction in certain special lines of investigation and treatment. In any case, careful inquiry before coming will enable the visitor to take the fullest advantage of what can be offered to him, and ensure that he will have at the least a warm welcome.

## SYMPATHECTOMY FOR CHRONIC LEG ULCERS

Chronic ulcers of the legs associated with insufficiency of the venous drainage are relatively common and may be crippling. The various forms of treatment which have been tried have so infrequently produced permanent cure that many have adopted the fatalistic attitude that such ulcers are incurable. Recently, however, study of the conditions which cause the persistence of the ulcers gives greater hope that a cure can be effected. The two important factors are, first, the underlying vascular defect, and, secondly, the superadded infection, usually with Gram-negative organisms of the coli or proteus groups. Streptomycin has proved most useful in dealing with the latter, and local applications have resulted in very rapid healing of ulcers of many years' duration.

The chronicity of the ulcers is mainly due to poor nutrition of the tissues, partly from the sluggish blood flow and partly from the oedema of lymphatic stasis. The ulcers associated with primary varicose veins with incompetent valves usually respond rapidly to a properly conceived and executed ligation operation, and this should be the first line of treatment in such cases. The majority of chronic ulcers are, however, associated with impairment of the drainage in the deep veins, and in these improvement in the circulation can be achieved only by other methods.

Recently lumbar sympathectomy has been undertaken with the object of improving the circulation in the limb. The results claimed have been divergent, some writers, such as Allen, Barker, and Hines,<sup>1</sup> reporting that the operation has no effect on the healing of the ulcers, and others finding marked improvement and rapid healing as the outcome. Mr J Borrie and Mr E Vernon Barling, for example, report in this issue of the *Journal* four cases of chronic ulcer which healed rapidly after the operation and only one has subsequently broken down. There must be some explanation for these conflicting views, and it seems to lie in the type of case selected for operation. Sympathectomy is by no means always successful, occasionally unilateral sympathectomy performed on patients with ulcers on both legs has produced no faster rate of healing or more permanent cure than was observed on the unoperated side. In these cases the skin round the ulcer is pigmented rather than cyanosed, and the ulcer base is callous and relatively avascular. It must be that tissue fibrosis and local endarteritis have progressed to cause severe local organic ischaemia which cannot be relieved by the removal of sympathetic tone. Again, the foot is frequently warm in such cases, an indication that no excessive sympathetic activity is present. Sympathectomy is more likely to be successful when there is cyanosis rather than avascularity in the region of the ulcer, and the foot is often colder than its neighbour. It is only by careful differentiation of these types, combined with the response to paravertebral sympathetic block, that the patients likely to benefit from sympathectomy can be selected. In this connexion a good response to the block is best judged by the improvement in the colour of the ulcer and surrounding skin rather than by the change in the temperature of the foot. In all cases local support by some form of elastic bandage is of the greatest importance in maintaining improvement and preventing relapse.

Too many patients are still treated with varied local applications and are seen by the surgeon only after years of such therapy. A more widespread appreciation of the benefits which surgery can offer in many of these cases would result in a great saving of suffering and time. There is no doubt that treatment which combines improvement in the local circulation and defeat of the persistent infection enables a more optimistic view to be taken of this condition than in the past.

### THE DEATHS OF DOCTORS

In assessing a fair remuneration for general practitioners the Spens Committee pointed out<sup>1</sup> that the strain of medical practice shortened the expectation of life of doctors, who have a mortality rate 34% above Civil Servants and 26% above professional engineers. Unfortunately, owing to the war, no up-to-date occupational mortality statistics are available for this country, but the gap has been partly filled by recent American reports on the longevity of physicians.<sup>2,3</sup> A comparison between the mortality experience of doctors and the remainder of the male population over the age of 25 shows that, although the main causes of death among doctors are not appreciably different from those among the white male population as a whole, the relative importance of the individual causes varies considerably between the two groups. Thus, although the overall death rate for doctors in the U.S. is little higher than that for the general male population, the advantage held by doctors under 45 is largely outweighed by their heavy death rate at later ages. This divergence is due to the differential mortality from specific causes of death.

The mortality ratios, which express the proportion of deaths actually observed among doctors to the number to be expected at the rates prevailing in the general male population, show that the former have an unduly heavy death rate from leukaemia (M.R. 1.75), biliary calculi and gall-bladder disease (1.45), cerebral haemorrhage (1.2) diseases of the heart and coronary arteries (1.18), and arteriosclerosis (1.16). On the other hand doctors have a death rate below general expectation from automobile accidents (M.R. 0.89), cancer (0.81), appendicitis (0.77), hernia and intestinal obstruction (0.75), nephritis (0.73), peptic ulcer (0.62), diseases of the prostate (0.54), tuberculosis (0.45), and syphilis (0.34). Clearly this latter group of causes of deaths comprises just those diseases whose fatality rates can be reduced by early diagnosis and rapid and effective treatment. Most of the causes of unduly heavy mortality among doctors, on the other hand, are those believed to result from the stress of a harassing existence which weighs most heavily on men past their physical prime. Thus, although the expectation of life of a young doctor of 25 is slightly higher than is usual in the population—43.5 instead of 43.3 years—this advantage is lost by middle age, when, at the age of 55, a doctor has an expectation of life of 17.9 years, six months less than the general expectation.

These findings have two important implications. The first is that, despite the disregard which many doctors notoriously have for their own health, their favoured position, both professionally and socially, does result in a lessened mortality from diseases amenable to detection and treatment. Their cancer experience, which is particularly good for neoplastic disease of the digestive tract, is

a powerful argument in support of the campaign for early recognition and treatment of cancer. Conversely, their high death rate from cardiovascular diseases cannot be entirely explained by better diagnosis, though this, rather than any specific occupational hazard such as x rays, may be the reason for the exceptional mortality from leukaemia, which is shared by men of social class I in this country. There is, then, a need for special study of the occupational and constitutional background of those "stress diseases" which so often cut down men at the peak of their maturity and usefulness, both in our own profession and in others.

### LIBERATION OF HISTAMINE BY CURARE

In 1939 Anrep and his colleagues<sup>1</sup> observed that the injection of curare into an artery supplying the muscles of a dog's leg set free in the blood a substance which behaved like histamine. This observation, which at the time aroused only academic interest, has now gained practical significance because of various unusual effects which have been described in patients to whom curare has been given either as "intocostin" or as *d*-tubocurarine chloride. Thus occasionally the intravenous injection of curare causes a transient fall of blood pressure accompanied by a feeling of warmth, giddiness, and headache, exceptionally the fall of blood pressure has been severe and accompanied by haemoconcentration.

Grob, Lilienthal, and Harvey,<sup>2</sup> at Johns Hopkins, have recently investigated the action of curare on the cardiovascular system in man, using the methods they introduced for the study of the action of neostigmine ("prostigmin") in myasthenia gravis. They injected curare into the brachial artery below a pneumatic cuff which was inflated to 100 mm for two minutes after the injection. They found that the injection of an amount of curare equivalent to about 7 mg of *d*-tubocurarine chloride produced an effect very like that of 0.25 mg of histamine base. The curare caused a loss of power which was not produced by histamine, but when the cuff was released the forearm became intensely hyperaemic and engorged. Numerous areas of purple discoloration like ecchymoses appeared. They vanished in the next 30 minutes. As they faded the arm swelled with a firm oedema, broad weals appeared, which often itched. The swelling disappeared in 16–36 hours according to the dose given. These changes occurred with curare and with histamine. The effect of injecting curare into the skin was also studied. Again the resemblance to the action of histamine was complete, the triple response described by Lewis being observed in all its stages. Intra-arterial injection of curare also caused a rise in acid secretion in the stomach.

Final confirmation of the view that curare liberated histamine was obtained when Harvey and his colleagues were also able to show that these effects of curare were greatly diminished or abolished by antihistamine substances such as "pyribenzamine" or "benadryl". Thus when 200 mg of pyribenzamine was taken by mouth 30 minutes before the intra-arterial injection of curare the local swelling and the local and general skin temperature changes did not appear. On the other hand, neither atropine nor neostigmine modified the vascular effects of the drug. It should be emphasized that these vascular effects were not observed when curare was injected intravenously, they followed only intra-arterial injection. Occasionally in susceptible subjects, however, they may occur in minor form after intravenous injection, and can then be counteracted by the injection of a suitable antihistamine drug.

<sup>1</sup> Report of the Interdepartmental Committee on Remuneration of General Practitioners 1946. HMSO London.

<sup>2</sup> Longevity and Mortality of Physicians. Dublin. L.I. Spiegelman M. and Leland R. G. *Postgraduate Medicine* 1947 2 188.

<sup>3</sup> Statistical Bulletin Metropolitan Life Insurance Co. 1947 28 No. 10.

<sup>1</sup> *J. Physiol.* 1939 95 148.

<sup>2</sup> *Bull. Johns Hopk. Hosp.* 1947 80 299.

## DERMATOSIS IN THE PAINT INDUSTRY

In view of the great variety of constituents of paint and their skin-irritant properties it is scarcely surprising that workers who handle paints suffer considerably from dermatosis. It appears from a recent investigation<sup>1</sup> in Finland that of all the ingredients—oils, resins and other binders, inorganic pigments, organic dyes and pigments, and organic solvents—the organic solvents are the chief offenders. These include turpentine, aliphatic and aromatic hydrocarbons, alcohols, esters, ethers, and ketones. The responsibility for an incidence of 10.7% of occupational dermatosis among paint workers in Finland rests very largely on the greatly increased use during the war of sulphate and kiln turpentines, with their content of high boiling-point fractions (carene, limonene, dipentene). The aliphatic and some of the aromatic hydrocarbons, dye solutions, and whitewash also produced a few cases of irritation, but lead, its salts, and white lead not a single case. It was found that the charwomen and cleaners of paint pots were most frequently affected, workers in the paint factories suffered less severely, and the actual painters, polishers, and sprayers least of all.

The dermatosis is generally of two distinct varieties—toxic dermatitis and allergic eczema, the latter is distinguished by the slow development of sensitization, short latent period, long duration, and greater severity. Patch tests are valuable in confirming the diagnosis of allergic dermatitis, but are not always conclusive, being positive in only 18% of cases of occupational dermatosis. The final diagnosis must therefore be made on the course and symptoms of the disorder, the occurrence of attacks following exposure to a known toxic agent and improvement after cessation being of course very significant points. Hereditary and constitutional factors (such as a blonde complexion and a seborrhoeic skin) appear to play less part in predisposition to allergic dermatitis than has hitherto been generally believed but women do tend to show greater susceptibility than men.

The disability resulting from dermatosis among paint workers is considerable, not only because of the duration of the actual disorder—usually about six months in allergic eczema—but because relapse after return to work often necessitates a complete change of occupation. Among the preventive measures recommended, prohibition of the use of solvents for cleansing the skin (a widespread habit among all workers who use contaminating materials) needs special emphasis. The use of non-irritating detergents for cleansing should be encouraged, and protective ointments are of some value, but the most important factor is the restriction of those ingredients, particularly the irritating turpentines, which have been found to possess toxic properties.

## LISTER MEDAL

The Lister Medal for 1948, which is awarded in recognition of distinguished contributions to surgical science, has been granted to Professor Geoffrey Jefferson, CBE, FRCP, FRCS, FRS, Professor of Neurosurgery in the University of Manchester, in recognition of his contributions to "knowledge of the functions and structure of the nervous system, made as a philosophical biologist, practising neurosurgery." Professor Jefferson will deliver the Lister Memorial Lecture in London in June, 1949, under the auspices of the Royal College of Surgeons of England. This is the ninth occasion of the award, which is made by a committee representative of the Royal Society, the Royal College of Surgeons of England, the Royal College of Surgeons in Ireland, the University of Edinburgh and the University of Glasgow.

## FATTY LIVER DISEASE IN INFANTS

The high incidence of hepatic disease among infants in tropical and subtropical areas has again been discussed. With the exception of so-called infantile biliary cirrhosis in India the disease is usually associated with poverty and malnutrition. Waterlow<sup>1</sup> has recently reported that in the West Indies the disease occurs almost entirely in infants under two years old, in most cases the symptoms started shortly after weaning. They included vomiting and oedema, and the liver was enlarged. Necropsy and biopsy showed that the enlargement was the result of severe fatty infiltration. Symptoms of associated vitamin deficiencies, which were a conspicuous feature of the cases reported from Africa,<sup>2,3</sup> were usually insignificant in Waterlow's cases, and certainly none had pellagra.

Recent experimental work on animals has clearly shown that severe fatty infiltration of the liver may result not only from exposure to toxic substances but from dietary deficiency. The dietary factors concerned in the prevention of fatty infiltration are termed lipotropic, and the two best established are choline and methionine, the former a member of the B vitamin complex, the latter an amino-acid widely distributed in proteins of high biological value. There are also other factors associated with fat metabolism. Inositol, pyridoxin, tyrosine, and some oestrogens have lipotropic activity, while excess of biotin, cystine, or nicotinic acid has the opposite effect. Possibly many other unknown factors affect the fat content of the liver, although choline and methionine are of great importance in the rat for their lipotropic activity, it does not follow that they are the principal lipotropic agents in man. The disappointing results obtained by Waterlow when he used these two substances in a very small series of human cases are therefore not surprising and are in accordance with the African workers' experience. However, the striking improvement in several cases that followed ingestion of moderate amounts of milk helps to confirm the generally held opinion that the condition is one of nutritional deficiency. But, as Waterlow points out, since this so-called "fatty liver disease" does not occur in cases of pure starvation it is better regarded as a result of nutritional imbalance rather than one of pure deficiency. The most obvious defect in the dietary of the affected infants is an absolute inadequacy of protein associated with a relative excess of carbohydrate. From the work of Best<sup>4</sup> and McHenry<sup>5</sup> it seems probable that the carbohydrate is the source of the liver fat, while deficiency of protein is responsible for the lack of lipotropic activity.

Since the disease does not appear before weaning and is apparently remediable by adding milk to the diet, the solution of these important problems lies in the production of more milk or milk substitutes. Unfortunately food yeast, despite its high lipotropic activity in the rat,<sup>6</sup> has proved to be therapeutically ineffective both in Africa and in the West Indies, and the work of the Gillmans suggests that it is not entirely without danger as a supplement in malnourished individuals.

Dr George Brock Chisholm, of Canada, who was Executive Secretary of the Interim Commission of the World Health Organization, was appointed Director-General of the Organization at the meeting of the World Health Assembly now being held at Geneva.

<sup>1</sup> Spec Rep Ser med Res Coun Lond 1948 No 263

<sup>2</sup> Trowell H C Arch Dis Child 1937 12, 193

<sup>3</sup> Gillman T, and Gillman J, J Amer med Ass 1945 129 12

<sup>4</sup> Hughes W Trans R Soc trop Med Hyg, 1946, 39, 437

<sup>5</sup> Vitamins and Hormones, 1943, 1 1

<sup>6</sup> Science, 1937 88 200

<sup>7</sup> Hunsworth, H P, and Glynn, L E, Clin Sci, 1944, 5, 93

<sup>1</sup> Pirila V Acta derm-venereol, Stockh 1947 27 16 Suppl

## TREATMENT OF ANXIETY STATES IN GENERAL PRACTICE

BY

C A H WATTS, MB, BS, DRCOG

Recent correspondence in the Press has shown that some practitioners are alarmed and dismayed at the incidence of neurosis in general practice. The figures given vary from 14% to 50% of all patients seen. It is obvious that to many doctors neurotics are the bugbear of general practice, and that means that a substantial proportion of their patients receive grossly inadequate treatment. Anxiety gives rise to more suffering and distress than any other aetiological agent of disease. Its treatment is not as complicated as many imagine, and this paper is an attempt to describe one method by which the problem can be tackled in general practice.

The vast majority of neuroses seen in my practice can be dealt with at the surgery. Only a small proportion of patients need to be put off work for a week or two. Most neurotics can be treated while continuing at work. This is not only better for the community as a whole but it is also better for the patient. It underlines the fact that he is not physically ill. Thus the general practitioner's surgery is in many ways an ideal treatment centre for neuroses.

### First Interview

The patient is encouraged to expound all his symptoms. He is encouraged to talk and get everything off his chest. When he can think of no more symptoms I question him about each part of his body to make sure he has missed nothing from his history. Details of previous ill-health are recorded, as well as the family medical history. I ask for the earliest memory the patient can give me. The average person remembers back to about five years. The reason for this question will be seen later. I find out what kind of scholar the patient was as a child, and a detailed history of employment is taken. Habits are recorded, including smoking, drinking, sociability, pastimes, and hobbies. Details of the marriage are taken if these are applicable. If the patient is unmarried romantic situations are discussed. I do not make notes on sexual matters, as I feel it may embarrass the patient. Any points of note can be added later. To determine attitudes to parents I ask such questions as, "When a child of 12 to which parent would you have gone for extra pocket money, advice, and so on?" Most patients name either one or other parent. Very few say they have no preference. Such a bias is useful evidence, and as Case 206 shows, such feelings can play a part in a neurosis.

To exclude organic illness a complete physical examination follows the history-taking. The above preliminaries sound lengthy, but one picks up speed with practice, and I can usually clear my way for psychotherapy in one or two sessions. If the case is a neurosis the patient is told that his symptoms are due to what is popularly known as 'nerves'. I stress the importance of both speaking the same language and understanding each other. I explain that the symptoms are due to anxiety, and I point out that worry can produce pain as severe as any toothache. I make sure he doesn't go away with the impression that I think either that there is nothing wrong or that the pain is imaginary.

### Psychotherapy

The next session opens with a summary of my previous remarks. If the patient needs convincing that the mind can upset bodily function I ask him what happens if he goes to church without a pocket handkerchief. This usually produces the correct answer, and I point out that just as worry can upset the nose so it can upset the rhythm of the heart, breathing or any other bodily function. I stress the fact that although worry can cause symptoms, that does not mean the body is diseased. It is sometimes profitable to explain to the patient how fear works, and to point out that anxiety is the same reaction, only it is prolonged in time. Palpitations, dyspnoea, sweating, and an empty feeling in the middle can all be explained in this way. The condition is liable to form a vicious circle. Anxiety causes symptoms and the symptoms increase the anxiety. Reassurance

helps to break this vicious circle for a time, but by itself it is usually insufficient. It is necessary to go deeper and to work out the mechanism of the neurosis as well. My methods may be summarized as follows:

1 *Direct Approach*—This means a correlation of symptoms and circumstances. Case 24, described below, illustrates this method.

2 *What Useful Purpose does the Neurosis Serve?*—All neuroses are motivated at a subconscious level. Some useful purpose is served even if the bargain as a whole is a bad one.

3 *What Emotions does the Neurosis Express?*—A case of effort syndrome may be the result of a broken romance. There is such a thing as a broken heart.

4 *Dream Interpretation*

5 *Free Association*

One, two, or more of the above approaches may be used in an attempt to discover the patient's real problem and to make him face up to it.

### 1 The Direct Approach

Sometimes the patient frankly admits he has problems, and these can be freely discussed. More frequently, however, he will affirm that he has no worries. I reply that a person can worry about something of which he is unaware. Here it is often necessary to describe the subconscious mind. I remind the patient of the iceberg, pointing out that whereas only one ninth sticks out of the water, eight-ninths is submerged and hidden from view. The same applies to the mind. I describe the subconscious as the hidden part. It is in fact the storehouse of forgotten memories. Here the date of the earliest memory comes in useful. Most people readily appreciate that the early life and training of a child are of great importance and yet these vital years are largely forgotten. The memories are buried in the subconscious mind, and from there are able to influence the individual.

*Case 394*—This patient, a woman aged 25, was adopted at the age of 2. She had no conscious memories of her first two years of life nor of the town H in which she was reared. At 14 she was told by her foster mother that she had been adopted. She told her mother that she knew already, although she was certain no one had mentioned it. Clearly she had never completely forgotten. The name of the town H always filled her with forebodings. Once when a van from H stopped at the door she ran upstairs and locked herself in her room for four hours. She was 7 years old at the time. All this fear of H went when she knew about the adoption. For the first time she realized she was secure and could not be taken back to H and to her first home, which she had long forgotten.

A case such as this may be quoted to illustrate subconscious memories. After some such digression I ask the patient to tell me when the symptoms first started. We go over details not of the feelings but of the background. Something in the circumstances has upset the patient. He is not facing up to reality, and his symptoms are a useful red-herring across the trail. In discussing the first attack one often comes across some clue or something worth opening up.

*Case 36*—This man of 24 was suffering from effort syndrome. His first attack came on in Switzerland, where he was awaiting repatriation as an escaped prisoner of war. He remembered that he was then writing to his aunt, but as the letter had been written some eighteen months prior to my interview he had no idea of its contents. I told him that something in his letter had upset him and that if it was important enough to upset him it could not really have been forgotten. I told him that if we left the subject and talked of other things the memory might return.

"What do you think of your aunt?" I asked him. "I'm very fond of her," was his immediate reply. We discussed the old lady. She was his foster-mother, but, being a maiden lady, she was called aunt. She had been kindness itself to him, but he was anxious to break away and stand on his own feet. After half an hour of discussion I repeated my question, "What do you think of your aunt?" "It's a mixture of gratitude and indifference," was his reply. In his first answer he had given his conscious feelings or the orthodox reply which was expected of him. His real feelings had to be stimulated before they were obvious, especially to himself. We broke off the session at this point, but as he reached the door he remarked, "I know now what was in that letter." He told me he was replying to a request from his aunt. She had made him the generous offer of a farm which she wanted him to take over. If he accepted the offer he would lose the independence for which he was striving. It was not easy to word a letter refusing the offer without hurting her feelings and appearing ungrateful. Syncope came as a



temporary respite from his struggle. The mechanism is often clear to the therapist before the patient has any idea of what it is all about, but it is better for the patient to reason out his own problems. Time will not always allow this process, which is necessarily slow, so that once I feel the patient has a grasp of elementary psychology I am often prepared to elaborate the case as I see it. If he can intellectually accept my suggestions he usually improves, but it is surprising how quickly the mechanism is forgotten from one session to another. Constant repetition and going over old ground is usually necessary.

If discussions as illustrated above do not bring the problem to light there are the other lines of approach.

## 2 What Useful Purpose does the Neurosis Serve?

This method is well depicted in the following case.

*Case 208*—A woman aged 42 had called me in because her only child, aged 4, had developed mannerisms and was unduly afraid of cows. I asked her mother to come and see me at the surgery, and it was soon obvious that she herself had a quite severe anxiety state. She complained of pains in her chest and shortness of breath. She had given up cycling and had cut down all her activities. She was convinced it was only a matter of time before she dropped down dead. So sure was she of this that she always carried her identity card so that her body would be recognized. She even had a farewell letter to her husband telling him how to carry on. Such precautions are a measure of how bad she felt. To summarize the case, which in all took four sessions, she had a pronounced "Atalanta complex" and was markedly fixated to her father, who had died two years previously from heart disease. As is often the case in neuroses, his illness served as a pattern for her symptoms. So great was her fixation that she was courted for nine years before she would consent to marry at 36. Attracted by her father, she was strongly antagonistic to her invalid mother, who lived at the other side of the town. She visited her mother thrice weekly, but it was an irksome duty and gave her no pleasure. Consciously she strove to be dutiful, subconsciously she hated her mother and resented the attention she had to pay her. This is roughly what must have happened. When she felt tired one day she decided she was not fit enough to make the journey. 'I would go if I felt better,' was her feeling, and so she stayed at home. The purpose of the neurosis is clear. She gave up cycling, and if she had to use a taxi the visits could be cut down to once a month. As T. A. Ross (1937) put it, a neurosis is always a bad bargain in the end. Her feelings excused her certain duties towards her mother, but in the end they made life almost unbearable for the patient herself. Once all this conflict had been clarified at a conscious level the patient felt much better. After the third session she announced herself as well. She could run upstairs and swill the yard in a way she had not done for months. All her fears had left her, and, what is more, her little girl had recovered too. I don't know much about child psychology, but treatment of the parent often brings about recovery.

## 3 What Emotion is Expressed by the Neuroses?

*Case 24*—This young soldier was referred to me for persistent vomiting. No physical cause for his complaint could be found. He had escaped from a P.O.W. cage in Italy and for a year had lived the life of a bandit. The day after he had reached the British lines—and safety—he started vomiting. I could find no reason at first, so I flung out at him, "What does vomiting express?" He could not see my point, so I told him it could be a sign of disgust. I related the story of an Englishman who, having enjoyed a French dish of frogs' legs, was sick when he heard of what he had eaten. My patient opened up at once. Talking of disgust, he said he had never been so shocked in his life as when he was rescued. The Fascist mayor of an Italian village had entertained him with the object of trying to make a good impression. When my patient heard English voices outside he went out and greeted a tank commander. They smoked a cigarette and arranged a rendezvous, as the tank had to complete a patrol before picking him up. When the tank moved on he returned to the house to find that the mayor and his wife and family had all been butchered by patriots. Their brains bespattered the walls and their bellies were ripped up. He said he had never seen such a disgusting sight in his life. The next day he started vomiting.

The correlation of symptoms and circumstances was very instructive in this case. He had been a bilious child, and with some hesitation he produced this story. His father had died when he was 5. His mother took to drink, but he didn't realize this until he was about 7. He found her sitting at the table so ataxic that she could not put her mouth with her spoon as she ate. He told me he would never forget the feeling of dismay and disgust that swept over him. So far as he could recollect his bilious bouts came on after this incident, and it looked as if they served a very useful purpose in forcing his mother's attention on him from time to time. Later, as a clerk in an insurance firm, he frequently lost work

owing to his attacks. He did not like the work, and he felt that his talents were being exploited. When the director of his firm visited his office he sought an interview with him. He evidently made a good impression, as he became the private secretary to this man, his salary was raised, and he had no more attacks of vomiting. He had never correlated his symptoms with his environment. The comparison showed how vomiting on each occasion had expressed disgust.

While on week-end leave this man had an unpleasant experience. He was to visit an uncle, but when he got there he found his host had committed suicide and the family were in a turmoil. I asked him if he had been sick. 'I felt nauseated,' he said, but after our talks I felt I should be able to control myself, and I never actually vomited."

## 4 Dream Interpretation

Freud described dreams as the highway to the subconscious. In a paper such as this it is impossible to go fully into the subject, but I find it useful on occasion to explain the rudiments to my patient. Dreams all have a meaning, sometimes it is obvious, but more often it is obscure. Dreams are like cartoons. At face value the picture is ridiculous, but there is a hidden meaning behind it. Frequently there is a wish fulfilment. The hungry P.O.W. would dream of Christmas dinner at home, and so on. Dalbierz's (1941) book gives some very useful chapters on Freud's teaching about dreams, and dreams by their revelations can often considerably shorten treatment. I usually ask patients to write down any dreams they have between the sessions, as the treatment itself often stirs things up and useful information emerges during sleep.

A woman came to see me about a phobia which had troubled her since she was 13. We could find no trigger incident to put the neurosis in motion at that age. I told her I was confident that we would find something, and I asked her to remember her dreams. The next session she came back and said she had dreamed someone had left a brown-paper parcel on the doorstep. She awoke and found herself in an awful state. I know now what upset me at 13," she said. Then she proceeded to describe how one day when she came home from school she had found a brown paper parcel on the kitchen table. She was curious and looked inside. It contained soiled linen and a placenta. She did not know what it was, but she felt guilty about the whole affair and associated it correctly with the birth of her youngest brother. Soon afterwards her periods started and the same feelings of guilt assailed her in spite of her mother's meagre assurance that it was a normal event. When I questioned her about these memories she affirmed that so far as she could remember, she had never given the matter thought since her marriage seven years previously.

The most ordinary dream may have a profound significance. Case 394 reported that she had dreamed she was placing a wreath on the grave of a brother who had been killed in a gravel pit accident six years previously. My first impression was that this dream was a compliment to that brother whom she fondly remembered in her dreams. I heard her sob and found her in floods of tears. Such an emotional outburst is always most satisfying, as one can be sure one is hot on the trail of something important. In a few minutes the problem was clear. When she could speak she told me her father-in-law owned the gravel pit, and the two families were at loggerheads because of this fatal accident. She could not discuss the matter with anyone—even her husband.

After this session, without any prompting from me, she told her husband all about it. He laughed at her and reassured her, and when I saw her again her troubles were at an end.

## 5 Free Association

This is sometimes very useful, but I do not often use it. The patient is shown how to relax on a couch and is told to repeat whatever comes into his mind, however strange or out of place it may seem. I must point out that it takes practice on the part of both patient and doctor to achieve proper relaxation. This method is useful in long-term cases or when a resistance is holding up progress, but I do not have many long-term cases. Hypnosis and narco-analysis I have never used in general practice.

*Short Cases*—If one is on the look-out for neuroses, and examines the patient as a whole in his environment, one can frequently give considerable help with very little trouble or expenditure of time.

*Case 357*—This girl, aged 17, when seen was complaining of loss of appetite and feeling sick. She looked a picture of health after



her seaside holiday. While she was getting into bed upstairs I questioned her mother about her, and learned she was about to go to college. She was leaving home for the first time in her life. She had an over-protective mother, and I knew the girl would feel the wrench. I discussed these possibilities with the mother and then went to examine the patient. Nothing abnormal was found and I put forward my views to the girl. I felt that the queer feeling in her middle was due to the apprehension about leaving home. When I got downstairs the mother told me she was sure I was right, as the same thing had happened when the girl started school. A follow-up some months later showed that the feelings had cleared after a few days at college. She herself was well satisfied with my diagnosis. In all, this case took about half an hour of my time. It required no medicine and no further attention.

**Chronic Cases**—Some patients improve up to a point, but can get no further, these require an occasional maintenance dose of psychotherapy. This is truly tiresome and often disheartening, but in my view it is far more honest than putting off the neurotic with a bottle of medicine.

**Case 142**—This patient was a woman of 40. Her troubles began at 16 when spinal disease was diagnosed and she was put on her back for three months. Since that time she has always had a "weak back," although no G.P. or specialist has been able to explain why. From the psychological point of view she had enough to break anyone's back. She was an intelligent and very capable person, but at 14 all hope of advancement along her own lines went when she was drawn into the family business because of her mother's illness. The family were thrifty and hard-working to a degree of absurdity. Work and money making were the only things that mattered. Social life was frowned on, smoking and alcohol were forbidden. At 40 her mother still referred to her as a young girl and treated her as such. After a few sessions there was a vast outpouring of hatred against her mother with floods of tears. After that she felt better but never completely well. How can she get well under such impossible circumstances? Every six weeks I see her for a painful three-quarters of an hour, during which time she pours out her woes and her resentment against the family. Until her parents die she is in a hopeless trap. She has not the training, resources, or the courage to go elsewhere, but she can relieve her feelings to me whenever she likes and on the whole she is better. She at least puts the blame where it rightly belongs and does not waste my time talking about her back.

#### Other Conditions

I have referred in a previous article (Watts, 1947) to the "feel" of functional cases. The typical neurotic willingly co-operates in treatment and takes a real interest in what is going on. If the patient is constantly difficult and lacks the spirit of co-operation the condition is probably not a neurosis but one of the following:

- (i) Psychotic—chiefly endogenous depression. This condition is quite as common as the anxiety state.
- (ii) Mental defect.
- (iii) Psychopathic personality.
- (iv) When the neurosis is too profitable to abandon. It is almost impossible to cure a neurotic on a pension, where a cure of the complaint spells financial loss.

**Mentally Retarded**—While deeper forms of psychotherapy are impossible with the mentally retarded, sympathetic handling can do a great deal to jolly them along. One of my best cases was that of a girl of this type. She had not worked for ten years because she felt too ill. By winning her confidence and with persuasion I made her accept my idea that she felt ill because she did not work and that work itself would make her feel better, not worse. After four months of patient prodding she took the plunge, and in ten months has missed only two weeks of work.

#### Comment

**Drug Treatment**—Drugs play a useful part in treatment. In an article of this type it is impossible to go into details. I fully endorse the views of Sargant and Slater (1948), and the rationale of drug therapy is explained fully in their monograph. The point I stress with patients is that drugs will not cure a neurosis. Recovery will only take place with successful psychological treatment. I explain the situation to them as follows: "If you came to me with a broken leg you would not be satisfied if I handed you a crutch and told you to manage on that. Your objective would be to get the fracture set and the leg made useful again. Drugs to a neurotic are a useful crutch, but no

more. They are only a temporary measure, and in no way replace psychotherapy, which aims at complete recovery.

**Results**—In a series of 70 consecutive cases 35.7% recovered, 34% were improved, 18.6% were not helped at all, and the remaining 11.6% have not been traced.

#### Conclusions

In general practice it is necessary to view the patient as whole in his family and social environment. I try to locate the stresses and strains he is up against, and endeavour to make him appreciate his real problems. The neurotic tends to turn his back on difficulties and complains about his symptoms. I largely ignore his symptoms and get him to face up to his problems. Above all, I try to make him use his powers of reason in the matter. The intelligence of man has made him more anxiety-prone than other animals, but fortunately intelligence also points the road to recovery.

#### Summary

The need for psychotherapy in general practice is stressed. The family doctor's consulting room should see a solution to most neuroses.

Methods used by the author are outlined and illustrated by cases and samples of his "patter".

I would like to express my appreciation to Dr J. D. W. Pearce for his encouragement in the writing of this paper, and to Dr Alice Cox, who taught me psychiatry.

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## INTERNATIONAL LEPROSY ASSOCIATION CONGRESS IN CUBA

The Fifth International Leprosy Congress was held in Havana, Cuba, from April 3 to 11. The previous international congresses were held in Berlin (1898), Bergen (1909), Strassbourg (1923) and Cairo (1938). At the Cairo meeting it was decided to hold quinquennial congresses, and the next was to have been in Paris in 1943. Unfortunately this was prevented by the war.

The initiative in calling this Congress, as also the Cairo Congress, was taken by the International Leprosy Association, a body formed in 1931 at a meeting of leprologists at Manila called by the American Leprosy Foundation. Two of the chief functions of this association are the publication of the *International Journal of Leprosy*, which is produced in America with the assistance of the Leonard Wood Memorial, and the arrangement of periodical congresses. Its office and secretary-treasurer have from the beginning been furnished by the British Empire Leprosy Relief Association in London. In 1946 the Association accepted an invitation from Cuba to hold the fifth congress in Havana and the Cuban Government invited all countries to send delegates. Two hundred and twenty-nine delegates, including 74 from Cuba itself, gathered from 36 different countries. Important countries not represented were Russia, Japan, Australia, Pakistan, and Indonesia. By far the largest delegations were from the Latin countries: Spain 12, Portugal 4, Brazil 28, Mexico 16, and Argentina 15. There were 31 delegates from the U.S.A., but only 14 from the British Commonwealth. In Cuba itself leprosy is a serious problem, and carefully planned steps are being taken to bring about control.

While the International Leprosy Association was chiefly responsible for arranging the scientific side of the Congress, the Cuban Government made all the local arrangements. The Congress met in a large school building, with dormitory arrangements for 60 delegates in the top story and a restaurant on the ground floor supplying food at or below cost price, while on the first floor there were offices and committee rooms, a post office, and exhibitions, together with a large auditorium with seats for 400 and interpreters for the four official languages—English, French, Spanish, and Portuguese. Delegates were supplied with earphones so that each could hear the speakers in his own native tongue.

The organization of an international congress on democratic lines is not easy. Apart from the language difficulty, all the preliminary arrangements have to be made by post, and the final plans must be compressed into the last few hours when the council members have arrived from the four quarters of the globe. In each of the seven working days of the Congress much time was occupied by social engagements. The plenary sessions for the reading and discussion of papers were concentrated into some 23 hours, about 100 papers being presented. The programme was divided into therapeutics, classification, research (including pathology, bacteriology, blood chemistry, serology, and immunology), epidemiology (including distribution and control), and sociology. Four committees were appointed (therapeutics, classification, epidemiology, and sociology) to discuss controversial questions and to frame resolutions for submission to the final plenary session.

### Classification and Therapy

The chief interest centred round classification and therapeutics. Leprosy shows itself in protean forms, but the majority of cases can be divided into two types: (1) the mild form (tuberculoid), in which the patient has a comparatively high resistance to the infection, the nerves are more affected, the bacilli are few, and therefore the danger of spreading infection is nil or slight; (2) the severe form (lepromatous) in patients with low resistance and enormous numbers of bacilli, who are therefore responsible for disseminating the disease. The difficulty arises in classifying a minority of cases which do not conform to these two types. Should they be divided on a clinical, histological, or immunological basis? The whole matter is still obscure and much further research remains to be done. Meanwhile it was agreed to divide cases into two main types: lepromatous (malignant or *gravis*), with 'L' for its symbol, and tuberculoid (benign or *mitis*), with 'T' for its symbol. In addition an 'indeterminate group' was recognized of cases which are "less stable and less certain with respect to evolution" their symbol being 'I'. The importance of the lepromin test was stressed in determining classification, as showing the degree of resistance to the bacillus.

The other subject which aroused special interest was sulphone treatment. These derivatives of diaminodiphenyl sulphone ("promin", "diasone" and "sulphetrone"), at first received with suspicion as another of the periodic leprosy "cures", are now universally recognized as a forward step in treatment and possibly in control. The most striking clinical results are in advanced, ulcerating lepromatous cases with the nose obstructed and vision vanishing. But the real criterion from both the therapeutic and the control aspect is the diminution and disappearance of bacilli. In a large proportion of cases, however, disappearance is long delayed, and a few cases appear to be altogether recalcitrant.

The general opinion was that chaulmoogra oil, though still considered useful, is gradually taking a secondary place in all but the earlier cases of the mild type, but that sulphone therapy might be reinforced by the simultaneous use of chaulmoogra and other drugs. On the whole however, it was generally agreed that the prospect of recovery from leprosy is much brighter to-day than it was a few years ago, though a vast amount of research remains to be done by both chemists and clinicians.

A discussion took place on the use of certain terms such as 'leper' and 'leprosy' which, because of their popular derogatory significance may be offensive to patients. It was decided that the word 'leper' should be avoided as much as possible, but that it was more important to educate the public regarding the true nature of leprosy and the need for sympathy with its unfortunate victims.

The generosity of the Government of Cuba, the energetic work of the local committee and the hospitality of the Cuban citizens left nothing to be desired on the social side of the Congress. Something too, was accomplished on the scientific side though not as much as was desired or as some delegates had expected. But the main object of a Congress is after all what its name implies, 'getting together' and from that point of view this meeting was well planned and of considerable value. The next International Leprosy Congress has been fixed for 1953, and will be held in Madrid.

## MEDICINE AND PHYSICS CONGRESS AT BRUSSELS

[FROM A CORRESPONDENT]

The formal opening of the Twenty second Medical Congress took place at the Palais des Academies in Brussels on June 13. The Belgian Minister of Public Health presided, supported by the Rector of the Free University of Brussels and other dignitaries, and welcomed the many delegates from Great Britain, Canada, Czechoslovakia, France, Italy, the Netherlands, U.S.A. and Switzerland. On the occasion of this congress the Belgian Society of Physiotherapists, under its president Professor J. Michez, took the opportunity of calling together the first post-war international meeting on 'medical electronics'. The purpose of this meeting was to re-establish a body existing before the war known as the "International Association of Physiotherapy". It soon became apparent that the term "medical electronics" was not wide enough to embrace all the interests which the proposed association would serve. Dr P. Bauwens proposed the name 'The International Association of Physical Medicine,' and this was favourably received. An *ad hoc* committee was formed to discuss the constitution of the new association.

Opening the first session of the meeting, Professor Balasse (Brussels) discussed the concept of the electron, linking it to the many classical theories of physics and developing from it the theories of corpuscular and wave motion. He concluded with a brief survey of the special applications of nuclear physics in medicine. M. Govaerts (Liège) then described some of the biological effects of radioactive substances.

The third speaker, Dr P. Bauwens (London), gave a concise account of his work on the study of action potentials in muscle. He described his own apparatus and his method of recording minute differences in electrical potential. Magnetic tape recording was used so as to store for subsequent analysis some of the irregular and transitory signals from muscles. His apparatus was built to a large extent from surplus war equipment.

Professor Dacos (Liege) in his lecture drew a parallel between electronic calculating machines using many thousands of radio valves and the human brain. The first session ended with a brief account of some of the results achieved by Dr Sofia da Conceicao Quintino (Lisbon) in treating arteriosclerosis by short-wave therapy.

### Electromagnetic Micro-waves

The second session was opened by Professor Rylandt (Brussels), who spoke on the significance of physical and biological electrotonus and described the action of polarizing voltages on muscle fibres and other body tissues. The remainder of the second session was devoted to lectures on terrestrial magnetism, climatology, and on the recording of ultra-violet rays from the sun. These papers were read by members of the staff of the Brussels Meteorological Observatory. The secretary of the meeting, Dr L. Konings, spoke on the problem of atmospheric ionization and its relation to cosmic rays.

The third session was opened by Dr Tomberg (Brussels), who described the different destructive effects of electromagnetic micro-waves. He showed slides revealing the destruction of capillaries by such waves. While mentioning briefly their use for destroying microbes, he concluded his talk by suggesting that recent developments had given us the means of producing such waves in lethal strength at a distance of 100 metres, and had thus brought nearer their application for warlike purposes. It was an odd reflection on human progress to learn that a mediaeval suit of chain-mail would afford good protection.

Professor Homes (Brussels) discussed the application of ultrasonic waves. He outlined the physical properties of these pressure waves at frequencies above 20 kc, and said that the science of ultrasonics as applied to medicine was still in its infancy. Much work remained to be done before quantitative results could be discussed in detail. Professor Casanova (Algiers) read a paper on the practical problems of amplifying electronically the feeble voltages and currents met with in electrocardiography and similar studies.

Professor Guckelberger (Zurich) showed a film demonstrating intramuscular and intravertebral galvanism. He had found that such treatment gave beneficial results in cases in which other

methods of physiotherapy and even, bipolar galvanism had failed. Dr Seguin (Paris) gave an account of his work on the biological applications of electromagnetic micro-waves. He demonstrated by slides the effect of these waves on the growth of various tissue cultures and gave details of their absorption by different kinds of body tissue.

### Oscillographic Studies

At the beginning of the fourth session a note from Professor Coblenz (Washington) was read apologizing for his absence. Among other items, his paper on 'the dosage measurement of ultra violet rays' reported progress in developing a photo-electric cell for measuring the intensity of ultra-violet solar and sky radiation. Professor Cignolini (Italy) then gave an account of his work on determining the correct dosage to be used in short-wave therapy. Professor Arienti (Italy) presented a paper on his oscillographic studies of human motion. He described the arrangement he had devised to provide visual signals indicating the contact between parts of the feet and the ground while walking. These signals were recorded photographically and synchronized with the action potentials of the various muscles under observation. The information thus provided was of value in the treatment of patients suffering from the after effects of poliomyelitis.

Dr Bernard (Paris) described a novel method of treating lumbago and sciatica by the use of 'dia-dynamic' currents. These are low-frequency unidirectional, sinusoidal current pulses, and it was claimed that their use had effected improvement in the majority of cases. No ill effects of any kind had been observed over a period of one year during which this new technique had been tried in a Paris hospital. Professor Coppée (Liege) compared the characteristic excitability of nerve fibres to the properties of an electrical oscillating circuit. Dr Maury (France) dealt with the study of electrical charges on the skin, and Dr Burger (Utrecht) concluded the session with an account of his work on vector cardiography. He represented the electrical potentials due to the heart action by means of vectors and was thus able to record not only the amplitude of those potentials but also their direction relative to the body structure. His ingenuity in constructing a phantom of the human body out of clay deserves mention. This phantom was filled with a suitable electrolyte and an 'electrical' heart was introduced to generate the appropriate electrical potentials. After substitution of other body structures, such as bones and lungs, by suitable electrically equivalent materials he was able to measure the distribution of electrical charges in the phantom. Such studies, he said, might afford valuable data in comparison with measurements on living tissues.

The proceedings of these four sessions of the 'Medical Electronics' section of the Twenty-second Medical Congress will be published in full in *Acta Physiotherapica et Rheumatologica Belgica*.

### EPSOM COLLEGE

The annual general meeting of the governors of Epsom College was held at 49, Bedford Square, W.C.1, on July 9, and the report of the council for the past year was unanimously approved.

Lord Leverhulme, who presided, spoke of the rising cost of education in all types of schools. The fact that there were at present 511 boys in the school—the highest on record—and that fewer than 20 had been withdrawn as a result of the increased fees showed that the value of an education at Epsom was appreciated by parents. Speaking of the agreement to take five boys a year from primary schools, in accordance with the recommendations of the Fleming Report, he said that it had become necessary for the school to be inspected by the Ministry of Education. Lord Leverhulme had no doubt that the inspectors would report that Epsom was sound in wind and limb and active in brain and intelligence.

The president said that the school was fortunate in having as a neighbour one who was a native of Epsom and at the same time a noted authority on education. He referred to Mr Chuter Ede, the present Home Secretary, and expressed the delight of all on learning that he had consented to join the governing body.

## PUBLIC HEALTH AFTER THE WAR MINISTRY'S ANNUAL REPORT

In more spacious times the report of the Chief Medical Officer of the Ministry of Health, surveying the field of epidemiology and the more personal public health services, and the annual report of the Ministry itself, dealing with housing, local government and the less strictly medical and more administrative side of the department, were issued as separate volumes at different times of the year. To day the two reports are combined in a slender document of 200 pages. This has the slight disadvantage that the two parts relate to different periods. Vital and medical statistics are prepared for calendar years and the annual report now issued covers 1946, whereas the administrative side of the Ministry measures its affairs according to the financial year and carries the story to the end of March 1947. As a further complication, some of the medical figures such as those showing the trend of short-term sickness, and the account of the cholera epidemic in Egypt and the precautionary measures taken here, relate to last autumn. With events moving so fast in the medical world, 1946 seems a long way back, and much of what is set out in the present report is only of historical interest.

### Vital Statistics

The first complete post-war year was one of steady progress in public health. The birth rate (19.1), the highest for 22 years repeated the pattern of the years immediately following the previous war, though not with so high a leap. In 1920 the birth rate went up to 25.5. The population of England and Wales in 1946 was estimated to be over 40 millions, a figure which it had not reached since 1939. Persons over 65 comprised 11% of the population, compared with 9% just before the war. Infant mortality (42.9 per thousand births) was the lowest on record. In the corresponding year after the first world war it was nearly twice that figure. Maternal mortality (1.43 per thousand births) also reached its lowest level. Ten years previously the figure was 3.19. The death rates for the principal infectious diseases were all down except for influenza (of which there was an epidemic early in the year) and whooping cough, which with 93,000 cases and 808 deaths remains a stubborn problem in the epidemiological field. The noteworthy decline in the number of deaths from diphtheria—472, as compared with 2,861 in 1938—gave testimony to the effectiveness of the immunization campaign which began in 1941–2. The death rates for children from scarlet fever (there were only 43 deaths from scarlet fever in England and Wales), measles, and rheumatic fever were extremely low, this is attributed to the diminished virulence of current strains of haemolytic streptococci, though no doubt the improved care and nutrition of children are potent factors. During the early part of the year there was a recrudescence of smallpox, due to the heavy return traffic from India. Of the 56 cases reported, 14 were fatal.

Tuberculosis, though it is still responsible for nearly one third of all deaths at ages 15 to 39, shows a remarkable improvement. The total number of deaths from all forms of this disease in 1946 was 22,847, only one-third of what it was eighty years ago when the population of England and Wales was only half what it is now. One feature is the recent increase in the mortality rate from tuberculosis among men over 65, due presumably to the reactivation of lesions which might have remained dormant but for the strains and stresses of war. A similar tendency has been observed in other countries. In Sweden there has been comment on the displacement of mortality towards the older age groups. This country has still some progress to make before it equals the figures for the United States and Canada or for the white population of South Africa.

On the use of streptomycin the report states that it is already clear that this new weapon varies greatly in its effects on different individuals and in different forms and stages of the disease, that it is in no sense a substitute for other forms of treatment, but merely an adjuvant and that in view of its

<sup>1</sup>Report of the Ministry of Health for the year ended March 31 1947 including the Report of the Chief Medical Officer on the State of the Public Health for the year ended December 31 1946. London: H.M. Stationery Office. 3s. 6d. net.

limitations and potential dangers it should be used at present only under strict supervision

The blot upon the record for 1946 is the spectacular increase in syphilis, explained by the return from overseas of millions of men of the age groups most likely to be infected. The number of new cases of syphilis among males attending the centres doubled as compared with the previous year, and the number of male cases of gonorrhoea increased by something like 75%. The incidence of female cases of syphilis rose only slightly and those of gonorrhoea fell.

To glance at other diseases, there were substantial decreases in the mortality from dysentery and diabetes, smaller decreases in cerebrospinal fever, encephalitis lethargica, and pneumonia, and a very small increase in typhoid and paratyphoid fevers. Acute poliomyelitis was not the problem that it became in 1947. The number of cancer deaths registered was 75,407, in more than half these cases the site was the digestive organs and peritoneum.

This picture of the nation's health in 1946 has its gloomy patches, but it is encouraging for a year in which many of the unhappy effects of the war were still evident, a year of difficult readjustment and also of food scarcity—a year which saw the introduction of bread rationing, a measure avoided during the war. The clinical and other surveys undertaken by the Ministry suggested no particular ground for anxiety, but Sir Wilson Jameson writes:

"There is no doubt, however, that the dietary restrictions inevitably experienced by the large mass of the people produced psychological, if not physiological, reactions. The most vulnerable groups were adolescents and others engaged in heavy manual work without access to industrial canteens, and, most of all, mothers of families."

#### Short-term Sickness

The Government Actuary contributes a report on short-term sickness. During the war there was a sharp increase in short-term sickness, becoming general in 1942 and continuing until the middle of 1945, after which it diminished gradually, until by the autumn of 1947 the relatively low pre-war level was almost regained. The method of computation has been to take the average number drawing sickness benefit per 1,000 insured persons. If there is incapacity of longer duration it is assumed that this will for the most part relate to persons no longer on the books of employers. Taking 100 as the figure for 1936-8, the ratio in the third quarter of 1947 was 104 for men, 106 for spinsters and widows, and 83 for married women—these ratios being in each case the lowest since 1940 or 1941.

In another part of the Ministry's report, however, a somewhat different story is told. This gives the results for each month of 1946 of the social survey of adult sickness. During the spring and summer of 1945 there was a very pronounced fall in minor complaints—colds, influenza, respiratory illnesses—the fall being no doubt connected with the ending of the war but such ailments again reached a high level by the end of 1946 and apparently throughout that year there was an increase in more serious illness among elderly women. A short table shows the number of medical consultations on account of certain diseases:

	Sex	Average No. of Medical Consultations in a Month per 100 People aged	
		16-64	65-
Affections of veins	M	0.2	1.6
	F	0.7	0.2
Rheumatism all forms	M	3.1	7.8
	F	3.2	5.3
Heart and arteries	M	1.6	10.6
	F	1.2	6.4

The loss of working capacity in a month at ages under 65 caused by varicose veins was equal to about 1½ days per 100 people and by affections of the heart and arteries about 2½ days. From all kinds of illness and injury the average monthly days lost per 100 individuals were 114 for men and 86 for women.

The year 1946 found the medical staff of the Ministry (who number by the way, about 150, of whom some 20 are part-time) largely engaged in planning and discussions relating to the National Health Service Act. In the hospital field the year

saw the running down of the Emergency Hospital Service and the bringing into focus of the new Regional Boards. A chapter of the report is devoted to the chronic sick, who occupy something like 70,000 beds in the hospitals of England and Wales. The report urges that more could and should be done to rehabilitate a large proportion of these patients, at least to the extent that they no longer occupy hospital beds.

"Doctors and nurses treating the chronic sick should not adopt a defeatist attitude, but should try to do as much as possible in rehabilitating persons who may still have some years of useful life before them."

The new Public Health Laboratory Service, which is the permanent reincarnation of the emergency service operating during the war, is the subject of a chapter by Prof. G. S. Wilson. It is hoped by means of this service to form an epidemiological network superior to anything yet experienced in this country.

In connexion with the insurance medical service attention is drawn to the rise in the cost of insurance prescribing. In England an average of about 4½ prescriptions were issued per insured person in 1946—a slight decrease compared with the previous year, but the average total cost per prescription increased by 7.4%, due largely to the use of expensive drugs such as penicillin, the sulphonamides, and synthetic preparations.

Other interesting matter in the report concerns the National Blood Transfusion Service, the World Health Organization port health administration, and the work of the Ministry in housing, water supply, and sewage disposal. The most up-to-date contribution is a description by Dr. L. H. Murray of the cholera outbreak in Egypt and Syria towards the end of last year and of the travel restrictions and prohibitions imposed by other countries during the outbreak. Thanks to the effectiveness of the measures taken not a single case occurred in Europe or on board ship or aircraft, but Dr. Murray is evidently of opinion that indiscriminate and unnecessary impositions in excess of international agreements were placed on travellers and merchandise which had little effect beyond creating a temporary chaos.

## NUTRITION OF ATHLETES

### NUTRITION SOCIETY CONFERENCE

A conference on "The Nutrition of Athletes" was held on July 17 at the Royal Society of Medicine, with Professor J. R. Marrack in the chair.

Dr. Philip Eggleston spoke on the physiology of muscular activity. Studies had been made on intact animals, notably man, on the surviving muscles of cold-blooded animals, and on muscle extracts from warm-blooded animals. A robust man could metabolize carbohydrate so as to derive 4,000 calories daily above his basal metabolic rate, but although carbohydrates were the most direct source of energy most heavy workers, such as miners, preferred meat and fat. Meat provided B vitamins—it was also a source of creatine, which was absorbed by the muscles, temporarily checking the excretion of phosphate. According to Hill a trained athlete might use up to 4 litres of oxygen per minute in violent exertion, but for constant activity only about 1 litre per minute was possible. To provide for the maximum consumption of oxygen the heart worked at eight times its resting capacity, achieving this by increasing both the rate and the volume of blood pumped at each beat. The athlete, however, might use energy at up to 100 times the resting level, and in doing so might incur an "oxygen debt" of up to 16 litres. When such large debts were incurred the underlying biochemical change was the conversion of glycogen to lactic acid. With smaller debts, however, no lactic acid was formed, and the energy was presumably derived from the decomposition of creatine phosphate. The deciding factor in athletic events lasting for minutes was the efficiency of the heart and lungs in supplying oxygen, but in events lasting only for seconds a low viscosity in the muscles was the most important factor.

Mrs. Dorothy M. Needham, F.R.S., said that the main sources of energy in muscular action were the conversion of glucose to lactic acid and the breakdown of creatine and adenosine phosphate. These reactions presumably occurred in series, leading finally to the conversion of adenosine triphosphate to the diphosphate. Adenosine phosphate had been

found to cause physical changes in the muscle protein myosin. The presence of actin, another muscle protein, emphasized these changes. Muscular contractions might be induced by a folding up of the myosin molecule.

Group-Capt C A Rumball described the selection of air crews. Candidates with low weight-to-height ratios had usually poorer expectations of health than heavier men, but even when a stone under weight cross-country runners were a notable exception to this rule. They might also be perfectly healthy even with diastolic blood pressures of rather more than 90 mm Hg.

Dr Geoffrey H Bourne discussed the value of vitamins for efficient muscular effort. Vitamin B was directly concerned in carbohydrate metabolism in the decarboxylation of pyruvic acid, while it was probable that most other B vitamins were also implicated in some phase of muscular metabolism. Could it be assumed that the athlete's requirements for B vitamins were raised in parallel with his increased metabolic activity? If so were his requirements for these factors satisfied by an ordinary diet? Trials in which extra vitamins had been administered with a view to improving physical performance had given conflicting results, but he thought Olympic athletes might well be given additional B vitamins as a precaution. Present views on the nutrition of athletes, and the obsession for large amounts of protein in the form of meat, seemed to him to be fifty years out of date.

### Diets for Athletes

Sir Adolphe Abrahams questioned whether athletes required much extra food and, if so, whether any special foodstuffs were desirable. Trainers had emphasized the value of meat, particularly beef, as the mainstay of the athlete's diet, but the reason for this preference was obscure. The value of the moderate use of alcohol had also to be considered. Genuine attempts must be made to reconcile the results of scientific experiments with knowledge gained by practical experience in feeding athletes, but it was highly undesirable to justify unorthodox methods of nutrition by pseudo-scientific explanations. Many athletes were highly imitative in their dietary habits. If some brilliant performer adopted a bizarre diet and won his event in spite of his tastes others would attribute his success to the food he ate, and promptly follow his example.

Sir Adolphe commented on Schenk's report on the enormous amounts of food consumed at the Berlin games in 1936. The total average daily consumption of 7,300 calories seemed to be incredibly high, and corresponded to an output of work equal to running 100 miles at moderate speed, or 5-6 hours of more violent exercise. Nothing approaching this amount of work was ever expected of Olympic athletes while in training. Thus a sprinter, visiting the track twice daily, might on each occasion make five or six bursts of 20-60 yards from his starting blocks, and then stride 150 yards at three-quarter speed. His energy consumption for these activities should not total more than 400 calories. Marathon competitors might use up more energy in walking 10-15 miles daily, with occasional long runs, but they would still fall far short of justifying Schenk's report of their calorific requirements.

It might seem remarkable that in spite of their more strenuous training long distance athletes usually ate much less than their sprinting colleagues, and the explanation of the desire of some athletes for a liberal meat diet probably lay in the personal "make-up" of the sprinter type. Long-distance athletes were usually placid and phlegmatic, and were prepared to suffer toil and discomfort in any weather for hours on end. Sprinters, oarsmen, and others taking part in shorter events were more "highly strung" and restless in disposition, and often found the rigours and deprivations of training very irksome. Under these circumstances plenty of appetizing food, perhaps with some beer and an occasional bottle of champagne, helped to ward off "staleness," since this bugbear of all athletes seemed mainly mental in origin. Possibly the liberal diet also supported a higher metabolic rate.

Animal protein was enjoyed by athletes as much as by most other people, but apart from its psychological value it was not clear to what extent it was really needed. The performances of the great Finnish runner Nurmi had been quoted, as evidence that athletic prowess was not inconsistent with vegetarianism, but it must be remembered that he consumed liberal

amounts of milk and other dairy products. It might be expected that dosing with sugar would be valuable in long races in which the glycogen reserves of the body were exhausted, or in short races in which glucose was used up more rapidly than it could be derived from glycogen. Attempts to confirm this conclusion, and to test the value of dosing with vitamins and other nutrients, had been made difficult by the great susceptibility of athletes to psychological influences. Dosing even with a placebo might sometimes improve the athlete's performance merely by increasing his confidence in his own ability.

Sir Adolphe finally suggested that the causes of the steady improvement in all records for athletic events during the last fifty years were to be found not in better nutrition but in superior methods of training and increased competition. Really great athletes did not seem to care what they ate. In training for past Olympic games the British teams usually subsisted on quite ordinary diets, at only one-third to one-half of the average level of calorie intake reported by Schenk.

Dr Herxheimer said that athletes, like mountaineers, might have a great desire for sugar after exertion. Major G C Arneil agreed that nervous strain might greatly increase the desire for food, on the evidence of the intense hunger caused by parachute jumping.

### Individual Variations

Dr Neville Leyton emphasized the widely different food consumptions of individual competitors in the same events. In long events the extra calorific output necessitated might be considerable. A boat race of 4½ miles might use up 500-600 calories in twenty minutes; a marathon race 1,800-2,000 calories in two and half hours, while a long set of tennis might require 1,200 calories. After such exertions, moreover, several hundred more calories might be expended during the next twenty-four hours before the pulse rate returned to normal. Training must continue for some months, and must aim at bringing the competitor to the peak of his form on the day of his event. The diet should contain bread, meat, eggs, potatoes, greens, and plenty of oranges and fruit of all kinds to prevent constipation. Tea and coffee were best omitted. In preventing staleness an increase in the fat content of the diet with a reduction in protein, might be useful. On the day of the event most competitors preferred to race on an empty stomach, but others felt faint, or even vomited, unless they had recently taken a little food. Glucose, barley sugar, or candy might be useful between events.

Dr R D Lawrence stated that in the present games competitors were unable to obtain glucose tablets, and had asked the Society to use its influence to make adequate supplies available. It was decided, however, that no action should be taken.

Professor Marrack summarizing the day's proceedings referred to the air of mystery which in the past had surrounded athletes' diets. At school he remembered a boy who was reputed to train on "raw beef and gunpowder." Later he had studied a famous book which recommended a diet from which all sources of vitamin C seemed to have been rigorously excluded. Then Emden, realizing the importance of phosphoric acid in the metabolism of muscle, had advocated sodium phosphate to increase stamina, although its main value was as an aperient. Possibly too much had been said about the production of energy and too little about its application. The high jumper must not only raise his centre of gravity as far as possible from the ground but by intense muscular co-ordination must arrange that no part of his body was very far below his centre of gravity at the precise moment of crossing the bar. In regard to diet the two chief points seemed to be the provision of enough food and the choice of food which could be readily digested. No competitor with indigestion could hope to excel in the Olympic games.

A problem which may be of considerable importance to public health is foreseen by the United States Department of Agriculture. Entomologists working for the department have developed a strain of DDT-resistant house flies. The strain is now in its 35th generation, and flies in each successive generation have required increasingly greater amounts of DDT to kill them. Though it has been reported in some parts of the United States and in other countries that house flies are becoming more difficult to kill with recommended applications of DDT, so far as is known no such DDT-resistant strains of house flies occur in nature.



## Reports of Societies

### RECOLLECTIONS OF LISTER

Some interesting personal recollections of Lister were brought forward at a meeting of the Section of History of Medicine of the Royal Society of Medicine on June 2

Dr H C CAMERON described how his father, the late Sir Hector Cameron, was a house-surgeon at Glasgow in the 'sixties when Lister was there, and later was Lister's assistant and remained his friend throughout life. Dr Cameron said that his own contact with Lister was occasional and fleeting and occurred when he was very young, but he had listened to Lister's talk in the intimacy of his own fireside, and he was brought up in a home where Lister's name was revered and where all that concerned him was of vital interest. His first recollection was in 1886, when Lister paid a few days' visit to his father. He remembered him standing, teacup in hand, with his back to the fire. In what he could recall of Lister he was nearly always standing. He stood, not because he was restless, but because he was absorbed in what he was saying or what was being said. He was never awkward or ill at ease. Dr Cameron spoke of Lister's quietness, his precision, his reticence, his courteous austerity, though in the wards he had usually some little jest which he shared with his patients. Once a small urchin in the wards, as his eyes followed Lister's movements, confided to a bystander, 'It's us wee yins he likes best and next it's the auld women.' The "wee yins" and the "auld women" knew nothing about great figures on pedestals, and his response to them was easy and natural.

#### Queen Victoria's Abscess

Dr Cameron went on to say that after he became a student at Guys in 1902 he liked to remember that Lister twice asked him to dinner. On the first occasion his father was staying with Lister at Park Crescent, on the second he was alone, and Lister told him in somewhat greater detail than was given in Godlee's book the story of the first use of rubber drainage tubes in surgery. He said that he was hurriedly summoned to Balmoral to treat Queen Victoria, who had developed an abscess. On arrival he made the necessary incision and inserted a wick to help the drainage. The result was not satisfactory—her temperature rose and she suffered great pain and discomfort. As he walked in the grounds of Balmoral—whenever Lister had a problem to settle he walked, pondering the situation—he thought of a possible device. He had brought with him a primitive form of his carbolic spray—Richardson's "atomizer"—to which was attached a long piece of rubber tube. Returning to the castle, he cut off a suitable length of this rubber tube and soaked it all night in a 1 in 20 solution of carbolic acid, using a soap dish in his bedroom for the purpose. In the morning he inserted it and found that it answered its purpose so well that recovery quickly followed. 'If,' added Lister, 'you ever hear anyone complaining that in hospitals patients are sometimes experimented upon, you may think of that story though you must not tell it.'

To his wife, Agnes Syme, a gay and gracious spirit, Lister owed a great debt. Dr John Brown, author of *Rab and His Friends*, spoke at Lister's wedding and said of Lister that he believed he would go to the very top of his profession, and as for Agnes she had a 'bit of heaven about her'. Lister without his wife was always apt to be oblivious of time. It was no unusual thing when there was interesting research afoot for him to forget professional appointments altogether. Agnes helped him in many practical ways as well as by her calm confidence and buoyant spirit which made light of the setbacks of the moment. She had also a keen sense of humour and unfailing high spirits and the unpunctuality and over-careful preparation of her husband never made her impatient. He was not the same man after her death.

A characteristic episode was Lister's diligent search for an absorbent dressing. After combing the shops of Glasgow he eventually found what he wanted in the book trade, in book-binders' muslin—a fabric which could be impregnated with carbolic acid. But he still wanted a suitable material for insertion between the seventh and eighth layers of gauze to

spread the discharges evenly over the antiseptic pad, and this he found in the hat trade, in a hat lining which, to distinguish it, he coloured pink. This is the material sold to day as jaconet and generally dyed pink, as Lister originally directed.

Dr Cameron read extracts from some of Lister's letters to Sir Hector Cameron showing how great was the havoc wrought in his state, both of body and mind, by the loss of his wife, whom he survived twenty years. "In his solitary old age all the unhappiness, misunderstandings, and ridicule of the past occupied his mind far more than the applause of nations and his ultimate triumph." His last letter to Sir Hector was dated April 23, 1911. "I am very grateful for your kind birthday greetings. You will excuse me not saying more."

Dr Cameron concluded "It has been said that there is but one division to be made in the history of surgery—surgery before Lister and after Lister. It is right that his name should be revered and his work known and right that we should do what we can to picture him to ourselves in his ordinary daily life, ceaselessly experimenting unendingly preparing, and always beloved."

#### Letters of a Young Disciple

Dr E ASHWORTH UNDERWOOD followed with an interesting short paper in which he quoted from some letters of a young student who was in Lister's class and living in his house during the year of Lister's appointment to the chair of surgery at Glasgow (1860) and the years immediately following. The student was Marcus Beck, whose father was a paternal cousin of Joseph Lister. Marcus Beck, who became a brilliant surgeon and inspiring teacher, was born in 1843, entered the university of Glasgow in 1860, qualified in 1865, became assistant surgeon at University College Hospital, teacher of operative surgery in 1875, and professor of surgery in 1885. During the first three years of his studentship he lived with the Listers at 17 Woodside Place. The collection of letters to which Dr Underwood has had access—the letters of a student to his family—number 34. Among them was an enthusiastic description of an operation by Lister at Glasgow Royal Infirmary on Nov 30, 1861.

"The operation [lithotomy] was one of some difficulty, and he was somewhat nervous about its success during the week. But on the morning of its performance he was perfectly cool and comfortable. The theatre was crowded from the roof to the area, and there were several practitioners from the city present. I was awfully excited, as I knew even the best men might sometimes find difficulty in that operation, and Joseph Lister's reputation as a surgeon depended in some measure upon his success. But my fears were soon quietened by seeing him perform the operation to the admiration of all present in 1½ minutes. It was a most beautiful sight, and one I could watch for an hour with pleasure if it could be repeated. He was tremendously applauded by the assembled multitudes. He then performed an amputation of a big toe with its metatarsal bone with similar success. When he appeared at his surgery class the same morning he was received with tremendous roughing and clapping, showing the approbation that the students had for his magnificent performance."

In many other letters Beck referred to Lister's operations, all of which were done "beautifully". In 1862 he described how they did six cases in one day. These letters, of course, were all too early for any references to Listerism. Many other sidelights on Lister appeared in this correspondence. On Sundays Beck's usual recreation was a walk with Lister during which they did some botanizing. Beck obviously enjoyed himself thoroughly. On January 19, 1862 he wrote "The professor [Lister] is issuing invitations for his dinner party—it is only 12 days to it. My heart palpitates at the thought. I intend to do a swell with a white tie for the first time." From the very first the hero-worship shone from these faded youthful letters. In one of the earliest he said that he spent an afternoon helping Lister to unpack his museum. Beck was overjoyed when Lister got him—a youth of 18—to help him syringe ears or assist in operations on the foot or in a squint case. In a letter in 1862 he said that the professor was getting on beautifully in practice and that altogether he made £1,000 a year, and this was increasing daily.

Particular interest attached to Beck's comments on Lister's use of chloroform. Lister was extremely interested in this subject, as was fitting in a man who as a student had attended Lister's first public operation under chloroform at University College in 1846. Lister was the first to recommend pulling



forward the tongue to relieve stridor. From these letters and other sources it was evident that Lister prided himself on the good results which had been obtained in Scotland with chloroform by the open method. Down to as late as 1870 there had been no deaths under chloroform in Edinburgh Royal or Glasgow Royal, though according to Beck there was very nearly a death in 1861 at Glasgow, which was averted by the prompt intervention of 'J L,' who was only an observer at the operation.

Some brief discussion followed these two papers and Mr VERNON CARGILL, who was house-surgeon to Lord Lister and surgical registrar at King's College Hospital, added some further reminiscences.

## CARCINOMA OF THE CERVIX

### Surgery and Radiotherapy

At a meeting of the Edinburgh Obstetrical Society on May 19, with the president, Dr W F T HAULTAIN in the chair, Mr CHARLES READ read a paper on the role of surgery in the treatment of carcinoma of the cervix.

Mr Read said that there was a division of opinion on the relative merits of irradiation and radical surgery in stage I and stage II cases. There was little debate in respect of stage III and stage IV cases, which were generally unsuitable for surgery. While in many clinics the Wertheim operation was abandoned when radiotherapy was generally established, at the Chelsea Hospital for Women this operation had been performed continuously since Mr Bonney introduced it in 1907. From the published statistics even the surgical enthusiast had to admit that the results of radiotherapy compared favourably with those of surgery, but the question might well be raised whether any of the fatalities after radiotherapy could be avoided by judicious surgical procedure. Mr Read suggested that there were seven indications for surgery in carcinoma of the cervix. These were (1) radio-resistant growths proved either clinically or cytologically, (2) columnar-celled carcinoma of the cervix, (3) vaginal vault stenosis, (4) the presence in addition of large fibroids or ovarian cysts, (5) an associated salpingitis, (6) refusal of irradiation by the patient, and (7) pregnancy in the presence of a cervical carcinoma. After discussing each of these indications separately Mr Read considered the Wertheim operation after previous irradiation. Although this did increase the technical difficulties the operation was justifiable in proved radio-resistant cases, experience in the Chelsea Hospital showing a five-year survival rate of 44.4% in 34 stage I and 20 stage II growths.

From a study of material obtained at the Wertheim operation, at necropsy and at the operation of lymphadenectomy without removal of the uterus Mr Read had come to the conclusion that the rate of gland involvement was approximately stage I 20 to 25%, stage II, 30 to 35%, stage III, 40 to 50%, and stage IV, over 60%. From these figures it would appear that treatment by radium alone, using vaginal applicators only, could never hope to give adequate radiation to the lymphatic field. It therefore seemed that there was a place for iliac lymphadenectomy in stage III cases which had been treated locally by radium, and that such a procedure could well be extended to include stage II cases and selected cases of stage I growth.

Mr Read discussed the Wertheim technique with particular reference to the carrying out of lymphadenectomy early in the operation, leaving the iliac and obturator lymph node chain attached to the uterus throughout. He stressed the need to remove at least the upper half of the vagina, and emphasized the value of plasma or blood transfusion. He recorded an incidence of post-operative urinary fistulae of 3.1%.

### Limitations of Radiotherapy

Professor ROBERT MCWHIRTER said that at one time there had been sharp differences of opinion between surgeons and radiologists but increasing experience had narrowed the area of disagreement considerably, and further study might yet obliterate it. His own opinions were governed not only by technical details but also by certain general principles. Of these he placed first the need to consider each case of cancer individually, and to treat the patient and not the tumour. The prime object should be to make her more comfortable,

any treatment which cured the cancer without achieving this end was a failure. The maximum distance from the cervical canal at which radium might be expected to be effective was 3 cm. Growths which extended beyond that distance were not susceptible to radium. The dosage varied for different tumours and some might justifiably be described as radio-resistant, but the most important limiting factor in regard to treatment was the restricted striking distance of radium. Radio sensitivity was a variable factor, and at the moment the opinion of the histologist was of limited value in its recognition, a new approach to its histological study was necessary. Observation of the effects of irradiation in successive biopsies might possibly prove a valuable field of investigation. It was difficult to envisage any great increase in radium range in the near future, apart possibly from improved applicators with more efficient screening of the bladder and rectum. It was the need to avoid damage to these organs which chiefly restricted the dosage.

When x rays were first used to supplement radium treatment the whole pelvis was irradiated. Not uncommonly necrosis developed in tissues which had already received a high radium dosage. It became obvious that if x-ray therapy was to be really beneficial it must be closely related to the radium treatment. Patients with cells just outside the effective range of radium were far more likely to benefit from x rays than patients with cells far out in the pelvis, for these latter advanced cases frequently had distant metastases as well. In order to try to align the two methods of treatment the x-ray fields were planned from radiographs showing the position of the radium in the uterus, but when vaginal packing was introduced the uterus might be greatly displaced to one or other side of the pelvis and it might also be displaced upwards to a considerable extent. These difficulties could to some extent be overcome by the use of special radium applicators such as those devised by Richards, of Toronto. X-ray therapy alone would remain an unsuitable method of treatment until much more powerful apparatus became available.

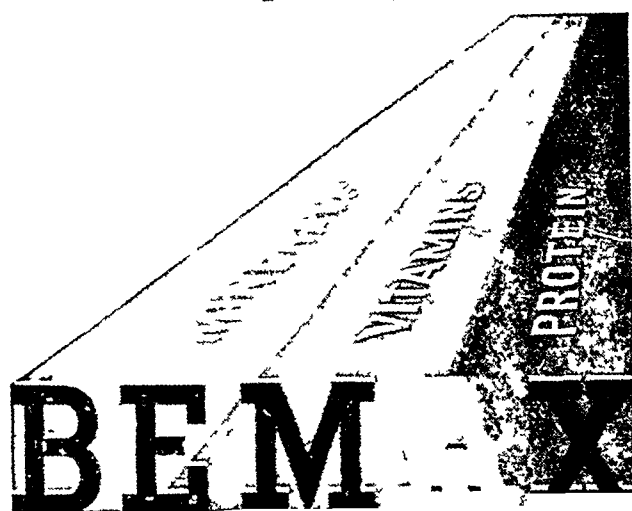
Professor McWhirter believed that surgery was the most effective method of treating cancer when it was early and localized. Unfortunately, by the time patients sought advice the condition was often no longer suitable for treatment by surgery. In criticism of some of the claims made for surgical treatment he pointed out that a number of factors operated to produce a favourable selection of cases. For example, the patients submitted to surgery were usually in good condition, not unduly obese and not too old, and were stage I or early stage II cases. Because extensive lymphadenectomy must always remain a piecemeal dissection, he thought it unlikely that this operation would greatly improve the eventual prognosis. He did not believe that an inoperable case could ever be rendered operable by preliminary irradiation, although he believed improvement might be obtained by means of post-operative irradiation with very high voltage x-ray apparatus. In operable cases pre-operative irradiation might be of benefit.

In a review made some time ago the five-year survival rate in Edinburgh was 29% of all cases referred. In the cases most recently analysed the five-year survival rate was 34%. In the calculation of these survival rates no case was omitted from the total for any reason whatsoever. He believed that these figures might be improved by the use of surgery where the disease was early and where the tumour was shown to be radio-resistant, and he thought a serious attempt should be made by histologists to recognize resistant tumours so that the appropriate treatment might be given initially.

Mr Read's paper was further discussed by Dr DOUGLAS MILLER, Dr E C FAHMY, Dr CLIFFORD KENNEDY, Dr J C CLARK, Professor MARGARET FAIRLIE, Dr R DE SOLDENHOFF and Professor R J KELLAR.

The Minister of Health, after consulting the Civil Nursing Reserve Advisory Council, decided to accept their advice that the Civil Nursing Reserve should cease from July 5. Its effective members have been absorbed into the general establishment of nurses in the National Health Service. All members in employment on the appointed day retain their existing salaries until these are overtaken by increments on the scales of the ordinary nursing staff. Nursing auxiliaries may retain their present title and pay so long as there is no comparable grade in the general nursing establishment to which they could transfer.

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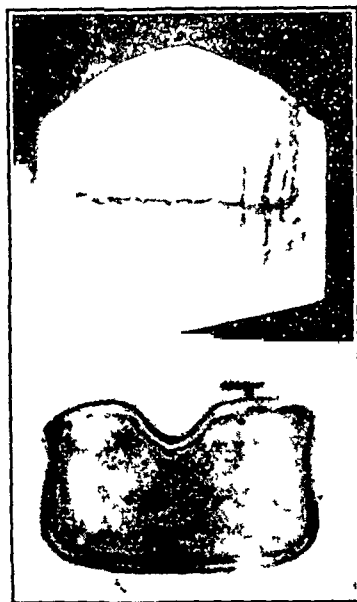
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## Preparations and Appliances

### A MOUTH SCREEN FOR USE AFTER ADENOIDECTOMY

Professor E. MATTHEWS, honorary prosthetic dental surgeon, Manchester Royal Infirmary, writes: At the clinical meeting of the Manchester Medical Society held in June 1947, I demonstrated the use of the mouth screen or oral shield as a form of follow-up treatment after the removal of adenoids—the object being to correct the mouth breathing habit. I found a considerable interest taken in this simple appliance, and have since had requests from several doctors for advice for their own children.

The appliance can easily be made from a sheet of "perspex" or celluloid moulded to shape, or from the moulding powders used in denture construction. The only requirement is an impression of the labial surface of the upper and lower teeth



as far back as the first molars. The idea is by no means a new one, and some dental surgeons have for long used the mouth screen as a simple but effective orthodontic appliance for the treatment of over prominent front teeth. The appliance is of course only used at night, and functions as a valve. It prevents mouth breathing since in the act of breathing in through the nose it moves into contact with the gums, thereby acting as a seal. The inward movement is conditioned by the slightly reduced pressure (below atmospheric) in the oral cavity during the act of breathing.

Professor Sprawson (*Brit Dent J* 1947 83 231)

states: Many still appear to think that if the nasal obstruction is removed that is all that need be done, but experience does not bear this out. During the day nasal breathing may be re-established if the child is admonished when seen with its mouth open, but it invariably reverts to mouth-breathing at night, and unless treated this habit will persist throughout life. He also comments on the association of an anterior gingivitis with the mouth-breathing habit, and insists that 'it is a serious complaint because it is almost always a precursor of parodontal disease, with its oral sepsis and early loss of teeth'.

There are therefore important dental and developmental reasons why every care should be taken to see that the mouth-breathing habit is properly cured after the immediate cause—adenoids—has been removed. It would be interesting to know what steps are ordinarily taken by ones ENT colleagues to terminate this habit. The use of sticking-plaster over the lips is an obvious but usually unwelcome solution of the problem and therefore for the majority of cases I subscribe to Professor Sprawson's dictum that 'every child who has the adenoid operation done needs this treatment (oral screen) as otherwise the habit persists'.

An attractive booklet on first aid entitled *ABC of First Aid* has been written for the British Red Cross Society by Air Marshal H. E. Whitincham. Line diagrams on the left-hand pages illustrate simple first-aid manœuvres such as artificial respiration, removing a foreign body from the eye, splinting limbs, and controlling bleeding. Explanatory notes are tabulated in alphabetical order on the right-hand pages and at the end there is a list of the commoner poisons, the symptoms they cause, and the first-aid treatment required. The pamphlet will be useful in the home, on the highway, and in industry.

## Correspondence

### Golden Jubilee of the R A M C

SIR—It was gratifying to find that our modest *Scrapbook* should have been deemed worthy of a notice in your columns, and I should like to assure Dr W. C. Souter (July 10 p. 107) and your readers that we in the Corps are by no means insensible of the great part played by the B. M. A. in the shaping of our destiny. During the compilation of the *Scrapbook* I read with the greatest interest Sir Alexander Ogston's 'bombshell' and its many repercussions. We felt however that it would more suitably be included in some authoritative history of the Corps than in a very ephemeral light-hearted publication which included among its readers many hundreds of young recruits.

A further reminder of the contribution made by the B. M. A. to the efficiency of the R. A. M. C. has been provided by a correspondence which I have been having with Dr C. H. Milburn of Harrogate, who is the sole survivor of the special Committee on Army Medical Reform (1896) and who formed one of the deputation to Lord Lansdowne which resulted in the formation of the Corps 50 years ago. He has been good enough to lend us a copy of the Draft Report as submitted to the Parliamentary Bills Committee and many other documents of absorbing interest, extracts from which we hope to quote in an early number of our Corps magazine. In this number too, we will endeavour to do belated justice to the work of Sir Alexander Ogston. That the B. M. A. of those days certainly did not "pull its punches" is very obvious from the following quotation:

"We have thus considered how the Army Medical Service satisfies the four essential conditions which we laid down at the outset. It satisfies none of them. In other words, it is at present in the most unsatisfactory condition. Justly discontented, with duties and responsibilities second to none in importance, but without the Army status necessary for their proper fulfilment, exposed to hardships and dangers in excess of those in any branch of the Army, yet without the military recognition which others receive, with an undue amount of foreign service, with no opportunity for advancing their professional knowledge, or the slightest encouragement to do so, with an anomalous and disjointed relationship between men and officers, and in face of indefinite postponement of reform, it is no wonder that the British Army Medical Service is on its way to extinction. It is impossible for anyone acquainted with this state of things to regard with equanimity the prospects of a great war. If such a calamity were to overtake us it is difficult to see how we could avoid the utter collapse of the medical arrangements. A spectacle of misery and mortality to equal which we must look back to the horrors of the Crimea would not be a matter for astonishment. Only two forces seem ranged against Army medical reform: (1) unwise economy, (2) unreasoning prejudice at the War Office."

In this our jubilee year it is especially fitting that we should remember that the efficiency of our Army Medical Service and indeed the victorious outcome of two world wars were due in large measure to these far-seeing and forceful members of the B. M. A.—I am, etc.,

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Major Gen. (ret.)  
Hon. Sec. R. A. M. C. Jubilee Committee

### Sir Patrick Manson

SIR—As former pupils of Sir Patrick Manson and as members of the original London School of Tropical Medicine which he founded in 1899 we would like to thank you for your reference (July 10, p. 82) to the predominant part that he then played in the elucidation of the transmission of malaria for by so doing you have placed this subject in its proper historical perspective.

We have always regarded his paper in your *Journal* in 1894 (2 1306)—'On the Nature and Significance of Crescentic and Flagellated Bodies in Malarial Blood'—as the starting point of the modern knowledge of malaria and as one which led to the successful accomplishment of a great venture without which the working out of this intricate problem could hardly have been achieved at that time—We are, etc.,

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GEORGE CARMICHAEL LOW  
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### The BBC and the NHS

SIR,—The BBC could hardly allow the inauguration of the National Health Service to pass without contributing a pep-talk. This took the form of a dramatic discussion in the Light Programme on July 6 at 8.30 p.m. For the benefit of those who missed this enlightenment and inspiration here is a summary.

First we heard a mother's dread of the voluntary hospitals transformed into joyous confidence in the same hospitals nationalized. Then, the existence of the voluntary hospitals being conveniently forgotten, we heard how the wife of a gas-works employee had for years refused surgical treatment to her varicose veins because she could not afford the surgeon's fee.

The hero of the piece was a surgeon basking in his own self-righteousness, high mindedness, and other-worldliness. To him came a Mr Venables, intended to be a typical *nouveau riche* or no doubt his modern equivalent, a Tory lower than vermin. He wanted to know whether he should remain a private patient or become a public patient. The hero delivered a moral lecture in the best Pecksniffian manner. But, though eloquent on the evils of the past, he hedged deplorably when questioned about the future. Mr Venables, seeing through this tirade, decided to remain private. His decision appeared to me to show his astuteness, but the intention of the script writer was evidently the opposite. Incidentally, we heard the old fiction, so sedulously propagated by the Socialists, that the *malade imaginaire* is found exclusively among the wealthy and that the poor suffer only real illness.

Playing opposite to the hero was the villain, personified of course by the medical superintendent. Trouble had arisen in the bad old days over a case of torticollis, a woman with her neck "twisted right round" (presumably through 180°, not 360°). The superintendent was for discharging her, but the hero nobly stood his ground, thereby risking his career in the interests of humanity. Baffled, the superintendent suggested exercises. Again "No" from the hero, who, however, had no suggestion to make except masterly inactivity. The problem was solved by the patient's suddenly dropping down dead. "Tuberculosis of the atlas." Curious that x-ray examination twice failed to reveal any abnormality in a neck with the head facing the wrong way. The Light Programme is hardly a place wherein to expect logic. The lesson appeared to be that under the old dispensation a patient with torticollis of unknown cause was discharged from hospital if she survived exercises but under the new would be left to die in her own way. Believe it or not the piece was intended to be serious and good propaganda. It is a saddening reflexion that despite the millions spent on its education democracy should be considered and no doubt is, capable of believing such nonsense—I am, etc.

Cambridge

FF ROBERTS

### Acute Intussusception

SIR,—The article by Drs Brenda Morrison and Donald Court (April 24, p. 776) has brought to mind the six cases of acute intussusception in children and young adults which came under my care during 1947.

**Case 1**—A schoolboy, aged about 14 years, had abdominal pain and vomiting of 28 days' duration. Four days before admission each attack was accompanied by defaecation, and the patient had ten motions the day before admission. Helminthiasis was diagnosed and he was given medicine, but did not pass any worms although the bowel moved thrice. The abdomen was rigid and painful to the touch. At operation an entero colic intussusception about eight inches long was discovered in the left splenic flexure surrounded by inflamed and adherent omentum. It was irreducible, and as there was apparently no obstruction it was decided that there was no need for any further interference, and the abdomen was closed. The patient gradually recovered and was discharged fit from hospital 24 days after admission, the intussusception having undergone spontaneous cure.

**Case 2**—A farmer, aged about 30 years, complained of abdominal pain and vomiting seven days before admission. There was no obstruction and the bowel moved once or twice daily, indeed, it moved five times on the 5th day of admission. Palpation revealed a sausage shaped abdominal tumour across the epigastrium. At operation an ileo caecal intussusception was discovered in the epigastrium and was reduced by milking. The caecum and appendix were oedematous. The patient made an uninterrupted recovery. He was discharged 34 days after admission.

**Case 3**—A male child, aged 10 years, had abdominal pain and vomiting seven days before admission. In this case also there was no obstruction as the bowels opened three or four times daily in hospital. The abdomen was soft and a sausage shaped tumour was palpated. An ileo caecal intussusception was discovered and reduced at operation. The patient made an uninterrupted recovery and was discharged 13 days after admission.

**Case 4**—A male child, aged about 12 years, had a history of abdominal pain and vomiting of one month's duration before admission. The patient was very emaciated and dehydrated, due to excessive vomiting. The abdomen was rigid and tender, and the patient was constipated. At operation an irreducible entero colic intussusception was discovered, with the omentum and the small intestine wrapped round it. As there appeared to be an obstruction in this case a short-circuit operation was performed with a view to resecting the intussusception later, but the patient died 12 hours after the operation.

**Case 5**—A schoolboy, aged 8 years, was admitted with pain in the abdomen and vomiting, particularly after food which started 18 days before admission. Examination revealed a sausage shaped abdominal tumour across the epigastrium. There was no rigidity and the patient's condition appeared fair. It was decided to operate at once, and at operation an ileo caecal intussusception was discovered in the region of the hepatic flexure. It reduced readily by milking, although the caecum appeared very oedematous. This patient died on the third day after operation for no apparent cause.

**Case 6**—A 25-years-old male had abdominal pain and vomiting of nine days' duration before admission. He too had a sausage shaped abdominal tumour, but there was no rigidity and no obstruction. An ileo colic intussusception which occupied the right side of the abdomen was reduced at operation, and the patient made an uninterrupted recovery and was discharged from hospital 25 days after admission. (All the cases were operated on under spinal anaesthesia.)

From a consideration of these cases the following points emerge.

1 Obstruction does not appear to be an early feature of this disease in young adults. Case 4 was the only one with definite obstruction, and in this case there was a history of abdominal pain and vomiting of one month's duration.

2 Although the ileo ileal variety is generally regarded as being more common after the age of 3 years, the anatomical variety met with in all these cases was the entero colic type.

3 The passage of blood and mucus, which is regarded as one of the cardinal signs of the disease in children was not met with in any of the cases.

4 All the patients in this series were male.

5 Acute intussusception is generally regarded as a disease met with in infants up to two years, and in its chronic form in adults—generally over 60 years. Although this series is too small to justify any definite conclusions, it is nevertheless well to bear in mind this condition in considering the differential diagnosis of acute abdominal conditions in children and young adults, at any rate in tropical Africa.

The predisposing factor in these cases is most likely the fact that the African peasants' diet consists mainly of carbohydrates—yams, cassava, and corn—which give rise to fermentation in the large bowel and gaseous distension of the bowel. Any condition which causes violent peristalsis like injudicious diet or violent purgation would drive the ileum into the roomy ascending colon. The late onset of obstruction and gangrene in these cases, and the fact that most of the intussusceptions reduced so easily in spite of their duration, lend support to this theory, as, owing to the width of the colon, the ileum could enter it with part of its mesentery without its blood supply being obstructed.

I am indebted to the Director of Medical Services, Nigeria, for permission to publish these cases.

—I am, etc.,

Oshogbo Nigeria

M A MAJEKODUNMI

SIR,—I was very interested in the article on acute intussusception in childhood by Dr Brenda Morrison and Dr Donald Court (April 24, p. 776), but it was disappointing that they gave so little attention to non-operative treatment in early cases. From force of circumstances I was obliged to try the old-fashioned method of inflation with air on the only two cases I have seen in this remote settlement in northern Canada with results so dramatically successful that it seems a pity that it should not be tried in all early cases even when facilities for operation are at hand. Since the reduction can be attempted under the anaesthetic given to confirm the presence of the tumour and requires no elaborate equipment or skilled assistance, the loss of time in trying it is very small and in

use of failure no harm has been done. Where the baby lives far from a hospital the method can be life saving as I think the histories of my two cases prove.

**Case 1**—October, 1943. The patient, a white girl of 17 months was a strong healthy baby. She awakened at 6 a.m. screaming with pain, vomited a little clear fluid, refused food, and during the rest of the morning slept between attacks of crying with pain. Early in the afternoon a little blood stained mucus was found on her nappy. When I saw her soon afterwards she was pale and collapsed, with a weak, rapid pulse but no fever. Her mother told me that when rubbing the baby's abdomen in an attempt to ease the colic it had seemed to her that the left flank felt empty. This was not noticeable when I examined her, and I felt nothing abnormal, but on rectal examination I found the apex of the intussusception just inside the anus and it was visible as the baby strained when I withdrew my finger.

Prolonged autumn rains had made the ground too soft for an aeroplane to land, so that the alternatives were either a 36 hour journey to hospital carried on a saddle horse over rough bush trails, or operation by me, single handed, with the aid of an amateur anaesthetist. Neither appeared to offer much chance of life to a shocked baby. It seemed justifiable to attempt reduction by inflation with air.

At 4 p.m., about ten hours after the onset, under an anaesthetic administered by a neighbour, I introduced a small rubber catheter alongside the intussusception, attached it to the bellows of a Junker's inhaler, and pumped very gently while compressing the buttocks to prevent the return of the air. The resistance could be easily felt by the hand. After keeping the pressure steady for a minute or so there was a clearly audible "plop," heard by the anaesthetist as well as myself and there was no further resistance to inflation. A few minutes afterwards, before the child was fully awake, she had a large normal bowel movement, preceded by a little blood stained mucus. The baby's recovery from shock was most dramatic, within half an hour she appeared perfectly normal. She has never had any illness since then.

**Case 2**—April, 1946. The patient, an Indian boy aged 15 months, was a particularly husky baby. At 10 a.m. he suddenly vomited and complained of pain in his abdomen and cried at intervals all morning. At 2 p.m. his mother found about a teaspoonful of bright red blood on his diaper, but no faeces. When I saw him at 3 p.m. he was very pale and lay limply on the bed with eyes half closed. Every few minutes he roused and cried in obvious pain. His temperature was normal, pulse 130 and very weak. His abdomen was very tender to palpation but I thought I could feel a tumour on the right side. He vomited a little clear yellowish fluid while I was examining him. The rectum was empty and there was only a little blood and no trace of faeces on the examining finger.

On this occasion a snow storm made it impossible to get him out to hospital by air and, remembering the previous case I decided to try inflation again if examination under an anaesthetic confirmed the presence of the tumour.

Six hours after the onset of symptoms under an anaesthetic the classical sausage-shaped tumour could be clearly felt extending from the right iliac fossa to the border of the liver. By the same method as before the bowel was very gently inflated. The line of the colon could be clearly seen to bulge. After a few minutes the swelling gradually disappeared though the buttocks were firmly held to prevent the return of the air. A further slight pressure on the bellows produced no feeling of resistance to the hand. An hour later the baby was still sleeping peacefully, his colour good and pulse much stronger. By 9 p.m. he was sitting up playing and had had no further pain or vomiting and looked quite well. The bowels were opened the next morning, there was a slight stain of brownish blood on the diaper and a small amount of faeces containing raspberry seeds and paper. The stool the following day was absolutely normal with no trace of blood. The child has never been ill since.

—I am, etc.

KET-PINE, Alberta

MARY PERCY JACKSON

### Megaloblastic Anaemia of Pregnancy

**SIR**—The two cases described under the above title by Drs M. Gillespie and A. M. Ramsay (May 1, p. 828) are of intense interest to all haematologists but it is questionable whether they should be grouped with the classic macrocytic anaemias of pregnancy. The proportion of myeloblasts in the blood and marrow is against that diagnosis while the clinical haematological and necropsy findings are in keeping with the small group of cases which can be classified as of the 'leukaemia syndrome'. The distinction is important in that the classic cases of macrocytic anaemia of pregnancy respond to appropriate

treatment or to the termination of pregnancy, while leukaemia progresses to the fatal end. Though the term leukaemia is one of convenience rather than one of diagnostic exactitude, it is interesting to note that Gillespie and Ramsay postulated a possible maturation factor defect involving myeloid as well as erythroid cells. This is a conception of the condition to which H. Fox, A. Kondi and I (*J. Clin. Path.* 1946 58 157) were also forced in considering such a case some years ago—I am, etc.

Johannesburg

JAS. F. MURRAY

### Urological Surgeons in Conference

**SIR**—In your report (July 10 p. 85) of the Annual Meeting of the British Association of Urological Surgeons held at the Royal College of Surgeons from June 24 to 26 no reference has been made to the papers read by two distinguished honorary members. The discussion on urinary lithiasis was opened by Professor Hellstrom of Stockholm, a leading authority on its aetiology. The following day a paper was read by Dr. Michon of Paris, on the repair of exstrophy of the bladder with restoration of continence. Both these papers will be published in full in the September number of the *British Journal of Urology*.

Professor Hellstrom was the only official guest but although no special invitations to attend the meeting were sent to colleagues abroad Professor Fey and Dr. Michon of Paris, and urologists from Italy, Portugal, Spain, Sweden, Turkey, and Uruguay listened to the discussions. This was a tribute to the prestige of British urology.

Besides these guests the members of council had the pleasure of welcoming Mr. Mortensen, President of the Australasian Urological Association, Mr. Thomson Tait of Melbourne and Mr. Keith Kirkland, of Sydney, N.S.W. The policy of developing and co-ordinating the medical resources of this country for the benefit of our colleagues throughout the world is already beginning to bear fruit. In conclusion, may I congratulate the B.M.A. on the formation of the Empire Medical Advisory Bureau—I am, etc.

CLIFFORD MORSON

President, British Association of Urological Surgeons

London W.1

### Clinical Records

**SIR**—Mr. Malcolm Donaldson (July 3 p. 47) has pointed out the essential weakness in the statistical analysis of medical records. I would suggest that it would help to improve their value if these were compiled in a form that would be of practical help to the clinician and thus enlist his interest. To expect the clinician to fill up a complex form which is rendered to some central bureau for analysis by statisticians is exasperating to him and does not encourage his interest. If the form were such as to be of practical value to him accuracy would be encouraged.

It was with this idea in mind that I devised the record card described in the *Lancet* (1947 2 189) which was based on the Copeland-Chatterton system. This allows for adequate coding and cross references for a moderate-sized hospital department but it is cumbersome to work in large numbers and would be quite inadequate for a record bureau, where obviously mechanical sorting is necessary. If the initial analysis of clinical records could be done on such a record card the information coded thereon could be transposed to a punch card system for use at a central bureau and the record card could remain at the disposal of the clinician for study of his own cases. I have already described the value of such record cards to the clinician in the above-quoted letter—I am, etc.

Cheltenham

C. P. DONNISON

### Paludrine

**SIR**—Having used 'paludrine' prophylactically and therapeutically for just over a year I have been unable to substantiate the rather I think excessive claims made for it. Having been in the habit of taking 5 gr. (0.32 g.) of quinine daily for over twenty years during the war I changed to mepacrine, with about equal results. When paludrine became available in early 1947 I changed to that drug as neither quinine nor mepacrine had kept me sufficiently free from malaria of a mild type in a highly malarious district. I started taking 0.1 g. paludrine twice



a week then three times a week, then on alternate days, then daily. I have taken 0.1 g daily now for approximately eight months and the results are about equal to those of quinine or mepacrine.

As regards those under my care, the result has not been happy. In the highly malarious port of Bonthe during 1947 I advised those Europeans who consulted me, and who were taking quinine or mepacrine to try paludrine in the recommended dosage of 0.1 g twice a week. Three went down with smart attacks of malaria within a month, parasites being found in one instance. Other Europeans suffered less severe attacks under the same regime, parasites were found in one case. Those who wish to take paludrine I now advise to take 0.1 g daily. A number of Europeans have returned to their former quinine or mepacrine, and I am not now advising those already taking these drugs to change to paludrine if they are satisfied. Except in my own case, I have not been able to follow up the after history of those taking 0.1 g paludrine daily.

Therapeutically paludrine seems at least equal to quinine or mepacrine, though I prefer to give two 10 gr (0.65 g) doses of quinine at the start of an attack, giving at the same time 0.1 g paludrine three times a day, and continuing with it in this dosage for ten days. I do not say that initial dosage with quinine is a necessity, but it still seems the best drug to bring down the temperature quickly.

In spite of this not very eulogistic account of paludrine, nevertheless I prefer it both prophylactically and therapeutically to either quinine or mepacrine. In the highest dosage tried, that is 0.1 g prophylactically and 0.1 g therapeutically once and thrice daily respectively, it is certainly not inferior to the other drugs and has the advantage of being apparently free from any toxicity in the therapeutic dosage tried. I can myself carry on with my full activities after at most 48 hours' treatment, and usually earlier, and I have had no complaints of unpleasant reaction from patients. The same cannot, emphatically, be said of quinine, and not always of mepacrine. Its freedom from dyeing the skin is also an advantage of paludrine.

Paludrine is a valuable drug which should not be allowed to fall into disrepute when it may be that merely a change in dosage and/or regime may be required. I see the manufacturers have altered the recommended dosage somewhat, but 0.1 g twice a week would not seem to presage much improvement since in my own case even 0.1 g daily is not completely protective. I propose to try 0.3 g in one dose once a week (as also recommended by the manufacturers) and work from that. It may be that a comparatively large dose taken once or twice a week may work better. I might add that in my own case and that of a number of others an attempt was made to sterilize the blood first with a full therapeutic course of 0.1 g paludrine thrice daily for ten days before continuing with it prophylactically, but I have not found this makes any difference. The air wants clearing as regards this drug, and I should be grateful for the opinion of practitioners of experience—I am, etc.,

Shenge Sierra Leone

E S WALLS

### Odd Legs

SIR—Although I did not read Dr NESTA H. WELLS's original letter, the communication of Captain Robert Fuller and Lieut Douglas L. Woolf (July 10, p. 109) interested me personally, since at the age of 12 years I was sent to see the late Mr T. H. Openshaw about the increasing deformity of my left foot due to infantile paralysis, and he pointed out to my parents that the  $\frac{3}{4}$  in (1.9 cm) shortening of the limb was causing curvature of the spine. I remember thinking that a spine anyway was pretty much given to curvature, but my parents obediently saw to it that my left heel was raised  $\frac{1}{2}$  in (1.3 cm) and my right heel lowered  $\frac{1}{4}$  in (0.63 cm). At that time I also had some sort of a tarsectomy done to stabilize the ankle, and incisions in the plantar fascia—the whole procedure being to correct a fairly well marked equino-varus deformity. The boot prescribed was of the customary type with an iron up the inner side.

Two or three years later, my head master, Dr J. R. C. Greenlees, seeing my keenness for chasing balls and recognizing perhaps the possibilities of an exceptionally powerful right leg, suggested that I might take up rugby again. The late Sir John Fraser, whom I consulted, did not forbid me, and he pointed out to my parents that the contractures of the calf muscles had exactly compensated for the shortening of the leg. I could not of course stand to attention with both heels on the ground. I presume therefore, that it was fortunate for me that the plantar and not the dorsiflexors of the foot were paralysed. By

a simple adaptation of the boots I was able to continue playing full back at school and later for my hospital ward. In the same way cricket, hockey, etc., presented no difficulty. Tennis, however, proved a problem, since on no type of court are boots welcome. For some years I wore a galosh over my left boot but after a time, when I found I could not beat the other members of the family, I became exasperated. So taking an old worn out boot I performed a Syme's operation on it and began to wear an ordinary gym shoe together with the "stump" in order to give my ankle support. It was entirely successful.

During six years in India I very soon—after about five weeks—gave up any attempt at wearing boots, because of the heat. I had a modified pair of sandals made which were very comfortable and light, and were ideal for ordinary hospital work. However, after six years of sandals I found that my original foot wear was intolerable, so I searched Edinburgh for a boot which would give me some of the advantages of those sandals, and now I get "odd" factory made boots, the left being two sizes smaller than my right. Since my left boot pre-war cost about £5, this is also a considerable saving of expense. The fact that I must wait 3–5 months for delivery might seem a disadvantage, but I sometimes waited nearly that long for a boot to be specially made for me.

No doubt over the past 15 years facilities have vastly improved and ideas become more generous in their outlook. It is our job to see that the "lame man shall leap as an hart" and that "the tongue of the dumb shall sing"—even if the lameness and the dumbness remain. Better a deformed limb useful than a straight one loaded down with theory—I am, etc.,

Edinburgh

M LUDLAM

### Vaginal Injury at Coitus

SIR—The following case of a vaginal vault injury due to normal coitus in a young parous woman may be of interest in view of a previous article in the *BMJ* of April 24 (p. 786).

#### CASE REPORT

A tall, well developed married female of 17½ years old, 1 para, 3½ months post partum, was admitted complaining of severe haemorrhage per vaginam which had begun during intercourse. She also complained of slight pain in the lower abdomen. The incident occurred one hour before admission.

Her period had been due on the day of admission, but the present loss was in no way like her menstrual loss, being much more rapid, with brighter blood, and of sudden onset. Pulse rate 116, and of diminished volume. Respiration 24, temperature 99°F (37.2°C), BP 115/80. The patient was pale and conjunctivae were poorly coloured. The abdomen was soft and there was very slight tenderness over the pubis. The uterus was not palpable per abdomen. Per vaginam the external os was closed and the cervix was firm and "non-pregnant." The vagina was packed with gauze in the receiving ward, and the patient was sent to theatre.

The possibilities considered were trauma, abortion, and sub involution of the uterus. Instructions were given to "lie up" for a possible repair, vaginal packing, or dilatation and curettage. The patient was examined under a general anaesthetic and the introitus was found to be of a parous type, with a small amount of unrepaired perineal tearing at delivery. An Auvard speculum was inserted and inspection showed the vaginal vault to be somewhat relaxed. The cervix was closed and not bleeding. High in the posterior fornix there was a linear laceration 2 in (5 cm) long, extending from one lateral fornix to another across the vault. The floor of the laceration was composed of vascular cellular tissue, and peritoneum was not visible. The vulsellum forceps were transferred to the posterior lip of the cervix, and by holding this up excellent exposure was obtained. Eight No. 1 catgut interrupted sutures coapted the edges and completely arrested the haemorrhage. The area was sprayed with penicillin powder.

The patient made an uneventful physical recovery, although there appeared to be a certain amount of residual emotional trauma. Haemoglobin on the fourth day was 66%. She was discharged in seven days.

#### DISCUSSION

The patient was interviewed both on admission and after operation in regard to the use of artificial appliances, birth control apparatus, etc. The use of these was denied with apparent honesty and sincerity. The husband was also interviewed separately, and bore out his wife's statements. Intercourse was in the dorsal decubitus position. The husband permitted examination of himself, and there was no undue enlargement or distortion of the parts. The patient was a tall well built woman, and there was no question

of disproportion. Factors which might contribute to this accident are those which depress the fornix. A shortened perineum from severe perineal tears would diminish the height of the vaginal vault. Uterine prolapse with or without rectocele would predispose similarly. Physiologically a simultaneous contraction of abdominal wall and diaphragm would raise intra abdominal pressure and momentarily depress the pelvic diaphragm.

Another factor to be considered is the part her recent pregnancy may have had in softening and vascularizing the parts. Since this case I have heard of another similar one at 6 weeks post partum. On the other hand a case is described by Nicholls of an adult female with similar injury 8½ months post partum, when complete involution should have occurred. Three cases are described in the *Medical Journal of Australia* of 1919, two by D Arcy, and one by Stokes. Other similar cases are described by Anspach, Ricciardi, and numerous others. All cases are characterized by hemorrhage severe enough to threaten life and which usually requires surgical repair for its arrest. The literature contains a goodly number of cases of this type, but most textbooks devote only a few lines to this subject, if it is mentioned at all.

The leading textbooks describe coital injuries as occurring primarily at the vulva and hymeneal areas, and sometimes extending upwards from this. Injuries high in the vagina are usually said to occur in old women or young girls.

I should like to express my thanks to Dr C D Coyle Medical Superintendent of the Archway Hospital, and Miss Harding consulting gynecologist, for permission to publish this case.

—I am, etc.,

London N 19

MORTIMER BURDMAN

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#### Use of Ring Pessaries

SIR—During the past three years I have reviewed a large number of old women, some not so old, who have collected as the right and bobtail of my out-patients and form that neglected and pathetic army dealt with haphazardly by the house-surgeon or the out-patients' sister—the 'ring pessaries'. It will be comment enough, I think, to report that this large army has now been reduced to three. Fifty-seven have undergone some form of colporrhaphy or vaginal occlusion their ages ranging from 37 to 84, with a mortality of nil and a happiness of 100%. Fourteen have had their rings removed—they were unnecessary. Of the remaining three, two are quite unfit for operation and the third prefers to lead her ring life. It would seem, therefore that three out of seventy four ring pessaries were necessary somewhat less than 5%. This percentage in terms of the whole country, indicates at least the urgent need for a critical review and it is therefore desirable to lay down the conditions in which ring pessaries should be used.

A ring pessary is the facile answer to any woman complaining of a bearing down feeling, though this may be due to anything from a cervical polyp to a urethral caruncle. There is therefore great necessity for an accurate diagnosis or even an eliminating diagnosis. There are three types of cases to which rings are generally fitted. The first and probably the most pathetic are the young women who have descent of the vaginal walls in the immediate weeks following childbirth. The usual train of thought is that these walls must be supported until the 'involution' of the vaginal tissues reduces the prolapse. This is an outstanding example of muddled thinking. A ring pessary, surely, if it has any effect produces this by stretching the vaginal walls. To apply a ring in these cases is therefore to produce the very condition we wish to avoid apart from the mental, physical, and marital discomfort that accompanies its use.

The second type of case is the middle aged woman in which there is permanent descent of one or both vaginal walls. To them the ring pessary is fitted in their thousands without reference to the relative degrees of uterine or vaginal prolapse, to the presence or otherwise of stress incontinence which no ring could possibly help, and very often without reference to the state of the cervix. I have seen more than one carcinoma of the cervix treated with a ring pessary. The truth is that the doctor is in a difficult position. Although he may feel that a surgical cure of the prolapse is desirable the woman because of domestic difficulties fear of operation and so on declines his advice and his only alternative is to fit a ring which of course does bring comfort in many cases.

The third type of case is where because operation is out of the question a ring pessary is the only treatment. May I plead,

therefore, that ring pessaries, except perhaps in this last category, with their stink and their dangers be put on the bonfire of last year's gynaecological garden? May I plead with even more entreaty that the Hodge pessary in the treatment of "reversion" be put away altogether and for ever from our minds and our uses?—I am, etc.

London W 1

MORTIMER REDDINGTON

#### Antenatal Care

SIR—There has been a great deal of correspondence in the medical journals and in the daily press on the relief of pain in childbirth and it is generally agreed that fear and anxiety often lead to a painful and difficult labour. The best way to allay the apprehension which many women have towards their confinement is for them to know and have confidence in the doctor or midwife who is going to undertake their case.

The main purpose of antenatal care is, I consider, not only to diagnose and treat any abnormalities, but to get to know the mother, to allay her fears to confound the old wives' tales and, as the time of delivery approaches, to gain her complete confidence, which will lead to co operation in the actual labour. There seems to be a tendency nowadays to allow antenatal care to become a cursory affair. The National Health Service (General Medical and Pharmaceutical) Regulations, 1948, state on p 16 that 'in the case of maternity medical services all proper and necessary treatment shall include advice in regard to antenatal supervision, antenatal care including an initial medical and obstetric examination and an examination at the thirty-sixth week of pregnancy or at any time that the practitioner thinks necessary'. In other words the doctor can attend a mother in labour after having met her only twice before. Antenatal clinics held by some local authorities seem to be run on these lines. One case I sent up with a letter asking to have an abnormality investigated was turned away by a clerk because she was only three months pregnant. Another case, thirty weeks pregnant was told that she need not attend again until labour commenced.

Some years ago I was a resident obstetric officer at an L.C.C. hospital where we had a large maternity department and ran our own antenatal clinics. We asked our mothers to attend every month up to the seventh month, every fortnight during the eighth month, and every week for the last month of the pregnancy. During this time the mothers got to know the doctors and nurses well, and they were no strangers to us when they came into the hospital for their confinement. Our forceps rate over a series of about 600 deliveries was only 6%.

I have continued to carry out antenatal care on the above lines and have found that the knowledge and friendship obtained from these frequent consultations produces confidence and co operation during labour, into which the mothers enter quietly and calmly and mentally at ease. This produces the relaxation which appears to be so necessary in alleviating the pains of labour. The analgesics, especially pethidine, have far more effect under such conditions. If I am allowed to continue the practice of midwifery under the new health service I shall see my patients just as frequently, for then I too can approach a confinement with the assurance that I am going to deliver a mother who, knowing me, will do her best to co-operate with me in a spirit of happy anticipation.

May I conclude by saying that the utility maternity service provided by the Ministry of Health at £7 7s a time (cheaper quality £5 5s), in which a doctor is required to see the mother only twice before labour and to attend at the confinement only if he thinks necessary is not likely to lead to the utopia of painless childbirth which certain correspondents in our popular press would have us believe has been attained by our colleagues on the other side of the Atlantic—I am, etc.,

Gidea Park Essex

J G FIFE

#### Comprehensive Child Health Service

SIR—May the following suggestions be brought to the notice of those interested in the development of a comprehensive child health service in this country? Our child health service, although better than in most countries, is still in its embryonic state. Nevertheless there is already an odd maldevelopment taking place—hereditary perhaps from the days when paediatrics formed a minor part of obstetrical teaching. This anomaly I feel is of an importance which cannot be sufficiently emphasized and which, allowed to develop, may for ever prevent the establishment of a satisfactory child health service. I am

referring to the fact that child welfare forms part of the maternity welfare service, and thus a sharp division is created between those occupied with prevention and those occupied with the cure of diseases of children

Three distinct services cater for child health at present the maternity and child welfare service (how reminiscent is this combination of pre-paediatrics days), the school medical service, the general practitioner. Considerable overlapping and confusion between these three services exists and is bound to increase as the welfare scheme develops—i.e., a mother will take her child to the welfare centre, where some ailment is discovered. The welfare M.O., respecting jealously guarded rights, cannot treat the child, although perhaps better qualified to do so, but has to refer the child back to its G.P. Such occurrences are numerous, and thus, although not wishing to pass any judgment on the relative abilities of welfare paediatricians and G.P.s, the child is deprived of the best service available. Surely the paediatrician, best qualified to deal with child welfare, is best qualified to deal with diseases of children. In other words, surely the person best qualified in the prevention is best qualified in the cure and *vice versa*, the person best qualified in the cure is also best qualified in the prevention of diseases of children.

I hope I have made myself clear. It seems absurd to have a maternity and child-welfare officer with a dossier of the child's health and the G.P. with a dossier of the child's diseases. I fear our babies may fall between two stools, and to prevent this from happening, to give our children the best available attention, the establishment of a comprehensive paediatric service is proposed.

The scope of this paediatric service would be supervision of child health from almost conception to 12 years, the school medical service forming part of the scheme. To translate the proposal into practice the following suggestions are offered:

(a) The appointment of one or more paediatricians for each community. Such a paediatrician—preferably, the holder of a D.C.H. and/or a higher qualification, or at present any G.P. with special experience in paediatrics working in co-operation with M.O.H. nursery school medical authorities, and child welfare workers—would be responsible for child health in his community and combine the functions of the present child welfare M.O. with those of the paediatrician.

(b) It is suggested that the Minister be approached to press local authorities to provide suitable accommodation for child welfare centres.

(c) That all children of the area be on the paediatrician's panel.

(d) Holding an appointment of such scope and responsibility the paediatrician ought to be allowed capitation fees for all the children in his panel, have an additional salary for his work as child welfare officer, and perhaps be also allowed paediatric beds at the local hospital, if such is feasible.

Among his duties would be ante- and post natal advice to mothers, propaganda on child health, including occasional lectures, child hygiene and nutritional problems, the toddler, etc., and, most important of all, prevention and cure of diseases of children.

The advantages are obvious, the opportunity unique. This would be the first country in the world having a complete paediatric service available to all children, including the toddler, who, too old for welfare clinic and too young for school, does indeed fall between two stools at present.

The disadvantages are few, and any pecuniary losses that may accrue to general practitioners are almost nullified by the fact that within the next few months most children will be insured. Quite on the contrary, a considerable burden—vaccinations, etc., etc.—will be taken off their shoulders. The only other disadvantages which I can see are that a mother may have to travel further to reach the paediatrician, but surely no mother will deny her child the best opinion available. Finally, the poor paediatrician: his indeed will be a hard lot until sufficient paediatricians are available, but I feel the goal is a noble one—at last a complete health service to the most important section of our community—our children—I am, etc.,

London E 11

P. O. CROSSFIELD

### Lower-segment Caesarean Section

SIR—It is always a risk to say that anyone was the first to propose anything in medicine, and Mr Bryan C. Murless (June 26, p. 1234) would appear to be in error in saying this of Frank with regard to lower segment caesarean section.

Osiander's operation in 1805, though crude and dangerous, was nevertheless a lower-segment approach. In 1881 Adolf Kehrer used a technique which differs only in detail from that of the present day. He incised the lower segment transversely but did not dissect the bladder downwards nor free an upper flap of peritoneum. This great advance was lost sight of, because of the success of Sanger's improved technique for the classical approach, until 1906, when Frank began to achieve better results still with his "suprasymphysial"—i.e., lower segment—operation—I am, etc.,

Manchester

WALTER CALVERT

### RCS and Fellows' Opinion

SIR—Lord Webb Johnson's reply (*Journal* July 3, p. 46) ignores the essential point in our previous letter (June 26, p. 1258)—namely, his suppression from the medical profession of the resolutions passed at the Fellows' meeting on April 28. That suppression is maintained in Lord Webb Johnson's letter, in which, while mentioning the second and third resolutions, he does not disclose their nature—We are, etc.,

A. ROY DINGLEY

CHARLES HAMBLEN-THOMAS

JOHN HOSFORD

NORMAN A. JORY

REGINALD L. MURLEY

REGINALD T. PAYNE

ALEX. E. ROCHE

W. ETHERINGTON WILSON

SIR—We all regret the cleavage in our College over the Health Act. It may be that, as the President avers, some Fellows have a political axe to grind as well as scalpels to sharpen in Lincoln's Inn Fields. But most of us, regardless of party, are bent on sound surgical succour for all who need it. The profession painfully aware of the grave inadequacy of its services, had paved the way for reformatory measures. We thought our hopes were about to become realities. Instead we found the presented Act lacking in elements essential for the successful extension of "the study and practice of surgery." To protest against it became our solemn duty to the founders of the Royal College of Surgeons and the public—I am, etc.,

Bristol

A. WILFRID ADAMS

### Chemists' Working Hours

SIR—A few weeks ago I broached the question of chemists' hours for supply of urgent medicines. Some of your correspondents have supported me. Now you print (July 3, p. 49) a letter from a chemist who seems to consider that the comfort of a dispenser comes before the health of the people, that doctors keep patients waiting while they finish their game of golf, and that the B.M.A. is not concerned with seeing that the public is properly supplied with medicine. No further comment is needed on your correspondent's opinions.

I may be permitted to state that recently when I ordered some urgent medicine for a patient at 8 p.m. on a week-day the patient's brother cycled around for some time in this district without being able to find a chemist available. He then went to a West End chemist and had to call back in an hour and a half before he could have the medicine. Something is wrong here—I am, etc.,

London N.W. 11

L. S. WOOLF

The Ministry of Health reports that there are still a number of Government scholarships available for suitable State registered nurses and male nurses (general trained) who wish to train as sister tutors or male tutors. Applicants must generally have had at least three years' post-registration experience in nursing in hospital, including at least one year in charge of a ward in an approved training school. Those selected are given an allowance of £150 for the period of training (one academic year) towards the cost of maintenance and incidental expenses, and their training and examination fees are paid. Subject to certain conditions an additional allowance is payable to a married man in respect of his wife and any children under 16 years. Successful candidates must undertake to serve as registered tutors in a hospital of their own choice in Great Britain for a period of at least two years. The next courses of training will start in the latter part of September or early October, those who wish to apply for assistance under the Government scheme should write immediately to the Secretary, Ministry of Health, Division 3C, Whitehall, London, S.W. 1.

## Obituary

### W AUSTIN ROBB, MD, FRCP

Dr W Austin Robb, who died at his home in Exeter at the age of 55 on July 12, had a remarkable career embracing three branches of medical science.

William Austin Robb was born at Burnt Fen, near Ely, in 1893. His first training was as a pharmacist, and he served St Bartholomew's Hospital in its dispensary before becoming a medical student there. Previously he had been with the 36th Field Ambulance as a sergeant-dispenser, and he had been wounded and taken prisoner in 1916. After qualifying in 1924 he became house physician to the late Sir Walter Langdon-Brown, whom he greatly admired and was subsequently to serve as chief assistant after an intervening period as demonstrator of pathology. He obtained the London MD and the MRCP in 1926. A career of uninterrupted success in medicine and his outstanding clinical ability then appeared to point clearly to a future as a consulting physician. It was therefore with some surprise that his friends heard of his appointment in 1931 as pathologist to the Royal Devon and Exeter Hospital, a position in which he continued for the rest of his life. He had had in extensive experience in clinical pathology in the two more senior appointments he held at St Bartholomew's and indeed he had always done for his own patients a great deal of laboratory work which most men less inclined in that direction or less enthusiastic, would have left to others. Nevertheless he was regarded as a clinician and indeed was a very good one; hence this decision to take up the appointment at Exeter was unexpected.

Austin Robb's subsequent career provided an outstanding example of the value to a clinical pathologist of a wide knowledge of medicine. He was the kind of pathologist who is not merely asked to perform specified investigations but is invited to make whatever investigations he thinks appropriate and to produce an opinion based on all features of the case, both clinical and pathological. In this capacity he became one of the leading figures in medicine in the West of England, and an undisputed authority in that part of Devonshire in which his responsibilities lay. He was on the staff of many hospitals covering a wide area extending even into Somerset. During the war he shouldered the added burden of organizing the blood transfusion service, a task which as Regional Resuscitation Officer he carried out with great efficiency. The exertions Robb imposed on himself may well have been a factor in the illness which caused his premature death. His other activities included frequent attendance at meetings of the Pathological Society and of the Association of Clinical Pathologists, of whose Council he was a member in 1942-4. He was also a member of the BP Codes Revision Committee, a position for which his varied experience made him exceptionally well qualified. He was a vice-president of the Section of Pathology at the annual meeting of the BMA in 1938. He was elected FRCP in 1945.

Robb's personal popularity was well deserved. He had always the air of a countryman, simple, unpretentious, frank, and genial. His natural kindness must have been a major factor in his success in dealing with patients. He leaves a widow, a son, and a daughter to whom the sympathy of all his friends and colleagues will be extended.—L P G

W A B writes: Other people can write better about Austin Robb as a clinician-pathologist of the front rank, but may one of the many who benefited from his innumerable kindnesses write of his capacity for friendship? This survived many miles of separation and the lapse of many years. Through him my most prized distinction was obtained and for this no trouble was too great at a time when he must have known his inevitable end. Speaking the last time I saw him of a distinguished man who I rather had helped me also, he said: "He is very friendly with his largesse. If that was ever true of anyone it is so of that loved and cheerful Christian, Austin Robb."

D A H writes: Austin Robb was one of the remarkable few of clinical pathologists who came to maturity between the two wars. These clinical pathologists were essentially generalists who worked in the laboratory at the elucidation of clinical problems and even if the growth of specialization could mean this type to extinction their value to the practice of

English medicine and surgery in the county hospitals has been outstanding. They taught the clinicians what questions should be addressed to the laboratory and how to interpret the answers. Robb was a well-known and much-loved figure at Bart's for more than ten years. Robb is too good a man to be allowed to leave London," said Langdon Brown when the time came to take another step up the ladder, and doubtless Robb would have valued an appointment to the Bart's staff. But he was essentially a countryman, and his appointment as pathologist at the Royal Devon and Exeter Hospital gave him an environment which exactly fitted his needs. On the edge of the City of Exeter, looking over a Devonshire valley, he made his home and out of the red earth of an old quarry he made his garden. To the building-up of a first-class laboratory in Exeter he brought an intense enthusiasm and an experience which equipped him fully for his task. His insistence on accuracy can only be described as passionate, and he was tireless in the pursuit of it in himself and in others. The extent of his work would have justified much writing, but he published little for his energies were absorbed in the continuous improvement of his pathological service. He was allowed private practice from the start, and later on his colleagues showed their appreciation of his quality by giving him charge of some beds. These privileges meant much to him, for he was stimulated by personal problems, and he brought an unusual humanity and generosity to his human contacts. It was this last characteristic which gave him a great company of friends, and many are to day saddened by his death in middle-age. Uncommonly fortunate in his work and in his family life, he knew himself to be unfortunate in his illness, and with courageous jesting he struggled against its inexorable grip. Not for him the folded hands, the passive resignation in the face of oncoming death. He died as he lived, and his friends unite in their thought of him as one who "should have died hereafter."

### F MCG LOUGHNANE, FRCS

Mr Farquhar McGillivray Loughnane, the well-known urological surgeon, died at the age of 63 in St Mary's Hospital, Paddington, on July 14, after a long illness which he faced with critical detachment. Mr Loughnane was a student of St Thomas's Hospital, where he won the Treasurer's Gold Medal and the Peacock Scholarship, qualifying in 1912, and taking the FRCS in 1914. He will be remembered professionally for his work in urological surgery. He had strong individual ideas and is probably best known for his advocacy of radical operation in urogenital tuberculosis. He was a pioneer in the field of transurethral resection of the prostate, and was a past president of the Section of Urology of the Royal Society of Medicine.

During the 1914-18 war Loughnane held the rank of captain in the RAMC and among many other appointments was surgeon specialist to No 40 BGH in Mesopotamia, where, by carrying out the open treatment of fractures in desert conditions, he proved himself to be an able general surgeon. He held the appointment of surgeon for many years at All Saints Hospital for Genito-Urinary Diseases, he was assistant urologist at the Prince of Wales's Hospital, Tottenham, and urologist to the London County Council. He had been surgeon to St Mary's Hospital for Women and Children, Plaistow, for twenty-eight years and he was also a consulting surgeon to the Hampstead Cottage Hospital. At St Mary's, Plaistow, as at his other hospitals he was held in affection and esteem by all his colleagues—administrative, medical and nursing. He will be sadly missed and will leave a gap which will not easily be filled. At Plaistow he gave many hours of devoted work in both operating theatre and out-patients department, as well as on the board of governors and hospital committees. No one who was associated with him will ever forget his deep sense of duty in every department in which he was interested.

Loughnane was a keen member of the Irish Golfing Society and often showed his persevering character in this pursuit. He was a loyal and active supporter of the BMA, representing the Marylebone Division for eleven years apart from being chairman of the division in 1938-9. Loughnane's nature was a warm and affectionate one, and to those who knew him well it was always a pleasure to be in his company. He was a man with very definite views but always responded readily to those who needed his help. He leaves a widow, and the sympathy of all his friends will be with her.—G H R

## Medical Notes in Parliament

### NATIONAL HEALTH SERVICE

MISS BACON described to the House of Commons on July 19 on the motion for the adjournment, what she called a medical black market which was being created by a minority of doctors who were discrediting and sabotaging the National Health Act by refusing to take on their lists patients who could afford to pay private fees or who needed special attention. Miss Bacon said it was common for a doctor to say to a person who had a sufficiently high income "I am sorry I cannot take you on my list, this scheme is not for you, you can afford to pay." That was an immoral discrimination which was a disgrace to members of a great profession, but even worse were those doctors who were refusing to take patients because they needed extra attention—the old, the sick, and children. She had heard of one case of a household where every member except the grandmother was taken on the doctor's list. Presumably she was refused because the doctor thought she might become bedfast and would need extra attention. She had heard, too, of doctors who had refused to take children because they were likely to get childish ailments. There was the more subtle but no less sinister approach adopted by the doctor who did not refuse outright to take patients but suggested to them that they would not get the same attention as paying patients. [The B.M.A. have asked for details of these cases.]

MR BEVAN said the practices described were carried on by a very small percentage of the medical profession. The vast majority were playing the game. It would be a great mistake if the majority of the profession were besmirched because of the conduct of a small number. It was wholly reprehensible for a doctor to select members of a family as patients and refuse others. Such conduct cut right across the conception of a family doctor. There was no justification for discrimination on financial grounds. If a person remained as a private patient he would also have to pay for drugs. That might have a chastening effect as time went on, as the knowledge grew it was possible that the area of private practice would diminish progressively. There were certain sanctions under the Act which could be applied where doctors said they could not take people on their lists and insisted on their being private patients or paying patients. Their areas could be regarded as under doctored. It was one of the functions of the Medical Practices Committee to attend to that matter.

### Confidential Certificates

SIR ERNEST GRAHAM-LITTLE on July 15 asked whether Mr Bevan knew that anxiety was felt by doctors at the increasing tendency of Government departments to disclose to lay persons the contents of confidential medical certificates furnished by practitioners in charge of patients. As the regulations in Statutory Instruments 506 and 507 required medical practitioners in the new health service to submit to a committee consisting predominantly of laymen records of patients under their charge, Sir Ernest asked Mr Bevan to withdraw this requirement.

MR BEVAN refused to do this and could not accept the implications of the question.

### Drugs and Appliances

MR RANDALL asked the Minister of Health on July 15 if doctors, under the new health service, would be free to prescribe for the patients without restriction, every kind of drug and appliance necessary for their treatment and would not have to work within the limits of averages of cost per insured person.

MR BEVAN replied that a doctor had a duty to prescribe under the National Health Service all drugs necessary for the proper treatment of the patient without any limit of cost whatever, also the appliances prescribed in the General Medical and Pharmaceutical Regulations. Other appliances were obtainable through the hospital service.

### Spa Treatment

SIR WALDRON SMITHERS asked the Minister of Health if, in view of the resignation of Dr McKenna, of Droitwich, he would make a statement on spa treatment under the National Health Service.

MR BEVAN thought this doctor might have been under a misapprehension. For patients of the appropriate hospitals in the National Health Service requiring treatment of the spa type it was open to a regional hospital board to arrange for convenient facilities for this treatment to be used, at the discretion of the medical staff of the hospital, to supplement the hospital's own resources. It was not a responsibility of the

hospital service to provide treatment at spa establishments otherwise than in this way.

### Medicines no longer Dispensed

SIR HENRY MORRIS-JONES asked whether any arrangements were being made to reimburse medical practitioners under the National Health Act in respect of the cost of drugs and medicines which would not now be required to be dispensed by them.

MR BEVAN replied that he had no proposals in mind but that in any case this would be a matter for the Negotiating Committee to take up with him first.

### V D Clinics

MR SORENSEN inquired why the statutory protection of secrecy had been withdrawn from persons attending V D clinics under the new National Health Service Act.

MR BEVAN said the withdrawal resulted from the revoking of the Public Health (Venereal Diseases) Regulations now that responsibility was transferred to regional hospital boards. He emphasized that treatment for venereal disease would continue to be as confidential as it always had been.

### FACTORIES BILL

The Factories Bill, which was first considered in the House of Lords, passed through the committee stage in the House of Commons on July 9.

MR ATTEWELL said Clause 7 allowed the "appointed factory doctor" to act in his old position as examining surgeon and was open to objection, although with the passing of the Industrial Injuries Act the temptation for a doctor to be biased in his decision was not present. Nevertheless, when a man desired to appeal to a medical examiner to see if his complaint was caused by his work he should have no fear but that the decision would be in accordance with the facts as that medical examiner saw them. He submitted that it was dangerous for the appeal to go to a doctor not only closely connected with the firm on business grounds but also operating there from day to day.

MR ISAACS was satisfied that the charge could not be made against the profession that doctors gave certificates against their opinion. Whatever certificates they gave were given honestly and conscientiously. Most of the suspicion would disappear under the new Act, but the point was being raised because there had grown up a desire for a comprehensive medical service inside the factories. Where it was necessary for a certificate to be given under any of the Acts by the factory doctor the Government might see whether it could not arrange for another opinion to be brought into the picture. The Clause was ordered to stand part of the Bill.

MR MCCORQUODALE said on Clause 13 that it was time that Parliament in factory legislation began to differentiate between women and young persons. In the next Factories' Bill he hoped Parliament would consider that women were grown up.

MR ISAACS said this matter was under international consideration at present. It would probably become practical politics to make such a distinction before Parliament needed to revise the Factories' Acts.

MR PIRATIN brought up a new clause on weight-lifting. This provided that a person should not be employed to lift, carry, or move any load so heavy as to be likely to cause injury to him. He said many industrial accidents and illnesses were the result of strain in weight-lifting. The Minister had for eleven years possessed power to regulate weight lifting for different industries, but so far regulations had only been introduced for potteries, woollen industries, and flour mills. The regulations did not limit the time during which the lifting of heavy weights was to continue.

MR ISAACS said Mr Piratin had spoken against certain regulations and not against the terms of the Act itself. Regulations existed in the woollen worsted trade and were under consideration for jute. Under the existing Act the Ministry of Labour had all the power which was proposed in Mr Piratin's new clause. In leaving the powers as they were at present the Ministry had more latitude for dealing with the problem than would be the case if the words suggested by Mr Piratin were adopted. The proposed clause was negatived.

MR ISAACS thereupon promised to look into the subject raised in another proposed new clause on the safety of roof workers, and this clause was also withdrawn. So was a proposed new clause intended to include schools, technical colleges and other institutions where persons were instructed in the use of machinery in the term "factory."

The Report Stage then concluded and the Bill was read a third time after the Attorney-General had said that the Government was considering the possibility of consolidating the factory legislation.



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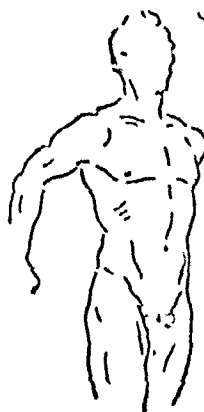
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## VETERINARY SURGEONS BILL

The Veterinary Surgeons Bill which originated in the House of Lords and had been amended in a Standing Committee of the House of Commons, passed through the Report Stage in that House on July 9 after the Speaker had ruled out an amendment dealing with the docking of tails.

Mr GEORGE BROWN for the Ministry of Agriculture then moved that the Bill be read a third time. He said that its two purposes—the extension of facilities for veterinary education and the control of unqualified practice met with approval on all sides of the House. He mentioned two matters which had been raised during the committee stage. One concerned the position of aliens. The Royal College already had power in suitable cases to register practitioners holding recognized foreign diplomas so no new powers appeared to be required. The second question concerned partnerships between an unqualified man and a veterinary surgeon. He understood that it would not be proper for a registered veterinary surgeon to enter into partnership with an unregistered person and that a by-law of the Royal College prohibited it. This ban did not apply to existing practitioners registered under the Act of 1881. Persons registered in the *Supplementary Register* would similarly have a status in the profession. What should constitute professional conduct in matters such as this was best left to the governing body of the profession to decide.

Sir HENRY MORRIS JONES said the Bill completed the process of regularizing the professions dealing with human beings and animals. He remembered the days in medicine when doctors had unqualified assistants. Eventually they became registered and made very fine medical practitioners. Under another measure unqualified dentists were allowed to become registered. Now Parliament was doing the same thing for the unqualified veterinary surgeon.

Sir IAN FRASER repeated a question raised in Committee. Was it right that therapists, masseurs and bone-setters should not be permitted to practise on animals? He said that whereas he could call in one of these to treat his daughter's ankle he could not call in any of them to treat his horse's fetlock.

Sir THOMAS DUGGALL said the Minister had satisfied the Committee that he could make an Order under Clause 5 whereby treatment by physiotherapy as well as electrical treatment could be given for animals particularly horses.

Mr GEORGE BROWN intervening towards the end of the debate said nothing would be more foolish than to encourage young men to go through a long and expensive training if they could not be sure of a position when they had completed it. The Government aimed to produce 220 new entrants a year, but there was nothing in the Bill to limit the output at that figure. Any university was authorized to give veterinary courses as soon as it was clear that they had all the facilities and they knew that it would be wise to increase the total number of entrants into the profession. With regard to physiotherapists the Government would consider sympathetically what sort of an order it could make but the point could not arise for the first year after the passage of the Bill. The only ban contemplated was a ban on diagnosis, not on treatment.

The Bill was then read a third time.

## PROPRIETARY MEDICINES

Mr STAFFORD on July 12 raised the subject of the price of proprietary medicines and asked whether it was possible to obtain a declaration from the Minister of Health on the proprietary medicine industry now that the National Health Act was in operation. He said this industry whose capital was probably more than £100,000,000 and which made some of its profit out of human credulity and suffering was almost uncontrolled. It seemed ludicrous to spend £160,000,000 a year on the health services while newspapers and handbills all over the country carried inducements to persuade people not to take full advantage of the scheme. Before the war the advertisement costs of this industry were estimated at just under £300,000,000 and he had no reason to suppose that they were less to-day. Mr STAFFORD explained that he did not speak of proprietary preparations advertised in medical and scientific journals but of those advertised direct to the public. He recognized that some well-known remedies could be used without causing great harm to the individual but the Ministry of Health ought to realize that proprietary medicines by encouraging self-medication, might prevent the best use being made of the Health Service. One of his acquaintances had just produced a study of 120 well-advertised proprietary medicines but owing to the law of libel he could not find a publisher and when he did find one prepared to take the risk of publishing he could not find a printer prepared to take the risk of printing it.

Dr HADEN GUEST Ask the B.M.A. They have done it once

Mr STAFFORD said he was not suggesting legislation, but in the public interest attention should be drawn to the discrepancy between the cost of the ingredients of these preparations and the price at which they were sold. One of the advantages of the Medicine and Pharmacy Act 1941 was that the contents now had to be disclosed on the label of the bottle but these formulae were in extremely small print which many people could not read and often in Latin which many people did not understand.

## Relevant Statutes

Mr JOHN EDWARDS replying for the Minister of Health said a large number of statutes governed articles which were proprietary medicines. These included the Venereal Diseases Act 1917 the Dangerous Drugs Act 1920-2 the Therapeutic Substances Act 1925 and the Pharmacy and Poisons Act 1935. The Food and Drugs Act 1938 made it illegal to sell a drug which had a label falsely describing it or otherwise calculated to mislead as to the nature of the substance or its quality. The Cancer Act 1939 prohibited advertisements of cure of cancer and the Pharmacy and Medicines Act 1941 altogether prohibited advertisements for the cure of such diseases as Bright's disease tuberculosis and the like. The same Act required full disclosure on the label of the active ingredients of all the medicines. Finally the Penicillin Act 1947 dealt with the whole range of penicillin products. This control was not concerned with the price at which these things were sold and there was no way under present legislation by which they could be controlled.

Voluntary efforts had been made by some of the people directly concerned to keep extravagant advertising in check. Bodies like the Proprietary Association of Great Britain and the Advertising Association had drawn up a tightened code governing what should be put on the bottles and in advertisements. Unfortunately that code did not bind those who were not in the Associations. Even one in the country was now entitled to a comprehensive health service and he believed that on providing for everyone the medicines which the doctor considered necessary there would be less inducement to buy medicines which made no real use of the doctor. Doctors for the most part would not prescribe medicines of the kind mentioned and if they were to do so their colleagues or the local medical committee would soon point them out. In so far as the medicines were costly in relation to the cost of the ingredients then it was for the public to be educated and to watch the service free of charge under the Health Service against the doubtful value of self-medication. He hoped that the efforts which some of the trade themselves were making would go at any rate some way towards meeting the situation.

## Food and Health

Opening a debate on the Committee of the Ministry of Food on July 12 Mr J. C. S. RIM pointed out that the Food Survey for 1945 showed a fall in the consumption of a number of commodities and demonstrated that the food available during the year had diminished by 200 calories per head per day on the average. He recognized that it was quite properly got more than the average through canteens school meals and extractions but a great many got less. He suggested to Mr STRACHAN that the time had come when he should re-examine his method of deciding who was to get extra allocations of food. He thought that the Ministry of Food relied too much on statistics. He hoped that as soon as harvest prospects became assured Mr STRACHAN would announce that he was going to lower the extraction rate of flour. He also urged him to make much more sugar available at an early date.

Mr STRACHAN said the House could rely on him to be rid of bread rationing at the earliest possible moment. The Ministry would like to lower the extraction rate further and if it could not be lowered by 5% it would be well worth while to lower it by 2½%. It was true that last autumn the nutritional prospect for the first six months of 1948 had been dark indeed. But the Ministry took active measures to fill the gap and were helped by favourable weather. The calorie level remained almost exactly 2,800 and did not fall below 2,700 as the Ministry had feared. He would not say that 2,800 calories was too much. In the opinion of the Ministry's scientific and nutritional advisers it was only just sufficient. He referred to the welfare services which the Ministry continued to run and said 52% of all school children now received school meals as against 4% before the war. There was an imperative need for the fullest possible sharing of foodstuffs. He cited a tribute to the condition of British children given last month by Professor Henri Bonnet, Director of the French Red Cross. Professor Bonnet said that in ten years England would have a generation

of young men and women—superior to those of any other European country. The excellent physical condition of these children was due to their feeding. Their diet was perfectly balanced. Mr Strachey observed that research work had gone on for over a year in Manchuria and Malaya on the production of edible oil from rubber seeds. It would be most valuable if this could be developed. From the East African plantations of ground-nuts there would be a commercial product in the spring or early summer of 1949. He believed the fall in the price of basic foodstuffs would continue after the harvest.

Replying to the subsequent debate, Dr SUMMERSKILL said the people of the United Kingdom consumed 50% more milk than before the war, and the demand continued. In reply to a call for jam to be de rationed she said this would make great demands for sugar and therefore the Ministry had to refuse. The Ministry was considering how it could dispose of the glut of plums and would probably make an announcement soon.

### Physicians Approved by Bishops

The Joint Committee of the House of Lords and of the House of Commons appointed to consider all Consolidation Bills in the present session recently heard evidence given by Sir Cecil Carr, counsel to the Speaker, on the Statute Law Revision Bill. The Bill proposes, among many other repeals and revisions, the repeal of an Act of Henry VIII which states that physicians and surgeons are not to practise in London unless they are examined and approved by the Bishop of London or the Dean of St Pauls and not elsewhere unless they are approved by the bishop or the vicar-general of the diocese. It was in 1510 that a Continental Council gave the bishops authority over medical practice, but this control was subsequently found inadequate and the Act of Henry VIII was passed to deal with this situation. It was designed to restrict unqualified practice, but at the present time it would prohibit all qualified practitioners from practice in the absence of clerical approval, which none of them has obtained. The Act is obsolete, and all the authorities concerned, the Royal Colleges, the General Medical Council, the Bishop of London, the Dean of St Pauls, the Ministry of Health, the Privy Council and the Church Assembly Legal Board have been consulted and agree that it should be repealed.

Under the same Bill the repeal is proposed of another Act which concerns physicians practising in London and which directs that certain offenders may be committed by the President of the College of Physicians to be duly kept by jailors of any prison in London except the Tower. Another Act the repeal of which is recommended is the Lying in Hospitals Act of 1773. Sections 10 and 11 of this Act state that owners or masters of hospitals must take pregnant women before admission to be examined before a magistrate as to whether they are married or single.

### Tuberculous School-teachers

On July 1 Mr ANTHONY GREENWOOD asked whether Mr Tomlinson had reminded education authorities of the standing instructions issued by the Ministry of Health and his department that a teacher found to be suffering from active tuberculosis should be suspended from teaching. Mr Greenwood further asked the Minister whether he had considered the desirability of making it compulsory for all teachers to have a regular medical overhaul in order to ensure that they were not carriers of tuberculosis.

Mr TOMLINSON said a memorandum had been issued reminding education authorities of the action to be taken when a teacher was found to be suffering from active tuberculosis. The memorandum did not require teachers to be medically examined at regular intervals after their entry into teaching service.

**Cracked Crockery**—Mr STRACHEY said on July 5 that infection could be spread by any crockery which had not been properly cleaned after use, but that his medical advisers took the view that cracks did not materially enhance the danger. It was of the utmost importance that caterers should protect their customers by thorough cleansing and, where possible, sterilization.

**Medresco Hearing aid**—Mr BEVAN said on July 8 that supplies of the magnetic type of Medresco hearing aid were sent to four hospitals in England and Wales in time for them to begin operating the scheme on July 5. Supplies of the crystal type should begin to be available at the end of this month. The number of distribution centres would be increased to about 25 as soon as possible.

**Cars for Midwives**—Mr ODEY inquired on July 1 what steps had been taken to provide midwives, nurses, and health visitors in rural districts with motor transport when the new Health Service came into operation. Mr BEVAN said supply was still difficult, but any chances of improvement were being explored with the motor industry.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated

**FINAL M.B.—Part II (Principles and Practice of Physic Pathology and Pharmacology)** P H Abbott, P Allebone, N Allsop, V E Amassian, J C Barker, J Bean, E M Bennett, D G Bonham, Mrs C B P Bosanquet, R M Bower, I W Broomhead, Mrs K H Cohen, D S Craig, E J Dowling, J V Earle, W J D Eberlie, Mrs B M Eley, C P E Elliott, B P Fehrsen, D V G Feltham, J E Forster, P M Glasspole, I W de G Gregory, N R Greville, I Henderson, C Q Henriques, A R H Hicks, F N Hicks, P J Higgins, A Hill, J L Hine, M Honey, M H Jerwood, D G Julian, E A Kauffmann, N Kennedy, C C Kenred Smith, W M Keynes, H G L Lloyd Thomas, J A MacDougall, R B McGrigor, J Mander, H Middleton, P F D Naylor, G W Page, C M Pare, I C Peebles, H Pigott, S Powell, Mrs H B Roxburgh, J E S Scott, R T Sears, L Sefton, J G H Shaw, J M L Shearer, E F Southill, W F W Southwood, B J Spedding, R A Stanger, G Stanley Smith, D I Storey, D B Sugden, C H Talbot, R G O Taylor, C D Thompson, K R Wallace, W R Walsh, D B J Wardle, J Wedgwood, N P L Wildy, H I Williams, R D Williams, J M Winn, A R H Worssam.

### UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated

**FINAL M.B. CH.B.—†D L Fox** \* B L Williams, Beryl G R, Attwood H de C Baker, F B Beswick, John Bolton, A Braddock, A B Bradshan, M A Brennan, Dorothy E N Briggs, R W Buckley, F Connor, Nancy M Cosslett, J A L Derlien, M Fasnacht, Constance M Horrocks, J D Hunt, B J Kendrick, Jean Kershaw, Alexandra J Kilman, Freda W Lunt, Helen E Mair, Winifred J Millar, S Panikkar, K M Pearce, Dorothy Pearson, S D Pratt, Patricia Rhodes, K Robinson, Jean M Sheldon, L Smith, P J D Snow, G A Steele, R M Taylor, W L Tonge, K Tuxford, D L Watson, H Weisl, J L Wilkinson. **Part I (Forensic Medicine and Hygiene and Preventive Medicine)** Mary A Adlington, E A Allcock, Mary P Armstrong, R M A Hton, Anne R Barlow, Jessie M Beard, T B Benson, C Bloor, Margaret Bolland, F Bottomley, W Brabbin, Jean M Breakell, N C Brown, K D Buckley, P M L Burne, F R Calvert, Betty Caruthers, R B Charnock, C Cohen, M Cohen, P Cull, R D Currie, S Dobson, Audrey E Draycott, P D Drinkwater, J B Eagles, P A Ellis, G Fildes, J E Glover, G L Glynn, Edith H Grundy, R B High, all A G Jackson, J Jackson, G Jesup.

F W Oliver, Crstine M Pari, Margaret E Reynolds, Marjorie Rivers, M Sandler, Audrey Seddon, Jeanette S Shankland, D P Shepherd, I Sieff, Rosaleen E Singer, V H Smith, R V Sykes, Audrey J Telford, T A J Thorp, Margaret R Thoseby, Barbara J Walker, Kathleen R Walker, Margaret D Walsh, T H Whitaker, A Wilkinson, Olive C Wilks.

**DPH—D G Crawshaw** J N Dobson, A Macfarlane, Mary P McGlade, Marjorie L Mackinnon, U K Menon, Joan E Nuttall, T O Grady, J Reed. **DIPLOMA IN PSYCHOLOGICAL MEDICINE—Part I** H F Jarvie, A N Jennings, J D F Thornton.

\* With second class honours † Distinction in forensic medicine

### UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated

**FINAL M.B. CH.B.—Part I** H B Brown, Nora E Brown, D Burrell, A C Ellis, B F Matthews (with distinction in pharmacology), R Reissler, M S Sampath, Mary L Snowden, Rachel B Taylor, Joyce W Wallis, Joyce P Watson, Eleanor J Wilson. **Part II** Roxie Glossop. **DPH—G Higgins** G W Knight, J Lyons.

### UNIVERSITY OF SHEFFIELD

The following appointments were made at a meeting of the University Council on July 9. **Lecturer in Anatomy** T Summerfield King, M B, Ch B. **Demonstrators in Anatomy**, M J Twohig, M B, B Ch, and S M Patel, M B, Ch B. **Research Assistant in Medicine** Mrs Joan Lard, M B, Ch B. **Research Assistant in Child Health** J Lorber, M B, B Chir, M RCP. **Part-time Senior Lecturer in charge of newly created Department of Forensic Medicine** Gilbert Forbes, M D Glas, F R C S Ed, F R F P S.

### CONJOINT BOARD IN IRELAND

The following candidates have received the diplomas of L R C P and S I. A M M Abernethy, M Casey, R E ff Devitt, Elizabeth M D Doherty, Carmel P Dooley, P S Finegold, H Hayes, J F Hickey, D Jackson, S J Lundie, J C Mabayoje, Margaret V M Matthews, A J Matlin, D H Merrin, Mary T Mitchell, Mary C MacCabe, E J McCann, T J McCormack, Mary M Navin, J P O'Sullivan, B H Willcock.

### ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

The Council of the College announces the award of a Kirk Duncanson Fellowship for Medical Research to Robert Macfie Marquis, M B E, M B, Ch B, who will investigate congenital malformations of the heart. The value of the Fellowship is £750 and it is tenable for one year.



No 27

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 3

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland *Figures of Births and Deaths and of Deaths recorded under each infectious disease, are for* (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	42	5	15	3	—	64	10	20	2	2
Diphtheria Deaths	141	16	40	11	7	188	20	37	15	15
Dysentery Deaths	69	9	39	—	—	57	3	26	—	—
Encephalitis lethargica, acute Deaths	1	—	—	—	—	4	—	1	—	—
Erysipelas Deaths	—	—	33	6	1	—	—	36	7	2
Infective enteritis or diarrhoea under 2 years Deaths	27	1	11	12	1	52	4	14	54	1
Measles* Deaths†	8 987	680	120	132	65	10 269	556	68	186	9
Ophthalmia neonatorum Deaths	57	1	5	—	—	61	4	11	1	—
Paratyphoid fever Deaths	6	—	1 (B)	—	—	8	1	2 (A)	—	—
Pneumonia influenzal Deaths (from influenza)‡	359	9	4	5	—	353	26	5	1	1
Pneumonia, primary Deaths	134	22	134	25	8	—	22	159	25	4
Polio encephalitis acute Deaths	2	—	—	—	—	9	1	—	—	—
Poliomyelitis, acute Deaths§	36	3	1	2	—	79	9	4	4	—
Puerperal fever Deaths	—	2	9	—	—	—	2	10	—	—
Puerperal pyrexia   Deaths	120	13	6	—	1	144	9	10	1	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 532	87	353	54	23	966	87	126	47	29
Smallpox Deaths	—	—	—	—	—	3	—	—	—	—
Typhoid fever Deaths	6	—	—	3	—	15	1	2	—	17
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2 907	223	18	69	16	2 240	287	44	104	9
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	243	31	41	29	10	333	44	56	29	12
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	3,867	607	522	182	118	3 694	560	544	184	103
Live births Annual rate per 1 000 persons living	8 006	1275	971	485	253	9 421	1558	1109	508	306
Stillbirths Rate per 1 000 total births (including stillborn)	194	17	44	—	—	238	31	30	—	—

\* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only

† Deaths from measles and scarlet fever for England and Wales (London (administrative county)) will no longer be published

‡ Includes primary form for England and Wales (London (administrative county) and Northern Ireland

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London (administrative county)) are combined

|| Includes puerperal fever for England and Wales and Eire

## EPIDEMIOLOGICAL NOTES

## Typhus in County Tyrone

Two cases of typhus fever have been notified in County Tyrone. On July 19 the Northern Ireland Ministry of Health stated that the two patients were children from the Finton district and had been playing with the children of a gipsy tinkler colony. Steps are being taken to disinfect all gipsy and tinkler encampments in the district.

## Poliomyelitis

Reports from B U P correspondents show that outbreaks of poliomyelitis are in progress in certain areas of the United States, while Europe on the whole is experiencing fewer cases than usual. The worst-affected area in the United States is North Carolina. More than 500 cases have been reported in the State so far. In Europe there are reports of increases in incidence from Stockholm and Berlin, but other cities report fewer cases than in previous years. Sweden reports 103 cases from Jan 1 to June 15 this year, as compared with 49 cases in the same period of last year. In the second half of last year a total of 1,454 cases were reported in Sweden.

German and Allied health authorities in Berlin recorded 34 cases, 3 of them fatal, in April and May, compared with only one case over the same period last year. During the second half of 1947 a total of 339 cases were reported in Berlin with 12 deaths.

Fewer cases than in previous years are predicted for the whole of Belgium this year by Ministry of Health officials in Brussels. In 1945 there were 960 cases in Belgium, but this had dropped to 260 cases by last year. The pre-war average was between 80 and 100 cases each year. Switzerland reports a similar decline, from 1,793 cases in 1944 to 932 cases in 1946 and 755 cases in 1947. Only 41 cases had been reported up to the middle of May, 1948, as compared with 56 in the same period last year. Holland's worst year was 1943, when 1,931 cases were reported. The number had dropped to 693 by last year although this is still high when compared with the pre-war average of some 300 cases a year.

## Discussion of Table

In England and Wales the only variations of any size in the returns of infectious diseases were decreases in measles 1,584 and scarlet fever 117 and an increase of 104 in the incidence of whooping-cough.

The largest decreases in the notifications of measles were London 200, Durham 185, Warwickshire 168, Flint 141, Staffordshire 131, Lancashire 131, Cheshire 116, and Middlesex 111. The largest increases were Yorkshire West Riding 53, Sussex 47, and Caernarvonshire 47. The only variation of any size in the local returns of scarlet fever was a decrease of 50 in Lancashire. The largest increase in the incidence of whooping-cough was 36 in Norfolk. An increase of 9 in the notifications of diphtheria in Lancashire was the chief feature of the returns of this disease. An outbreak of dysentery affecting 11 persons was notified from Sussex, Chailey R D. The other large centres of infection were Yorkshire West Riding 11, London 9, Lancashire 8 and Norfolk 8.

The notifications of acute poliomyelitis increased by 9. This is the third consecutive week showing a small increase. There seems a possibility that the course of this disease will be similar to that of cerebrospinal fever in the early war years and that we may expect a high seasonal rise in the autumn. During the week multiple cases were notified in Bedfordshire, Bedford MB 4, Leicestershire, Leicester CB 4, Sussex, Arundel MB 2, Middlesex, Enfield UD 2, Staffordshire, Walsall CB 2, Warwickshire, Birmingham CB 2, Yorkshire East Riding, Kingston-upon-Hull 2. Other counties with multiple cases were London 3, Derbyshire 2 and Lancashire 2.

In Scotland a decline was recorded in the incidence of most infectious diseases. There were falls in the incidence of measles 45, scarlet fever 41, and whooping-cough 20. The notifications of dysentery in Edinburgh rose from 4 to 10. In the eastern area there was a rise of 18 in the notifications of scarlet fever.

In Eire decreases were recorded in the totals for diarrhoea and enteritis 34, whooping-cough 17, and measles 12, while increases were reported in the incidence of scarlet fever 14 and diphtheria 5. A further 27 cases of measles were notified from the outbreak in Galway, Loughrea R D.

In Northern Ireland the largest variations in the returns were a decrease of 13 for scarlet fever and an increase of 6 for diphtheria.

## Week Ending July 10

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1,658, whooping-cough 3,075, diphtheria 150, measles 8,837, acute pneumonia 340, cerebrospinal fever 24, acute poliomyelitis 23, dysentery 56, paratyphoid 6 and typhoid 5.





the oval window, or the vestibular nerve may be cut. Tetraethyl-ammonium chloride is used to reduce high blood pressure but so far as the writer knows, has no place in the diagnosis and treatment of Ménière's syndrome.

### Sprue and Malignant Disease

**Q**—Does sprue predispose to malignant disease? If a patient with sprue developed a carcinoma of the bowel laparotomy could not be undertaken because of the weakness and emaciation and death might be wrongly attributed to the sprue.

**A**—There is no reliable evidence that sprue predisposes to malignant disease. With adequate treatment most cases of sprue respond rapidly and satisfactorily enough to permit exploratory operation where indicated.

### Gonorrhoea, Syphilis, and Penicillin

**Q**—A patient who was successfully treated with penicillin for gonorrhoea four months ago has developed a primary sore in which *Spirochaeta pallida* has been found. The Wassermann reaction is negative. (a) What is the prognosis in these cases? Does the fact that penicillin has been given make cure more difficult? (b) The patient had unprotected intercourse with his wife about a month before the first sign of the sore but not after that. Is there any danger that she might have been infected on this occasion which was presumably during the incubation period?

**A**—(a) The prognosis is good provided adequate treatment is administered without delay. There is no reason to suppose that the syphilis will be more difficult to cure because the patient was treated with penicillin for gonorrhoea. (b) There is a risk that the patient may have infected his wife, but it is small, it would therefore be wise to keep her under observation for at least three months, with periodical clinical and serological examinations.

### Retardation of Growth

**Q**—(a) Has an anti-growth hormone definitely been isolated? (b) What is the substance that might be called the opposite number of the anterior pituitary growth hormone? (c) Can such substance be utilized to prevent the growth of cells in certain organs of the human body to the exclusion of cells in other organs of the body?

**A**—(a) No. (b) There is no such substance, but experimentally the giving of certain hormones, such as oestrogens, will inhibit initial secretion of the pituitary gonadotrophic hormone and subsequently all other hormones, including the growth hormone. Thus Zondek produced dwarfism in mice so treated together with hypogonadism, and the pituitary gland showed loss of the granules of both the eosinophil and the basophil cells, and sometimes a large chromophobe adenoma was also produced. Clinically it is difficult to stop somatic growth or to inhibit the development of acromegaly by such methods, but relative success in the latter is sometimes obtained. (c) No.

### Keeping Qualities of Aspirin

**Q**—Does aspirin in a mixture deteriorate appreciably? Is it best to prescribe aspirin in tablet form?

**A**—Aspirin is a somewhat unstable chemical, hydrolysing in the presence of water into free salicylic and acetic acids. In mixture form it decomposes fairly rapidly, and even in powder and tablet form it cannot be relied upon to keep for prolonged periods, particularly in a moist atmosphere. The odour of acetic acid on opening the container is an indication of decomposition, and if this odour is strong one may suspect very appreciable deterioration.

### Acute Cystitis

**Q**—What is the prognosis in a man of 70 with some prostatic enlargement who had an acute cystitis twelve years ago and a recurrence two months ago? The urine was freed from the infecting organisms—*Bact. coli* and *Str. faecalis*—after a course of sulphadiazine. Can treatment with sulphonamides be continued with impunity and are further relapses likely?

**A**—It is very difficult to get rid of a urinary infection in the presence of residual urine, and in this case there is likely to be

residual urine. The best method of treatment is either by means of calcium mandelate or by the use of the sulphonamides. As a sterile urine was temporarily obtained after taking sulphadiazine there is no reason why this should not be repeated. Sulphamezathine is probably even less toxic than sulphadiazine, but if either of these preparations is taken in moderate doses and with plenty of fluids for only a week no harm will be done. Occasional relapses are likely, but in time a higher resistance to the infecting organisms may be developed. Provided the residual urine does not increase, the outlook is satisfactory.

### Nerve Deafness and Syphilis

**Q**—What is the best treatment for a patient aged 65 with marked arteriosclerosis of the limbs who is now rapidly developing nerve deafness? He has positive Wassermann and Kahn reactions and has had a full course of penicillin without effect but no other antisyphilitic treatment. The old specific trouble has been quiescent for years apparently and the positive Wassermann reaction was only accidentally discovered. Would trypanamide and bismuth arrest the nerve deafness?

**A**—It would be wise to obtain the opinion of a neurologist on whether the nerve deafness is due to syphilis which seems at least problematical. The full effects of penicillin in certain forms of syphilis are often not apparent for some months. Assuming the patient has had at least five mega units, further antisyphilitic treatment is not indicated until several months have elapsed. If the condition has not improved by then injections of oil soluble bismuth, given twice weekly, might be worth trying. Trypanamide should not be employed. In view of the condition and age of the patient the prognosis is far from good.

## NOTES AND COMMENTS

**Loss of Weight after Hysterectomy**—Dr A. RUSSELL (Edinburgh) writes: I trust you will permit a suggestion concerning the answer to the query describing loss of weight after hysterectomy ("Any Questions?" July 10, p. 117). The slowly progressive loss of weight with wasting apparently confined to face, upper limbs, and trunk—the lower limbs remaining "quite muscular"—might well suggest a progressive lipodystrophy. You will agree that this condition may arise in adult life, principally in females, and may be associated with atrophic lesions of the hypophysis, ovarian lesions, etc., so that the pathology implied in the question may not be unrelated. The concentration of the wasting in the face together with the unimpaired general condition, would appear to give added support to the diagnosis suggested.

### Corrections

In our report of a meeting of the combined Sections of Child Health and Radiology on Friday, July 2 (*Journal* July 17, p. 162) Professor Wilfrid Gaisford (Manchester) was reported as saying "not all malignant cases were curable". This should have read "not all cases were fatal which is quite commonly assumed". The reference to a raised basal metabolic rate in cases of medulloblastoma was also incorrect and should have read "Topper had found that in all intracranial tumours, whether benign or malignant, the basal metabolic rate was lowered, whereas in all malignant tumours in other parts of the body it was raised". The phrase "staggering was a common first symptom" should have been deleted, and Wilms' tumours are, of course, radiosensitive. "The inguinal glands were enlarged" should have read "were not enlarged".

We regret that in the letter from Sir Frederick Menzies (July 17, p. 171) an error occurred in the printing of the first line of the second paragraph. It should read "Not one of these men ever received any public recognition of their great services to London".

There was a misprint in the report of the visit of the Section of Pathology to the Strangeways Research Laboratory at Cambridge (July 17, p. 160). Reference was made to an important demonstration of the histological assessment of the radiation treatment of cancer by "Dr A. Glausmann and Dr F. G. Spears". This should have read "Dr A. Glucksmann".

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: Autolox, Westcent London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: Brimmedads, Westcent London. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. Telegrams: Medisecra, Westcent London. B.M.A. SCOTTISH OFFICE: 7 Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 24 1948

## COMPENSATION FOR THE LOSS OF GOODWILL

### SUBMISSION OF CLAIMS

*The following Memorandum is being sent by the Ministry of Health to local executive councils together with a copy of the National Health Service (Medical Practices Compensation) Regulations 1948 (No 1506) We reproduce the Regulations after the Memorandum*

1 A copy of the regulations which have been made after consultation with representatives of the medical profession is enclosed together with a form on which to claim compensation for the loss of the right to sell the goodwill of a medical practice. The submission and assessment of claims is governed by the regulations, to which reference should be made, but attention is drawn to the following matters —

2 *Doctors eligible to claim*—Regulation 5—The doctors entitled to claim are those who were engaged as principals in general medical practice immediately before July 5, 1948, and whose names were entered on July 5, 1948 on the medical list of an executive council as practitioners undertaking to provide general medical services (or maternity medical services) under the Act.

A doctor will not be entitled to compensation if he has acquired the practice of a doctor who retired or died between Nov 6 1946, and July 5, 1948, and in respect of whose practice a claim for compensation is paid by virtue of Section 37 of the Act. This disqualification will not apply to an acquisition of a practice by purchase.

3 *Submission of claims*—Regulation 3 (3)—Where the claim is based on the doctor's own gross receipts (and not on the gross receipts on which the purchase price paid for the goodwill was based) a certificate of a qualified accountant or a certificate of the local Inspector of Taxes is necessary, and this should first be obtained. The claim should then be sent to the Ministry at the address shown on the form.

It is important that the claim should be made promptly, since it will not be possible to allocate the total amount of compensation available until a decision has been reached on all the claims submitted. For this reason Oct 31 has been fixed as the last day for sending in claims and only in special circumstances will a claim sent after that date, but before April 30, 1949, be admitted.

Doctors on the list of more than one executive council may receive a copy of the claim form from each council, but only one claim form should be completed.

4 *Assessment of the annual value of a practice*—Regulation 7—In general, the annual value of a doctor's practice will be taken as the average gross yearly receipts of his practice calculated by reference to the last two accounting years or, in the case of a doctor in a partnership, his share as at July 5 of the average gross yearly receipts of the partnership calculated in the same way.

The Minister will determine the annual value of each doctor's practice and in difficult cases he will have the advice of the committee of five, referred to in Regulation 8. Three of the members of this committee will be medical practitioners.

Each doctor will be informed as soon as possible of the amount determined by the Minister to be the annual value of his practice for compensation purposes and it will then be open to him if he is aggrieved by the decision, to apply to the Minister for his case to go to arbitration (Regulation 11).

5 *Determination of the amount of compensation payable*—Regulation 12—The total sum available for distribution to doctors in Great Britain will be £66 000 000 (provided the number of practitioners on the medical lists of executive councils at July 5, 1948, is not less than 17,700).

Each doctor entitled to compensation under the Act will receive a share of the total in the proportion that the annual value of his practice bears to the aggregate annual value of the practices of all the doctors so entitled. It follows that until the annual values of all practices have been assessed it will not be possible to determine the amount of compensation payable to any doctor. Individual notifications will be made as soon as the calculations are complete.

6 *Time of payment*—Regulation 13—After the amount of the compensation payable to each doctor has been determined payment of the amount due will be made on retirement (as defined in the regulations) or earlier death.

There is however provision for an advance payment on account where hardship would otherwise arise. Doctors claiming early payment are asked to submit with their application details of the grounds on which it is made (Regulation 13 (2) (d)). If hardship is claimed because of heavy charges in respect of loans raised for the purchase of the practice particulars should be given of these loans for example amount outstanding, the rate of interest and the amount and date of the repayments of principal. This information as well as that submitted in support of the claim for compensation will be treated as confidential. Application for early payment on grounds of hardship may be made at any time.

7 *Interest*—Regulation 14—Interest at the rate of 2½% (less tax) will be paid until the time when the compensation is paid. Payment of interest cannot however be made until each doctor's share of compensation has been determined and the first payment covering the period from July 5 1948 will be made on July 5 1949. Payment will be made at half-yearly intervals thereafter.

8 *Partnerships*—Doctors will probably be aware that a legal committee is at present investigating the special position of partnerships under the National Health Service Act and will advise the Minister in due course. Further regulations or an amending Act will be necessary in the light of the committee's recommendations.

It will not therefore be possible finally to allocate compensation between partners under these regulations, but the value of each partner's share of the practice will be assessed and the claim form should be completed and sent in without waiting for the findings of the committee.

## THE NATIONAL HEALTH SERVICE (MEDICAL PRACTICES COMPENSATION) REGULATIONS, 1948 (No 1506)

The Minister of Health, in exercise of his powers under sections 36 and 74 of the National Health Service Act, 1946, and of all other powers enabling him in that behalf, hereby makes the following regulations —

### PART I

#### General

1 These regulations may be cited as the National Health Service (Medical Practices Compensation) Regulations, 1948, and shall come into operation on the 5th day of July, 1948

2 (1) In these regulations, unless the context otherwise requires, the following expressions have the respective meanings hereby assigned to them —

‘the Act’ means the National Health Service Act, 1946,

‘the appointed day’ means the fifth day of July, 1948,

‘accounting year’ in relation to a medical practice means the period of twelve months for which the accounts of the practitioner engaged in that practice are made up,

‘medical list’ means the list prepared by an Executive Council of medical practitioners undertaking to provide general medical services,

‘practitioner’ means a registered medical practitioner, ‘aggregate amount of compensation’ means the aggregate amount of compensation payable to practitioners in England and Wales under section 36 of the Act,

‘qualified accountant’ means a person who is a member of one or more of the following bodies —

The Institute of Chartered Accountants in England and Wales

The Society of Incorporated Accountants and Auditors,

The Society of Accountants in Edinburgh,

The Institute of Accountants and Actuaries in Glasgow

The Society of Accountants in Aberdeen,

The Institute of Chartered Accountants in Ireland,

The Association of Certified and Corporate Accountants Limited

(2) For the purposes of these regulations references to the goodwill of a medical practice shall, unless the context otherwise requires, in relation to a practitioner practising in partnership be construed as referring to his share of the goodwill of the partnership practice

(3) The Interpretation Act, 1889, applies to the interpretation of these regulations as it applies to the interpretation of an Act of Parliament

### PART II

#### Submission of Claims, Determination of Loss, and Payment of Compensation

3 (1) A practitioner whose name is entered on the appointed day on a medical list and who claims to be entitled to compensation under section 36 of the Act in respect of any loss suffered by him by reason that he is, or will be, unable to sell the goodwill, or any part of the goodwill of his medical practice by virtue of section 35 of the Act shall make application to the Minister in the form set out in the schedule to these regulations or in a form to the like effect. If any such practitioner dies without having submitted a claim for compensation the application shall be made by the personal representative of that practitioner

(2) Where a practitioner or the personal representative of a practitioner has obtained a certificate from the Medical Practices Committee certifying that the conditions of section 37 of the Act have been satisfied in relation to that practitioner and to his practice, the practitioner or the personal representative, as the case may be, shall be entitled to apply for compensation as if the practitioner were entitled to do so under paragraph (1) of this regulation

(3) The form of application shall be duly completed by the applicant and delivered or sent by post to the Minister on or before the thirty-first day of October, 1948. Provided that, where the Minister is satisfied that by reason of unavoidable delay in the appointment of the personal representative of a deceased practitioner or in obtaining a certificate from the Medical Practices Committee under section 37 of the Act or for any other reason it is not or has not been practicable to submit an application by the thirty-first day of October, 1948, the Minister may allow such further period not exceeding six months for the submission of the claim as appears to him to be reasonable

#### Medical Practitioners in Partnership

4 The provisions of the succeeding regulations shall be subject, so far as they affect medical practitioners practising in partnership, to any provisions made hereafter either by further regulations under section 36 of the Act or by or under any Act amending the Act

#### Determination of Loss

5 Subject to the provisions of these regulations, every medical practitioner engaged immediately before the appointed day as a principal in general medical practice whose name is entered on the appointed day on a medical list, and every practitioner in respect of whom and of whose practice a claim for compensation can be made in accordance with paragraph (2) of regulation 3, shall be deemed to have suffered loss, and he or his estate, as the case may be, shall be entitled to compensation. Provided that a practitioner who on the appointed day would have the right to sell, but for the provisions of the Act, the goodwill or any part of the goodwill of a medical practice in respect of which a claim has been made under section 37 of the Act shall not, if compensation is payable in respect of that claim, be deemed to have suffered loss in respect of that goodwill or any part of it

#### Extent of Loss

6 The extent of the loss of a medical practitioner or the personal representative of a medical practitioner who is entitled to compensation under the last preceding regulation shall be determined in accordance with the following provisions of these regulations

#### Annual Loss

7 (1) There shall be ascertained the annual value of the goodwill of the practice of each practitioner who has claimed compensation in respect of whom and of whose practice a claim for compensation has been made. Such annual value is hereinafter referred to as “the annual loss”

(2) For the purpose of these regulations “the annual loss means —

(a) in respect of the practice (not being a partnership practice) in which the practitioner was engaged on the appointed day, the average gross yearly receipts of that practice, as certified by a qualified accountant, calculated by reference to the last two accounting years immediately preceding the appointed day

(b) in respect of a partnership practice in which the practitioner was engaged on the appointed day, such proportion of the average gross yearly receipts of that practice, as certified by a qualified accountant, calculated by reference to the last two accounting years immediately preceding the appointed day, as the share of the goodwill of the partnership practice held by him on that day bears to the whole goodwill of the partnership practice,

(c) in respect of a practice to which section 37 of the Act applies, the average gross yearly receipts of that practice, as certified by a qualified accountant, calculated by reference to the last two accounting years immediately preceding the date of the retirement from practice or death of the practitioner

Provided that —(i) in the case of the goodwill of a practice acquired by purchase after the beginning of the first of the two accounting years by reference to which the average gross yearly receipts of the practice are, under the preceding provisions of this regulation, to be calculated, the annual loss means the average gross yearly receipts of the practice as estimated for the purpose of the purchase,

(ii) in the case of any claim referred to the Committee appointed under the next succeeding regulation the Committee shall fix as the annual loss in respect of the practice such sum as they estimate fair to represent the average gross yearly receipts of the practice

(3) A practitioner or the personal representative of a practitioner submitting a claim for compensation under these regulations may, if he so elects, instead of having the gross receipts of the practice certified by a qualified accountant, submit with his claim a certificate in such form as may be agreed between the Minister and the Commissioners of Inland Revenue, signed by the Inspector of Taxes, whom income tax returns in respect of that practice have been submitted

(4) In calculating the average gross yearly receipts of a practice for the purposes of paragraph (2) of this regulation no account shall be taken of fees or remuneration received for or in respect of the holding of any appointment or of any other fees or remuneration which would not normally be taken into account in assessing the value of the goodwill of a general medical practice for the purpose of the sale thereof

#### Practices Compensation Committee

8 (1) There shall be constituted a committee to be called the Practices Compensation Committee (hereinafter referred to as “the Committee”)

(2) The Committee shall consist of a chairman and four other members. Three of the five members shall be medical practitioners

(3) The chairman and members shall be appointed by the Minister after consultation with such organization as the Minister may recognize as representing the medical profession

(4) The Minister shall appoint a Secretary to the Committee and such organization as the Minister may recognize as representing the medical profession may also appoint a Secretary to the Committee who shall act jointly with the Secretary appointed by the Minister. The Minister may also provide the services of such other officers as the Committee may require

#### Claims Submitted to Committee

9 (1) The Minister shall refer to the Committee all claims for compensation submitted in accordance with Regulation 3 which in his opinion should be considered by the Committee

(2) It shall be the duty of the Committee to consider the claims referred to them and to report their findings to the Minister

#### Decisions on Claims

10 The Minister, after considering each claim for compensation and if the claim has been referred to the Committee, the findings of the Committee, shall notify the claimant or his personal representative of the annual loss as determined by the Minister for the purpose of calculating compensation under these regulations

#### Arbitration

11 (1) Any claimant or his personal representative who is aggrieved by the decision of the Minister under the last preceding regulation may within fourteen days of the date of the notice given under that regulation apply to have the annual loss determined by arbitration

(2) Any such application shall be sent to the Minister who shall thereupon refer the matter to the arbitration of a single arbitrator sitting with two assessors. The arbitrator and assessors shall be appointed by the Minister after consultation with such organization as the Minister may recognize as representing the medical profession

#### Distribution of Aggregate Amount of Compensation

12 (1) For the purpose of calculating the distribution of the aggregate amount of compensation among persons who under these regulations are deemed to have suffered loss by reason of the matters referred to in regulation 3 there shall be calculated the aggregate of all annual losses determined in accordance with these regulations. The aggregate of such losses is hereinafter referred to as the aggregate annual loss

(2) Subject as is otherwise provided in these regulations there shall be payable out of the aggregate amount of compensation by way of compensation—

(a) to a practitioner practising otherwise than in partnership, or the estate of such a practitioner, who is entitled to compensation, such proportion of the aggregate amount of compensation as the annual loss determined to have been suffered by him or his estate on the appointed day bears to the aggregate annual loss,

(b) to a practitioner practising in partnership, or the estate of such a practitioner, who is entitled to compensation, such sum as may be determined by or under regulations made hereafter under section 36 of the Act or by or under any Act amending the Act

(3) A practitioner or the personal representative of a practitioner to whom compensation has become payable under the last preceding paragraph shall be notified by the Minister of the amount of compensation so payable

#### Payment of Compensation

13 (1) Subject as hereinafter provided, the compensation payable to a practitioner or the estate of a practitioner under the last preceding regulation shall be paid to the practitioner or his personal representative—

(a) in the case of a practitioner to whom and to whose practice section 37 of the Act applies as soon as may be after the amount of compensation so payable has been ascertained,

(b) in any other case, on the retirement from practice or death of the practitioner concerned, whichever shall first occur. Provided that if the amount of compensation payable has not then been ascertained payment shall be made as soon as may be after the amount due has been ascertained

(2) (a) A practitioner or the personal representative of a practitioner to whom and to whose practice Section 37 of the Act applies may, on the ground of hardship suffered or likely to be suffered by that practitioner or the persons entitled to his estate, at any time after the appointed day submit to the Minister a request for an advance payment on account of compensation in respect of which a claim has been made by that practitioner or his personal representative

(b) Where a practitioner whose name is entered on the appointed day on a medical list retires or dies without having received payment of compensation to which he is entitled, the practitioner or his personal representative may, notwithstanding that the compensation payable in respect of the goodwill of the practice of the practitioner has not been ascertained submit to the Minister on the ground of hardship suffered or likely to be suffered by him or the persons entitled to his estate a request for an advance payment on account of compensation in respect of which a claim has been made by the practitioner or his personal representative

(c) In any case not falling within sub paragraphs (a) or (b) of this paragraph a practitioner who claims to suffer hardship by reason of the non payment before the date of his retirement from practice or death of compensation to which he is entitled under these regulations may at any time submit to the Minister a request for immediate payment of the whole or any specified part of the compensation to which he is entitled or, if the amount of compensation payable to him has not been ascertained, for an advance payment on account thereof

(d) Any such request shall specify the grounds on which it is made and shall be supported by such written evidence as the practitioner or the personal representative of the practitioner considers necessary to justify the request

(e) The Minister shall forthwith on receiving any such request consider the request and if he is satisfied, after making such investigations as appear to him necessary, that the request or some part thereof should be met, shall pay on such terms as he thinks fit to the practitioner or the personal representative of the practitioner such sum as the Minister considers to be fair and reasonable having regard to the evidence before him

(3) For the purpose of paragraphs (1) (b) and (2) (b) and (c) of this regulation retirement from practice means retirement from practice as a medical practitioner providing general medical services under Part IV of the Act or under Part IV of the National Health Service (Scotland) Act, 1947

#### Interest on Amount of Compensation

14 (1) Subject as hereinafter provided there shall be paid out of moneys provided by Parliament interest at the rate of two and three quarters per cent per annum less tax at the standard rate on the compensation payable to a practitioner or his personal representative under these regulations, in respect of any period from the appointed day until the time when the compensation is paid

(2) Where an advance payment of compensation is made in pursuance of paragraph (2) of regulation 13, interest on the sum so paid shall no longer be payable

(3) The first payment of interest due under these regulations shall be paid on the fifth day of July, 1949, and thereafter interest shall be paid by half-yearly instalments on the fifth day of January and the fifth day of July in each year

The Schedule to the Regulations prescribes the form in which the medical practitioner, or in the case of his decease his representative, may claim compensation under Section 36 of the Act

## National Health Service News

### REMUNERATION OF GENERAL MEDICAL PRACTITIONERS

Arrangements for the distribution of the Central Fund for the period July 5, 1948, to Sept 30, 1948, are now being discussed with the Ministry. First, an International Distribution Committee will determine the apportionment between England and Wales and Scotland. Secondly, Distribution Committees for England and Wales and Scotland, similar in constitution to the old N.H.I. Distribution Committees, will apportion the Fund to the various local executive councils. In order to do this executive councils will be instructed to count their Forms EC 1 as at July 31 so that they can be informed by Sept 1 how much money will be available for distribution in individual areas. Executive councils will then be able to distribute the money among the doctors on the council's medical list in proportion to the number of patients actually on the doctors' lists at the latest date possible. It is hoped that this will be not earlier than mid-August.

It is of vital importance that doctors should forward acceptances (Forms EC 1) to the local executive council without delay. Failure to do so may result in the area's share of the

rational pool' being disproportionate to the number who have signed on doctors' lists

The following method of distribution will be adopted (A) The total civilian population in England and Wales and Scotland will be the Registrar-Generals estimate on June 30, 1948 (B) The Central Fund will consist of 95% of the estimated population multiplied by a quarter of the capitation fee (4s 6d) with a proportionate deduction for the first four days of July (C) From the amount arrived at by this calculation there will be deducted the amount set aside for mileage (approximately one quarter of £1,300,000) (D) The resulting sum will be divided between England and Wales on the one hand and Scotland on the other in proportion to the aggregate number of persons actually on doctors' lists, plus one-third of the estimated population not on doctors' lists in the two countries respectively (E) The share of England and Wales as ascertained in (D) will be apportioned between the executive councils in the same way as the total fund is divided between (a) England and Wales and (b) Scotland (F) The first charge on the share of each executive council as calculated in (E) will be the amount necessary to pay the appropriate proportion of any fixed annual payments to which doctors in the area of the council may be entitled. *The balance of the executive council's share will be distributed among the doctors on the council's medical list in proportion to the numbers of patients actually on the doctors' lists at the latest date in the period on which the council can make the necessary count. The numbers on the lists of doctors receiving a fixed annual payment will for this purpose be reduced by one-seventh.* (G) A proportion of the total share of England and Wales (probably 5%) will be withheld to provide for payments for temporary residents, emergency treatment, and anaesthetics, and to ensure so far as possible that payments to individual doctors in the next quarter will not vary too greatly from those for the current period

#### Basic Salary

Recent regulations indicate the conditions of payment of the fixed annual amount of £300. The payment will be made only to those doctors who elect to have it and who receive the consent of the executive council (after consultation with the local medical committee) or, on appeal, of the Minister. (When the fixed annual payment is made the capitation fees of those receiving it will be reduced by one-seventh.) Executive councils have been informed that the Minister considers that consent ought to be given in cases where there is reasonable justification for so doing. Such justification might exist in the case of a doctor who is starting a new practice, or working up a small one, the doctor who on account of age or ill-health is unable to do as much as he has done in the past (when it is necessary that his services should be given) or the rural doctor in a sparsely populated area who cannot attract a large list (though these last cases will normally be covered by an inducement payment). It is possible that in a few areas where the proportion of doctors to the population is at present unusually high the coming into operation of the National Health Service may result in a drop in doctors' incomes. Local executive councils have therefore been informed that consent should be given in any case where a doctor's income can be shown to have dropped substantially as a result of the new Service involving an element of hardship.

It is important that doctors should distinguish between the fixed annual payment (which comes out of the central "pool") and the special "inducements" fund of £400,000 (which is quite separate from the central "pool") for unattractive areas, abnormal difficulties of practice, etc. The distribution of this fund is now under discussion and it is hoped that payments will be made in the current quarter. Rural practitioners will of course look to this fund to assist them in their special difficulties.

#### Dispensing Capitation Fee

The Ministry proposes that doctors who elect to be paid for dispensing on the basis of an annual capitation fee should be remunerated as follows: (a) for drugs and appliances on the special list at the rates laid down in the drug tariff (i.e., as for chemists), (b) for the rest, at the rate of 6s 6d a dispensing patient. These terms have been accepted without prejudice to the findings of any inquiry initiated into the cost of dispensing by doctors in rural areas.

### Certification

The Ministry has issued the following circular to local executive councils

#### NATIONAL HEALTH SERVICE MEDICAL CERTIFICATES

The following list sets out the enactments under or for the purposes of which doctors may be asked to issue medical certificates by their patients or the legal representatives of a patient who has died. Under paragraph 7 (7) of Part I of the first schedule to the National Health Service (General and Pharmaceutical Services) Regulations, 1948, such certificates given by a doctor on a medical list to patients for whom he is responsible (or to their personal representatives) would be given without charge.

The list is prepared for the general guidance of medical practitioners. It is not necessarily exhaustive, and will be reconsidered when the Inter-Departmental Committee on Medical Certificates has reported.

Serial	Enactment	Purpose for which Certificate is Required
1	Disabled Persons (Employment) Act 1944	To register under the Act
2	(i) Road Haulage Wages Act 1938 (ii) Catering Wages Act 1943 Wages Councils Act 1945 Agricultural Wages (Regulation) Act 1924 to 1947	To prove sickness to obtain guaranteed weekly wage In support of an application for a permit to be employed at a sub-standard wage rate or to obtain guaranteed weekly remuneration or statutory holiday
3	Juries Act, 1922	To claim exemption from a requirement to sit on a jury
4	Elections and Jurors Act 1945	To claim facilities to vote by post at a parliamentary election
5	Births and Deaths Registration Acts 1836 to 1926	(a) To certify nature of illness and cause of death (b) To certify that a child was born dead in a case of stillbirth
6	Lunacy Act 1890	(a) To certify under Section 55 (8) of the Lunacy Act 1890 that detention of a person absent on trial is no longer necessary (b) To certify under Section 335 of the Lunacy Act 1890 that a person is incapable of managing his own affairs
7	(i) Reinstatement in Civil Employment Act 1944 (ii) Control of Employment (Directed Persons) Order, 1943 (iii) Defence Regulation 80B	To extend time for making application for reinstatement when prevented by illness In support of claim for changed employment or withdrawal of direction To certify fitness for type of direction
8	(i) Services and Mercantile Marine Disability Pensions Acts (ii) Personal Injuries (Emergency Provisions) Act 1939	(a) To assist in determining a claim to war pension or allowance (b) To enable proxy to draw pension
9	Under Defence Regulation 55 (a) Welfare Foods Order 1947 (b) Food Rationing (General Provisions) Order 1947 Milk (Control and Maximum Prices) Order 1947 (c) (i) Control of Rubber Tyres (No 9) Order 1946 (ii) Control of Leather (No 2) Order 1944 Control of Leather (No 5) Order 1944 (iii) Consumer Rationing Order 1947 (iv) Utility Furniture (Supply and Acquisition) Consolidation Order 1946 (v) Import of Goods (Control) Order 1940 (vi) Apparel and Textile Order 1942 (vii) Miscellaneous Textiles (Manufacture and Supply) Directions 1942	(a) To enable an expectant mother to obtain food benefit or day nurseries to get milk (b) To enable invalids to obtain special authorities for supplementary rationed food (c) To enable invalids expectant mothers and others to obtain special treatment with regard to goods which are the subject of government control (rationing or dockets, etc.)
10	Coal Distribution Order, 1943	To assist people with young children, old people and invalid in obtaining additional supply of rationed fuels for heating purposes
11	Control of Motor Fuel Order 1947	To assist claimants for additional petrol allowances on medical grounds
12	National Insurance Act 1946 National Insurance (Industrial Injuries) Act 1946	To support a claim to benefit
13	National Health Service Act 1946	To assist a person in obtaining any of the services provided under the Act e.g. supplementary ophthalmic services
14	Family Allowances Act, 1945	To enable proxy to collect allowance
15	Education Act, 1944	As evidence that a child was prevented from attending school because of sickness

The Association has been asked to give evidence before the Departmental Committee appointed by the Government to review the whole problem of certification, and must therefore reserve its detailed comments on the above provisional list until later. Immediate representations are being made, however, on Serial 15 to clarify its intention. It is submitted that a doctor is obliged to issue a certificate under the 1944 Education Act only where the parents are summoned for the child's non-attendance at school and medical evidence is required to support the parents' case.

#### Remuneration of General Practitioners at Cottage Hospitals

The Ministry has announced that a general practitioner may provide general medical care as a member of the staff of a hospital in the following capacities: (a) As one of the staff of a general-practitioner ('cottage') hospital, (b) as the part-time medical officer of a convalescent home or other institution. For both these groups it will be necessary to enter into contracts starting on the appointed day.

With regard to the first group, an opportunity will be given to all general practitioners practising in areas served by 'cottage' hospitals to accept appointment to the staff of the hospital. The duties will include attendance as general practitioners on their own patients in the hospital, sharing with the other members of the staff in attendance on the patients of practitioners not on the staff, and taking the appropriate share in any necessary emergency in-patient or out-patient work. In so far as a general practitioner providing general medical services under Part IV of the Act gives hospital care within the scope of these services to a patient on his list or on that of his partner he will already be remunerated for that work through the executive council. But in order to provide proper remuneration for his hospital work for other patients it is contemplated that the management committee shall create a staff fund by making a payment of £25 per annum for each bed (other than private pay-beds) occupied on the average in the hospital, the fund to be shared between the general practitioner staff as they may themselves determine.

With regard to the second group—namely, part-time medical officers of convalescent homes, etc.—the average time given to this work will be assessed and aggregated in terms of half-days per week and a contract will be offered accordingly. The provisional rates of remuneration are to be based on a rate of £100 per annum (non-resident), for each half-day per week up to a maximum of £800 for eight or more half-days, and subject to review when the remuneration of specialists has been determined. The conditions of service will be the same as those laid down as applicable to specialists. An engagement on an honorary basis is not excluded, if the practitioner so desires, provided that there is a clear undertaking to perform defined services.

A number of general practitioners on the staff of 'cottage' hospitals may claim that they are in effect part-time specialists and that their remuneration should be based on the provisional specialist scale. The onus of determining whether or not a practitioner is holding a part-time specialist appointment rests with the regional hospital board concerned on the advice of its appointments committee.

It is understood that appointments committees will re-examine individual cases as soon as possible.

#### Local Obstetric Committees

A question was put to the Ministry of Health about the legal position of doctors acting as members of local obstetric committees. The Ministry has since consulted its legal advisers who consider that members of these committees need not fear that they are likely to be involved in legal proceedings provided that they carry out their duties of considering the obstetric experience of doctors who apply to provide maternity medical services under Part IV of the Act in a proper manner. As an additional insurance it is understood that "the Minister would be prepared to undertake the cost of the defence of any committee against whose members any proceedings are brought and to indemnify their members against any damages and costs ordered in such proceedings provided that the members of the committee have acted reasonably in carrying out their duties as members."

### APPOINTMENT OF SPECIALISTS IN N.H.S

The appointment of specialists by regional hospital boards or boards of governors of teaching hospitals is controlled by the N.H.S. (Appointment of Specialists) Regulations, 1948 (No. 1416). A vacancy must be advertised in two or more journals "circulating throughout England and Wales being commonly used for advertisements of a similar kind relating to the profession concerned. It may also be advertised in other journals or newspapers. The advertisement must state (i) the nature of the appointment, (ii) whether the appointment is for whole time or part-time service, and if part-time the approximate length of time per week which will be required, (iii) the duration of the appointment, (iv) the remuneration, (v) the closing date for the receipt of applications and (vi) that canvassing of members of the board or advisory appointments committee will lead to disqualification.

An advisory appointments committee must be constituted when a post falls vacant or a new one is created, and is constituted as follows according to whether a non-teaching hospital or a teaching hospital is concerned.

#### Non Teaching Hospitals

The advisory appointments committee shall consist of seven members appointed by the regional hospital board of whom one shall be selected by the board to act as chairman.

Two of the members, of whom at least one shall be a medical practitioner in the case of the appointment of a medical officer or a dental practitioner in the case of the appointment of a dental officer, shall be appointed on the nomination of the hospital management committee concerned or, if two or more hospital management committees are concerned, on the nomination of those committees jointly.

Of the other five members four at least shall be medical practitioners in the case of the appointment of a medical officer, or dental practitioners in the case of the appointment of a dental officer and at least one shall be appointed after consultation with the university with which the provision of hospital and specialist services in the area of the board is associated.

Of the members who are medical or dental practitioners at least two shall be, or shall have been, engaged in the practice of the special branch of medicine or dentistry concerned and at least one shall be so engaged outside the area of the board.

#### Teaching Hospitals

The advisory appointments committee shall consist of seven members appointed by the board of governors of whom one shall be selected by the board to act as chairman.

Two of the members shall be appointed on the nomination of the university with which the hospital is associated and at least one of such members shall be a medical practitioner in the case of the appointment of a medical officer or a dental practitioner in the case of the appointment of a dental officer.

Of the five members appointed otherwise than on the nomination of the university at least four shall be medical practitioners in the case of the appointment of a medical officer, or dental practitioners in the case of the appointment of a dental officer, and at least one shall be a person appointed after consultation with the regional hospital board of the area in which the teaching hospital is situated or, if the hospital is situated in the area of more than one regional hospital board, after consultation with both or all of such boards.

Of the members who are medical or dental practitioners at least two shall be, or shall have been, engaged in the practice of the special branch of medicine or dentistry concerned and at least one shall be also engaged at some other teaching hospital.

The advisory appointments committee will select from the applicants such persons as it thinks suitable for the appointment and submit their names to the board together with any comments it wishes to make. If the committee thinks that none of the applicants is suitable, it will tell the board so.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hickney, Poplar.

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Tottenham, WallSEND.

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Tivdesley.



# British Medical Association

## GROUP PRACTICE AND HEALTH CENTRE DEVELOPMENT SPECIAL MEETING OF COUNCIL

A special meeting of the British Medical Association Council was held on July 14 for the purpose of considering a report by the Health Centre Committee. This is a special committee set up by the Council in April, 1947, to investigate and report on existing forms of group practice, including partnerships and other forms of collaboration between general practitioners, and to relate this and other experience to health centre development. Dr A Talbot Rogers was the chairman of the committee, but as he is not a member of the Council the report was presented by Dr A Beauchamp. Much of the discussion in the Council, over which Dr H Guy Dain presided, concerned phrasing and matters of detail, but certain principles also emerged upon which there was diversity of opinion, and some parts of the report were referred back for further consideration.

### The General practitioner Specialist

The committee reported that the evidence before it had convinced it that partial specialization was a most valuable feature of general practice, that doctors who took part in it widened rather than narrowed the range of their work, and that the general-practitioner specialist was a link between two sections of the profession which, without him, might become dangerously separated.

Dr F Gray urged that the other side of the question should be stated. Leaving out of account those areas where, as they all agreed, some specialization in general practice was a necessity, he felt that such specialization ought not now to be encouraged. It could not, in the nature of things, be first-rate. This was no criticism of the men who had taken up this form of work, but if they were engaged partly in general practice they could not have the same degree of competence and skill in a specialty as the doctor who devoted his whole time to it. There were two conceptions of treatment—namely, the treatment of the disease and the treatment of the patient—and the committee had very wisely emphasized the latter, but specialization was the treatment of selected diseases. This was a withdrawal from the fundamental conception of the family doctor. Furthermore, the energies of the general practitioner in the national service would be increasingly turned in the direction of prevention, the time to exercise prevention was not when patients had some serious illness but when they had a trivial one, but if he specialized the general practitioner would tend to concentrate his attention on the serious cases and to neglect the early (and incidentally the more difficult) ones. If anyone in general practice wanted to specialize there was only one answer to be given him: 'By being a general practitioner you are already doing so.'

Dr J A Pridham spoke in a similar sense. Specialist general practitioners had done good work, but it was questionable whether under the new set-up men should be encouraged to adopt partial specialization. Three general-practitioner specialists known to him had told him that they had not been as good in either field—specialism or general practice—as they would have been had they undertaken one field only. He drew attention to the criticisms of part-time consultants in the article by Mr G Lowe and Dr T N Rudd in the *British Medical Journal* of July 3 (p 24). In his own part of the country the general-practitioner specialist was tending to give up his general practice and to become wholly a specialist. If the general-practitioner specialist was dying out, would the Association be doing right in taking steps to perpetuate him?

Dr P J Gibbons said that, listening to the last two speakers, one would think they had never heard of Sir James Mackenzie, who laid the basis of his great reputation as a specialist while engaged in general practice. If the general practitioner were cut off from the possibilities of specialization it would bring about an unfortunate gulf in the ranks of the profession between

the trained technicians, as he preferred to call them, and the students of general medicine.

Dr R G Gordon considered that, while in the past it had been hard enough for the general practitioner to become a specialist, in the future it would be much harder, because specialists were insisting on five years' study in the specialty, and that was more than the general practitioner could be expected to give. If it was decided that general practitioners should be encouraged to develop specialisms—and personally he thought they should—it might be referred to the Postgraduate Committee just set up by the Council to consider how this should be done.

Mr Dickson Wright said that an immense amount of work would be—indeed, was being—thrown upon specialists, there was widespread demand for specialist attention and the use of specialist equipment, and if the relief afforded by general practitioner specialists was denied the position would be intolerable.

Dr J G Thwaites agreed with Drs Gray and Pridham. They were all agreed that some of the finest specialists had graduated through general practice, but the suggestion in the report that health centres should provide facilities for general practitioners to take up specialties if they so desired should not be supported. Health centres should be a means of clarifying and raising the status of general practitioners as such. They would offer general practitioners a far wider sphere of general-practitioner work, and he hoped that nothing would be done to suggest that if future general practitioners did not take up some specialty they were falling into some sort of rut.

Dr R Kennon said that at the present time students were coming to the universities determined to take up some specialty. The present recruiting ground for specialism was far too narrow. Dr O C Carter, although a part-time specialist himself, supported Dr Gray's contention. It would be a great mistake if in any report which issued from the Council it was suggested that the status of the general practitioner was influenced to any degree by possession of a specialty. It would not be in the interests of general practice to attempt to perpetuate artificial part-time specialties. The Spens Committee had felt that there was ample scope in general practice to satisfy full professional attainment and to reach high academic distinction. Dr J C Arthur, while not expressing any definite opinion on the question of the continuance of the general-practitioner specialist, said that it was important not to discourage the ordinary practitioner from doing as much as possible for himself.

Dr J A Ireland considered it important to keep open the avenues of approach to full specialism by way of general practice. It was in the interests of general practice and of the profession as a whole and of the public that general practitioners should be encouraged to take on any special line. Dr Janet Aitken said that there was one branch of specialism—if it could be called specialism, which she doubted—namely preventive medicine—which the general practitioner should never be discouraged from doing. Dr J A L Vaughan Jones gave instances of useful general-practitioner specialism. The National Ophthalmic Treatment Board could not have functioned without the general-practitioner eye specialist. But there was an unfortunate tendency to separate general practice and specialism at the moment of qualification. In the health centre which was the subject under discussion, the team spirit would be developed and within that team many doctors would be able to develop what could be called sub-specialism. Dr J A Brown desired to see in the health centres not so much the development of partial specialization as the development of a special interest in a particular branch of medicine. He hoped to see some doctors in the health centre acquiring a little more knowledge in a particular field than could possibly be acquired

by all their colleagues. This might be done by attaching such doctors, perhaps as clinical assistants, to special hospitals in the area.

The Secretary (Dr Charles Hill) reminded the Council that the burden of the report was not that general practice should be one of the roads to specialism but that the general-practitioner specialist should be encouraged as a means of preventing a certain deterioration in general practice. It positively advocated as essential to the health of general practice the development of the general-practitioner specialist.

The Chairman (Dr Dain) said that Lord Dawson's Consultative Committee in 1920 came to the conclusion that the role of the general practitioner was that of diagnostician, and that he should be given the necessary facilities to keep in training his diagnostic skill. It would be a mistake to suppose that the status of the general practitioner could not be raised to a higher level unless a large number of such practitioners took up some form of specialty. After all, the general practitioner was more interested in the patient than in his complaint. The only substantial way in which general practice could be kept in a state of efficiency was by attention to the diagnostic field.

It was agreed to refer back to the committee this part of the report in order that it might be reconsidered in the light of the discussion.

#### Single-handed Practice

A further discussion developed on the section of the report concerned with single handed practice, in which the committee had expressed the conclusion that the disadvantages of single-handed practice outweighed its advantages. Dr Pridham, while not opposing the principal contention, thought the conclusion was expressed a little too strongly as though the single-handed practitioner were in some way condemned.

Dr S Wand pointed out that, with the advent of the new Service, partnerships had tended to dissolve, so that more and more men were becoming single-handed practitioners. Until the result of this experiment was seen in the big areas it might be well to avoid coming to a conclusion on this matter. Dr G MacFeat pointed out that in many rural areas single handed practice was the only form of practice possible.

Mr A S Gough defended the committee's conclusion and pointed out that the present dissolution of partnerships was brought about purely on financial grounds and had nothing to do with the respective merits of single-handed practice, partnerships and group practice.

The conclusion as stated in the committee's report was modified by making it apply to urban areas only and by making the final sentence read (after mentioning the difficult position of the single-handed practitioner) "but the Council would be opposed to a policy which rendered single handed practice impossible."

On a further section of the report on group practice Dr Wand thought that the committee ought to be asked for more information on what in its view constituted a group and Dr Vaughan Jones pointed out that groups obviously must vary according to the doctors composing them and that no standards could be set up for a particular group to be adopted for the whole country.

#### Planning for the Future

Having surveyed present-day conditions the committee in its report went on to consider what should be the direction of development of general practice under the new National Health Service and how the best features of existing practice might be incorporated in any new system. It pointed out the changes needed and led up to the health centre concept. One of the features of the present system which in the opinion of the committee should be retained or developed was the holding of clinical assistantships in hospitals by general practitioners, it was believed that this helped to retain their standard of work and formed a valuable liaison with the hospital services.

On this point Dr Gordon said it had proved very difficult to make such an arrangement really satisfactory, and he suggested that a small subcommittee should be set up to consider practical ways in which the general practitioner should be incorporated into the staffs of, generally speaking, non-teaching hospitals.

Some discussion took place on whether it was preferable to have general practitioner hospitals or to have the admission of general practitioners into general hospitals.

Dr Thwaites, on a further point concerning the integration of general practice with public health work, said that he would like to see antenatal and maternity and child welfare work not regarded in the future as a separate entity in general practice, but every general practitioner taking his part in the school clinics and welfare centres. The opportunity surely presented itself in experimental health centres to have general practitioners doing this work rather than local authority officers. Dr Gray agreed that there were opportunities here, much to be preferred to the pursuit of the "rosy paths of pseudo-specialism," but there was no proposal to take over the whole thing lock, stock, and barrel and turn the other people out.

It was agreed to enlarge upon what was said in the draft report about uniting the work of family practice with that of the clinics.

#### Health Centres

In considering the services to be provided at health centres discussion in the Council centred round the proposals for the introduction into the health centres of specialists in radiology and of pathological services.

Dr Vaughan Jones urged that there should be some provision for simple radiology and for simple pathology at each centre. No expensive radiological apparatus need be provided. Dr Wand pointed out that such equipment and facilities might be expected to vary with the location of the centre, being more elaborate the further the centre was away from the large hospitals. Dr Gibbons held that there was no sense in cluttering up the health centre with x-ray apparatus when the case could be better dealt with at the nearest hospital. Other members favoured a modest equipment for specialized services at the centre.

The Council expressed itself as not opposed to such provision, but it was agreed that all the various proposals for visits by specialists to health centres and the use of the specialist appliances available there should be remitted to the Central Consultants and Specialists Committee for its consideration and recommendations.

Discussion also took place on the professional staffing of the centres. One method was set out fully in the report, but it was pointed out that there were other methods and the committee was asked to mention them in similar detail.

On the question of the site of the health centre one member pointed out that the choice of site would largely determine the number of doctors finally working at the centre. The section of the report dealing with the health centre building its general plan and accommodation was approved.

Dr J C Pearce and Dr G MacFeat were of opinion that it was not practicable owing to the scattered nature of the population to have health centres in rural areas and the latter suggested that cottage hospitals, with some provision for consultation would better meet the case.

The committee was of opinion that centres could usefully be adapted to the needs where a population of 10 000 or more was contained within a radius of ten miles but this part of the report was deferred for further consideration. It was felt that in any event rural health centres would be late on the programme.

On the general question it was stated that plans put forward from local authorities were being considered by the Ministry. The design of the pioneer health centre of the LCC at Stoke Newington was, through the kindness of Sir Allen Dray, exhibited before the Council. Therefore it seemed desirable that the proposals of the Association should be known as soon as possible.

It was agreed that the report of the committee except for those portions mainly relating to domestic matters within the profession, which had been deferred for further consideration should be forwarded without delay to local medical committees and the medical members of local authorities. The portions held over related to the question of the general practitioner specialist which was referred back to the committee, the organization of the professional staff also referred back, and the question of attendance of specialists at health centres and the provision of specialist equipment which was referred through the Consultants and Specialists Committee to the groups of specialists particularly concerned.

The discussion on the report occupied nearly five hours.

## FEES FOR MIDWIFERY

The fees payable to medical practitioners when they are called in by midwives in an emergency have been prescribed by the Minister of Health in the Medical Practitioners (Fees) (No 2) Regulations, 1948 (No 1453), which are applicable to England and Wales only. The regulations apply to practitioners on the lists approved by local obstetric committees, though exception is permitted where local authorities have not yet supplied the midwives in their area with the approved list, or where a practitioner on the approved list is not available when the emergency arises. The regulations do not apply in the case where a medical practitioner has arranged to provide the patient with maternity services under the N.H.S. general medical services, or to the practitioner who is attending the patient under some arrangement with a club or other association or is receiving a fee from the patient or on her behalf.

The fees prescribed are normally payable to the practitioner only up to the fourteenth day after his first attendance unless before the fourteenth day he has notified the local authority in writing that his further attendance is necessary. In any case fees are not payable for services rendered after four weeks from the birth. A form is prescribed with which to claim the fees.

The following scale of fees is reproduced from the regulations.

(i) Fee for all attendances of a medical practitioner during the period from the commencement of labour until the child is born, whether or not operative assistance is involved, including subsequent visits to mother and/or child during the first fourteen days inclusive of the day of birth, and including also a post natal examination at or about the sixth week after the birth, except where owing to circumstances beyond his control the practitioner cannot undertake such examination £4 14s 6d.

(ii) Fee for all or any of the following—namely version in labour, removal of adherent or retained placenta, exploration of the uterus, treatment of post-partum haemorrhage or any operative emergency arising directly from parturition, including subsequent visits during the first fourteen days inclusive of the day of birth, and including also a post-natal examination at or about the sixth week after the birth, except where owing to circumstances beyond his control the practitioner cannot undertake such examination—£4 14s 6d. A fee shall not be payable under this paragraph when a fee under paragraph (i) hereof is payable.

(iii) Fee for a single attendance only, either during the period from the commencement of labour until the child is born (whether or not operative assistance is involved) or for any of the purposes mentioned in paragraph (ii) hereof, £2 12s 6d. A fee shall not be payable under this paragraph when a fee under paragraph (i) or paragraph (ii) hereof is payable.

(iv) Fee for either of the following—namely, (a) suturing the perineum, (b) resuscitation of baby, £3 3s. Provided that where only one attendance is made a fee of £2 12s 6d shall be payable in lieu of the said fee of £3 3s. A fee shall not be payable under this paragraph when a fee under paragraphs (i) to (iii) hereof is payable.

(v) Fee for induction of labour whether or not more than one visit is involved, £2 12s 6d. A fee shall not be payable under this paragraph when a fee under paragraphs (i) to (iv) hereof is payable.

(vi) Fee for attendance at, or in connexion with, an abortion, miscarriage, cases of threatened abortion or ante-partum haemorrhage after the 28th week of pregnancy, including all visits in respect of such attendance during the fourteen days from and including the first visit, £4 4s. Provided that where only one attendance is made a fee of £2 12s 6d shall be paid in lieu of the said fee of £4 4s.

(vii) Fee for attendance of a second medical practitioner to give an anaesthetic, whether on the occurrence of abortion or miscarriage, at parturition or subsequently, £1 15s.

(viii) Fee for visits to mother and/or child not included under paragraphs (i) to (vi) hereof. Day (9 a.m. to 8 p.m.) first visit 12s 6d, subsequent visits 10s 6d. Night (8 p.m. to 9 a.m.), £1 1s.

(ix) The usual mileage fee of the district to be paid for all attendances under paragraphs (i) to (viii) hereof. Provided that one mileage fee only shall be paid in respect of one journey, whether such journey shall have been made for visiting one, or more than one, patient.

(x) Fee for attendance on mother or child at the medical practitioner's residence or surgery, 5s.

(xi) The appropriate fee as prescribed above shall be increased by the amount of any reasonable expenses necessarily incurred by the practitioner in supplying any of the drugs or preparations specified

in the following paragraph where such a drug or preparation is essential for the proper treatment of the mother or her child.

*List of Drugs and Preparations*—Carbon dioxide, ergometrine, lobeline, liver extract and injections of liver, methylamphetamine, oxygen, penicillin preparations, pethidine, sex hormones, sulphoamide preparations, vasopressin, vitamin B<sub>1</sub> complex, vitamin K.

## HEARD AT HEADQUARTERS

### "Greta Garbos of Medicine"

The Minister of Health has been endowed with considerable oratorical gifts, but every now and then his fluency gets the better of him and some bitter remark emerges to discomfort his friends and perhaps ultimately himself. In the middle of some quite graceful passage he will interject an observation causing quite unnecessary offence. A week or two ago, addressing the Maternity and Child Welfare Conference in London, he contrasted the prosaic work of the public health medical officer with the more dramatic work of the surgeon. So far so good, but he went on to deliver himself of this sentence:

Surgeons call our attention to the spectacular consequences of their skill, the Greta Garbos of medicine can get the lime light because what they do is spectacular, but in this field of public health "and so on. The tribute to the public health service is of course deserved, but need it be associated with apparent derogation of surgeons—if it is derogation (some may not think so) to liken them to a glamorous film star? The other day at the National Institute for the Deaf, Mr Bevan went out of his way to suggest that commercial jealousy on the part of hearing-aid manufacturers might be prejudicing the Government hearing aid. No evidence for this was brought forward. One would have thought, on the contrary, that the long and patient research work done under commercial auspices has assisted the development of the Government aid.

### Return of the Snuffbox

Is the doctor's snuffbox coming back? At the Oxford Ophthalmological Congress last week two prominent ophthalmic surgeons were observed to be taking elegant pinches. One of them sat in front of the lecture theatre opposite a notice which said "No Smoking" and seemed to glory in this alternative indulgence, which has no reproach. The same thing was noted among some of the doctors assembled at Cambridge. The snuffbox along with the gold-headed cane was part of the regalia of the old-time physician, and we believe that a silver snuffbox is one of the treasures of the Hunterian Society, displayed on every full-dress occasion, together with the loving cup. We recall hearing Sir Buckston Browne declare that the use of snuff had proved a perfect prophylactic against colds, but, aware of the dangers of over-indulgence, he took the precaution of placing his snuff jar in the attic of his tall Harley Street house, so that whenever the desire seized him he had to pay for it by a climb up four flights of stairs. Meanwhile the path of the smoker becomes increasingly difficult. A requisition—from lady members be it noted—that smoking should be permitted in the new B.M.A. library at Tavistock Square has been turned down by a hardhearted Council.

## THE SCHOOL MEDICAL OFFICER

Many public- and preparatory-school authorities have recently advised parents that boarders should be registered with the school doctor if he has accepted service under the National Health Service, and that during holidays such boarders will be entitled to attendance as "temporary residents" from the home doctor or from any other doctor taking part in the scheme. While there may well be difficulties in permitting doctors other than the school doctor to use the school sanatorium, the policy adopted by certain schools is in direct conflict with the principle of "free choice" of doctor. Indeed, many will argue that the home doctor should be the regular medical attendant, since he is in possession of the child's clinical record and has an intimate knowledge of the child's home and general environment. In any case the last word about the choice of doctor should remain with the parents. Representations are being made to the Associations of Headmasters and Headmistresses with a view to ensuring the maintenance of this vital principle.

## Correspondence

### Thanks to Clerical Staff

SIR,—We propose a very hearty vote of thanks to the Association's clerical staff for their work both in preparing for, and during, the A R M at Cambridge. As the Secretary said on the first day of the conference, "Nothing is impossible for the staff to do." How many of us who spent our evenings in pleasure-hunting thought of the clerks? They finished work at these times: Friday, 9 p.m., Saturday, 6 p.m., Monday, 12 midnight, Tuesday, 10 p.m. They started earlier than we did each morning, and besides their official work they always seemed to be able to do odd jobs for individual representatives, and do them with a smile. We regret that we had no opportunity of putting this to the meeting in Cambridge.—We are etc

A G HERON  
T MILLING  
W NOTT  
P PHILLIPS  
W WOOLLEY

Bristol

### The First Three Months

SIR,—Now that our Minister is so anxious to support and encourage us, would you ask him to take a small step to see that all these non-intransigent doctors who have signed on in good time shall not lose three months' pay in respect of each member of the public who has failed to obtain an EC1 in spite of repeated visits to more than one post office? I would suggest that all patients registered before Sept. 30 be credited for payment as if on the doctor's list on July 5.—I am, etc.,

Crowthorne Berks

H D FORBES FRASER

### Domiciliary Maternity Service

SIR,—The farce of paying the G.P. who is judged safe to practise midwifery 7 guineas, and the one judged unsafe 5 guineas, is not, alas, the worst of it. Under the N.H.S. a woman not only does not get a doctor at her (normal) confinement, but she is actually debarred from making an arrangement which will guarantee her one. The G.P. is paid 7 guineas, and for this he is expected (1) to make two antenatal examinations, (2) to attend the confinement if he deems this necessary or if the midwife sends for help, (3) to supervise the puerperium for a fortnight, and (4) to make a post-natal examination at six weeks. This service is adequate only if there is a competent midwife doing the regular antenatal examinations and attending the confinement, and this in fact means the district nurse. For patients who are delivered in nursing-homes or who have their own monthly nurse there is no provision whatsoever, and the patients will be driven outside the Service as the only method open to them of getting the attention they want. Moreover, many women who are attended in their homes by the district nurse will want their own doctor to be present at the confinement, and again they must be told that they cannot have this unless they resign from the Service.

The effect on the doctor will be no less bad, for he will largely cease to see normal midwifery and will only see the abnormal. He will not develop that good judgment of when to interfere and when not to interfere which comes only from long, patient, and repeated vigil with the normal confinement.

The solution is perfectly clear. It is the duty of the State to supply adequate basic treatment, and this the district nurse with the supervising G.P. can give. But the patient should be left free to pay her doctor for attending her at her confinement if she wishes.—I am, etc.,

Newbury Berks

T G SCOTT

### Generous Health Authorities

SIR,—A few weeks ago you commented in "Heard at Headquarters" (June 5, p. 156) on the action of the Middlesex County Council in sending a patient with tuberculosis to Switzerland for treatment. I should like to bring to your notice the action of my Council in similar cases.

At present there are at least four patients from East Sussex receiving treatment for tuberculosis in Switzerland. Two of these

made private arrangements and asked us to assist them financially. This we are doing to the extent of what their treatment would cost us had they been receiving treatment in this country. One went to Switzerland on our own recommendation and is satisfied with, and grateful for, similar financial help. The remaining patient, a young boy of 7 or 8, was sent by us to Switzerland for treatment which was not available for him here, and we pay the full cost of his treatment and travelling expenses. Moreover, the County Council makes a grant of £10 every three months, irrespective of care committee or other help, towards the expenses of a relative to visit this boy—the only English lad in the sanatorium.

I should be surprised if other authorities could not give similar examples of their liberal interpretation of their responsibilities while they have been responsible for the treatment of tuberculosis.—I am, etc.,

A H FERGUSON GOW,  
Senior Chest Physician,  
East Sussex County Council

Lewes Sussex

### Medical Trade Union

SIR,—The decision of the Annual Representative Meeting to refer consideration of forming a medical trade union to Council is wise, as time and thought must be given generously to the problem. Before a final step is taken the widest possible discussion and publicity should be encouraged, and even the useful but recently much maligned procedure of a plebiscite might again be undertaken. It is possible that there could be a tightening up of our technique for collective bargaining to gain improved conditions and terms of service. The Whitley Council may prove the correct answer.

It is not so certain that a drastic alteration in our policy-making machinery is either necessary or desirable. There might be danger to our freedom of action both from without and within our organization. Affiliation to the T.U.C. might mean that we should be subjected to pressure by that body to take or condone actions totally at variance with our dignity and interests as a profession. Trade union status might also place in the hands of our own executive, or of an energetic minority in our Council, such overriding powers that they might be tempted to pursue any policy without first making certain, by referendum or otherwise, that it commended itself to a sufficient majority of our members.—I am etc.,

London N 2

G W M MACKAY

### Blaming Doctors

SIR,—In *The Times* of July 3 the Parliamentary report gives extracts from a debate on the forthcoming National Health Service. In this report there are certain Ministerial implications which cannot be allowed to pass without comment. I refer to the placing of blame at the feet of the medical profession for their tardiness in joining the new Service. At the same time, in to-day's issue of the *Sunday Times* there is the following statement: "It seems clear that the Ministry is formulating a practice of passing to the doctors the blame for any of the deficiencies in the scheme." And in another leading daily paper we read that the last-minute rush of doctors to sign on is evidence of the medical profession's degree of confidence in those responsible for implementing the National Health Act.

This is the time for dealing with facts and not with phantasies, and briefly, Sir, the facts of the situation are as follows:

1 The B.M.A. has had to fight hard for some twelve months in order to secure amendments to the *National Health Service Act* whereby the profession may be enabled to give the public the best, most reasonable, and most adequate service in their power. At the same time the B.M.A. has been fighting to preserve the greatest possible measure of professional liberty for the individual doctor so that he may be able to do the best for his patients.

2 It was not until the end of May—six weeks before the new service was due to begin—that sufficient safeguards had been promised to the profession for the B.M.A. to encourage its members to undertake service under the Act.

3 Hence in part the last-minute rush to sign on. But an equally important factor has been the use of unilateral economic pressure (for which there is a short and ugly word) "Unless you join by July 5 you get no compensation for your practice." These are the reasons for the indecent haste.

4 As for the apportioning of blame, let it be clearly understood that the medical profession will do its utmost to give the best possible service to the people of this sorely tried country, and the majority of us are prepared to go on working 70 to 80 hours a week, as we have been doing, in order to heal the sick. I trust and pray that we shall not be pilloried for our efforts, despite the fact that many situations are bound to arise which will warrant reference to two famous aphorisms "You cannot make bricks without straw", "Don't shoot the man at the piano, he is doing his best"—I am, etc.,

Manchester

DAVID R. GOODFELLOW

## POINTS FROM LETTERS

### Mr Bevan's Two Messages

Dr N B COOKE (St Helens, Lancs) writes. In your issue of July 3 you publish an address purported to come from the Minister of Health exhorting the members of the medical profession to join with him in the successful working of the National Health Service. This address was given priority of place in your publication. While many of us were reading this eulogy over the week-end Mr Bevan was telling 7,000 people in Manchester that he hated the Tory Party and that he considered its members worse than vermin. Was there ever such a piece of two facedness? All the world, particularly the professional part of it, is watching the colossal experiment that commenced on July 5 and my object in taking up your valuable space is to ask those members of our profession who have cared to make Mr Bevan their champion what they think of this latest effort on the part of the Minister. I should imagine that even the staunchest member of the Socialist medical fraternity must have been rather shocked on opening his daily paper on Monday morning—that is of course, if the Socialist press published this part of his speech. I should also imagine that those doctors who reversed their decision to fight at the second plebiscite must have been badly shaken. Our leaders have advised us to co-operate with the Act and to put our faith in the Minister and his assurances. Let us hope their advice will not be misplaced. Nevertheless, such a beginning does not augur very well for the future.

### Medical Records

Dr C COLEY GRAYSON (Birmingham) writes. Now that the National Health Service has started and medical records are being issued to us for the whole population, may I repeat a suggestion which I made some years ago about record keeping—namely, that the back of the record envelope be left blank of detail and reserved only for entering *salient points* in medical history? These points will thus be able to be seen at a glance instead of searching through a mass of detail on continuation cards.

### Free Bottles

Dr A P KALRA (London, SW 9) writes. On the back of the prescription sheets to be used for the purpose of the new health service it is stated that bottles for medicines will be supplied free. No mention is made of a deposit charge. That such should exist is obvious, to avoid wastage and a possible shortage of bottles at some future date.

## LUNACY AND MENTAL TREATMENT

Rules have been made amending the Lunacy Act 1890. Form 10 is replaced by the following form.

*Certificate as to patient in hospital designated for the purposes of Section 20 of the Lunacy Act 1890*

I hereby certify that I have carefully examined into the state of health and mental condition of \_\_\_\_\_ and that he is in my opinion of unsound mind and that it is expedient for his welfare that he should be detained in this hospital for a further period not exceeding fourteen days from the date of this certificate.

The grounds for my opinion that the said \_\_\_\_\_ is of unsound mind are as follows:—

(Signed)

Dated \_\_\_\_\_ Medical Officer, \_\_\_\_\_ Hospital \_\_\_\_\_

In addition, the duly authorized officer for the purpose of the Lunacy Act 1890 must describe shortly on Form 12 any property owned by the patient if it exceeds £100 in value.

## H.M. Forces Appointments

### ROYAL NAVY

Surgeon Commander J M Sloane to be Surgeon Captain

### ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Commander J B Oldham V R D, to be Surgeon Captain  
Surgeon Lieutenant Commanders S B Levy, V R D, and D R Hughes, V R D, to be Surgeon Commanders  
Temporary Acting Surgeon Lieutenants P K O'Brien, J S Finnie, W A Copeland, M Strode, R M Foster, C McLeod, W F M Hudson, H G Dixon, J Candy, J R Brotherton, and G F Barnes to be Temporary Surgeon Lieutenants

### ARMY

Colonel G S McConkey, OBE late R A M C, has retired on retired pay, and has been granted the honorary rank of Brigadier.

### ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel W H A D Sutton, OBE, has retired on retired pay, and has been granted the honorary rank of Colonel.  
Major H V Stanley, MBE, MC, retired and re-employed on ceasing to be re-employed has been restored to the rank of Lieutenant-Colonel.  
Majors (War Substantive Lieutenant-Colonels) L G Irvine, D M Ahern DSO, to be Lieutenant Colonels  
Major D J H Jones has retired on retired pay.  
Captains D B Watson and E J Bowmer to be Majors.  
Captain (War Substantive Major) G S Caithness to be Major.  
Short Service Commissions—Major W N S Donaldson T A to be Captain.  
Lieutenants C W Bowen, J A H B, R D Calcott, P F Daly, and P J Roden to be Captain.  
E R Reid to be Lieutenant.

### TERRITORIAL ARMY

#### ROYAL ARMY MEDICAL CORPS

Captain (War Substantive Major) R H Mortis to be Major.  
Captain M N S Duncan has been granted the acting rank of Major.  
Lieutenant J V Todd to be Captain, and has been granted the acting rank of Major.  
Lieutenants H T H Arnott, G D W Adamson, G Sav, J N Wilson, R West, and W J Turney to be Captains.

### WOMEN'S FORCES

#### EMPLOYED WITH THE R A M C

Lieutenant B Cregan to be Captain

## Association Notices

### FILM LIBRARY

The B M A is endeavouring to establish a comprehensive film library for the convenience of Branches and Divisions and other interested bodies. It is anxious to obtain as many suitable films as possible. Medical practitioners who have produced medical films and are willing for copies to be made and included in the library are invited to communicate with the Secretary of the Association, giving particulars of their films. Copyright would remain in the hands of owners, full acknowledgment would be made and the cost of copying borne by the Association.

### B M A LECTURES

Every Branch and Division may have one B M A Lecture a year. The lecturer, who is chosen by the Branch or Division is an authority on his particular subject. He is invited from the Central Office and receives an honorarium and his expenses. Branch and Divisional secretaries making up their programme for the forthcoming year are invited to send requests to Headquarters for B M A lectures. The application should be on a special form obtainable from Headquarters denoting the name of the lecturer, the subject, and choice of dates.

### Branch and Division Meetings to be Held

MARYLEBONE DIVISION—At Medical Society of London, 11, Chandos Street W, Monday, July 26, 8.30 p.m. Agenda: To report on (1) Special Representative Meeting held on May 28, (2) Annual Representative Meeting held at Cambridge.

as now where were some would be a place in both the fisher (1929), writing the life of my famous ages as Clifford Allbutt, says "During the 89 years of his life he witnessed changes in medicine which predicted never likely to be rivalled. This might be years we not aware of how much the speed of advance quickened since Allbutt's death in 1925. Allbutt was before the introduction of anaesthesia, he saw the development of bacteriology and immunology, of antiseptic aseptic surgery, of Ehrlich's pioneer work on chemotherapy, including the perfection of salvarsan and he saw the creation of the nursing profession, astonishing progress in public health and preventive medicine, the discovery of rays and radium and of vitamins, as well as their application to medical practice, the discovery of cardiology, biochemistry, and of neurology, many spheres. At the end of the century, the face of medicine was so different from the face of the century to which the whole search must be made to which

102 (39 00%)	35 (34 3%)
154 (60 6%)	45 (29 1%)
256 (100 0%)	80 (31 2%)
176 (68 8%)	



# CHANGING FACE OF MEDICINE

6 JULY 3, 1948

CHANGING FACE

quite small apparatus the transmutation of elements is a  
 place, and radioactive isotopes of almost any ele-  
 These isotopes, used as so-called  
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## Achievements of the Past Decade

It is apparent if we no more than glance at the achievements of the past ten years. All of the work which Allbutt saw in its progress has come to mind the advances of the science fathered by Ehrlich in the century, which has enabled us to combat bacterial and parasitic diseases. It is little wonder since the first sulphonamide gave us a measure over streptococcal, meningococcal, and *Bact. coli* infections. Exploitation of the group led to potent specific measures of pneumonia, "the captain of the bacillary dysentery—a disease of importance when armies have to fight in tropical climates.

During the past decade Fleming's (1) penicillin was perfected by co-ordinated work, making available for everyday use an agent close to Ehrlich's dream of a commonly mortal staphylococcal in which greatly reduced the mortality of wound sepsis during war, and a considerable frequency in bacterial disease which hitherto has defied quite apart from cure. Following organized research into the antibacterial by other moulds and micro-organisms, production of penicillin which is in the treatment of the acute forms of the disease will not be a very natural prophylaxis.

## Medical Record

Dr C. Cornfield, National Health Service, issued to us a book which I made the back of the book only for the purpose of the book will be a mass of appreciation of these successes which have been born out of the connexion of two simple facts: the malaria parasite and the human body. Ehrlich's treatment of malaria by the use of quinine is a campaign against the most important of the malarial parasites. The campaign against the malarial parasites is a campaign against the malarial parasites.

## Free

the malaria parasite and the human body. Ehrlich's treatment of malaria by the use of quinine is a campaign against the most important of the malarial parasites. The campaign against the malarial parasites is a campaign against the malarial parasites.

We live in an era perhaps at the crossroads, exploited for decades under the stimulus of the advancement of science, which has called a "safe" era.

human life rather than those which resemble or are inferior to it." The chronic diseases and the degenerative processes which cripple and disable in the latter phases of life and the uncontrollable activity of the malignant cell, as yet not comprehended, much less controlled.

The problems of medicine are indeed almost unfathomable, and these very facts are part of the fascination of medical life. In effect, we know relatively little, and one sometimes wonders whether the public would put such trust in us if they properly realized our limitations. We have not yet begun to fathom the secret of vitality—that property which gives even to the smallest and simplest cell the power to accomplish, in a brief moment, chemical reactions which years of labour in a laboratory cannot reproduce. Think of the bacteria, in which, as Mudd (1948) has said, "the structure so far revealed, even with the electron microscope, is so much simpler than the remarkable synthetic capacities of micro-organisms would seem to require. The bacterial cell, when furnished with nothing more than water, salts, glucose, and simple sources of carbon, and nitrogen, can synthesize proteins, complex carbohydrates, lipids, ribose, nucleic acid, growth accessories and enzymes, all organized in a characteristic and reproducible protoplasmic system. The bacterial cell can reproduce itself and divide within half an hour at body temperature. These feats of chemical synthesis and organization which cannot be duplicated by the finest chemical laboratories, are accomplished within a cell a few microns in length and less than a micron in diameter. The plain facts would be fantastic were they not so familiar."

With this sobering thought in mind, and with the realization that the nationalization of our profession must inevitably increase restrictions on individualism which will always be elbow-room for a man to work out his ideas, to be outspoken in criticism and in to be free from unnecessary restrictions, and regimentation.

But by looking back into history I hope I have made it abundantly clear that individualism has done so much in the past that were it to be extinguished either by the State, by easy living, by regulated hours or indeed regulations of any kind, or by too much insistence upon plans and planning, then the future changes in the face of medicine will never reach the same heights of achievement as in the past.

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## REFERENCES

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- Ing, A. (1929) *Lancet* 1 315
- Don-Brown (1946) *Some Chapters in Cambridge Univ. Press, London*
- Mudd (1948) *Lancet* 1 315
- Medical Journal* 1 485
- Rt Hon Sir*

## HEALTH

### Health

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In addition, the duty of the Lunacy Act 1890 must be described shortly on the property owned by the patient if it exceeds £100 in value.

LONDON SATURDAY JULY 31 1948

## CONTINUED HYPERTENSION\* PROGNOSIS FOR SURGICALLY TREATED PATIENTS

BY

REGINALD H SMITHWICK, M.D.

(Boston, Massachusetts)

From October, 1938, to April, 1943, 263 unselected patients having so-called essential or malignant hypertension of the continuous variety were treated surgically. A thorough exploration of the splanchnic bed was performed in two series spaced eight to ten days apart, utilizing the lumbosacral (thoraco-lumbar) technique (Smithwick, 1940). The purpose of this communication is to discuss the present status of these patients, all of whom were operated upon at least five and at most nine and a half years ago. This report deals with 256 patients, or 97.3% of the total material, the other seven cases could not be traced. The investigation was prompted by the high mortality rate for patients in the later stages of hypertensive cardiovascular disease.

### Method of Study

The cardiovascular status of these patients was evaluated before and after operation as carefully as possible, with particular reference to the cerebral, retinal, cardiac, and renal areas. The eyegrounds were examined and described by an ophthalmologist and classified into grades or groups conforming as closely as possible with those of Keith, Wagener and Barker (1939). The heart was studied by means of the electrocardiogram and x-ray films, and evaluated clinically by a cardiologist. Information regarding the kidney was obtained by means of urinalysis, concentration tests, intravenous phenolsulphonphthalein excretion, with particular reference to the output in the first 15 minutes and the total output in two hours, and non-protein nitrogen determination. Intravenous pyelograms were obtained as a routine. Further information was obtained by gross inspection and, in some patients, by biopsies of the kidneys at the time of operation.

A special attempt has been made to acquire certain blood-pressure data on all patients in a standard fashion. These were obtained by performing a so-called postural and cold test, a modification of the Hines-Brown (Hines and Brown, 1933) cold test, after a period of two days of physical inactivity and bed rest. Patients whose diastolic blood pressure fell to below 90 mm during this preliminary test period were not included in this series, but were classified as having intermittent hypertension, which is regarded as an earlier stage of the disorder. The postural and cold test is performed in a quiet room after a rest period of 15 or 30 minutes on a comfortable bed. Readings of pulse and blood pressure are taken every minute for five minutes with the patient first lying, then sitting, then standing. When the average of the five readings in each position is calculated the figure for the resting horizontal

position is almost invariably the lowest, and is used to divide patients into various groups according to the average resting diastolic level. This same figure is also used to divide patients into three types dependent upon the width of the pulse pressure in relation to the diastolic level. In Type I are placed those cases in which the pulse pressure is less than one-half of the diastolic pressure. Type II contains those cases in which the pulse pressure is equal to or is up to 19 mm more than one-half the diastolic pressure. Type III includes those cases in which the pulse pressure is 20 mm or more greater than one-half the diastolic pressure. After the postural test the patient assumes the horizontal position, and readings of pulse and blood pressure are continued at minute intervals for five minutes. One hand is then placed in ice-water for 60 seconds and readings of pulse and blood pressure are taken after 30 and 60 seconds of immersion. Readings are then resumed at intervals of a minute for five minutes. The patient then stands and the cold test is repeated exactly as in the horizontal position.

The purpose of these special tests is to obtain information concerning variations in blood pressure in response to the stimuli of posture and cold, and also to obtain information regarding variations in the width of the pulse pressure. Such variations may be very striking, and eventually may be used as a basis for further subdividing hypertensive patients into more similar categories. Finally a sedative test is performed. After a light supper the patient is given 3 gr (0.2 g) of sodium amylal by mouth at 7, 8, and 9 p.m. Hourly readings of pulse and blood pressure are recorded from 7 p.m. to 7 a.m. The lowest recorded level of systolic and diastolic pressure is taken as indicating the response.

### Data Pertaining to Pre-operative Status and Corresponding Mortality

Male patients comprised 39.4% and female patients 60.6% of the series. The total mortality during the 5-9 years period of observation was 31.2%. The mortality among males was 34.3% and for females 29.1%. The difference in the mortality rates in the two sexes was slight (Table I). The mortality per operation was 2.2% and per case 4.3%. The causes of death are summarized in Table II.

TABLE I—Mortality 5-9 Years After Operation

	No. of Cases	Living	Dead
Males	102 (39.4%)	67 (65.7%)	35 (34.3%)
Females	154 (60.6%)	109 (70.9%)	45 (29.1%)
Total	256 (100.0%)	176 (68.8%)	80 (31.2%)

\*Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Cambridge, 1948.

TABLE II—Causes of Death

	No of Cases		No of Cases
Cerebral	38 (47.5%)	Unrelated	8 (10.0%)
Cardiac	18 (22.5%)	Unknown	3 (3.8%)
Renal	13 (16.2%)		
		Total	80 (100.0%)

TABLE III—Age Distribution

Age	No of Cases	Mortality 5-9 Years after Operation
-10	1 (0.4%)	100.0%
10-19	4 (1.6%)	75.0%
20-29	27 (10.2%)	18.5%
30-39	90 (35.1%)	33.3%
40-49	112 (43.8%)	28.6%
50-59	21 (8.5%)	42.8%
60+	1 (0.4%)	0.0%
Total	256 (100.0%)	31.2%

The age distribution is indicated in Table III. It is apparent that the great majority of the patients were below 50 years of age. The mortality was highest in those below 20 and above 50. The bulk of the patients were between 20 and 49 years of age, and the average mortality for these age groups was essentially the same as for the series as a whole.

If patients were arranged according to pre-operative average resting diastolic levels it was apparent (Table IV)

TABLE IV—Distribution at Pre operative Resting Diastolic Levels

Diastolic Level	No of Cases	Mortality 5-9 Years after Operation
90-99	21 (8.2%)	4.8%
100-109	33 (12.9%)	9.1%
110-119	51 (19.9%)	27.5%
120-129	61 (23.8%)	27.8%
130-139	39 (15.3%)	30.7%
140+	51 (19.9%)	64.8%
Total	256 (100.0%)	31.2%

that the mortality increased with the height of the blood pressure. For cases with levels below 110 mm it was lowest, for cases with levels between 110 and 139 mm it was much higher but relatively constant, and for those with levels of 140 mm or more it was very high. At all levels the mortality rate was slightly greater for males than for females.

When the patients were arranged into groups according to the changes noted in the eyegrounds as suggested by Keith, Wagener, and Barker it was apparent in this series, as in theirs, that the prognosis became poorer as the grade of eyeground abnormality increased (Table V).

TABLE V—Pre operative Eyeground Distribution

Grade of Eyegrounds	No of Cases	Mortality 5-9 Years after Operation
N	12 (4.7%)	16.7%
1	67 (26.1%)	13.8%
2	68 (26.6%)	26.3%
3	70 (27.3%)	45.7%
4	39 (15.3%)	48.8%
Total	256 (100.0%)	31.2%

TABLE VI—Pre operative Cardiovascular Status\*

	No of Cases	Mortality 5-9 Years after Operation
Congestive failure and poor renal function	11 (4.3%)	100.0%
Congestive failure	23 (9.0%)	56.6%
Poor renal function	30 (11.7%)	53.3%
Cerebral accidents	39 (15.2%)	38.5%
Grade 3 eyegrounds	34 (13.3%)	29.4%
Grade 4 eyegrounds	15 (5.9%)	24.7%
Abnormal ECG enlarged heart or both	59 (23.0%)	13.5%
Grade 2 eyegrounds	19 (7.4%)	10.5%
Grade 1 eyegrounds	24 (9.4%)	4.2%
Symptoms only	2 (0.8%)	0.0%
Total	256 (100.0%)	31.2%

\* In these ten subdivisions the status of the cardiovascular system as indicated by each heading was regarded as the most important abnormality of the cases in each category.

It was also informative to arrange cases according to other criteria of cardiovascular disease. The prognosis for surgically treated patients appeared to depend upon the original cardiovascular status (Table VI). Of those with poor renal function and congestive heart failure, for instance, no patient survived for five years after operation. The mortality in this group was 100%. At the other extreme were cases with minimal, grade 1 eyeground changes only. The mortality in this group was 4.2% during a similar period of observation. It was noteworthy, however, that in the whole series, all of whom had continuously elevated blood pressure, only two patients (0.8%) had no evidence of cardiovascular damage at the original examination.

### Effect of Operation Upon the Cardiovascular System

The effect of operation upon the cardiovascular system may be judged by comparing the status of the eyegrounds, the electrocardiograms, and the renal function of living patients before and from five to nine years after operation. Of the 176 living patients 129 have been restudied five to nine years after operation, and such data as were available regarding the various vascular areas of these patients at the time of writing are summarized in Tables VII-IX. The

TABLE VII—Eyegrounds Living Patients

Pre operative Status		Status 5-9 Years after Operation						
Original Grade	No of Cases	Final Grade					Improved	No Change
		N	1	2	3	4		
N	6	0	4	2	0	0	0.0%	0.0%
1	40	5	21	14	0	0	12.5%	52.5%
2	32	5	3	20	4	0	25.0%	62.5%
3	27	2	2	17	6	0	77.8%	22.2%
4	15	2	7	5	1	0	100.0%	0.0%
Total	120	14	37	58	11	0	40.7%	39.2%

TABLE VIII—Electrocardiograms Living Patients

Pre-operative Status		Status 5-9 Years after Operation		
Status	No of Cases	Improved	No Change	Worse
Normal	55	14.5%	80.0%	5.5%
Abnormal	70	64.3%	24.3%	11.4%
Total	125	42.3%	48.8%	8.9%

TABLE IX—Renal Function Living Patients

Pre operative Status		Status 5-9 Years after Operation		
Status	No of Cases	Improved	No Change	Worse
Normal	72	0.0%	93.2%	6.8%
Slightly impaired	26	77.0%	7.6%	15.4%
Moderately impaired	12	75.0%	8.3%	16.7%
Markedly impaired	4	100.0%	0.0%	0.0%
Total	114	28.9%	61.3%	9.8%

Renal function was judged by the intravenous pheno'sulphonphthalein test. Normal excretion of 25% or more of dye in 15 minutes and 60% or more in 2 hours. Slight impairment excretion of 20 to 24% of dye in 15 minutes or 50 to 59% in 2 hours. Moderate impairment excretion of 15 to 19% of dye in 15 minutes or 40 to 49% in 2 hours. Marked impairment excretion of less than 15% in 15 minutes or less than 40% in 2 hours.

remaining 47 living patients have been checked during the 1-5-years period, but have not as yet been restudied during the 5-9-years interval.

With regard to the cerebral area, 39 patients had vascular accidents or encephalopathy before operation. Of these, 24 are living. Five have had subsequent cerebral accidents of a minor and non-fatal nature. Six of the 15 dead patients in this group of 39 had fatal cerebral accidents following operation. Of the living patients who did not have cerebral involvement before operation, three of 105 cases have had cerebral accidents during the 5-9-years period following operation. Of the 77 patients who have

TABLE X—Cardiovascular Status Living Patients

Pre-operative Status		Status 5-9 Years after Operation		
Vascular Area	No of Cases Examined	Improved	No Change	Worse
Retinal	120	40 7%	39 2%	20 1%
Cardiac (E C G)	125	42 3%	48 8%	8 9%
Renal	114	28 9%	61 3%	9 8%
All (including cerebral)	100	51 0%	12 0%	37 0%

died since operation in which the cause is known with reasonable certainty, death was due to cerebral accidents in 38. If one takes all vascular areas into consideration it will be noted that although certain patients show improvement in one they may at the same time show progress of vascular damage in another area. In other cases there was progress in one or more vascular areas. In still others there was no progress in any area, while some cases showed improvement in one or more areas with no evidence of progress in any area. A composite picture of the patients considered as a whole is given in Table X, in which the changes in the retinal, cardiac, and renal areas already described are summarized, together with an evaluation of all areas in the first 100 cases to be checked in detail five to nine years after operation.

#### Effect of Lumbo-dorsal Splanchnicectomy Upon Blood Pressure

In previous reviews (Smithwick, 1944, 1947, 1948) it has been noted that the blood-pressure levels have been lowered markedly to slightly in the majority of unselected patients during a 1-5-years follow-up period. This was true in this series also, some degree of lowering of blood pressure being noted in 84 of 100 cases. When the blood-pressure levels of these same 100 cases were re-evaluated during the 5-9-years period we found that only 47 cases continued to have as great a lowering of blood pressure. This indicates clearly that there has been a gradual return of blood pressure towards or to the pre-operative levels in 44% of the cases in which the levels were lower during the earlier follow-up period. This trend is indicated by Table XI.

It is apparent that, when the cardiovascular status of the patient as a whole was considered in relation to the degree of lowering of blood pressure, progress of cardiovascular disease was least in those cases having the most marked lowering for the longest period of time and greatest in those having the least lowering (Table XII). This suggests that lowering of blood pressure is beneficial. It is also of interest that many of the cases showing no significant change in pressure at the end of the period of observation had cardiovascular systems which

TABLE XII—Blood Pressure and Cardiovascular Status Living Patients

Late Effect of Operation on Blood Pressure	No of Cases	Cardiovascular Status 5-9 Years after Operation		
		Improved	No Change	Worse
Marked	21	81 1%	4 6%	14 3%
Moderate	13	76 9%	0 0%	23 1%
Slight	13	46 2%	23 1%	30 7%
No significant change	36	43 4%	17 8%	38 8%
Higher	17	11 7%	11 7%	76 6%
Total	100	51 0%	12 0%	37 0%

were actually in better condition than before operation, and in the majority of these cases there had been no evidence of progression of vascular disease.

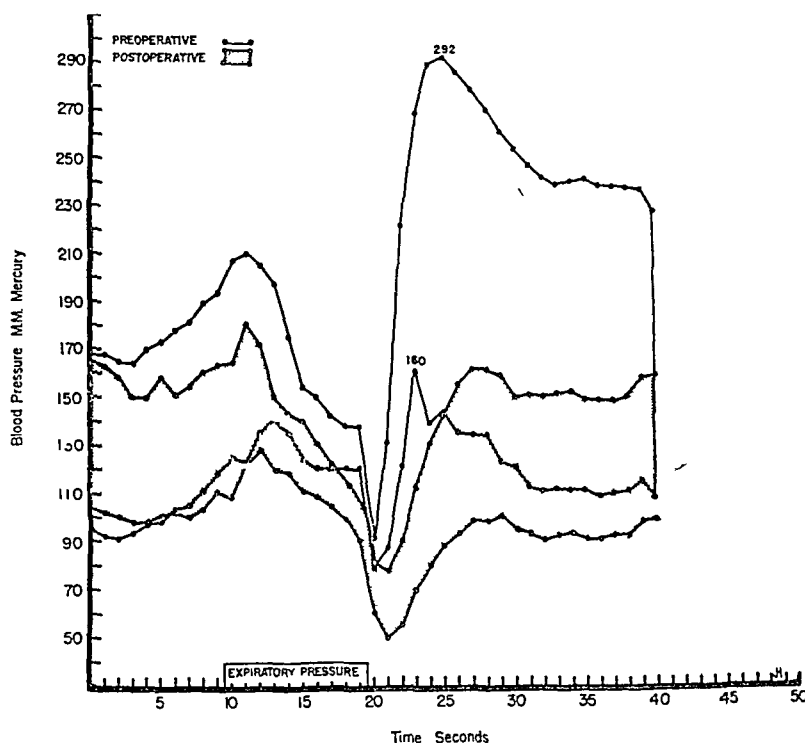


FIG 1—Response to Valsalva test before and after lumbo-dorsal splanchnicectomy. Variations in blood pressure caused by reflex vasoconstriction are abolished when a large vascular area such as the splanchnic bed is denervated. These variations may be very marked, as in this case. This physiological effect of sympathectomy occurs regardless of whether the basal levels are altered or not and is well demonstrated by the Valsalva manoeuvre as in this figure. Intra-arterial blood-pressure levels are optically recorded with a Hamilton manometer before, during, and after a ten second period of forced expiration. Before operation there was a sharp overshoot of blood pressure to very high levels within a few seconds after the expiratory period. After operation (shaded graph) the overshoot was abolished. It seems probable that the elimination of such reflex variations in blood pressure is partly responsible for the favourable changes in the cardiovascular system which may be noted after operation.

Slowing the rate of progress of cardiovascular disease after surgery may prove to be a very significant accomplishment. It should be remembered that most of these patients had lower average levels of blood pressure for one to five years. In addition, it may be assumed that virtually all of them had an abolition of the marked reflex vasoconstrictor response described by Wilkins *et al* (1947, 1948), and that most of them continued to have these responses greatly reduced, if not abolished, for years after the operation. This change, which can be readily demonstrated by means of the Valsalva test (Fig 1), constitutes a second physiological effect of lumbo-dorsal splanchnicectomy upon blood pressure and is not necessarily related to changes in basal levels. Examples of persistent and temporary reductions in basal blood-pressure levels are illustrated by Figs 2 and 3.

TABLE XI—Comparison of Early and Late Effect of Operation Upon Blood Pressure Living Patients

Effect on Blood Pressure	No of Cases in 1-5 Year Period	No of Cases in 5-9 Year Period
Marked*	35	21
Moderate†	29	13
Slight‡	20	13
No significant change	11	36
Higher	5	17
Total	100	100

\* Diastolic blood pressure lowered 20 mm or more and to below 90.

† Diastolic blood pressure lowered 20 mm or more and to below 110.

‡ Diastolic blood pressure lowered 10-19 mm and to below 110.

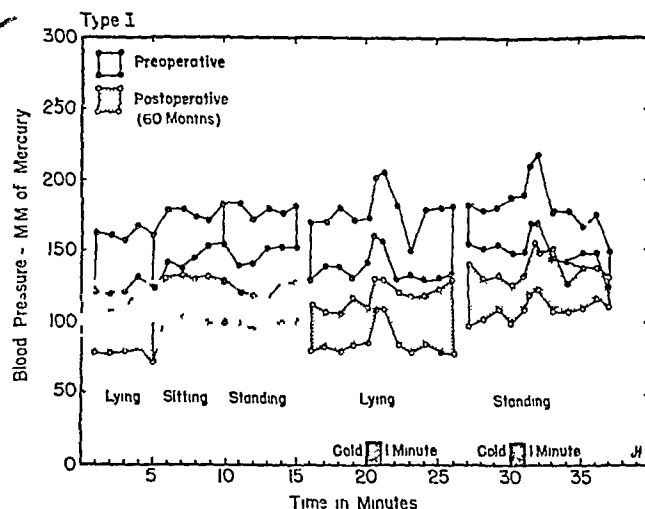
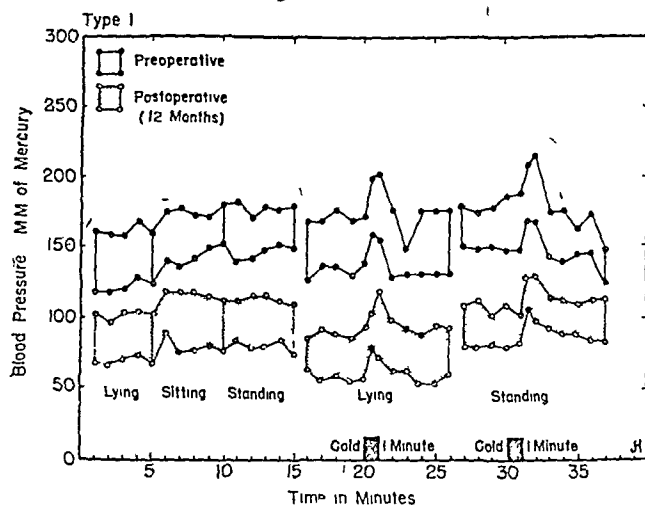


FIG 2—This case, that of a 31-year-old physician, came to hospital with rather severe hypertension, Type I. This had been discovered within a year prior to admission. His symptoms were comparatively mild, and consisted of occasional headaches, ease of fatigue, and shortness of breath. There was no evidence of cerebral damage. The eyegrounds showed grade 1 changes. The electrocardiogram was abnormal, and is reproduced in Fig 5. The heart was slightly enlarged. There was evidence of early congestive failure, as revealed by radiography of the chest and by the presence of alternation and gallop rhythm. This responded well to digitalis. The aorta was tortuous. The renal function was normal by ordinary tests. There was slight persistent albuminuria. The blood pressure fell to 135/98 on sedation. Five years after operation his general cardiovascular status was improved. His eyegrounds were unchanged. His heart was within normal limits as to size. There was no evidence of failure. He did not require digitalis. The electrocardiogram was normal (Fig 5). The aorta was tortuous. The renal function was normal and there was no albuminuria. He was asymptomatic and had carried on a very active surgical practice since operation. In the upper portion of the figure the blood-pressure levels as revealed by the postural and cold test are compared before and one year after operation. In the lower portion of the figure the levels before and five years after operation are compared. The actual levels were as follows:

	Lying	Standing	Ceiling Cold		Cold Response	
			Lying	Standing	Lying	Standing
Pre-operative	160/122	179/147	204/160	218/170	30/20	28/20
Post-operative (1 year)	103/68	114/90	120/80	132/108	26/22	26/24
Post-operative (5 years)	110/78	122/98	136/110	164/122	26/22	30/12

This case was ideally suited for surgical treatment. The effect upon the blood-pressure level was marked (see Table XI) and persistent.

In general the most favourable cases are those in the younger age groups, with narrower pulse pressures (Types I and II), who have variable blood pressures, with resting diastolic levels below 140 mm and preferably below 130 mm, with cardiovascular systems not too severely damaged, and with a satisfactory response to sedation.

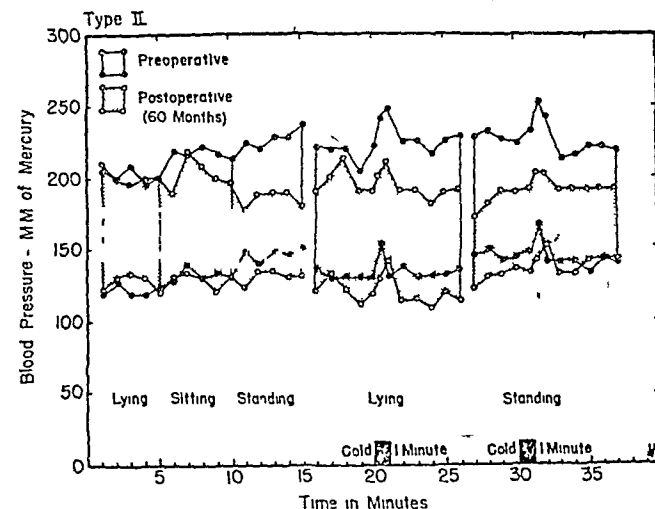
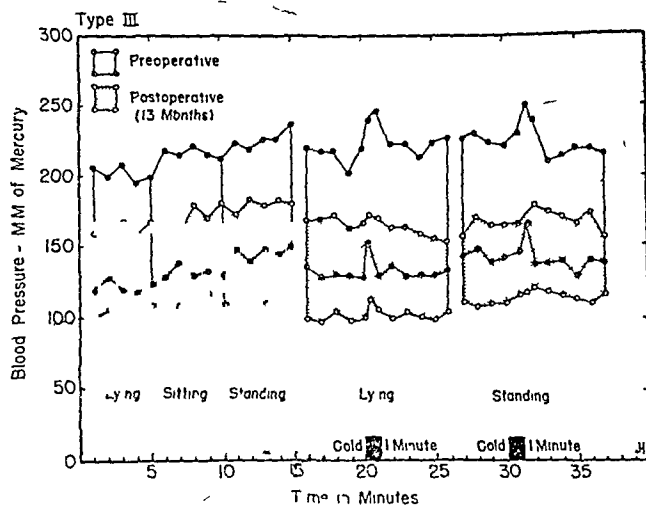


FIG 3—This case, that of a 45-year-old male nurse, was admitted to hospital because of congestive heart failure. On examination he was found to have hypertension. The eyeground changes were very marked, with arterial constriction and sclerosis grade 2, hemorrhages and exudate, and papilloedema. It was therefore apparent that he had so-called malignant hypertension. There was no evidence of cerebral involvement. The heart was enlarged and the electrocardiogram was abnormal. The kidney function was normal by ordinary tests except for rather marked and persistent albuminuria. The blood pressure fell from a resting level of 202/121 to 142/86 on sedation. The resting level indicated that this patient had a wide pulse-pressure type of hypertension (Type III). These data indicated that the patient's outlook was serious. He responded well to bed rest and digitalization. Operation was performed and he recovered uneventfully. One year later he was much improved and was leading a normal existence without digitalis. His cardiovascular system was improved, as was his blood pressure. The effect of operation upon the blood pressure level was graded as slight (see Table XI). Five years after operation his general condition was still improved and was the same as that noted at the end of the first year. The blood pressure had returned toward but had not quite reached the preoperative levels. At this time his eyegrounds showed grade 2 changes, his heart was abnormal in size and shape but normal in function. The electrocardiogram was abnormal but improved by comparison with the preoperative tracing. The renal function was normal by ordinary tests. There was no albuminuria. The blood-pressure levels are compared in the upper portion of the figure before and 13 months after operation. In the lower graph the levels before and five years later are contrasted. The blood pressure levels during the postural and cold tests were as follows:

	Lying	Standing	Ceiling Cold		Cold Response	
			Lying	Standing	Lying	Standing
Pre-operative	202/121	226/146	246/155	250/166	26/28	20/20
Post-operative (1 year)	164/105	180/110	172/114	180/120	6/14	16/4
Post-operative (5 years)	201/127	185/130	214/140	200/150	24/22	10/18

This is an example of a worth while but less satisfactory result when compared with the case illustrated by Fig 2. The older age and presumably longer duration of the hypertension, and consequently more extensive vascular disease, are unfavourable signs. The wide

pulse pressure is also an unfavourable finding. The explanation for recurrence of hypertension following surgery is not clear. Regeneration may play a part but is not a satisfactory explanation, since the reflex response to the Valsalva manoeuvre and other stimuli may still be abolished years after operation. The status of the cardiovascular system at the time of operation appears to be equally if not more important in this connexion. Even though the blood pressure levels may be lowered to a significant degree, if they are still considerably above the normal range vascular disease progresses, and in time the blood pressure levels rise again. The more nearly the pressure approaches normal after operation the longer the respite from the disorder.

### Life Expectancy of Hypertensive Patients: Comparison of non-surgically and surgically treated patients

Data reported on the life expectancy of hypertensive patients not treated surgically and observed for long periods of time are summarized in Table XIII. There is rather

TABLE XIII—Mortality Among Hypertensive Patients Treated Medically or Untreated

Author	No of Cases	Time Followed Up	Mortality
Janeway (1913)	458	1-10 years	5 years—50% 10 years—75% (53% of men 33% of women)
Blackford, Bowers, and Baker (1930)	202	5-11 years	50% (70% of men 39% of women)
Keith, Wagener and Barker (1939)	219	5-9 years	91% (93% of men 88% of women)
Rasmussen and Boe (1945)	100	6 years	52% (71% of men 43% of women)
Bechgaard (1946)	1 038	4-11 years	28% (41% of men 22% of women)

close agreement in the statistics of Janeway (1913), Blackford, Bowers, and Baker (1930), and Rasmussen and Boe (1945). About a half of their patients died during the course of some five years' observation. The mortality among men was considerably higher than among women. The findings of Keith, Wagener, and Barker (1939) and of Bechgaard (1946), however, differ widely from each other and from those of the previous authors. The Mayo group found that 91% of their patients died during a 5-9-years period of observation, the mortality for males being only slightly greater than that for females. Bechgaard reported an overall mortality of 28% during a 4-11-years period, that for men being about twice as great as for women.

It is apparent from these statistics that there is a wide variation in the mortality rates for hypertensive patients considered as groups. Further, it is obviously impossible to compare different groups of cases with each other, whether untreated or treated, unless they are divided into more comparable subgroups. In making these subgroups the numerous variables known to exist and to influence the outcome in this complex disorder should be held as constant as possible. In this way, and only in this way, can we arrive at a

reasonably accurate prognosis for a particular patient. Comparisons between such subgroups would then be of value and could be utilized to determine whether a particular therapeutic measure materially influenced the natural course of the disorder.

The first attempt to divide hypertensive patients into more comparable subgroups was made by Keith, Wagener, and Barker (1939). Their subdivision of a series of 219 patients into four groups was based upon the changes detected by a careful examination of the eyegrounds. Four grades were described, and the cases were grouped largely upon this basis. Survival curves were constructed for each group, and a material difference in prognosis for each of the groups was demonstrated. The survival curves for their four groups are reproduced in Fig 4. We have arranged our cases into four similar groups. The survival curves for our series are also illustrated in Fig 4. The two sets of curves are similar, and confirm their conclusion that the prognosis for hypertensive patients in the various groups differs materially. The survival rate in each of the four groups was higher in our surgically treated series. The differences observed have been subjected to statistical analysis, the results of which are summarized in Table XIV. The difference appears to be very significant for groups 2, 3, and 4, and increasingly so as the retinal changes become more severe. This suggests that the outlook for hypertensive patients has been improved by surgical therapy. It should be pointed out, however, that this subdivision into four groups, while no doubt a useful initial breakdown, permits of wide variations in the material contained within each group. When these four groups are further subdivided according to sex, age, severity of hypertension as judged particularly by the resting diastolic level, and the changes present in other vascular areas, it seems likely that the outlook for a particular patient can be assessed more accurately, and that the merits of a particular therapeutic

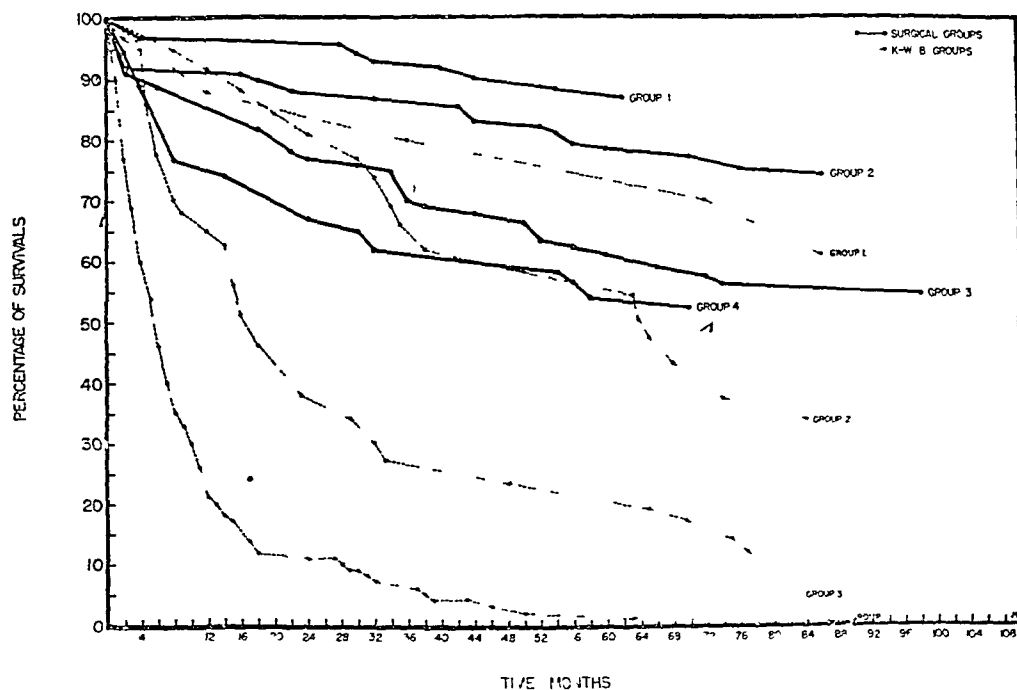


FIG 4—Survival curves following splanchnicectomy. 224 cases followed 5 to 9 years, arranged according to Keith-Wagener-Barker groups and compared with their 219 cases followed 5 to 9 years. As pointed out in the text, the division of hypertensive patients into more comparable subgroups is highly desirable. The division into four groups on the basis of eyeground changes is a step in the right direction, and is probably the most important initial breakdown which can be made. It still permits of wide variations in the material contained within each group. Consequently, further divisions are needed in which other important variables are held constant. This requires a larger number of cases, however, which we will have available as our follow-up studies progress. On the basis of the data at hand it seems probable that the outlook for hypertensive patients treated surgically is improved in all stages of the disorder. The difference observed was found to be statistically very significant for groups 2, 3, and 4 (see Table XIV).



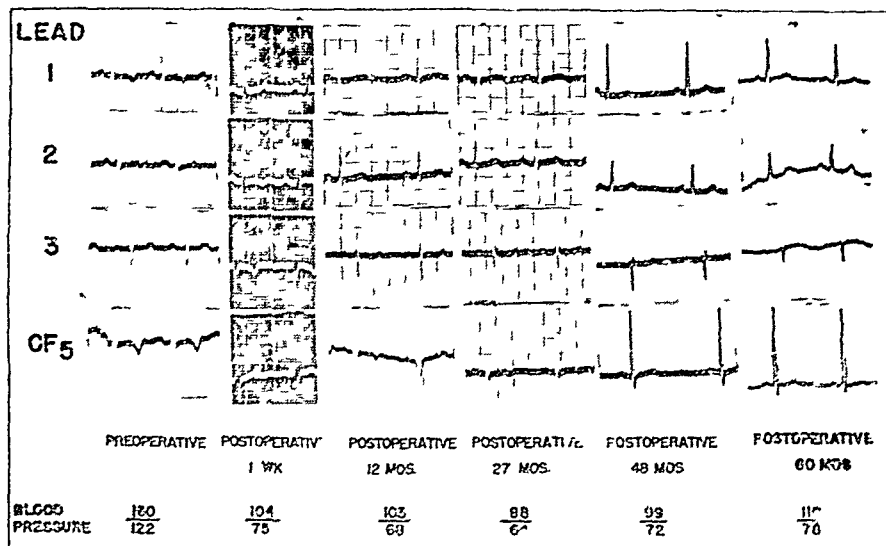


FIG 5—In this figure serial electrocardiographic tracings are recorded over a five year period. This is the case illustrated by Fig 2. The tracing immediately after operation was improved. That one year after operation was also improved, but not as much as that one week after splanchnicectomy. The tracing gradually improved and was regarded as within the normal range by the end of four years. It was still normal five years after operation.

measure may be evaluated with greater certainty. To do this will require large numbers of patients followed up for long periods of time.

TABLE XIV—Significance of the Difference Observed Between the Survival Curves following Lumbo dorsal Splanchnicectomy and those of Keith Wagener and Barker

Group	Time of Comparison*	$\chi^2$	Probability of Difference Observed being Due to Chance Alone	Significance
1	62 months	0.694	45 in 100†	Not significant
2	86	10.5	1 in 1 000	Very
3	77	18.6	1 in 100 000	
4	70	73.8	Less than 1 in 10 <sup>6</sup>	

\*When compared there were 58 of 67 survivals in the surgical and 7 of 10 in the non surgical group 1 series. The corresponding numbers for the other groups were 50 of 68 and 9 of 26 in group 2, 39 of 70 and 4 of 37 in group 3, and 20 of 39 and 1 of 146 in group 4.

†It is ordinarily assumed that any probability of occurrence of less than 5 chances in 100 is not due to chance alone.

The only other comparison which can be made at the present time is between the electrocardiograms of surgically and non-surgically treated patients. The changes observed in 125 of our patients are compared with a series of 50 non-surgically treated patients reported by Canabal, Warneford-Thomson, and White (1945). All of the cases in each group were followed up for five years or more. The differences observed in the two groups have been analysed statistically and the data are summarized in Table XV. The differences appear to

TABLE XV—A Comparison of the Electrocardiograms of Surgically Treated Patients with those of Non-Surgically or Untreated Hypertensive Patients

Series	No of Cases	Status After 5 Years or More Observation		
		Improved	No Change	Worse
Surgical (Smithwick 1948)	125	42.3%	48.8%	8.9%
Non surgical (Canabal Warneford Thomson and White 1945)	50	10.0%	40.0%	50.0%

The observed difference between the two series is very significant  $\chi^2 = 40.8$ . The probability that the observed difference is due to chance alone is less than 1 in 10<sup>9</sup>.

be very significant, and suggest that the course of hypertensive heart disease, as judged by the electrocardiograms, has been favourably modified by surgical therapy. Serial

electrocardiograms indicating a prolonged and favourable response to operation are illustrated by Fig 5.

### Summary

It should be recognized that the series of 256 cases of continued hypertension here studied is not representative of hypertensive patients as a whole, since it does not include those in the stage of intermittent hypertension. All had reached the stage of continued hypertension and 99% had some evidence of cardiovascular disease, which was regarded as serious in about 80% of the group. They, for the most part, are patients who had not responded to other therapeutic measures available at the time of operation. In some the disorder was discovered only shortly before operation and in a very advanced state. In a few the cardiovascular changes were minimal. The patients in this group are not so seriously ill as those of Keith, Wagener, and Barker, but are probably more advanced than the other series referred to. This group of cases is probably more comparable to that of Peet and Isberg (1946, 1948), who have made

the only other late follow-up studies of a sizable series of patients treated surgically.

Our patients have been divided into various groups according to sex, age, and resting diastolic levels. They have also been divided according to the state of the cardiovascular system before operation. The mortality is indicated in the tables, and varies greatly according to the many variable factors which are present in this disorder.

The effect of operation upon the cardiovascular system has been indicated by comparing the changes in various vascular areas before with those noted five to nine years after operation with particular reference to eyegrounds, electrocardiograms, renal function, and the vascular system as a whole. The effect of splanchnicectomy upon blood pressure is discussed briefly.

It is difficult to find comparable data in the literature concerning the prognosis for hypertensive patients treated medically or untreated. Survival curves following surgical treatment are compared with those of Keith, Wagener, and Barker. The survival rate was higher in all groups in the surgically treated series. The difference observed was found to be statistically very significant for groups 2, 3, and 4. The status of the electrocardiograms in a group of surgically treated patients is compared with that of a control series reported by Canabal, Warneford-Thomson, and White. The difference observed was also found to be very significant statistically. With regard to symptoms over 90% of the patients who have so far been interviewed five to nine years after operation are improved in this respect.

Further comparison of surgically and non surgically treated cases divided into similar subgroups in which the most important variables are held constant is desirable. Until this can be done the influence and relative merits of various therapeutic measures upon the course of hypertensive cardiovascular disease cannot be evaluated with certainty. Such comparisons as can be made at this time, while admittedly inadequate, suggest that surgical treatment has favourably altered the prognosis of many patients with continued hypertension and cardiovascular disease.

I am indebted to Dr K E Penrod for making the statistical analyses recorded in Tables XIV and XV.

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## THE SPHENOID SINUS\*

By

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In scanning the literature of sinusitis one has the impression that with the sphenoid, and even more with the posterior ethmoid, it is a case of "out of sight out of mind." The maxillary and the frontal cavities are so accessible for direct observation, transillumination, x-rays, and treatment that they receive more than their share of attention. What we know of them is apt to be applied by inference to the others. To some extent this is practical, but the sphenoid has special attributes. Being of an anatomical and physiological nature they are of more than passing interest since they constitute the basis of treatment.

I shall review briefly only those anatomical characteristics which among the sinuses are peculiar to the sphenoid. It develops that most of them are

Situated in the depth of the nasal cavity out of the direct line of the air-stream, the sphenoid sinus is sheltered from cold and dust and dryness. In the normal nose only a small part of the face of the sphenoid is visible or even accessible. As to the cavity itself almost every part is in intimate contact with some structure capable of making serious trouble when disturbed.

### Structure

On examining skulls one is often impressed with the thinness of the bony walls and the intimate relations which the pneumatized cavity assumes with neighbouring structures. It is almost as though some corroding or dissolving fluid had been at work in the bone extending the cavity here and there adapting it to the contours of the surrounding nerves and vessels leaving only a mere shell of bone between. Sometimes even this disappears and the normally adjoining structure finds itself but for the lining mucosa, within the sphenoid cavity.

There are no fewer than 15 such structures: the dura mater, the pituitary body, the optic nerve and chiasm, the cavernous sinus, the internal carotid artery, the abducens nerve, the oculo-motor nerve, the trochlear nerve, the ophthalmic nerve, the maxillary nerve, the sphenopalatine ganglion, the sphenopalatine artery, and the pterygoid canal and its nerve.

Herniations of the mucosa through dehiscences in the bone have been known to occur. They may carry the cavity of the sphenoid sinus even beyond the normal limits of the sphenoid bone. Contrast this with the maxillary sinus whose walls are relatively sturdy and accessible and whose environs are much less vulnerable.

There are histological and physiological differences as well. The inspired air passing the face of the sphenoid on its way to the pharynx misses the ostium, which lies lateral to the main current. The sphenoidal mucosa is quite thin, and being thoroughly protected from the evaporating effects

of air currents is very sparsely supplied with glands—a thing of primary importance to the surgeon.

The ostium, in any case, is likely to be a slit rather than a well-defined opening. When a high nasal obstruction occurs and there is swelling of the mucosa of the sphenoidal angle the ostium is closed. Ciliary streams within the sinus converging at the ostium are blocked and the mucus is retained. Since there are few glands and therefore scant mucus the inundation is not comparable to that which occurs in the maxillary sinus.

Unless the invading organism is especially virulent the reaction is apt to be a low-grade affair tending to chronicity if overlooked and producing a dense but relatively thin hyperplasia. Thick redundant polypoid hyperplasias do occur but the type often encountered in the maxillary antrum is the exception. In evaluating roentgenographic shadows one should remember that it is possible even for this thin membrane to be so distended by a transient oedema as to obliterate the cavity completely.

### Sinus Infections

The nature and proportion of severe sinus infections seem to depend somewhat upon climate, living conditions, and public health education. Not only do the majority of severe cases originate in communities where these are unfavourable but on the whole their incidence has fallen off materially in one's own recollection as a result of early attention to minor infections and obstructions.

There is the occasional case of fulminating suppurative sphenoiditis, acute invasive, destructive, threatening life. On this I shall not dwell for there is little in its diagnosis or management that is debatable. Only the prognosis has been modified in recent years by the advent of the sulphonamides and the antibiotics. The management of anything less than such an emergency seems to me to call first for consideration of the ultimate recovery of physiological function. Under such conditions eradication of 'pyogenic' membranes is apt to impede drainage permanently and should be the last instead of the first resort.

It is necessary to distinguish between an abscess and a pus-filled sinus, a distinction not usually made in years past. The abscess is a collection of infectious material lying in an adventitious cavity requiring evacuation and obliteration to return the tissues to normal. The sinus on the other hand is an infected hollow anatomical structure having functioning parts temporarily deranged but capable of restoration. Obliteration of such a structure approximates normality no more than does the amputation of an arm or a leg although it may become necessary in either case for special reasons.

In the older literature treatment does not take into account the physiological processes by means of which a sinus protects itself and this is still true of many contemporary textbooks. Most of these are only rewritten from older textbooks and though the author may have the courage to introduce new ideas he is somehow reluctant to discard old ones, however faulty. On the whole, treatment of sphenoiditis is suggested tentatively in the textbooks with the reservation that if this fails measures more and more drastic must be applied. In the light of present knowledge it is clear that if the treatment suggested did not actually prevent recovery it could only retard it at best. At worst it produced a situation requiring the most drastic measures.

To clarify, Skillern (1923) relates that "a long cotton-carrier saturated with strong adrenaline-cocaine solution is introduced into the ostium and allowed to remain several minutes until the mucosa around the opening is shrunken, thereby enlarging the ostium." This is carried out daily with subsequent irrigation. It is known now that the

\*Read in opening a discussion in the Section of Otorhinolaryngology at the Annual Meeting of the British Medical Association, Cambridge, 1948.

two mortal enemies of ciliary activity are cocaine and epinephrine and that their daily application in strong solution through the ostium, whence they could run to the floor must have effectively prevented the very drainage for which they were applied, a function at which the cilia are much better than we are

### Drainage

While on the subject of drainage reference may be made to the older and some of the newer literature in regard to surgical openings. We are cautioned to make these in dependent portions for drainage, smoothing the edges and leaving no ridges to retain secretions. This reckons without the cilia, which keep right on emptying mucus through the ostium as long as possible, and further overlooks the fact that for one-third of our lives we are lying down. We know now that nature does not depend upon gravity for drainage.

Newer methods are based on the better understanding of the cilia and their importance and upon the assurance, given long ago by Wright and Smith (1914a) and scarcely heeded by anyone at the time, that in chronic rhinitis "there is an increase in the volume of the connective tissue, but this is often more apparent than real. There can usually be plainly seen in the neighbourhood of blood vessels new connective-tissue cells, and the periosteum is much thicker in some places than in others, but the bulk of the stroma increase is due not to proliferation of the connective tissue alone, but to the dilatation of the lymph spaces and the filling of the meshes of the stroma with serum and corpuscular elements, lymphocytes, and polynuclears. The coagulation of the fibrin incidental to the fixation of the specimen for examination in sections makes a mass of fibrinous threads indistinguishable from the real fibrils of the connective-tissue cells except by special staining, but when this is resorted to the scantiness of new connective-tissue cells and their fibrils will be noted when compared to the general increase in bulk."

Searching for this passage, I was dumbfounded to find also a reference to something which I thought was original with me 20 years later. "There is one observation to be noted in regard to the oedematous and granulomatous fragments of mucosa removed from long-standing chronic inflammation of the sinuses, and that is the persistence of the cilia on the surface. Widespread and extreme lesions may exist in the subepithelial stroma, but the delicate cilia of the one- or two-layered columnar epithelium remain in tissue removed from the sinuses" (Wright and Smith, 1914b). Once more in the deep shadow of a library shelf we find what we had thought was something new under the sun.

### New Procedures

These newer conceptions require changing of the rules of sinus treatment and sinus surgery. Since the sphenoid is rather badly situated for the old procedures and almost ideally for the new, let us outline some of the latter here.

Vasoconstrictors should be chosen for their freedom from any restraining action on the cilia, for their freedom from secondary vasodilatation effects, and, if introduced into the sinuses, for their freedom from systemic effects.

Cocaine is taboo for anything but analgesia, epinephrine for anything but haemostasis.

Antiseptics are of small value, partly because they impede ciliary activity, more particularly because they do not reach the infection which is in the glands and tissues of the submucosa.

Any solution employed in the nose should be relatively isotonic and neutral in reaction.

Any surgical opening short of the radical oblitative operation should be (a) as much as possible out of the direct air-stream, (b) as small as practicable, to prevent drying out the

interior of the cavity, and (c) as cleanly cut as possible to avoid exuberant granulations and closing.

All these measures are far away from the old idea of obliteration and are directed towards physiological recovery. Let us apply them to the sphenoid. Sphenoiditis is not necessarily characterized by pus. Pus may be absent or so scant as to be practically undetectable. Sometimes, though present in quantity, it may discharge only intermittently and thus be overlooked by the examiner. Symptoms attributable to low-grade, acute, and chronic sphenoiditis have been well and frequently described. They range from simple demonstrable reactions of inflammation to pain, headache, and mental confusion. Collateral symptoms are those arising from the irritation of any of the structures mentioned above which lie in relation to the cavity. Commonly, though not always, they subside with the disappearance of the sphenoiditis.

Since minor and indefinite derangements of the sphenoidal mucosa can give rise to annoying and disabling symptoms it is important that the measures adopted should restore the tissues to function and not leave new abnormalities in their wake. This can be accomplished in the majority of cases by the application of solutions by the "displacement" principle. The sphenoid is fortunately situated in this respect, since, with the head in the inverted position, it lies at the bottom of the cavity with its ostium uppermost.

The arrangement of the tissues about the ostium is such that most of the distensible elements are components of the mucosa on the nasal side, the sphenoidal membrane being much thinner and relatively free of blood spaces. For this reason application of vasoconstrictors to the face of the sphenoid about the ostium is usually sufficient to open it without having to penetrate it. If this is not the case, the interior is still accessible through the displacement manoeuvre, since it is possible with the permitted negative pressure to withdraw a small part of the contained air and thus ensure the introduction of some of the fluid.

If a mild vasoconstrictor—for example, 0.25% ephedrine sulphate or 2-aminoheptane sulphate—is introduced every second day drainage is maintained over a period of time which is comparable to surgical drainage—in fact better since it promotes emptying in the normal way.

Bearing in mind Wright's description of the cytological conditions it is not surprising that the membrane tends to heal to throw off its infection, and to return to normal which it commonly does. Whether or not some excess of fibrotic tissue remains is unimportant so long as the patient is symptom-free. It is seldom necessary to remove contained secretions by positive irrigation or other means. With the ostium open and the cilia working the sinus take care of itself. Since aqueous solutions remain in the sinus after displacement for 10 or 12 hours continuous drainage is ensured.

If the reaction in the tissues has reached a point where it is irreversible and the method fails, then surgical drainage must be established.

### Surgical Intervention

Adhering still to physiological principles, a narrow longitudinal opening is made as close to the septum (or intersinus wall) as possible. Its width is only that of sharp-biting punch forceps (for it is important to keep margins smooth and clean) and it is as long as can conveniently be made in that portion of the bone which cuts easily. Prolonging the operation downward into the thicker, resistant bone does not add to its effectiveness but increases the likelihood of early closure by stimulating proliferation. There is much less tendency to close than exists after

general destruction of the face with its ostium. Nature makes every attempt to close any opening, while we persist in trying to thwart her.

This narrow opening as described will accomplish anything that the larger one will do. It permits access for observation, ventilation, drainage, and irrigation, and prevents the desiccation of the interior which results in the destruction of cilia and the metaplasia of the epithelium—in irreversible change which may start up disagreeable symptoms of its own.

The operation is comparable to a so-called "antrum window," which is effective because it lies away from the air-stream and leaves the ostium intact. It is of course not applicable to sinuses obliterated by large cysts and abscesses, nor is it designed for exploratory purposes such as the diagnosis of tumours, aneurysms, and the like. It would not apply to most of the type of cases described a few years ago by Pickworth and Graves, in which the bone had been deeply involved and the infection had reached the meninges, or to those discussed in Turner and Reynolds's classical monograph on intracranial invasions. For such the emergency suggests its own rules, fortunately they are the exception.

Collateral problems surrounding the sphenoid occur to one, such as its part in the causation of headaches, neuralgias, intracranial lesions, and retrobulbar neuritis. Each of them has been the subject of much debate, and I am not sure that I could add anything to what has been said many times on both sides of the Atlantic.

In the time available it seemed preferable to emphasize those physiological factors which may alter our conception of what is desirable in sinus treatment and open the way to better end-results in sinus surgery. My own approaches are of secondary importance. If this review has helped to awaken fresh interest in the subject or suggested a fresh point of view it will have served its purpose.

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To mark the beginning of the National Health Service the Minister of Health attended various ceremonies in Lancashire on July 5, speaking at Preston Mr. Bevan said that he wanted to thank all those men and women—in local government, in voluntary hospitals, in insurance committees, in nursing associations, and in all those other bodies and organizations—which had had the job to do in the past and had done it so well. They were handing over to him such that was a good going concern, with good ready made assets with which to start, and so making the task easier. "We are not changing the old services because they were bad, we are changing them to make good services better and more available to all." He would also like to thank all those who had worked unremittingly during the last two years in framing the new scheme. Among them were the representatives of the professions who had helped with regulations and administrative arrangements, especially the chemists, ophthalmic surgeons and opticians, whose willing and constructive co-operation had been most valuable in working out a better scheme than would otherwise have been possible. He would particularly mention the staffs of insurance committees, who now passed executive councils and who had had to carry a very heavy burden, the various local professional committees, those who had worked on preparatory committees, such as the three presided over by Sir Will Spens, the Pharmaceutical Working Party under Mr. W. H. W. and the Dental Estimates Board and its officers. There were some doctors reported to be telling some of their patients that they would accept them as paying patients but not under the National Health Service. Such conduct was of course a complete abuse of the doctor's right of free choice of patient, and doctors guilty of it would be condemned by their colleagues as a disgrace to their profession. All could help the new scheme by co-operation, by teaching the Service with the determination to make it work, and by not rushing for treatment which was not urgent in the early days of the scheme.

## THE SURGICAL ANATOMY OF THE PAROTID GLAND\*

BY

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Gray, Buchanan, Piersol, Cunningham, Quain, and Morris are among an elect company whose names strike a most familiar note in the mind of every member of the profession. One or other of their classic books recalls the early years of our professional studies. Rightly we regard our anatomical bibles with profound respect, the more so perhaps, because anatomy, the basic subject of the curriculum, can be likened unto the law of the Medes and Persians.

Because of stereotyped descriptions in the anatomical textbooks we envisage the normal parotid gland as being possessed of a plateau-like superficial surface and a deep surface with prolongations into vulnerable and inaccessible recesses. For the same reason (strengthened by personal experience in the dissecting-room) the profession believes that in the midst of the gland lies the seventh cranial nerve, so intimately incorporated in salivary tissue that to display the nerve trunk, its two divisions, and, above all, its fine branches requires days of dissection by someone upon whom the mantle of John Hunter has fallen.

Little wonder, then, that general practitioners, physicians and surgeons alike are steeped in the doctrine promulgated by that prince of surgical anatomists Sir Frederick Treves—"It follows from the complex relations of the parotid that its entire removal as a surgical procedure is an anatomical impossibility."

In 1937, after coming across its superficial lobe accidentally during the course of an operation upon the parotid gland and subsequently being inspired by the anatomical studies of McWhorter (1917), I came to the conclusion that the parotid was a bilobed structure, and that the facial nerve lay not in the gland but between its two lobes, in short, that the facial nerve might be regarded as the meat within a parotid sandwich (Fig. 1). No other secretory gland, I argued, has an important motor nerve† running through it, and no other secretory gland has lymphatic nodes within its parenchyma. Surely both the nerve and the lymphatic nodes are extracapsular, just in the same way as lymphatic nodes lie tucked between the opposing capsule-covered surfaces of the buccal and cervical lobes of the submaxillary salivary gland.

Although there are considerable variations in the disposition of the nerve within the parotid gland for practical purposes it may be stated that much more often than not the facial nerve lies between a comparatively large superficial lobe and a variably sized deep lobe, the two being connected by an isthmus. It is on this anatomical concept that the operations of superficial lobectomy and complete parotidectomy are rendered practicable, consequently the



FIG. 1—Diagrammatic conception of a coronal section through the parotid gland, showing the branches of the facial nerve sandwiched between the superficial and deep lobes.

\*Part of an address delivered before the Assembly of the International College of Surgeons in Rome on May 19, 1948.

†A possible exception is the recurrent laryngeal nerve, which, according to Berlin, traverses the thyroid gland in 7% of cases.

two mortal enemies of ciliary activity are cocaine and epinephrine and that their daily application in strong solution through the ostium, whence they could run to the floor, must have effectively prevented the very drainage for which they were applied, a function at which the cilia are much better than we are

### Drainage

While on the subject of drainage reference may be made to the older and some of the newer literature in regard to surgical openings. We are cautioned to make these in dependent portions for drainage, smoothing the edges and leaving no ridges to retain secretions. This reckons without the cilia, which keep right on emptying mucus through the ostium as long as possible, and further overlooks the fact that for one-third of our lives we are lying down. We know now that nature does not depend upon gravity for drainage.

Newer methods are based on the better understanding of the cilia and their importance and upon the assurance, given long ago by Wright and Smith (1914a) and scarcely heeded by anyone at the time, that in chronic rhinitis "there is an increase in the volume of the connective tissue, but this is often more apparent than real. There can usually be plainly seen in the neighbourhood of blood vessels new connective-tissue cells, and the periosteum is much thicker in some places than in others, but the bulk of the stroma increase is due not to proliferation of the connective tissue alone, but to the dilatation of the lymph spaces and the filling of the meshes of the stroma with serum and corpuscular elements, lymphocytes, and polynuclears. The coagulation of the fibrin incidental to the fixation of the specimen for examination in sections makes a mass of fibrinous threads indistinguishable from the real fibrils of the connective-tissue cells except by special staining, but when this is resorted to the scantiness of new connective-tissue cells and their fibrils will be noted when compared to the general increase in bulk."

Searching for this passage, I was dumbfounded to find also a reference to something which I thought was original with me 20 years later. "There is one observation to be noted in regard to the oedematous and granulomatous fragments of mucosa removed from long-standing chronic inflammation of the sinuses, and that is the persistence of the cilia on the surface. Widespread and extreme lesions may exist in the subepithelial stroma, but the delicate cilia of the one- or two-layered columnar epithelium remain in tissue removed from the sinuses" (Wright and Smith, 1914b). Once more in the deep shadow of a library shelf we find what we had thought was something new under the sun.

### New Procedures

These newer conceptions require changing of the rules of sinus treatment and sinus surgery. Since the sphenoid is rather badly situated for the old procedures and almost ideally for the new, let us outline some of the latter here.

Vasoconstrictors should be chosen for their freedom from any restraining action on the cilia, for their freedom from secondary vasodilatation effects, and, if introduced into the sinuses, for their freedom from systemic effects.

Cocaine is taboo for anything but analgesia, epinephrine for anything but haemostasis.

Antiseptics are of small value, partly because they impede ciliary activity more particularly because they do not reach the infection, which is in the glands and tissues of the submucosa.

Any solution employed in the nose should be relatively isotonic and neutral in reaction.

Any surgical opening short of the radical oblitative operation should be (a) as much as possible out of the direct air-stream, (b) as small as practicable, to prevent drying out the

interior of the cavity, and (c) as cleanly cut as possible to avoid exuberant granulations and closing.

All these measures are far away from the old idea of obliteration and are directed towards physiological recovery. Let us apply them to the sphenoid. Sphenoiditis is not necessarily characterized by pus. Pus may be absent or so scant as to be practically undetectable. Sometimes, though present in quantity, it may discharge only intermittently and thus be overlooked by the examiner. Symptoms attributable to low-grade, acute, and chronic sphenoiditis have been well and frequently described. They range from simple demonstrable reactions of inflammation to pain, headache, and mental confusion. Collateral symptoms are those arising from the irritation of any of the structures mentioned above which lie in relation to the cavity. Commonly, though not always, they subside with the disappearance of the sphenoiditis.

Since minor and indefinite derangements of the sphenoidal mucosa can give rise to annoying and disabling symptoms it is important that the measures adopted should restore the tissues to function and not leave new abnormalities in their wake. This can be accomplished in the majority of cases by the application of solutions by the "displacement" principle. The sphenoid is fortunately situated in this respect, since, with the head in the inverted position, it lies at the bottom of the cavity with its ostium uppermost.

The arrangement of the tissues about the ostium is such that most of the distensible elements are components of the mucosa on the nasal side, the sphenoidal membrane being much thinner and relatively free of blood spaces. For this reason application of vasoconstrictors to the face of the sphenoid about the ostium is usually sufficient to open it without having to penetrate it. If this is not the case, the interior is still accessible through the displacement manoeuvre, since it is possible with the permitted negative pressure to withdraw a small part of the contained air and thus ensure the introduction of some of the fluid.

If a mild vasoconstrictor—for example, 0.25% ephedrine sulphate or 2-aminoheptane sulphate—is introduced every second day drainage is maintained over a period of time which is comparable to surgical drainage—in fact better since it promotes emptying in the normal way.

Bearing in mind Wright's description of the cytological conditions it is not surprising that the membrane tends to heal, to throw off its infection, and to return to normal which it commonly does. Whether or not some excess of fibrotic tissue remains is unimportant so long as the patient is symptom-free. It is seldom necessary to remove contained secretions by positive irrigation or other means. With the ostium open and the cilia working the sinus can take care of itself. Since aqueous solutions remain in the sinus after displacement for 10 or 12 hours continuous drainage is ensured.

If the reaction in the tissues has reached a point where it is irreversible and the method fails, then surgical drainage must be established.

### Surgical Intervention

Adhering still to physiological principles, a narrow longitudinal opening is made as close to the septum (or the intersinus wall) as possible. Its width is only that of sharp-biting punch forceps (for it is important to keep the margins smooth and clean) and it is as long as can conveniently be made in that portion of the bone which cuts easily. Prolonging the operation downward into the thicker, more resistant bone does not add to its effectiveness but increases the likelihood of early closure by stimulating proliferation. There is much less tendency to close than exists after the

general destruction of the face with its ostium Nature makes every attempt to close any opening, while we persist in trying to thwart her

This narrow opening as described will accomplish anything that the larger one will do it permits access for observation, ventilation, drainage, and irrigation, and prevents the desiccation of the interior which results in the destruction of cilia and the metaplasia of the epithelium—an irreversible change which may start up disagreeable symptoms of its own

The operation is comparable to a so-called "antrum window," which is effective because it lies away from the air-stream and leaves the ostium intact It is of course not applicable to sinuses obliterated by large cysts and abscesses, nor is it designed for exploratory purposes such as the diagnosis of tumours, aneurysms, and the like It would not apply to most of the type of cases described a few years ago by Pickworth and Graves, in which the bone had been deeply involved and the infection had reached the meninges, or to those discussed in Turner and Reynolds's classical monograph on intracranial invasions For such the emergency suggests its own rules, fortunately they are the exception

Collateral problems surrounding the sphenoid occur to one, such as its part in the causation of headaches, neuralgias, intracranial lesions, and retrobulbar neuritis Each of them has been the subject of much debate, and I am not sure that I could add anything to what has been said many times on both sides of the Atlantic

In the time available it seemed preferable to emphasize those physiological factors which may alter our conception of what is desirable in sinus treatment and open the way to better end-results in sinus surgery My own approaches are of secondary importance If this review has helped to awaken fresh interest in the subject or suggested a fresh point of view it will have served its purpose

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To mark the beginning of the National Health Service the Minister of Health attended various ceremonies in Lancashire on July 5 Speaking at Preston Mr. Bevan said that he wanted to thank all those men and women—in local government, in voluntary hospitals, in insurance committees, in nursing associations, and in all those other bodies and organizations—which had had the job to do in the past and had done it so well They were handing over much that was a good going concern, with good ready-made assets with which to start, and so making the task easier "We are not changing the old services because they were bad, we are changing rather to make good services better and more available to all" He would also like to thank all those who had worked unremittingly during the last two years in framing the new scheme Among them were the representatives of the professions who had helped with regulations and administrative arrangements, especially the chemists and ophthalmic surgeons and opticians, whose willing and constructive co-operation had been most valuable in working out a better scheme than would otherwise have been possible He would particularly mention the staffs of insurance committees, who now passed to executive councils and who had had to carry a very heavy burden, the various local professional committees, those who had served on preparatory committees, such as the three presided over by Sir Will Spens, the Pharmaceutical Working Party under Mr. W. Penman and the Dental Estimates Board and its officers There were some doctors reported to be telling some of their patients that they would accept them as paying patients but not under the National Health Service Such conduct was of course a complete abuse of the doctor's right of free choice of patient, and doctors guilty of it would be condemned by their colleagues as a disgrace to their profession All could help the new scheme by co-operation, by approaching the Service with the determination to make it work well, and by not rushing for treatment which was not urgent in the early days of the scheme

## THE SURGICAL ANATOMY OF THE PAROTID GLAND

By

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Gray, Buchanan, Piersol, Cunningham, Quain, and Morris are among an elect company whose names strike a most familiar note in the mind of every member of the profession one or other of their classic books recalls the early years of our professional studies Rightly we regard our anatomical bibles with profound respect, the more so, perhaps, because anatomy, the basic subject of the curriculum, can be likened unto the law of the Medes and Persians

Because of stereotyped descriptions in the anatomical textbooks we envisage the normal parotid gland as being possessed of a plateau-like superficial surface and a deep surface with prolongations into vulnerable and inaccessible recesses For the same reason (strengthened by personal experience in the dissecting-room) the profession believes that in the midst of the gland lies the seventh cranial nerve, so intimately incorporated in salivary tissue that to display the nerve trunk, its two divisions, and, above all, its fine branches requires days of dissection by someone upon whom the mantle of John Hunter has fallen

Little wonder, then, that general practitioners, physicians, and surgeons alike are steeped in the doctrine promulgated by that prince of surgical anatomists Sir Frederick Treves—"It follows from the complex relations of the parotid that its entire removal as a surgical procedure is an anatomical impossibility"

In 1937, after coming across its superficial lobe accidentally during the course of an operation upon the parotid gland and subsequently being inspired by the anatomical studies of McWhorter (1917), I came to the conclusion that the parotid was a bilobed structure, and that the facial nerve lay not in the gland but between its two lobes, in short, that the facial nerve might be regarded as the meat within a parotid sandwich (Fig. 1) No other secretory gland, I argued, has an important motor nerve† running through it, and no other secretory gland has lymphatic nodes within its parenchyma Surely both the nerve and the lymphatic nodes are extracapsular, just in the same way as lymphatic nodes lie tucked between the opposing capsule-covered surfaces of the buccal and cervical lobes of the submaxillary salivary gland

Although there are considerable variations in the disposition of the nerve within the parotid gland, for practical purposes it may be stated that much more often than not the facial nerve lies between a comparatively large superficial lobe and a variably sized deep lobe, the two being connected by an isthmus It is on this anatomical concept that the operations of superficial lobectomy and complete parotidectomy are rendered practicable, consequently the

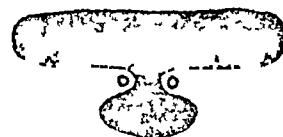



FIG. 1—Diagrammatic conception of a coronal section through the parotid gland, showing the branches of the facial nerve sandwiched between the superficial and deep lobes

\*Part of an address delivered before the Assembly of the International College of Surgeons in Rome on May 19, 1948

†A possible exception is the recurrent laryngeal nerve, which, according to Berlin, traverses the thyroid gland in 7% of cases



following description of the surgical anatomy of the parotid gland may prove helpful

The facial nerve emerges from the base of the skull at the stylo-mastoid foramen. After a course of approximately  $1\frac{1}{2}$  in (1.25 cm) it appears to plunge into the deep aspect of the gland a little below its middle. Actually it comes to lie in a groove on the under surface of the superficial lobe—viz,  I have noted repeatedly that the main trunk of the nerve can be separated by blunt dissection from the mobilized gland, aided here and there, in certain cases, by the sharp dissection of some fibrous bands. The main nerve trunk approaches the parotid isthmus from behind, and on reaching the isthmus divides into an upper temporo-facial branch which passes above the isthmus and a lower cervico-facial branch which passes below it (Fig 2)

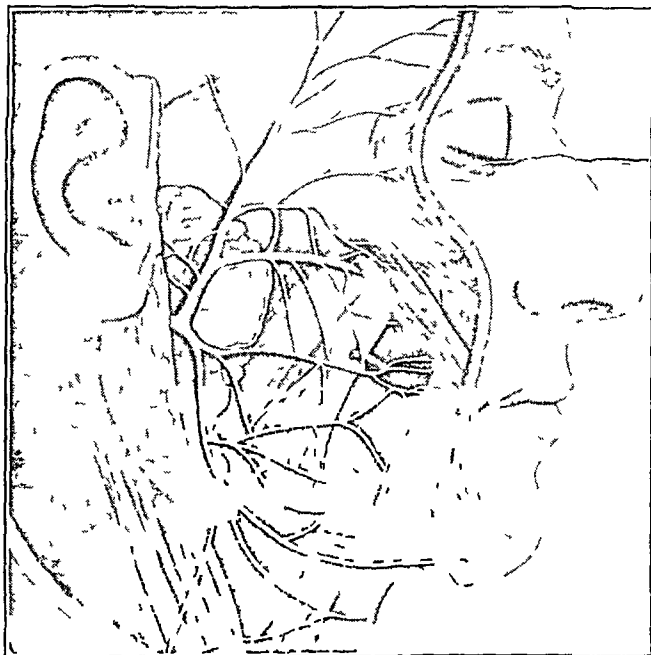


Fig 2—The disposition of the temporo-facial and cervico-facial divisions of the facial nerve as they embrace the isthmus

Because of the relatively small size of the deep lobe, outlying subdivisions of the nerve—i.e., the pes anserinus—rest between the superficial lobe and the masseter muscle. Particularly from a surgical point of view, the temporo-facial division, which is often the larger of the two divisions, is the more important

In a number of instances, after the two primary divisions of the nerve have embraced the isthmus they are connected at a varying distance in front of the isthmus by one or more anastomotic twigs (see Fig 2). No doubt this accounts for some cases of unexpected late recovery of partial facial paralysis following parotidectomy

**The Isthmus**—This is variable. Sometimes it is relatively broad, even so, the primary divisions of the facial nerve seem always to embrace it

**The Superficial Lobe**—This also varies in size and shape. Large superficial lobes often extend as much as 2 in (5 cm) downwards into the neck (Fig 3). On scores of occasions in the course of excision of adherent tuberculous cervical nodes situated in the upper third of the neck I have found it necessary to resect a portion of the cervical prolongation of the parotid gland. In a boy of 9, referred for operation because tuberculous cervical adenitis had failed to resolve, the swelling proved to be a mixed tumour situated in the cervical prolongation of the parotid gland, which extended so far downwards as to cause the swelling to be truly cervical

**The Deep Lobe**—I have learnt to segregate deep lobes into two categories—the “knob” and the “rabbit warren”

**The “Knob”**—In approximately 40% of cases the deep lobe is relatively small, ovoid in shape, and overlies the base of the condylar process (Fig 4). It has been argued that if the tumour *has* been removed satisfactorily by superficial lobectomy it is inconsistent with radical surgery to leave behind a piece of the parotid gland (the deep lobe), even if this knob is presumed to contain normal tissue. To this I rejoin, “Quite so”, but (a) even the removal of the knob causes renewed venous haemorrhage from what I take to be radicles of the posterior facial or the internal maxillary veins, and (b) until further dissection has been performed it is sometimes uncertain whether the deep lobe is in truth strictly of the “knob” variety

**The “Rabbit Warren”**—Contiguous with the deep surface of the deep lobe is a prolongation that plunges behind the posterior border of the mandible (Fig 5) towards the styloid process, which it surrounds. The most formidable possibility is that in the depths of the warren the deep lobe is adherent to the jugular vein near its bulb. It is for this reason more than for any other that the operator can give a sigh of relief that an exacting operation is virtually completed when he is convinced that a deep lobe

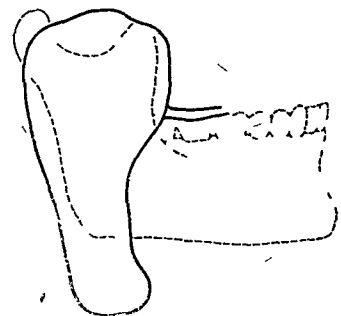


Fig 3—Superficial lobe of the parotid gland with a cervical extension

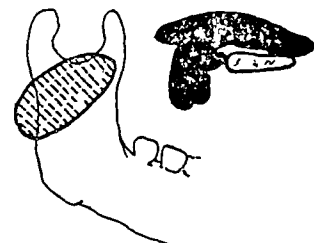


Fig 4—Deep lobe Variety A the “knob”

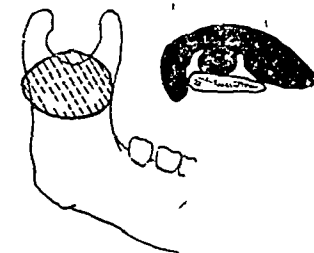


Fig 5—Deep lobe Variety B the “rabbit warren”

consists entirely of normal parotid tissue. After leaving deep lobes, including undoubted “rabbit warrens,” *in situ* many times I am still amazed by the fact that a salivary fistula following superficial lobectomy is conspicuous by its absence

**Stensen's Duct**—My experience of dissecting this structure in the living is at variance with what is depicted in works on anatomy. In over 80% of cases Stensen's duct is a rounded structure no larger than a fine hypodermic needle. In order to display the pes anserinus, after incising the parotid fascia longitudinally I employ transverse “haemostat dissection” (Fig 6) similar to that so well known in connexion with clearing a vein before its cannulization. By this procedure a number of thread-like structures are isolated, all cross the masseter muscle transversely. It is usually impossible to identify any one of them as the parotid duct until bisection of the isthmus (a much later step of the operation) has been carried out. Cautiously, twice can I recall having displayed a goose-quill-like duct similar to that described in

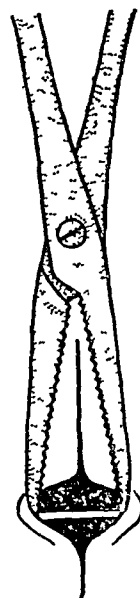


Fig 6—Haemostat dissection

illustrated in works on anatomy, and only once have I seen a socia parotidis (accessory parotid gland), which one gathers from anatomical illustrations should be a regular appendage of Stensen's duct. McCormack and his co-workers (1945) found Stensen's duct to be duplicated in 7% of cases.

### Results of Parotidectomy

I have performed parotidectomy 77 times. In 54 cases superficial lobectomy or total parotidectomy has been performed, in the remainder extracapsular resection of a tumour was carried out. Superficial lobectomy or total parotidectomy was undertaken

For parotid tumour	45 cases
For sialectasis	6 cases
For tuberculous parotid lymphadenitis with sinuses	2 cases
For Boeck's sarcoid	1 case

In 17 cases the tumour was a recurrent one, in one case it had recurred four times after various operative procedures, and in two it had recurred twice. A number of the patients had received radiotherapy without benefit.

In six instances the patient had palpably enlarged cervical lymph nodes, these were excised either at the time of the parotidectomy or at a separate session. In five of the six cases the invasion of the nodes by the tumour was confirmed histologically. In all these five patients further metastasis has occurred, from which four of them have died. In the sixth obviously enlarged lymph nodes were (unexpectedly) reported upon as being inflammatory, and this patient, who had combined total parotidectomy and excision of cervical lymph nodes, is alive and well nine years later.

The original case of superficial lobectomy was Mrs E R, aged 65, and the operation was performed in February, 1937. In 1948 she was admitted to a municipal hospital with carcinoma of the stomach and metastases in the liver. I had seen her a year previous to this, and then she was well and without any sign of a recurrence of the parotid tumour.

All the patients who have had superficial lobectomy or complete parotidectomy performed have been followed up, and, with the exception of one who died accidentally and those who had secondary deposits at the time of the operation, all, including the recurrent cases, have been traced, been examined, and been found to be cured of their neoplasm for varying periods up to 10 years. In 80% of cases the report on the histologically variegated neoplasm, about which there is so much pathological controversy, can be summarized as "mixed parotid tumour." In a few instances the pathologist specifically stated that the tumour was a carcinoma. In three examples the tumour was found to be an adenolymphoma.\*

As for the integrity of the seventh nerve, in two patients no attempt was made to preserve it, because in one the nerve had been cut at a previous operation performed elsewhere and in the other the neoplasm (which proved to be an adenolymphoma) was so extensive and friable that the anatomy of the region was confused. Of the remaining patients over 40% had temporary facial palsy lasting for varying periods up to one year. Only five of these showed signs of facial muscular weakness after a year—but none of them are seriously inconvenienced by it. One patient has paralysis of the temporo-facial division, but by a fortunate coincidence she is the possessor of a glass eye on that side—the eye having been removed for an accident in childhood. This patient by reason of the glass eye, although

an intelligent woman, is not aware of the fact that she cannot approximate her left eyelid. In two patients on whom the operation was performed less than a year ago full recovery of the facial nerve is improbable. In one of these an immense tumour displaced the nerve medially at the stylomastoid foramen, and although the branches are intact the nerve may be damaged at its exit from the skull.† In the other the cervico-facial division entered a very large tumour which had been removed elsewhere a year previously, and I cut this division deliberately.

### Envoy

In all instances before carrying out parotidectomy I warn the patient that the integrity of the seventh nerve cannot be guaranteed and a degree of facial palsy must be expected for several months. I am thankful to say that I can now sound this warning less loudly than in time past. Moreover, I am relieved to find that in cases of parotid tumours the advice to have a large part or all of the parotid gland removed is to-day less at variance with world opinion than it was even a year or two ago.

Old beliefs die hard, and the misconceptions to which I referred (Bailey, 1947) are by no means dead, but, as a result of this follow-up, dead are my earlier beliefs and fears that my days would be darkened by disconsolate, doleful individuals whom I had hideously deformed by carrying out parotidectomy on unselected cases, particularly when operative treatment had been discouraged or stated to be definitely contraindicated by experienced general practitioners and, in some instances, by front-rank surgeons. Dead, too (or at any rate comatose), are those disturbing thoughts of standing in the witness-box pilloried by the prosecuting counsel who, holding aloft a pre-operative photograph, exhorts the jury to "look upon this picture, and on this"—my patient. In only one instance have these trepidations been vindicated even in a very mild degree.

The patient was a man, aged 34, whose obvious parotid tumour, which he said was getting bigger, added asymmetry to a face that could never have been his fortune. None the less, after removal of a tumour of a deep lobe which surrounded the styloid process, relentlessly he assured me that as the tumour had given him no trouble he would rather have kept it than be compelled to greet his staff and customers with a unilateral smile. Owing to the difficult nature of the operation I was convinced that in his case the paralysis would be permanent. Before recommending Lodge's operation for facial palsy I sent the patient to Dr Yealland, who advised waiting until 12 months had passed. This was the only patient who did not attend the follow-up I organized for the purpose of writing this review. All the other patients came, some from great distances—e.g., the North of England and Wales. Eventually, however, after five requests he condescended to call (his office being situated five minutes from Harley Street). The affected facial nerve was functioning perfectly.

"All hokey"—a descriptive term not yet in the authors and writers' codex—succinctly conveys the impression regarding parotidectomy with preservation of the facial nerve that was gained by candidates for the Scottish and Irish as well as the English Fellowship at instructional classes in 1947. I am glad to find that, thanks to the testimony of my former house-surgeons and postgraduates, this teaching is being modified.

Regarding the pure anatomy of the facial nerve, so far as I have ascertained, Barry Anson, professor of anatomy in the Northwestern University of Chicago, whose contributions on applied anatomy are so helpful to surgeons, stands alone among English-speaking anatomists in teaching that the parotid gland is a bilobed structure with the facial nerve running between the lobes. Morris's is the only

\*All the patients were elderly men. An adenolymphoma, in distinction to all other tumours of the parotid gland, is radio-insensitive, but clinically there is no method of distinguishing this tumour from others. A radiotherapeutic test would probably segregate these cases.

†Since writing this, the patient has been re-examined, and the function of the seventh nerve is returning (10 months after the operation).

textbook in English that makes any mention of the bilobed conception, and in the 1942 edition McWhorter's (1917) paper is quoted. On the other hand, the French school of anatomists have long accepted the newer teaching, and in their standard textbook (Rouviere, 1943) the account of the parotid salivary gland is replete with a description of the facial nerve lying between a superficial and a deep lobe. In this connexion it should be emphasized that the American surgeon McWhorter (1917) admitted that he derived his ideas from the French surgeon Gregoire (1912).

Masterly sharp dissection with a knife that is deftly honed at frequent intervals is a heritage of which members of the Anatomical Society of Great Britain and Ireland are justly proud. To display the arborescing facial nerve by cutting formalin-hardened, dehydrated if not desiccated salivary tissue calls for much honing and great skill. I believe that if the supple parotid gland of a fresh subject was distended by injecting an appropriate blue-stained fluid into Stensen's duct, after employing the knife to disengage the peri-parotid fascia and to free the excised mastoid process with the sterno-mastoid muscle attached, the scalpel could be laid aside, and under these conditions, by haemostat and blunt dissection only, the main trunk of the facial nerve could be followed to its bifurcation and further without incising any (blue-stained) salivary tissue.

I am deeply indebted to Dr L. R. Yealland for examining the muscle reactions and accurately prognosticating in a number of instances where recovery from facial palsy was doubtful, to Professor Anson and his pupils for their encouraging anatomical substantiation of the bilobed structure of the parotid gland, to Mr C. Eisinger for great assistance in translating foreign works on anatomy, and to Dr Donald Teare for his careful histological study of the tumours I have removed.

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Hull Royal Infirmary was founded on March 22, 1781, and received its first patients in September of the following year. To mark the transition which took place on July 5 the Managing Committee has issued a handsomely produced booklet which has been prepared by Mr K. J. Lowson. This tells the story of the Infirmary from its foundation to the present day and includes brief biographical notes on all the members of the honorary medical staff. Also included in the booklet are pictures of the hospital in 1784 and in 1850 and there are photographs of the present and past honorary staffs.

## ACUTE URAEMIA

BY

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Extrarenal uraemia—or “prerenal uraemia” according to Fishberg (1939) and “renal anoxia” according to Maegraith *et al.* (1945)—is probably the most frequent form of acute uraemia (Zondek, 1944, 1946, Maegraith *et al.*, 1945). This view is supported by the results referred to in this paper.

Extrarenal uraemia is a non-specific body-reaction—i.e., a pathological process met with in entirely different diseases. The uraemia in question is called “extrarenal” (other possible terms will be discussed later), as it occurs in diseases not primarily involving the kidneys and in patients who may not have previously suffered from kidney trouble. The renal failure in these cases seems to be of a functional nature, another, and essential, characteristic is its association with extrarenal azotaemia, a process caused by increased endogenous breakdown of protein which can be diagnosed (Zondek, 1944, 1946) by symptoms such as an increase of non-protein nitrogen in the blood in addition to a dissociation of the urea-sodium-chloride excretion (in the urine, great quantities of urea and small quantities of sodium chloride).

If quite different groups of diseases, comprising not only general affections such as burns, crushing, surgical shock, and general infections (e.g., Weil's disease) but also affections of special organs, such as liver diseases and myocardial infarctions, can cause either pure external azotaemia or extrarenal azotaemia plus renal failure—i.e., extrarenal uraemia—might not primary renal disease, too, occasionally be the cause of this symptom-complex? The following case may prove this assumption correct.

## Case 1

A man aged 48 underwent a calculus operation of the urinary bladder a few months before the onset of his present illness. Three days before his admission to hospital cystoscopic examination was carried out because of new troubles and was followed immediately by chills and high temperature. Death occurred 48 hours after admission. While in hospital he had two more chills and the usual symptoms of severe infection. X-ray examination revealed the presence of a calculus in the lower part of the right ureter. The urine contained only traces of albumin and leucocytes. A blood examination showed white cells 13,400 per cmm, with a marked shift to the left (juvenile cells 34%). Urea on the day of admission was 136 mg. per 100 ml., two days later (the day of death) it was 153 mg. Uric acid was 8 and 9.7 mg. per 100 ml. respectively. The urine output for 24 hours amounted only to 1,200 ml. Its NaCl concentration was 0.8 g. per litre and its urea concentration 18.4 g. per litre, accordingly the total excretion on this day was NaCl 0.96 g., urea 22 g. The NaCl-urea ratio was 1:23. Though death resulted from severe septic infection the uraemia certainly was of clinical importance, the nature of the latter did not differ from typical extrarenal uraemia as seen in the course of various non-renal diseases which is proved by the dissociation of the urea-NaCl excretion and to some degree also by the fact that the urine was actually free from albumin and contained no casts and no cells except leucocytes.

Extrarenal azotaemia is probably also a manifestation of non-specific pathological processes caused by quite different diseases and appearing even in persons who never before have suffered from any kidney troubles. What will happen if a person suffering from chronic kidney trouble contracts one of the various diseases potentially

to cause extrarenal azotaemia or extrarenal uraemia? The occasional coincidence of chronic renal disease and extrarenal azotaemia or extrarenal uraemia seems natural if our basic conception is correct. May we expect interference from both these processes, and what will their clinical peculiarities be? Extrarenal uraemia appearing in a person suffering from chronic renal disease has already been reported (Zondek 1944). Two more cases each of a special type, may now be quoted.

### Case 2

A man aged 20 was found to be suffering from chronic nephritis two years before the present illness started. Since then he has had permanent albuminuria of 1-3 g per litre with leucocytes and casts. Four days before admission to hospital a fever started which lasted five weeks. The clinical picture resembled that of typhoid fever, all serological and bacteriological examinations however were negative. Amoebic hepatitis could not be entirely ruled out in view of the fact that temperature eventually subsided after treatment with emetine. Throughout the period of fever the quantity of albumin in the urine remained at about the same level as before, and there was no change after the patient's recovery, the same applies to cells and casts found in the urine. Blood pressure during the fever period and later, was not raised: systolic pressure was 100-110 mm Hg, diastolic pressure about 70 mm Hg. For the next 8-10 days after admission to hospital—the period with the highest temperature (102-103° F (38.9-39.4° C) in the morning and evening)—the findings in blood and urine were typical of extrarenal azotaemia, as seen in the following table.

Details of Case 2

Day of Illness	5	6	7	8	9	10	14	16	18
Blood Urea (mg per 100 ml)	60		50	36	28	24			36
Urea	7.5			7.2		5.8			
Urea (g per litre)	1.7	1.5	4.2	1.1	1.1	1.2	3.2	3.1	6.0
Urea	0.8	1.6	36.0	3.4	2.5	1.2	18.4	12.8	10.6
Urea excretion daily	0.85	0.8	2.1		0.6	0.72	1.92	3.4	
NaCl (g)	20	22.5	18.0		14	18.7	11.0	13.0	

This case is one of extrarenal azotaemia caused by general infection in a person suffering from chronic nephritis. The extrarenal azotaemia and the chronic nephritis existed separately and did not interfere with each other. Following the accepted lines of diagnosis the rise of urea and uric acid in the blood would be considered to have been associated with the existing nephritis, and accordingly a state of true uraemia would be assumed. There is, however, no doubt that the condition in question is one of extrarenal azotaemia which may occur in patients suffering from a similar infection without the kidneys being seriously affected. The extrarenal azotaemia is proved by the strong dissociation of the sodium-chloride-urea excretion (NaCl-urea ratio up to 1:28) and a daily excretion of urea greatly exceeding that resulting from protein intake. The rise of urea and uric acid in the blood is probably due to increased endogenous breakdown of protein only, considering the high urea concentration in the urine (up to 41 g per litre) renal insufficiency can hardly be assumed, at least the insufficiency, if it existed, was much less pronounced than it might have been under similar conditions in persons not suffering from any chronic kidney troubles.

### Case 3

A woman aged 46 had her right kidney removed 16 years ago on account of renal calculus. Since then there had been no more complaints concerning the kidneys. Some weeks before admission she had a gall-bladder attack with chills and pyrexia lasting a few days. Another and particularly severe attack started a week before admission, at the time of which she had very high temperatures of septic type, chills,

jaundice, and local peritoneal symptoms which lasted five days, from the sixth day all these symptoms subsided. Bile pigments including bilirubin which were present in abundance at the height of the illness likewise disappeared from the urine. At the time of the high temperature the urine contained albumin up to 1 g per litre, after that only traces were found. In addition there were always a moderate number of leucocytes but no other pathological elements. For sodium chloride and urea in blood and urine see the table. After an interval of three months

Details of Case 3

Day of Illness	8	9	11	12	14
Blood Bilirubin (mg per 100 ml)	12.0				2.0
Urea	11.0	9.6	6.0		3.2
Urea					
NaCl (g per litre)	2.6	1.6	1.4	2.0	2.4
Urea	7.0	7.6	12.0	18.0	24.0
Urea excretion daily					
NaCl (g)	2.6	1.9	3.2	4.0	7.2
Urea (g)	7.0	9.0	29.0	36.0	72.0

during which the patient felt comparatively well, she had another gall-bladder attack with the same clinical symptoms as the previous one. The sodium chloride and urea findings in blood and urine were also similar.

Case 3 is one of severe acute cholecystitis complicated by a state of acute uraemia. The urinary excretion, at least in the first three days, of only small amounts of urea in spite of a high urea level in the blood suggests that the renal insufficiency must have been rather severe. But a process of extrarenal azotaemia, too, must be assumed. This, however, was not recognizable until, from the third day onwards, the daily urinary excretion of urea rose (to 37-70 g) while the urinary excretion of sodium chloride still remained low, the sodium-chloride-urea ratio was up to 1:10.

Extrarenal uraemia is a rather frequent occurrence in severe liver diseases complicated by jaundice (hepato-renal syndrome), therefore at first sight Case 3 does not seem to present any uncommon feature. But further examination revealed some findings deserving close consideration. X-ray examination of the kidneys showed that the pelvis of the left kidney (the right kidney had been removed) was almost entirely filled by calculus masses. A urea-clearance test carried out several weeks after the patient's complete recovery from the acute cholecystitis and the acute uraemia showed 22% of the normal value.

From these findings there can be no doubt that the patient must have been suffering from chronic renal disease with renal insufficiency for a long time, though the latter was not severe enough to raise the urea level of the blood so long as there was no special call upon the kidneys. But the condition changed definitely when, in consequence of the acute liver affection, a process of extrarenal azotaemia set in, thus forcing upon the kidneys the task of eliminating a much greater quantity of substances containing non-protein nitrogen. Yet there is an additional factor to be considered. Since in severe liver disease acute renal insufficiency associated with extrarenal azotaemia may occur even in persons who have never before suffered from any kidney disease the chances of its appearance may of course have been greatly enhanced because of the already impaired function of the kidneys. But, however severely the pre-existent chronic renal disease may have affected the course and the severity of the acute uraemic state, the latter must be considered to belong to the group of extrarenal azotaemia plus acute non-specific renal insufficiency—i.e., extrarenal uraemia.

### Discussion

Chronic and acute uraemia differ from each other not only in their clinical course but in the pathological

processes upon which they are based. Chronic uraemia may occur in the advanced or final stage of all chronic renal diseases. It is a remarkable fact that the morphological changes do not vary greatly according to the primary cause of the renal disease. Whichever the latter may be (chronic nephritis, malignant hypertension, pyelonephritis, or even renal diseases not belonging to the group of Bright's disease), the morphological process met with when chronic renal insufficiency makes its appearance is that of contracted kidneys. Nor can there be any doubt that renal insufficiency in these cases is closely related to the morphological process, and that chronic renal insufficiency has no other origin than the pre-existence of renal affection and its histological manifestations.

The genesis of acute uraemia, however, is of a different nature. In acute glomerulonephritis, for instance, it is the affection of the glomerular vessels, eventually leading to glomerular ischaemia, which must be held responsible for a possible occurrence of acute renal failure. But, whether the original nature of this affection be a functional spasm (Volhard, 1931) or a true endocapillaritis (for literature see Fishberg, 1939), the pathological process represents, as generally assumed, nothing but a special body-reaction ("allergic" according to Schick) to an extrarenal process—i.e., streptococcal infection in general. Glomerulonephritis, however, most certainly represents the background of only a minority of all cases of acute uraemia, while the majority belong to that group of renal failure defined here as extrarenal uraemia. Actually the theory that acute uraemia is due to glomerulonephritis and the latter to an extrarenal process is not quite correct, since the former is to some extent also extrarenal. In spite of this the terms should not be changed, at least not at present. Since acute glomerulonephritis and what it stands for represent a body-reaction to a rather specific cause—i.e., streptococcal infection—while extrarenal uraemia owes its occurrence to a variety of diseases, the big difference in the incidence of the two forms of acute uraemia cannot be surprising. How wide this variety of causative diseases is may be realized when it is said that even acute uraemia occurring in patients suffering from chronic renal diseases may be of the type of extrarenal uraemia. The occurrence of acute uraemia in cases of chronic renal disease has always been a difficult matter to explain, since the latter, according to its morphological characteristics, supposedly leads only to chronic uraemia. Perhaps the observations reported here may throw some light on this question.

In cases of extrarenal uraemia renal insufficiency may be regarded as functional. Though marked and well-defined morphological changes may be met with (Zondek, 1944, 1946), particularly of the tubular apparatus (degeneration or even necrosis of the epithelium, chiefly that of the ascending loop of Henle and of the distal convoluted tubules), they do not, even in the severest cases, represent a necessary finding, accordingly pathological elements such as albumin, cells, and casts in the urine may be absent. A striking difference must be assumed between the pathological processes underlying the uraemia in cases of acute glomerulonephritis and that in cases of extrarenal uraemia. While the former condition is characterized by an affection of the glomerular capillaries (functional spasm or endocapillaritis), sometimes verging on total glomerular ischaemia, in the latter a similar process has never been detected by microscopical examination. In addition, in cases of extrarenal uraemia blood pressure is found to be normal or even particularly low, while it is high in cases of uraemia connected with acute glomerulonephritis. This rise in blood pressure is only an expression of the vascular process mentioned above and is not restricted to the kidney

vessels alone. On the other hand, disturbances of the blood supply to the kidneys may also be responsible for the renal failure in cases of extrarenal uraemia (Fishberg, 1939, Maegraith *et al.*, 1945, Trueta *et al.*, 1946), they are, however, of a different nature from those typical of acute glomerulonephritis.

According to Fishberg, reduced renal blood flow is the decisive change found in "prerenal" uraemia, Maegraith *et al.* and Trueta *et al.* in addition to the reduction in the total blood flow, particularly stress a redistribution of the blood flow within the kidneys, which latter, in their opinion, is characterized by a whole or partial diversion from the cortex. According to Trueta *et al.* this change in blood supply is due to abnormal nervous reflexes—a suggestion advanced on the strength of very interesting and important experiments. The conception of a redistribution of blood flow within the kidneys fits in very well with the morphological renal findings as described by many authors (for literature see Maegraith *et al.*) and recently again confirmed by Darmady (1947)—namely, that in cases of extrarenal uraemia the cortex is always found to be pale and anaemic, while there is a marked congestion of the juxta-medullary area and an engorgement of the vessels in the medullary zone.

The fact that extrarenal uraemia is always associated with increased endogenous breakdown of protein led to the assumption that metabolites originating from this process may affect the kidneys and be responsible for the occurrence of renal failure (Zondek, 1944, 1946). This hypothesis does not contradict that of Maegraith *et al.* and Trueta *et al.*, who regard the disturbances of the blood supply as the decisive causative factor. Possibly the supposed metabolites—as also considered by the above mentioned authors themselves—may affect the nervous centres and thus become the cause of the abnormal blood circulation within the kidneys.

Obstruction of the urinary passages has until recently been regarded as the exclusive cause of acute uraemia, such as may occur after intravascular haemorrhages—e.g., blackwater fever, transfusion of incompatible blood, and other acute haemolytic processes—as well as that sometimes occurring in the course of treatment with sulphonamides. Precipitated pigment and precipitated crystals of sulphonamides were respectively supposed to obstruct mechanically the tubules (intrarenal obstruction) and the lower parts of the urinary passages—i.e., the pelves of the kidneys and the ureters (extrarenal obstruction). Such a mode of action may account, indeed, for certain cases of uraemia—i.e., those where great masses of crystals of sulphonamides obstruct the pelves and particularly the ureters. According to more recent investigations (Murphy and Wood, 1943; Foy *et al.*, 1943; Maegraith and Findlay, 1944), however, the possibility of intrarenal obstruction as the only or even the main cause of uraemia must be abandoned, and this holds true in cases of uraemia associated with haemolytic processes as well as those caused by sulphonamides, etc. The direct toxic action of drugs (sulphonamides, compounds of mercury) on the renal tissue may be considered possible. But this can hardly be the case in acute haemolysis. Since haemolytic processes always represent diseases of a serious character, it seems from the first more likely that renal failure in these cases is of the nature of extrarenal uraemia such as occurs in so many other diseases characterized by a turbulent course. Support for this assumption can be found in the fact that the morphological renal changes met with in cases of blackwater fever and transfusions of incompatible blood have been observed to resemble closely those which may be detected in cases of undoubted extrarenal uraemia such as crushing and pyloric stenosis (for literature see Maegraith *et al.*)

There may remain cases of acute uraemia which do not belong to any of the groups referred to, but they cannot be numerous. On the other hand we may assume that the great majority of all possible cases of acute uraemia have been met with and been grouped, and in the result extrarenal uraemia has been found to account for most of the cases in question.

There is general agreement that contracted kidney is the pattern for chronic uraemia. It may not be an exaggeration to assert that extrarenal uraemia is, to say the least, the most frequent pattern for acute uraemia. As to the pathological processes typical of extrarenal uraemia, the following triad of specific features—increased endogenous breakdown of protein, disturbance in the blood supply to the kidneys and certain morphological changes in those organs—has so far been recognized. They, all or in part, form the background for the renal failure, the nature of which, however, even if recognized as functional, is not as yet clearly defined. There is, for instance, no certainty whether the chief cause of the functional disturbance is glomerular filtration or tubular reabsorption or whether it comprises both of these basic processes, nor is it certain what the peculiarities of these processes are. These questions certainly open a wide field for investigation.

It cannot be denied that the term "extrarenal uraemia" (and also "prerenal uraemia") may give rise to some misunderstanding in so far as it may be considered to infer that there exists a state of uraemia where renal insufficiency does not represent the basic process. Such a conception, of course, does not fit in with the facts. In "extrarenal" uraemia renal insufficiency does not play a smaller part than in any other condition determined as "uraemia". The term "extrarenal" refers to the primary disease, which in extrarenal uraemia is not necessarily a renal affection as in the classic form of uraemia. The eventual misunderstanding will certainly be avoided by accepting the term "renal anoxia" as proposed by Maegraith *et al* (1945).

But, even admitting that the uraemia in question may actually be caused by renal anoxia only, the two processes can hardly be identified with each other. The fact that this uraemia is caused by renal anoxia certainly does not justify the conclusion that in turn renal anoxia necessarily leads to renal failure. For comparison, the subject of cardiac pathology may be referred to. Though acute cardiac failure can be caused by coronary failure, the latter does not necessarily involve the former, therefore the term "coronary failure" cannot replace that of "cardiac failure". For the same reason the term "renal anoxia" can hardly be applied when a state of renal failure is to be expressed.

In a previous publication "extrarenal uraemia" was designated also as "functional renal failure", but there may be arguments against this term also. First, in view of the morphological renal changes found in cases of extrarenal uraemia the functional nature of the latter might not be regarded as absolutely proved, secondly, other forms of uraemia, such as that which occurs in cases of glomerulonephritis, may be functional too. If "extrarenal uraemia" for the reason given above should no longer be regarded as wholly appropriate, the term "acute non-specific uraemia" might best fit in with all the facts.

#### Summary

- Acute uraemia occurring in cases of chronic renal disease may be of the type of extrarenal uraemia.
- Extrarenal uraemia represents the pattern for most of the cases of acute uraemia.
- The term "extrarenal uraemia" may be replaced by "acute specific uraemia".

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## FIBROSITIS

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Fibrositis has been divided into primary and secondary. This is a separation with which I am in the fullest agreement, for in my opinion primary fibrositis is an imaginary disease and secondary fibrositis is a real entity.

#### Primary Fibrositis

Controversy has gone on for many years about the nature and identity of the different disorders included by common consent under this heading. The existence of fibrositis is affirmed by most clinicians, denied by most pathologists, but in the absence of an alternative explanation for the symptoms and signs purely negative views have carried little weight.

It is my purpose to draw attention to the ready solution to the problem of the existence or not of fibrositis that can be obtained by going back to first principles. This involves taking a detailed history, making a clinical examination of the patient, and drawing deductions on accepted lines from the physical signs discovered in each case. If this is done the conclusion is forced upon the unprejudiced observer that the symptoms so readily ascribed in the past to "rheumatic fibrositis" (i.e., fibrositis coming on for no apparent reason) are all in fact the result of articular lesions. I say "unprejudiced observer" advisedly, for I started my professional life as the very reverse, and it is only recently that I have been able to convince myself that the condition has no real existence.

#### Historical Note

In 1816 Balfour described fibrous thickenings occurring in the muscles in chronic rheumatism, Froberg, in Weimar, again drew attention to them in 1843. Sir William Gowers, in an article on lumbago in 1904, coined the term "fibrositis" to denote inflammatory changes in the fibrous structure of the sacrospinalis muscles. He went on to point out—perfectly correctly, as time has shown—that subsequent sciatica is "primarily an affection of the fibrous sheath of the nerve." Ever since, the disease has been recognized by medical men as a true entity. For example, Stockman (1920) shows photomicrographs of inflammatory changes detected in excised fibrous tissue from patients with fibrositis. Steinberg (1942) illustrates polymorphonuclear infiltration and proliferation of fibroblasts in a piece of the trapezius muscle excised from a woman who for 14 years had had generalized muscular stiffness ascribed by several



other physicians to a functional disorder. Another excellent photograph shows loss of cross-striation, disappearance of nuclei, and fibroblastic activity in a section of the latissimus dorsi muscle excised during the second week of recurrent lumbago.

Copeman and Ackerman (1944, 1947) carried this work a stage further; they searched for abnormalities of the trunk muscles in soldiers, whatever the cause of death. They began by postulating that fibrositic pain in the back was a well-known clinical entity and described lumbo-ilio-sacral trigger-points, myalgic spots, and tender rheumatic nodules as part of the disorder. Nothing suggesting inflammation of the soft tissues was found at post mortem, therefore pain experienced in this area was correlated with herniation of fat-lobules present in the muscles. These studies received widespread approval and were followed by a confirmatory paper by Hench (1946). He sought and excised such lumbar herniations, with complete relief from symptoms lasting 6 to 36 months in 34 out of 37 cases of back-ache. In a book completed in 1945 but not published till 1947, though I stigmatized diffuse fibrositis in the lumbar region as an imaginary disease I had not yet taken the logical step of discarding it as a possible cause of cervico-thoracic symptoms.

These authoritative opinions on a disorder whose existence has been widely affirmed for more than 40 years, backed by the demonstration of pathological changes in excised tissue, provide a formidable array of seemingly relevant fact. No one denies, of course, that these changes occur, it is their bearing on symptoms experienced in that region which is called into question in this paper. My views serve to illustrate the time-worn truth that anatomical diagnosis must precede pathological investigation. Until the tissue at fault has been singled out microscopy is out of place.

#### Preconceptions to be Discarded

1 *That Muscle Spasm Denotes a Disorder of Muscle*—Spasm of muscles about some point is a secondary phenomenon designed to protect a painful structure. Common events are prevention of a joint from being moved beyond a certain range (e.g., in arthritis) or about an inflamed viscus (e.g., in appendicitis). Generalized muscle spasm, apart from congenital myotonia, is also a secondary disorder caused by fear, cold, upper-motor-neurone lesions, tetany, toxins, etc. Temporary spasm of a single group of muscles can be brought about by unaccustomed exercise—e.g., in the adductor muscles of the thigh after riding. *Thus the existence of spasm of several muscles provides a strong indication that the muscles themselves are normal.* Its detection should lead to a search outside the muscles for the cause of the spasm.

2 *That Muscles in Spasm are Tender*—At the knee or ankle, for example, where muscles and joints do not overlap, it is obvious that the pain and tenderness lie at the joint, not in the muscles, however wasted they may be and however ready to spring into spasm to protect the joint.

3 *That Tenderness of Muscle Indicates a Muscle Lesion*—Many muscles are normally tender at only one point in their extent—e.g., the deltoid insertion at the humerus, the extensor bellies overlying the head of the radius. Moreover, in cases of root pressure in lumbar and cervical disk lesions genuine unilateral deep tenderness of muscle is often found. It was tempting to ascribe this phenomenon to small areas of fasciculation secondary to the lower-motor-neurone lesion, but it occurs in muscles situated where the pain is felt but not supplied by the damaged root—e.g., the trapezius and levator scapulae muscles in seventh cervical root pressure. The chief assistant in the department, Dr M. Woodhouse, has kindly carried out electromyograms on

the vertebro-scapular muscles in these cases and has established that fasciculation is absent there. Hence the hope once entertained that the cause of referred tenderness was to be found in a number of small areas of neurogenic spasm within a muscle has had to be abandoned. *It is never tenderness of a muscle, but pain elicited by the appropriate resisted movement that identifies a muscle lesion.*

4 *That Nodules or Crepitus at a Muscle are Significant*—When excised, the nodules so often felt at the lumbo-gluteal region are found to consist of collections of lobulated fat lying superficially to the muscles. Copeman and Ackerman have shown that lobules of fat occur also in the substance of the sacrospinalis muscles. Correct interpretation of the physical signs serves to demonstrate that they are not the cause of symptoms felt in the lumbo-gluteal region. It merely so happens that pain and tender fat deposits are both common there. Yet for generations deep massage to these innocent little swellings has been given under the best auspices. The same applies to muscular crepitus, to which I used to attach importance when the idea of nodules had to be abandoned. It was puzzling to find that stringiness and coarse grating in a muscle did not alter when a patient's symptoms ceased (Cyriax, 1941). The answer is obvious now: muscular crepitus is a perfectly normal phenomenon, felt most easily at the cervico-thoracic extent of the erector spinae muscle.

5 *That Limitation of Movement in More than One Direction can Result from a Muscle Lesion Alone*—Myotendinous lesions are usually associated with a full range of movement at the affected joint—e.g., tennis-elbow, supraspinatus tendinitis. A muscle lesion may, however, limit movement in one direction—e.g., adherence of the quadriceps muscle to the shaft of the femur limits the range of flexion at the knee-joint, dorsiflexion of the foot is limited for a few days after a minor rupture in the belly of the gastrocnemius muscle. Though the movement that stretches the damaged muscle may be limited, all the other movements of which the joint is capable remain of full range.

6 *That Examination of Conduction Along a Nerve Suffices*—When pressure is applied to a nerve, pain results at first from interference with its sheath. If this continues, signs of involvement of the parenchyma may in due course appear, but this is by no means certain (Cyriax, 1942). Hence, when pressure is exerted on a nerve by, for example, a prolapsed intervertebral disk or a cervical rib many cases will remain unrecognized if the examiner awaits the appearance of clear evidence of parenchymatous involvement. At present dural and nerve-sheath lesions unaccompanied by evidence of parenchymatous change are usually labelled fibrositis and provide a large number of diagnostic errors.

#### Clinical Examination

In suspected fibrositis, as in any other condition, the physical signs must be sought and properly interpreted. Deductions can also be drawn on the nature of the disorder from the signs that in due course appear in patients who get worse.

The following uncontroversial principles should be born in mind. (1) Passive movements indicate only the state of the joint. Limitation of movement in more than one direction indicates an articular disorder. (2) Resisted movements indicate only the state of the muscles. Pain felt when a muscle contracts, but no weakness, implies a minor myotendinous lesion, weakness without pain implies complete rupture or nervous disease. (3) A painful arc, or pain only on the relaxed side when a joint is moved passively, indicates that the lesion is pinched where it lies between bony surfaces.

## Fibrositis at the Neck and Trunk

Let us now consider the physical signs and the subsequent history in patients hitherto regarded as suffering from rheumatic fibrositis.

**Acute Rheumatic Torticollis**—The patient often wakes up and finds himself prevented by severe lower cervical pain, more marked on one side than the other, from moving his neck at all. Examination shows perhaps lateral deviation of the neck, limitation of movement in all directions at the cervical joints, more marked in some than in other directions and pronounced muscle spasm. These signs clearly indicate an articular lesion. In fact the condition is due to an attack of internal derangement—lumbago in the neck as it were—and the signs are of the same order. If spontaneous reduction does not soon occur the pain usually shifts to one side only of the base of the neck. The pain is now felt solely in the scapular area, yet what possible lesion of the muscles hereabouts (trapezius, levator scapulae, rhomboid, latissimus dorsi, spinatus, serratus anterior) could conceivably prevent nearly all active and passive movement at the neck while leaving the voluntary scapular and arm movements free and painless?

**Vertebro scapular Fibrositis**—The patient may start with bilateral pain that shifts to one scapular area or the symptoms may come on gradually and be unilateral from the first. Examination usually shows a full range of movement at the neck, the extremes of some movements hurting or others not. The resisted movements of the neck and scapula are painless. Can one imagine any unilateral lesion of the paravertebral neck muscles or of the vertebro scapular muscles, however nodular or crepitant they may appear to be (before, during and after?), that leads to pain felt at the extremes of range at the cervical joints but to no discomfort when the resisted neck and scapular movements are tested? Spontaneous reduction may take place or the condition may become stationary. If the displacement increases the pain begins to radiate down the upper limb; tingling may be felt in the fingers.

**Brachial Neuritis**—In most cases the pain is severe worse at night and uninfluenced by use or rest of the painful limb. Examination shows that one or other of the neck movements increases the pain in the arm, another perhaps eases it. Limitation of movement in one or two directions may be noted. If as is usual, the sixth cervical joint is affected, weakness of the triceps muscle eventually becomes apparent in most cases; occasionally the power of flexion at the wrist is slightly reduced. Sluggishness of the triceps jerk is a rarity. A small patch of cutaneous analgesia may be detected at the dorsum of the index or long finger, often the patient complains of pins and needles and numbness with nothing objective to show for them. The analogy with sciatica has become complete and it is now generally agreed that brachial neuritis of the type described above is the result of a cervical disk lesion. Do not the precursors described under the two previous headings, form part of the same pathological process, but lesser in degree?

**Pleurodynia**—The pain is felt in the thorax posteriorly at first but usually spreading anteriorly if it becomes more severe; sometimes the symptoms are purely abdominal or anterior thoracic. It is difficult to prove that all these cases are caused by thoracic disk lesions, since the physical signs are in some cases equivocal. However examination may show that trunk side flexion towards the painful side causes pain. This indicates either that active contraction of the muscle hurts or that the lesion is squeezed. When, as is usual, resisted side flexion proves painless the muscle is exculpated. This means that the lesion lies intra-articular and is pinched between two vertebral bodies. The same reasoning holds good when pain on active but not on resisted trunk extension is discovered. Cutaneous analgesia at an intercostal space is seldom discernible. Further proof that unilateral thoracic pain of the sort labelled fibrositis arises from a disk lesion may be obtained on attempted manipulative reduction; cases are met with in which this results in a click, whereupon suddenly the pain is wholly transferred to the other side of the chest. This must at least indicate that the lesion lies loose within a cavity situated at the middle of the body, and only one such exists—the intervertebral joint.

**Acute Lumbar Fibrositis (Lumbago)**—I regard lumbago as caused by internal derangement at a low lumbar intervertebral

joint (Cyrus, 1945). The patient bends forwards and is suddenly immobilized in the flexed position by severe pain in the lower back, usually bilateral. Examination shows muscle spasm to limit lumbar movements. If this event was described as occurring at the knee joint, even if it was found that spasm of the hamstring muscles was limiting extension at the knee, no one would hesitate to ascribe the accident to internal derangement. Were lumbago really caused by acute fibrositis of the sacrospinal muscles, with spasm, opisthotonos would result, in fact, the typical posture involves some degree of trunk flexion. Examination of a patient with acute lumbago shows marked limitation of movement in each direction at first, later the range of flexion and side flexion gradually returns, only trunk extension remaining impossible. Limitation in each direction indicates, as always in articular lesion, the sudden onset and the persistence of limitation of trunk extension only show that internal derangement took place. Posterior displacement of part of the cartilaginous disk provides a block at the back of the joint preventing full approximation of the posterior articular margins—i.e. trunk extension. Once a patient has had lumbago he is subject to recurrences as would be expected in loose body formation within a joint.

A few patients with lumbago display the lumbar signs of sciatica (lumbar deviation generally away from the painful side and limitation of trunk flexion) and a few patients with sciatica have the signs of lumbago but this is not surprising when one remembers that they are essentially the same disorder.

**Chronic Lumbar Fibrositis (Backache)**—The patient may feel his back give way or click during any heavy lifting and thereafter he finds himself subject to backache. Or he may develop pain more gradually for no obvious reason or even after a period of rest in bed. Reluctancy in flexion is the common cause of the backache continues on during the puerperium. The pain is usually central becoming unilateral later, the reverse sequence also occurs.

In the early stage examination of the patient standing often reveals the existence of a painful arc, especially on coming up from trunk flexion. This means that trunk flexion has allowed a slight degree of backward movement of the fragment of disk to take place while the joint spaces posteriorly. At the moment when the joint surface reverse their inclination a load is required the disk is sharply squeezed. Alternatively pain may be felt on the side towards which the trunk is bent associated with absence of pain when the same movement is tested against resistance. This phenomenon also implies that the lesion is so placed that it can be squeezed between the vertebral bodies. I used to think that painful pinching could occur between the lumbar transverse processes on side flexion of the trunk towards the painful side but this attractive idea has had to be abandoned. In other cases the signs are less distinctive but it is my experience that judged by the effect of manipulative reduction and of epidural local injection and by the later development of sciatica there is no difference between cases showing clear signs of a disk lesion from the first and those with equivocal signs.

**Gluteal and Sacro iliac Fibrositis**—The history may be of central lumbar pain perhaps recurrent which later settles in one buttock. Sometimes the pain starts in the buttock without any premonitory backache. Examination often shows that full trunk extension reproduces the pain in the buttock. Since the lumbar muscles and every structure at the sacrum or the buttock, apart from the joints themselves, are relaxed by this movement it follows that gluteal pain reproduced thus arises in the lumbar sacro iliac or hip joints not locally. If clinical examination then shows that the hip and sacro iliac joints are normal and that resisted contraction of each of the buttock muscles tested in turn is painless the lesion must lie at a lumbar joint. Epidural local injection quickly confirms the fact that the symptoms arise from pressure exerted at the side of the dura mater. Moreover most patients with this symptom are on the brink of sciatica hence the mere passage of time often makes the diagnosis obvious.

**Sciatica and Anterior Crural Neuritis**—When neurological signs are present it is generally agreed that disk protrusion is responsible. But it must be remembered that pressure exerted on a nerve root from without may not be sufficient in degree to affect conduction. Thus the tests for the sheath of the nerve

must also be given due weight. Hence the arrival at a diagnosis in cases of diffuse pain felt in the lower limb involves clinical examination of the lumbar spinal joints, the limb itself, the sheath of the nerve roots, and the parenchyma of the nerve roots. If patients with sciatica due to a disk lesion proved at laminectomy are questioned about the past they nearly all describe attacks of backache or lumbago preceding for many years the onset of sciatica. Has lumbar fibrositis then changed to a disk lesion or was it a disk lesion from the first?

#### Treatment of Primary Fibrositis

The underlying principle is simple—to secure reduction of the intra-articular displacement causing the symptoms. The actual techniques of reduction have already been described and illustrated (Cyriax, 1947).

**Neck**—This is usually easy, whether the patient has pain in the neck, the scapular area, or the upper limb—a few sessions of manipulation seldom fail to secure reduction. Occasionally continuous traction is indicated. Operation is required in 1% of all cases. Evidence of pressure on the spinal cord contraindicates manipulation.

**Thorax**—In simple cases one manipulation may result in full reduction, but eventual relapse is common. The difficult cases are very difficult, and it is easy to make the patient worse. If attempted manipulative reduction—even during traction—fails, rest in bed is indicated.

**Backache**—Recovery follows a few sessions of attempted manipulative reduction in about half of all cases. Rest in bed relieves some others but may lead to aggravation. Epidural local analgesia has a lasting effect on some of the remainder. Once well, the patient must be shown how to avoid further attacks of internal derangement (Cyriax, 1945). The passage of time, particularly in young patients, may bring relief if the protrusion erodes the body of the vertebra.

**Lumbago**—Two-thirds of all cases are considerably, one-third fully, relieved by one manipulation. Those whom manipulation does not affect should receive an epidural injection at once. Rest in bed ensures recovery in the end, but this consumes much more time and can often be avoided if these measures are tried first.

**Sciatica**—Manipulation is particularly apt to be effective in the elderly, in patients under the age of 50 it is likely to succeed in only one case in four. It is always worth trying, however, if the neurological signs are inconspicuous. Epidural local analgesia effects lasting improvement in others. Rest in bed eventually brings about spontaneous reduction in most cases. If sustained pressure results in atrophy of the affected nerve root the symptoms slowly disappear, though the signs of parenchymatous involvement increase. Operation is required in about one case in eight.

#### Secondary Fibrositis

There is no important controversy about the existence of four categories of this disorder—traumatic, rheumatoid, infectious, and parasitic.

**Traumatic Fibrositis**—This results from overuse or a single strain. Perhaps the best example is a tennis-elbow. A minor rupture occurs at the origin of the common extensor tendon from the lateral humeral epicondyle. Very little aching is set up at first, but, as the result of the torn edges beginning to join and then being pulled apart again each time the muscle is used, excess scar-tissue is laid down in the healing breach. Within one to three weeks the elbow has become quite painful from the development of chronic traumatic fibrositis at the site of the lesion.

Scarring in an intercostal or in the gastrocnemius muscle, golfer's elbow, teno-periosteal lesions at the wrist, crepitating teno-synovitis caused by overuse, abnormal scarring binding down a ligament after a sprain, capsular adhesions

at the shoulder after injury—all these and a number of other similar conditions can well be regarded as caused by post-traumatic fibrositis—more exactly, fibrosis. Ischaemic contracture, since the fibrosis affects the whole of the muscle equally, does not cause chronic pain. Treatment consists of deep massage, manipulation, or local analgesia, depending on the lesion present (Cyriax, 1947).

**Rheumatoid Fibrositis**—A number of observers (Curtis and Pollard, 1940, Freund *et al.*, 1942, 1946, Gibson, Kersley, and Desmarais, 1946) have obtained clear evidence from microscopy of tissues excised from patients with rheumatoid arthritis that nodular perineuritis and polymyositis complicate this disease. This is in full accord with clinical findings, which show that, in addition to the joint lesions, the tendon sheaths thicken, the tendons become rough and nodular (particularly in the palm), and bursae swell and fill with fluid. "The inference may be drawn that rheumatoid arthritis is a generalized affection of the fibrous tissues of the body in which the chief and most obvious incidence is on the capsule of the joints" (Cyriax, 1947).

**Infectious Fibrositis**—Epidemic myalgia (Bornholm disease) is an infectious disease the virus of which has been identified. It is characterized by fever, severe pain in the abdominal and thoracic muscles, and speedy recovery.

**Parasitic Fibrositis**—Infestation with *Trichina spiralis* sets up fever and painful swelling of the affected muscles, the skin over which may become red. The tendons may also be invaded. The disease comes on some ten days after eating infected pork. Active contraction of the affected muscle increases the pain. The symptoms and signs subside in the course of some weeks, after which the patient becomes completely unaware of the foreign bodies in his muscles.

#### Generalized Fibrositis

Rheumatoid arthritis is the only condition to which the term "generalized fibrositis" properly applies. By contrast, the disorder to which this name is often given is osteoarthritis of the spinal joints. This may lead to considerable aching over part or the whole of the trunk—areas where it so happens that muscular crepitus and fatty nodules are commonly detectable. Unrecognized osteitis deformans or spondylitis deformans is repeatedly called fibrositis.

Another disorder often called "generalized fibrositis" is psychoneurotic pain. The idea of generalized fibrositis has led to such concepts as "non-articular rheumatism" and "the psychological basis of rheumatism"—notions in which the cart is put before the horse. Clearly, functional pain is not rheumatism, and the discovery of the real cause should lead to revision of that ascription, not to an attempt to fuse two incompatible diagnoses.

#### Osteopathy

It is not infrequent that cases of pain felt at the trunk are mistakenly ascribed to various internal disorders but are in fact set up by root pressure from lumbo-thoracic-cervical disk lesions. Subsequent events in such cases, if the true diagnosis is missed, may appear to corroborate osteopaths' unfounded claim that their spinal treatments cure visceral disease. In a number of cases of obscure pain a disk lesion has proved responsible for the symptoms, and manipulative reduction has been successfully undertaken.

#### Summary

Primary fibrositis, both local and generalized is an imaged disease. The symptoms erroneously ascribed to this condition are all the result of articular disorders (largely internal derangement) at the spinal joints.

Secondary fibrositis (traumatic, rheumatoid, infectious, parasitic) is a real entity.

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## Medical Memoranda

### Two Cases of Volvulus of the Caecum

In the *British Medical Journal* of Jan 18, 1947 (p 83) Mr Ralph H Gardiner reported three cases of volvulus of the caecum. He pointed out the embryological basis for the non-fixation of the caecum and right half of the colon which occurs in some cases as a failure of its embryological mesentery to disappear. This mesentery acts as a hub around which torsion occurs. He also pointed out that the onset of volvulus of the caecum may be sudden the patient suffering from violent abdominal pain, vomiting, constipation, and abdominal distension—signs of acute intestinal obstruction. On the other hand the onset may be slow and insidious with pain in the right iliac fossa, tenderness, and varying degrees of passive distension. The case may simulate an attack of appendicitis.

The following is a report of two cases with a mobile caecum and ascending colon due to the persistence of the embryological mesentery, around which torsion of the caecum had occurred.

#### CASE 1

On Oct 7, 1946 at 10 a.m., the patient, aged 60, was taken ill with a sudden attack of pain of a continuous nature, aching in character and "like frightful indigestion," and a feeling of fullness. She felt nauseous but was unable to be sick. The pain became so severe that she rolled in agony on the floor. She had trouble in passing flatus also, and she heard her "stomach roll." Next evening she kept complaining of great thirst, and had a whisky and soda which she returned. She was given morphine without effect and was then admitted to hospital. Her bowels had been opened the day before admission. An enema was without result and she did not pass any flatus.

Her past history showed that thirty years ago she had suffered from constipation and a persistent high temperature. She was seen by the late Lord Moynihan, who treated her with paraffin, 4 oz daily for six months. At the end of this time she underwent a laparotomy and "decayed intestine from birth" was excised.

On examination the patient appeared to be in great agony. She was very dehydrated, her tongue was dry and furred and the abdomen distended. Intravenous drip was set up and a right paramedian incision was made. Haemorrhagic free fluid was present in the abdomen, and an adhesion extended from the lateral wall over the ascending colon and caecum to the line of anastomosis of the old resection of ileum mentioned above. The caecum had twisted round the axis of the adhesion and the ascending colon. There was a hiatus in the mesentery into which the small bowel had looped, causing further obstruction. The ascending colon was very much narrowed. The adhesion was divided, and the caecum, which was folded anti-clockwise, was unfolded clockwise, establishing free communication with the ascending colon. The proximal end of the adhesion (the adhesion adherent to the mesentery) was stitched to the region of the omentum, thus straightening the axis. No attempt was made to obliterate the hiatus.

The patient made an uneventful recovery and is to day feeling better than she has felt for the past thirty five years.

#### CASE 2

This patient was first admitted on July 16, 1941, when he was 6 years old. He had a sudden attack of colicky pain in the early morning, and more frequent and intense attacks after admission. His bowels had been opened the day before admission.

Examination revealed visible peristalsis, but nothing abnormal could be palpated abdominally. Examination per rectum was negative. Laparotomy disclosed volvulus of the caecum, which was mobile and grossly distended. Aspiration was performed, the volvulus was untwisted and appendicectomy carried out at the same time. The patient was subsequently discharged in a satisfactory condition.

On Oct 29, 1945, he was readmitted complaining of several attacks of abdominal pain and distension. An attack just prior to admission was very severe and he had had no motions or flatus for several days. A Ryle's tube was passed, with aspiration, and the patient was given a soap enema followed by one of turpentine. He appeared to have settled down during his stay in hospital, and a radiograph on Nov 5 was reported as follows: "Barium enema has revealed a rather unusual appearance in connexion with the large bowel, which appears to be displaced towards the left, there is no definite evidence of any obstructive lesion. Some irregularity in the region of the caecum suggests the possibility of adhesions, no definite evidence of any malignant infiltration has been discovered. The patient's general condition cleared up and he was discharged."

He was again readmitted on Feb 10, 1947 with a history of abdominal pain 'at the bottom of the stomach' that was colicky in nature. It had become continuous during the last hour but was not as severe as when of a colicky form. He had vomited five times since the onset of the pain. His bowels had been opened on the day before admission and on the day when admitted. There was no associated loss of weight. On examination the patient's tongue was clean. He pointed to the mid hypogastrium as the site of the pain. The abdomen moved on respiration and he complained of tenderness just lateral to the scar of the right lower paramedian incision. There was a tympanic note on percussion of the abdomen. Peristalsis was heard and the abdomen was soft with voluntary guarding. The patient moved about without undue stress or strain. Aspiration was carried out and clear fluid obtained. A flatus enema was given with a fair result.

Several symptoms which had cleared up during the first day or two in hospital recurred and when he began to vomit laparotomy was carried out under spinal analgesia. At operation the previous scar was excised. On opening the abdominal cavity the caecum was found to be lying across the lower abdomen and left iliac fossa. It had rotated once clockwise. On undoing the caecum a strong adhesion was found at its upper end and this made the ascending colon adherent to it. There was narrowing of the ascending colon at this point. The ileum was also adherent to the lower part of the caecum. Other adhesions were present these were separated. The caecum was replaced in the right iliac fossa and stitched to it—lateral abdominal wall. An adhesion from the descending colon to the above mass of adhesions was also found. There was much passive distension in the caecum.

The patient made an uneventful recovery and remained well until July 31, 1947 when he was readmitted with bilateral broncho-pneumonia and abdominal distension from which he died.

#### COMMENT

As pointed out by Mr Gardiner volvulus of the caecum occurs more often than has been reported and should be kept in mind in arriving at a diagnosis in cases of intestinal obstruction. As can be seen from the two cases the cause of the volvulus was failure of the caecum and ascending colon to become attached to the posterior abdominal wall—in other words, caeco-colic mesentery. The onset of symptoms as previously mentioned were those of acute obstruction—namely sudden onset, violent abdominal pain, vomiting, and constipation. The onset can also be chronic intestinal obstruction as mentioned in the review of the history of the second case.

I wish to thank Mr W M Morrison and Mr I G I Ford, honorary surgeons for permission to publish these cases and Mr Morrison also for guidance.

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New regulations entitled the Clay Works (Welfare) Special Regulations 1946 (No 1517) which came into operation on Oct 1 supersede the Clay Works (Welfare) Order 1932. The regulations extend the provisions of the order with regard to washing facilities, clothing accommodation, and welfare in factories in which clay, shale, sand, lime, or similar materials are made into bricks, tiles, blocks, slabs, pipes, stiles and spurs, nozzles, or similar articles. They also specify that an ambulance room should be equipped with a glazed sink with hot and cold water always available while people are at work, a table with a smooth top, means of sterilizing instruments, a supply of suitable dressings, a cot, a stretcher and a foot bath.

## Reviews

### DIABETES MELLITUS

*Diabetes Mellitus in General Practice* By Arthur R. Colwell, M.D. (Pp 350, illustrated \$5.25 or 39s) Chicago Year Book Publishers Inc. London H. K. Lewis and Co.

The title of this book suggests a rather simple practical account, but in fact it is full of information of interest to the specialist. The chapter on diagnosis is good, and the author recognizes the existence of renal glycosuria. He believes that the diabetic condition should be as well controlled as possible in order to prevent the disease from becoming worse, and he makes a good case for this ideal, though he admits that it cannot always be achieved. He agrees that some patients feel better when not strictly "sugar free" and that they should be permitted to show some glycosuria, but he does not mention that many of these patients have a low threshold for sugar, continuing to pass it even though the blood sugar under the influence of insulin has decreased to less than 130-80 mg per 100 ml or less and naturally feel better when the blood sugar is between 80 and 180 mg per 100 ml. The rules for arranging the diet seem rather formidable, since they involve a calculation based on the weight, age, and activities of the patient and the estimation of the real glucose value of the diet and the amount of fat, so as to maintain the Woodyat formula. The arrangements for the exchanges of one kind of carbohydrate for any other of equal content also seem clumsy. The use of the 5-g values originally introduced by Leyton has never been adopted in the U.S.A., although it makes the variation of the diet so much simpler.

The chapter on insulin and its modifications is of great interest. The original amorphous insulin, which unfortunately is called by many names—standard, regular, ordinary, or soluble insulin—seems to be rarely used. Most often prescribed is the slow-acting, milky, protamine zinc insulin, though the slow-acting soluble globin insulin is also used. The account of the action of mixtures of equal quantities of ordinary and protamine zinc insulin is very good. The author does not think that a mixture of equal quantities of ordinary and protamine zinc insulin differs in its action from protamine insulin alone, since the amount of free protamine is too great. However, mixtures of two parts of ordinary to one of protamine zinc insulin, or of three ordinary to one of protamine zinc, are of use, especially for patients difficult to control by one dose of protamine zinc. He agrees with Woodyat that about 10% of diabetics are "labile" or difficult to control because they behave differently from day to day although the conditions of diet, food, and exercise are not altered. These patients are best given four doses of ordinary insulin a day, but by administering protamine zinc or globin insulin instead of ordinary insulin before the evening meal the number can be reduced to three. He does not refer to Hagedorn's protamine insulin without zinc, which is of real value in this type of case. The account of insulin reactions is good, and he mentions the failure of patients to recognize hypoglycaemia. This is one of the most serious problems at the present time, but the author has no suggestions for making these patients reliable again. His account of the treatment of acute infection and diabetic coma and other complications is well done. It is surprising that he does not discuss the oscillogram, which is so useful in determining whether a local amputation of a toe can be done or whether the operation must be above the knee. The book is well written but the arrangement of the diets makes it less useful to practitioners in Britain than it would otherwise be.

GEORGE GRAHAM

### LOCAL GOVERNMENT

*Local Government* By Sir A. S. MacNalty K.C.B. (Pp 218 4s 6d) London Methuen and Co., Ltd. 1948

In this addition to the series of Home Study Books the author has been set a task that he must have found almost overwhelming. Local government throughout our long history has been so chequered the growth of its functions so irregular and latterly so accelerated, and its present scope so diversified and

so unstable that the moving picture is hard to present in the form of a short documentary. Sir Arthur MacNalty has been remarkably successful in writing of a subject that is apt to be dry in language which makes pleasant reading. In four main parts he discusses the development and organization of local government, public health, various local authority services, and the future of local government. Within the available space he considers each aspect as fully as possible without lapsing into legal or official jargon. He does not hesitate to point out the dangers of control of local affairs from Whitehall, or the effect on the public health services of local lay bodies appointing medical officers of health, who run a risk of becoming local bureaucrats out of sympathy with their medical colleagues, but who usually avoid it. His sketch of the medical organization of central government departments might well have been expanded so as to bring out the fact that the grand fusion of 1919 seems to have done little to prevent the growth of the existing medical services, and the creation of new ones in other departments than the Ministry of Health.

The vast changes in local government administration, affecting both the social and the public utility services brought about by post-war legislation must have placed Sir Arthur MacNalty in difficulties. In the final part of the book he discusses briefly these changes, which are already putting out of date much that is written in the present tense in the earlier parts. He might have said more of the new revolution which is placing in the hands of nominated boards functions hitherto regarded as the normal responsibility of local elected bodies, a movement whose relation to the operations of the Local Government Commission is difficult to foresee. On the factual side there is little to criticize, but it is surely a surprising lapse on the part of a former Chief Medical Officer of the Ministry of Health to describe the agreed Askwith scales of salaries for medical officers in local government as "the B.M.A. Scale." This little book, low priced as it is, is recommended to all students of public health and social science.

RALPH M. F. PICKEN

### STANDARD METHODS IN BACTERIOLOGY

*Standard Methods of the Division of Laboratories and Research of the New York State Department of Health* Third edition. By Augustus B. Wadsworth M.D. Foreword by Gilbert Dalldorf, M.D. (Pp 990, 109 illustrations 55s) London Baillière, Tindall and Cox 1947

Many bacteriologists must have considered writing a book on technical methods and shrunk from the prospect. The difficulties are enormous and success is almost impossible to achieve. Either the description must be so detailed as to be unreadable or small but none the less important points of procedure must be omitted. It is about as impracticable to master bacteriological technique by reading a textbook as it is to learn to drive a car by sitting in an armchair with an instruction manual before one. Scientific technique like the art of craftsmanship, can be learnt only at the bench: there is a personal element in it that requires actual demonstration. Moreover, there is not one technique but often several, and only experience can teach the individual worker which is the best for his particular purpose. This does not mean that books on technical methods are useless, but it does mean that they are generally unreadable. As works of reference they are often of undoubted value, particularly in their description of simple analytical tests, the preparation of reagents, the formulae of stains and nutrient media, and the codification of general rules for conduct in the laboratory and the animal house. It is in the dynamics of manipulative technique that they break down, and this part is best avoided.

The third edition of this well-known book inevitably evokes mixed feelings. Reaching now to almost a thousand pages it is an attempt to cover the whole range of bacteriology and immunology, with sections on clinical pathology, mycology, protozoology, and helminthology. The different portions vary in thoroughness of exposition. For example, the description of serological tests for syphilis, gonorrhoea, and tuberculosis occupies about 100 pages; on the other hand, the methods for studying individual organisms are discussed very briefly, no mention appears to be made of the coagulase test for staphylococci or of the absorption technique for the P.

test and the author disposes of the slide agglutination method of typing haemolytic streptococci in two short paragraphs. There are useful chapters on the composition of stains and reagents, on the formulae of nutrient media and on the large-scale preparation and standardization of vaccines and sera. There is a new chapter on the methods of biological assay and an account of an improved method of preparing cardiolipin. The book is well illustrated and there are useful appendices on the mode of collection of specimens, application forms and outfits. The laboratory worker will often refer to it, and Dr Wadsworth, who has been so largely responsible for building up the complex organization of the New York State Laboratories, may justifiably take pride in the incorporation of his ideas in this recent edition to mark the occasion of his retirement from the post he has held so long.

G S WILSON

## PARENTS AND CHILDREN

*Parents Questions* Revised edition By the Staff of the Child Study Association of America (Pp 286 10s 6d) London Gollancz, Ltd 1947

This book is to be welcomed. It can be given to parents and it will not worry them or tie them up in knots over psychological theory. It will be kept lying around or at the bedside being picked up at odd times, being read at random. Gradually the answers given in 230 questions will be getting known. There is no doubt that the questions are exactly the ones that parents in Britain ask. 'Should you punish a child when he admits he has disobeyed you and says he is sorry?' 'We are getting a divorce. I don't know how to explain it to our son.' 'My fifteen-year-old daughter dresses in the most outlandish way. Is there anything we mothers can do?' 'My boy and girl quarrel constantly. Do you think I ought to interfere or let them fight it out?' 'Can we prevent our children from using slang?' 'My six-months-old baby wakes up and cries at night for no apparent reason. How can I train her to have good sleeping nights?' These are random samples.

Each answer takes up a page or two and the writers show tact and judgment and deep knowledge, and at the same time they avoid making the parent feel frightened or ashamed. They really do give advice and parents welcome this if it is done with due recognition of the difficulties inherent in any situation where things have gone wrong. An analyst could say that here is the right complement to the analytic treatment of individual children. As the great majority of children who are emotionally disturbed have no access to psycho-analysis it is fortunate that the authors make but sparing reference to the value that might come from such treatment if it were available. This is a revised version of a book first published in 1936 and would seem to justify its publication in Britain by being written in the kind of English we understand and by being concerned with the problems that beset us here, and perhaps others the world over.

D W WINNICOTT

Prof Boyd modestly claims that 'some of the more glaring errors have been corrected' in the fifth edition of his *Textbook of Pathology, an Introduction to Medicine* (Henry Kimpton, 48s), and new material on many subjects has been introduced. These additions consist chiefly of short paragraphs on subjects of minor importance. The popularity of the book is due to excellent illustrations and easy readability, its almost conversational and sometimes dramatic style sustaining the reader's attention. It gives the impression of having been dictated rather than carefully written. The outlook is at times superficial; for example, the pneumococcus is stated to have a marked ability to excite the formation of fibrin without any explanation of how the effect is produced. Has it really been proved that 'a pathologist or surgeon returning in robust health from a holiday is in greater danger from streptococcal infection than one who has finished a long winter's work involving constant exposure?' This paradox is typical of statements from which the book derives much of its interest, and sometimes this quality seems to have been attained at some sacrifice in other directions. There is also a lack of considered judgment on difficult or controversial subjects: the author briefly describes Menkin's work on inflammation, for instance with no hint of whether he accepts its conclusions. On the other hand no book contains a better account of what pathology is or presents the subject in a more suitable way to the student of medicine. The patient as a whole is never lost sight of in the descriptions of what is happening in one of his organs.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*My Life in General Practice* By H W Pooler M B (Pp 104 15s) London Johnson 1948

The varied life of a general practitioner over the last 50 years

*Principles of Occupational Therapy* Edited by Helen S Willard, B A, O T R, and Clare S Spackman B S, M S in Ed, O T R (Pp 416 25s) London Lippincott 1948

A general account by various authorities with references

*An Index of Treatment* Edited by Sir Robert Hutchison Bt, M D, LL D, F R C P, and Reginald Hilton, M A, M D F R C P 13th ed (Pp 972 84s) Bristol Wright 1948

A guide to treatment for the practitioner

*Psychiatry for the Pediatrician* By Hale F Shirley M D (Pp 435 25s) London Geoffrey Cumberlege 1948

An account of the psychology of children, illustrated by case histories

*Laboratory Manual on Fundamental Principles of Bacteriology* By A J Salle, B S, M S, Ph D 3rd ed (Pp 176 13s 6d) London McGraw-Hill 1948

Intended for students of bacteriology

*Heredity* By A Franklin Shull 4th ed (Pp 311 24s) London McGraw-Hill 1948

An outline of genetics

*A Practical Manual of Diseases of the Chest* By Maurice Davidson, M A, M D, F R C P 3rd ed (Pp 670 50s) London Geoffrey Cumberlege 1948

Intended primarily for the specialist in chest diseases much new material has been added

*Renewal Pages for the Nelson Loose-Leaf Surgery*, Vols IV and V *Surgery of the Thorax* and *The Technique of Trans-thoracic Resection of the Stomach and Esophagus* New York Nelson 1948

*Lectures to Nurses* By M S Riddell, A R R C, S R N 9th ed (Pp 460 16s) London Faber 1947

Lectures on practical work for probationer nurses

*Aids to Pathology* By J O Oliver, M B, B S, M R C S, L R C P 9th ed (Pp 332 7s 6d) London Baillière Tindall and Cox 1948

The new author of this book has made many alterations

*Fundamental Principles of Bacteriology* By A J Salle, B S, M S, Ph D 3rd ed (Pp 730 36s) London McGraw-Hill 1948

A textbook with details of laboratory technique for the student

*The Future of Private Practice* By E Samson, F D S R C S, L D S, F C S (Pp 69 3s) London Cottrell 1948

A pamphlet on how far private dental practice may hope to survive after the introduction of the State service

*Critique of Homoeopathy* By O Leiser, M D, Ph D (Pp 121 6s) London Hippocrates 1948

A polemical defence of homoeopathy

*Handbook of First Aid and Bandaging* By A D Behlhos, M B, B S, D P H, and others 3rd ed (Pp 512 5s) London Baillière Tindall and Cox 1948

A textbook for the layman

*Laboratory Guide in Animal Biology* By R H Wolcott and E F Powell 2nd ed (Pp 113 9s) London McGraw-Hill 1948

A manual for the student of zoology

*The Care of Tuberculosis in the Home* By J Maxwell, M D F R C P 2nd ed (Pp 112 7s 6d) London Hodder and Stoughton 1947

Includes discussion of diet, collapse therapy, and tuberculosis in childhood



## BRITISH MEDICAL JOURNAL

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## SURGICAL TREATMENT OF HYPERTENSION

Surgical treatment aimed at reducing the blood pressure in cases of hypertension has now been on trial for ten years. In the opening pages of this issue of the *Journal* there is an important review of the subject by Dr R H Smithwick, who has been one of the pioneers in establishing the operative treatment of hypertension on a rational basis. He now reports on the progress of 256 patients followed up for from 5 to 9½ years after operation, the results being analysed according to examination of the eye-grounds, electrocardiograms, renal function, cerebral complications, and blood pressure. Other reports have come recently from Hinton and Lord,<sup>1</sup> and from Fishberg,<sup>2</sup> and a fair judgment can now be given on the value of surgery in this condition.

Is operation worth while? It is now generally agreed that, provided a proper selection of cases is made, operative treatment has a good deal to offer and its advantages outweigh its drawbacks. Those who may have limited experience in selecting patients suitable for surgery will find the recent reviews helpful. Hinton and Lord, for example, have studied 350 cases and have decided on criteria which would have eliminated as unsuitable all but eight of the thirty-eight patients who died shortly after operation. Fishberg stresses the importance of avoiding surgery in cases with arteriosclerosis and states that for this reason operation should seldom be performed on patients over the age of 50. Only 4% of the hypertensives he sees are considered suitable. Smithwick,<sup>3</sup> too, has given useful guidance by describing the types of case in which the results have been unsuccessful. While operation is in no sense curative there is now good evidence that in a fair proportion of cases it delays the progress of deterioration in the cardiovascular system and so prolongs life. Smithwick's comparison of his late results with those of non-surgical treatment supports this view, and Peet<sup>4</sup> and Fishberg found that patients with signs of neuroretinopathy have a better chance of survival with operation than without. Distressing symptoms such as headache, pounding in the head, restlessness, inability to concentrate, and vertigo are relieved or abolished by operation in a high proportion of cases. Many patients who have been unable

to work because of these symptoms have returned to full work, in some cases for years. A prolonged lowering of the blood pressure does not always accompany such relief, and Fishberg has good grounds for his view that the symptomatic improvement is due to a reduction in capillary pressure in the cerebral circulation which follows an increase in sympathetic tone in the upper part of the body after operation together with loss of tone in the lower part. In his follow-up study Smithwick has found that in most cases the blood pressure rises with the passage of years, and marked reduction for 5-9 years is seen in only 20% of cases. This is confirmed by Poppen and Lemmon<sup>5</sup> and by Palmer,<sup>6</sup> who states, however, that the results remain better than those achieved by medical means. The explanation of this rise in tension is not certain, but probably the original causes of the hypertension persist, and regeneration of the sympathetic fibres, which is always apt to occur, may well play a part. Notwithstanding this tendency, Smithwick's tables show that nearly 50% of patients have some sustained lowering of the blood pressure. The value of this can be judged from his finding that post-operative improvement in cardiovascular status is most marked in those cases in which there is a pronounced and sustained lowering of pressure.

Though operation offers these undoubted benefits there are some unwelcome effects. Apart from the operative mortality, now reduced in skilled hands and with careful selection of cases to 1 or 2%, post-operative pain is commonly severe and may continue for two months or more. In most cases a convalescence of several months is required, and it may be more than a year before a patient feels perfectly well. Giddiness or a transient black-out when getting up quickly is not uncommon and may persist for several months, and requires the use of elastic stockings and a lower abdominal girdle. Increased vasomotor tone in the upper part of the body may cause troublesome attacks of Raynaud's phenomenon in the hands. In males the inclusion of the second lumbar ganglia in the resections can cause loss of power of ejaculation and consequent sterility, but according to Poppen and Lemmon this by no means occurs in all cases. Patients with arteriosclerosis sometimes develop angina pectoris or severe mental depression and lethargy after operation, and therefore a history of typical anginal attacks and signs of cerebral arteriosclerosis are contraindications to operation. These drawbacks must be borne in mind when considering operation in any particular case.

There is still no general agreement on what should be the extent of the sympathectomy. Peet adheres to the limited supradiaphragmatic resection of the lower thoracic chain and splanchnic nerves. Smithwick extends this to include the first lumbar ganglion and is doubtful if wider resections are desirable except in cases with angina pectoris or tachycardia, in these he resects the thoracic chain up to the stellate ganglion. Poppen and Lemmon and Linton and his colleagues<sup>7</sup> extend the resection into the upper thorax, and Grimsom<sup>8</sup> advocates total sympathectomy including the stellate ganglion. Fishberg's conclusion that cerebral symptoms are improved by reduction in the cerebral capillary pressure suggests that it is better to leave the stellate ganglion intact and so maintain cerebral

<sup>1</sup> *Ann Surg* 1948 127 681<sup>2</sup> *J Amer med Ass* 1948 137 670<sup>3</sup> *Amer J Med*, 1948 4 744<sup>4</sup> *J Amer med Ass* 1946 130 467<sup>5</sup> *Ibid*, 1947 134 1<sup>6</sup> *Ibid*, 1947 134 9<sup>7</sup> Linton R R, Moore F D, Simeone F A, Welch C E and White J C,*Surg Clin N Amer* 1947 27 1178<sup>8</sup> *Ann Surg*, 1941 114 753<sup>9</sup> *Edinb med J* 1947 54 545<sup>10</sup> *Studies of the Renal Circulation* 1947 Blackwell Oxford<sup>11</sup> *British Medical Journal* 1948 1 435

vasoconstriction Mitchell's<sup>9</sup> anatomical findings indicated that for complete denervation of the splanchnic area the resection of the chain should extend from the fourth thoracic to the third lumbar ganglia, and in this country there is a tendency to practise these more extensive resections. The effect of operation is to produce an immediate vasodilatation in the splanchnic area, and in the lower limbs when the resection extends below the second lumbar ganglia, with increase in sympathetic tone in the upper part of the body. The beneficial effect of the vasodilatation is due partly to a reduction in the peripheral resistance which leads to a lowering of the blood pressure, and partly, in all probability, to a lessening of the cortical ischaemia in the kidneys which results from vasospasm and the short-circuiting of blood through the juxta-medullary glomeruli, a mechanism revealed by Trueta and his colleagues.<sup>10</sup> Bourne<sup>11</sup> considers that the results of operation depend chiefly on whether the renal cortical insufficiency is mainly due to vasospasm or to organic changes in the glomeruli. The blood pressure rises rapidly within a few weeks of operation, probably because of the development of autonomous tone in the muscle of the denervated vessels—a finding well known after limb sympathectomy. The subsequent gradual rise, observed in some cases years after operation, is attributed by Poppen and Lemmon to regeneration of sympathetic nerves. Sweating tests have shown that such regeneration occurs, and Linton has reported the finding at secondary operation of a regenerated splanchnic nerve which had reconnected with the coeliac ganglion though it had been divided above the diaphragm. This tendency to regeneration is a further argument for the more extensive resections. However, physiological vasopressor responses such as the Valsalva manoeuvre remain absent or greatly diminished after operation, so that the vascular tree is protected from the high peaks to which the blood pressure can climb in most unoperated cases of hypertension. The alternative explanation given by Bourne of the gradual rise in blood pressure after operation is that permanent renal damage results in the further production of pressor substances which maintain a vicious circle of cortical ischaemia.

On balance there is no doubt that this great physiological experiment of extensive sympathetic resection should be continued in larger series of cases followed up for longer periods. It seems certain that a proportion of hypertensives, carefully selected and rather small, will continue to obtain great symptomatic relief and an improved life-expectancy.

### ATOMIC ENERGY RESEARCH

The Ministry of Supply has acted wisely in admitting correspondents of the scientific and lay press to its Atomic Energy Research Establishment at Harwell. The occasion was by no means the first on which representatives of the outside world have been given entry. A conference on nuclear physics, attended by some sixty visitors, was held there in the autumn of last year, and of the weekly discussions held at the establishment, to which the Director, Sir John Cockcroft, evidently attaches importance, about half are on non-secret subjects, and outside scientists take

part. Such contacts are clearly of value as much to the research establishment as to the visitors, but they can be no substitute for the wider information which has now been afforded. In his address of welcome Sir John made it clear that no atomic secrets were about to be disclosed, and that disclaimer is borne out by the account which we publish elsewhere in this issue (p. 263) of the work of the establishment so far as it concerns medicine and biology. But the extent to which demonstrations could be given, plant and equipment inspected, and information imparted on those strictly correct terms carries its own proof that the trouble taken by Sir John and his colleagues was worth while.

Many of the immediate benefits to be expected directly concern medical men. Like any other discovery which man may make, from the invention of steel to the separation of vegetable poisons, the results of atomic research can be used for his benefit or his injury. It is its misfortune that having been born in war the first application of atomic energy should have obscured the good which it has to offer. The power which can explode a bomb can also drive factory machinery, but there is much technological work to be done before the economic output of power for peacetime uses can appear as a practical development of atomic research. Ten years, in which much else can and may happen, seems a reasonable estimate for the realization of that hope. On the other hand the doctor, and no less the chemist, can easily understand the extent of the contribution which radio-isotopes produced in nuclear piles can make to knowledge. They have already assisted physiological and biochemical research in many directions, for the radioactive tracer method has been applied with success to such problems as the life of a red blood cell, the biochemistry of the developing embryo, the mode of action of penicillin on bacteria, and the mechanism of photosynthesis. One of the surprising facts revealed is that carbon dioxide, which has been regarded solely as a waste product in animal metabolism, can under exceptional conditions be "fixed" by man as well as by plants. The possibilities are evident, even if much of the work which has so far been carried out has been exploratory.

There has been some concern lest radioactive tracers might be used for repeated investigations in human subjects beyond the limits of safety which have been set for the workers at the Research Establishment. It is fortunate that it was soon recognized that the employment of minimal quantities is as desirable for accuracy of results in biological tracer experiments as it is for the safety of the individual. In the particular case of radiocarbon, which in some respects offers the greatest promise, there is the further complication that, whereas the active material is prepared in the first instance in the form of carbonate, most of its more interesting uses demand that the activity should be transferred chemically to some organic form. To overcome this difficulty the Medical Research Council has supported research on certain of the more important roads to synthesis, and the Department of Scientific and Industrial Research has arranged for a programme of microchemical organic synthesis to be undertaken by the Chemical Research Laboratory in order that the most difficult requirements may be met centrally.

It is expected, however, that laboratories capable of carrying out useful work with organic tracer materials will also be capable of undertaking whatever preliminary preparation of the material may be desirable. It will be some months yet before the full effects of the bringing into operation of the second Harwell pile are evident. In the interval the less powerful "gleep" has performed a useful service in familiarizing an increasing number of workers with the technical problems which arise when employing radioactive isotopes. It is not too much to hope that the larger supplies soon to be available will bring their own demonstration that there is much to be written on the credit side of atomic energy research.

### THE SPHENOID SINUS

The anatomy and comparative anatomy of the accessory sinuses of the nose have been well demonstrated for very much longer than their physiology has been understood. The latter has only come to the fore in relatively recent times, but there is already a much better understanding of sinus reactions and affections, and this has led to improvement in the treatment of these conditions. In this connexion tribute must be paid to the pioneer work of Jonathan Wright and H. Smith<sup>1</sup> and to Dr Arthur W. Proetz,<sup>2</sup> who has devoted so much time to this work. Appreciation of the importance of the ciliated epithelium, of its action against gravity and around corners, of its survival and continued function in quite advanced pathological conditions, and of the effect on its viability and activity of various drugs and chemicals, have put treatment on a rational basis. It is now recognized that even advanced pathological changes can be reversed, and this, together with the advent of chemotherapy and the antibiotics, has led to increasing conservatism in the surgery of the nasal sinuses.

At the recent Annual Meeting of the British Medical Association in Cambridge the Section of Otorhinolaryngology discussed the sphenoid sinus, and the opening paper read by Dr Proetz is printed elsewhere in this issue (p. 243). It was generally agreed by the speakers that "the acute sphenoid" was rarely encountered, and that differing as it does from other sinuses, such as the maxillary, in the thickness, blood supply, and glandular structure of its lining, the sphenoid sinus is not often the site of mucus stasis or polypoid change. Of all the accessory sinuses it is easily the best protected from changes of temperature, injury, and direct infection, and it is moreover well situated for the application of decongestive substances. These should be of low concentration and administered in a physiological medium. 0.25% of ephedrine sulphate in normal saline is more effective than a strong solution. Adrenaline is better reserved for haemostasis, and cocaine is poison to the cilia and should only be used for analgesia. Only solutions are usually inimical to ciliary activity.

Surgery, when required, need not be radical, and obliterative measures should not be attempted. If ciliary activity is preserved, drainage does not have to be "dependent", in fact, it is impossible to provide for dependent drainage in both erect and recumbent positions. Considering the inaccessibility and the importance of the anatomical structures surrounding the sphenoid—Proetz lists 13—it is fortunate that the weight of experience is in favour of conservative treatment.

### THE LUNGS IN DIPHTHERIA

The cardiac and nervous sequelae of diphtheria are usually regarded more seriously than the pulmonary complications. A bronchopneumonia may of course occur in severe cases of laryngo-tracheal diphtheria either by extension or by superimposed secondary infection. Then again bronchopneumonia after tracheotomy used to be a more serious hazard, before chemotherapy reduced the risk. The development of pneumonia in the high proportion of over 10% of 753 cases of diphtheria was reported by Togasaki<sup>1</sup> and his colleagues, one-quarter of these patients died, but the more recent use of sulphonamides has since improved the outlook. Most workers in fever hospitals now use penicillin in the treatment of laryngeal diphtheria as a routine, and with sulphadiazine as a stand-by death from bronchopneumonia is much less common than it was. The only other pulmonary complication which might be looked for at necropsy is the extensive subpleural and interstitial haemorrhage which can occur as part of the general haemorrhagic tendency in severe hypertoxic cases. It is probably true to say that the occasional patient who developed a terminal pulmonary oedema caused little comment, since existing paralyses and cardiac embarrassment probably provided adequate explanation of the condition. The interesting suggestion has now been made by Janbon and Chaptal<sup>2</sup> that toxin may be directly responsible for the pulmonary oedema in such cases.

In their series of cases the first seven patients developed a transient pleurisy, almost always accompanied by frank effusion. In most of these it was difficult to exclude a co-existent cardiac or renal complication as the cause, and though in one patient the pleurisy appeared in the stage between the end of the early toxic effects on the heart and the later neuropathies it would be unwise to overlook the possibility of a relationship. The division of any acute infection into stages is a valuable convenience for the purposes of clinical description, but it should not obscure the fact that illness must be viewed as a whole, each change being dependent on what has happened before. In a further four patients (three of whom died) acute pulmonary oedema developed. The authors discuss at some length the possibility that the oedema may result from toxic damage to the vagus or sympathetic. They point out that a strongly positive oculo-cardiac reflex is often noted in these hypertoxic patients. In a paper which appeared recently in the *Journal* Cameron<sup>3</sup> emphasized the importance of damage to the central nervous system as a cause of pulmonary oedema. But in severely paralysed patients it must always be difficult to separate such related predisposing factors as pharyngeal paralysis, with its risk of the aspiration of mucus or even of foodstuffs, and diaphragmatic paralysis with consequent anoxia, which Short<sup>4</sup> regards as an important cause of pulmonary oedema. Because in their view the sympathetic-vagus mechanism is involved, the French workers recommend the use of atropine in such cases. They claim good results with 1-mg doses given five times daily.

The third group in Janbon and Chaptal's series consisted of seven patients who developed acute and progressive pulmonary embarrassment at the time of the late post-diphtheritic palsies. Here they may well be right in arguing that the toxin directly affects the respiratory centre, for in each there was extensive toxic damage in the region of the nucleus ambiguus. Many of their patients seem to have been treated initially at home and to have been admitted to hospital only when the serious complications of

<sup>1</sup> *Diseases of the Nose and Throat* 1914. Lea and Febiger, Philadelphia.  
<sup>2</sup> *Essays on the Applied Physiology of the Nose* 1941. Annals Publishing Co., St. Louis.

<sup>1</sup> *Amer. J. med. Sci.* 1942, 204, 218.

<sup>2</sup> *Sem. Hôp. Paris*, 1947, 23, 2417.

<sup>3</sup> *British Medical Journal*, 1948, 1, 965.

<sup>4</sup> *J. Path. Bact.*, 1944, 56, 355.

the later stages developed. The fact that in this country almost all patients with diphtheria are admitted to hospital at the beginning of the illness may explain why such extensive complications are less frequently seen here.

### HUMAN FACTOR IN AIR ACCIDENTS

Public confidence in the safety of air travel has been shaken by the melancholy succession of disasters to civil air liners, and no flood of statistics about the relatively small number of people killed per million passenger-miles flown can do much to allay the anxiety thus aroused. The investigation of mechanical defects as a cause of flying accidents is pursued openly and effectively, and yet, though the frequency of pilot-error accidents is realized, little is done to disentangle the complex cognitive and emotional basis of the human failure which so often precipitates the catastrophe. The Air Ministry is therefore to be congratulated on its publication of the results of wartime research on this vital subject.<sup>1</sup> What has been learnt about the principles of human behaviour in complex, distracting, and fatiguing situations can be widely applied to accident problems in all hazardous occupations.

At the beginning of the late war the laboratory study of whatever was included by the conventional term "fatigue" was begun in Cambridge under the direction of Sir Frederic Bartlett, and the present monograph by Dr D. Russell Davis describes the results achieved. He used an experimental apparatus designed like an aircraft cockpit, the controls are attached to a mechanism which records the nature, extent, and duration of the pilot's deviation from a prescribed course. It was called the Cambridge Cockpit, and in it pilots were observed while they performed all the manipulation of controls and instruments required in mock flights of varying durations. The analysis of the resulting records showed that, contrary to expectations based on previous work in industrial psychology, there was no simple relation between the duration of the flight and the numbers of errors made. Indeed, errors increased in the first half-hour of the test to reach a maximum during the second half-hour, after which they declined.

Russell Davis found that these errors, and thus the individuals who made them, could be divided into two main groups—errors of overactivity, where a tense individual tends to over-correct his initial mistakes, and errors of inertia where subjects resigned themselves to a lowered standard of performance. Other types of error—specific end deterioration, preoccupation, and perceptual disorganization—were observed, but they were subsidiary to the two main groups, whose importance and significance became clear when the results of these tests were compared with psychiatric assessments of the same individuals. It became obvious that errors of overactivity were an expression of the acute anticipatory anxiety of the neurotically predisposed individual with obsessional trends, while errors of inertia were merely another facet of the withdrawal mechanism of the hysteric. Conclusions based on laboratory experiments do not entirely satisfy the practical flying man, but these were strikingly confirmed by following up the subsequent flying careers of the men tested and by independent studies of operational efficiency. It was found that men in the two "error" groups had an undue number of flying accidents, of failures in training, and perhaps, too, of casualties in action.

The relative unimportance of prolonged activity alone in the causation of accidents was also demonstrated by Bradford Hill and G. O. Williams, who showed that landing

accidents were no more frequent after long sorties than after much shorter ones. Similarly Reid's studies of the effects of operational hazard on navigator efficiency in action and the incidence of neurosis re-emphasized the importance of acute anxiety in the determination of behaviour and performance. In future work on the human problems of industry this example of the synthesis of laboratory and field research might well be followed.

### PENICILLIN IN EXPERIMENTAL SYPHILIS

Recent investigations in the U.S.A. on rabbits experimentally infected with syphilis have shed light on the differences between the various forms of penicillin. It has been recognized for some time that these forms are not alike, but it has not been possible to make a quantitative comparison by clinical observations. A joint report<sup>1</sup> by five groups of workers now states that penicillin G is the most active, that F has about one-seventh the potency of G, and that K has about two-thirds the potency of F. No figure was given for penicillin X. The experiments were carried out by inoculating the testes of rabbits with a virulent strain of *T. pallidum* and treating the rabbits six weeks later with penicillin given every four hours for four days. The rabbits were then observed for 120 days, and from those showing no signs of syphilis a lymph node was taken for emulsification and injection into a normal animal. These were kept for four months to see if lesions developed in which *T. pallidum* could be detected by dark-ground illumination. By this method it was possible to find what percentage of animals were cured by a given dose of a given penicillin. Different workers agreed reasonably well about penicillins G, F, and K.

The duration of the experiment was a disadvantage, and Turner<sup>2</sup> and his colleagues devised a shorter one. Rabbits were inoculated by intracutaneous injection (on the back) with 0.1 ml of an emulsion containing *T. pallidum*. Syphilomas appeared in 14–21 days, and on a given day a drop of serum from the middle of the syphiloma was examined by dark-ground illumination and the number of visible motile organisms counted. The penicillin to be investigated was then given by intramuscular injection in three doses at two-hourly intervals. The number of motile organisms in a drop of serum from another syphiloma on the same animal was then determined after 24 hours. Each dose of each kind of penicillin was given to a group of rabbits so that the mean effect could be calculated. The final result was that penicillin G was most active, that F had about one-sixth the activity of G, that X was about equivalent to F, and that K had less than one-fifth the activity of F. These relative values were on the whole similar to those obtained by the longer method.

In other interesting investigations Eagle, Magnuson, and Fleischman<sup>3</sup> compared the action of penicillin in rabbit syphilis with that of a combination of penicillin and heat. They found that when the body temperature of the rabbit was increased by 3° to 4° F (1.8°–2.4° C) for a period of about 10 hours during the administration of penicillin the curative dose of penicillin (in 50% of the animals) fell from 30,000 to 3,000 units per kg body weight. The authors believe that the rise in temperature reinforces the action of the penicillin, because observations on treponemata *in vitro* do not suggest that such a rise of temperature has any lethal action itself. The same authors<sup>4</sup> have also measured the increase in the curative power of penicillin in rabbit syphilis brought about by adding beeswax to a solution of

<sup>1</sup> *Amer. J. Syph.*, 1947, 31, 469

<sup>2</sup> *Ibid.*, 1947, 31, 476

<sup>3</sup> *Ibid.*, 1947, 31, 239

<sup>4</sup> *Ibid.*, 1947, 31, 246

calcium penicillin in arachis oil A required curative dose of 39,000 units per kg, given daily for four days, fell to 8,000 units when 3% beeswax was added, and to 3,500 units with 6% beeswax

### THE PHANTOM LIMB

A number of our correspondents have discussed recently the problem of pain in "phantom limbs," and there is a further contribution to this discussion at page 267 of this issue. The symptoms which follow amputation of a limb are so incompatible with the ordinary dictates of common sense that it is small wonder that most amputees prefer to keep discreetly silent about them. Even standard textbooks still generally dismiss the subject in a few embarrassed phrases or omit it altogether.

It is now established that phantom sensations are a physiological sequence of all major amputations, the pattern of subjective phenomena being remarkably constant.<sup>1,2,5</sup> Immediately following amputation the patient is aware of the continued presence of the lost member, generally in a comfortable relaxed position, and he usually feels that he is able to "move" the limb normally. During the months of convalescence the phantom progressively "shortens," until it may feel only a few inches long. Sensation from fingers, toes, and joints persists longest and most vividly, so that ultimately a phantom arm may be experienced as only fingers, wrist, and elbow, with no intervening forearm. By this process a relatively intact central nervous system adapts itself to a profound bodily change, and it is an entirely normal physiological occurrence. In W R Henderson and G E Smyth's recently reported series<sup>2</sup> of over 300 prisoners of war who had undergone major amputations only about 2% "asserted that they had never felt a phantom", it may be that these men rejected the possibility much in the manner of Craig's<sup>3</sup> patient who, having a painful phantom, did not at first report sick because he "did not expect a doctor to treat a ghost". The painless phantom is of little importance to the patient who is reassured that his experiences are perfectly normal, and their chief interest lies in the light they cast on the functioning of the nervous system.

Amplifying the body-image concept of Head and Holmes,<sup>4</sup> Riddoch<sup>5</sup> suggested that there are normally three integrated "body images" in the sensorium—visual, motor, and sensory—in terms of which all movements are initiated and all sensations interpreted. The loss of a limb does not at first impair the sensory or motor patterns which help to constitute the compound body image. The limb still persists in the sensorium, it is still remembered, and so it can be felt and "moved" as though still present. With passage of time the cortical elements formerly concerned with the lost limb cease to play a role no longer useful, and they probably take over other functions. Accordingly the phantom becomes "telescoped". The fingers, joints, and toes, having the largest cortical representation, persist longest and most clearly.

The phantom limb which is painful presents a much more difficult problem of immediate practical importance. Reports differ about the frequency with which such pain occurs, and probably the criteria adopted by the authors and their patients in assessing actual pain have not been

the same. The very low incidence—about 4%—reported by Henderson and Smyth may be due to the distinctive type and age group with which they dealt. Riddoch believed that phantom pain followed about 50% of amputations, Shosberg<sup>6</sup> puts the figure at about 70%, while Craig considers that some pain is almost invariable, generally diminishing in intensity and frequency spontaneously, so that only a small proportion of patients overcome their natural reluctance and seek medical advice.

Formerly the pain was believed to arise in neuromata growing in the stump, but it is now known that such growth is normal and that the amount of pain experienced bears no constant relation to the state of the stump. It is probable that these cases are examples of causalgia similar to that which may follow any nerve injury.<sup>3,7,8,9</sup> Pain so produced is felt in the phantom, just as deep pain, skeletal or visceral, may be projected to a phantom arm or leg.<sup>10,12</sup> The pain of angina pectoris may, for example, spread to a phantom left arm.

Unless there are obvious defects in the stump, or pressure of the prosthesis on a superficial neuroma is producing troublesome pins and needles, remodelling operations are generally of little benefit. Persistent severe pain can frequently be relieved by procaine sympathetic block, and it may not return for weeks or months, when the procedure can easily be repeated. The duration of the period of relief tends to increase, so that complete cure may follow three or four injections. Not until all such simple methods have been tried should more drastic treatment be considered. It is important at all times that the patient should see that his strange symptoms are accepted as being real, as indeed they are.

### INTERNATIONAL STUDENTS' CONFERENCE

The British Medical Students' Association is to be congratulated on its enterprise in holding recently what is believed to be the first international congress of medical students, a report of which appears on page 265. Over 100 delegates from 24 countries, including 30 from Britain, met successively in London, Oxford, and Birmingham from July 6 to 22 to study many aspects of British medicine—clinical, laboratory, industrial, and public health. When books and journals are difficult to obtain and currency restrictions in many countries impede the traveller, conferences such as this assume an added importance in promoting the free exchange of medical knowledge. There is no better way of broadening a young man's education than by giving him the opportunity of meeting colleagues from abroad and studying their methods. The mere fact that he is in strange surroundings stimulates him to examine them carefully, and the high prestige enjoyed by British medical science in the post-war world invites the close scrutiny of its achievements.

When the B M S A was founded in 1941 to promote interests of students it was recognized that clinical conferences, both national and international, would be one important means of fulfilling this aim, and students in the country accordingly hold several conferences every year in London and the provinces. A teaching centre in students from one or more other regions and takes considerable trouble over displaying its wares attractively, helping to mitigate the over-specialization deplored by Professor Ryle's address read at Oxford. We should let the occasion pass without complimenting those mad teachers and authorities on special subjects who enthusiastically contribute to the success of these meetings. Time is well spent, for as one student said<sup>1</sup> at the conference held in 1943, "We are still young enough and daft enough to work for a future that will be better than the present."

<sup>1</sup> Livingston W K. *Pain Mechanisms* 1943, p 150. New York: Macmillan.

<sup>2</sup> *J Neurol Neurosurg Psychiatr* 1948 11, 88.

<sup>3</sup> *British Medical Journal*, 1948, 1 904.

<sup>4</sup> *Brain* 1911 34 102.

<sup>5</sup> *Ibid.*, 1941, 64 197.

<sup>6</sup> *British Medical Journal*, 1948 1 1108.

<sup>7</sup> Doupe J, Cullen C H, and Chance, G Q. *J Neurol Neurosurg Psychiatr*, 1944 7 33.

<sup>8</sup> Nathan P W, *Brain* 1947 70, 145.

<sup>9</sup> Bingham J A W. *British Medical Journal* 1948, 2 51.

<sup>10</sup> Cohen H. *Lancet*, 1947 2 933.

<sup>11</sup> Harman J B. *British Medical Journal* 1948 1, 188.

<sup>12</sup> Craig J D, *Lancet* 1948, 1 497.

## ATOMIC ENERGY RESEARCH ESTABLISHMENT PROGRESS AT HARWELL

Much of the work of the Ministry of Supply's Atomic Energy Research Establishment at Harwell was revealed at a series of demonstrations last week. This establishment was founded in November 1945, to carry out fundamental research and development in atomic energy, and three months later Professor Sir John Cockcroft was appointed director. Since then two experimental nuclear piles have been brought into operation, the production of radio isotopes has begun and much progress has been made with the installation and testing of equipment. The establishment comprises seven divisions each comparable in size to that of a large university research department. Harwell is a former R.A.F. station, and all the hangars and most of the buildings have been adapted to its new function. Each of the two nuclear piles has been constructed within a hangar and a tower built originally for navigational training is being used temporarily to accommodate high-voltage equipment. The following aspects of the work of the establishment are of specifically medical or biological interest:

- 1 The production and distribution of radioactive isotopes for research and therapeutic use
- 2 The separation of stable isotopes for research use
- 3 The protection of the health of the workers in the establishment
- 4 The prevention of contamination of Thames water by radioactive substances in the effluent from the establishment

In addition the Medical Research Council has established a radio biological research unit at Harwell to investigate the effects of radiation on different types of living matter. This group is now building up its facilities and staff. As a supplement to the routine health services of the establishment—which are the responsibility of the Ministry of Supply—it is to investigate the possible effects on the staff of continuous exposure to weak radiation as well as the effects of large doses of radiation, and to evolve counter measures.

The working of a nuclear pile and its use for the production of radio isotopes have been described by Chadwick<sup>1</sup> and the properties of particular isotopes by Mitchell<sup>2</sup> while their uses in research and therapy have been more lately discussed by the Radiology Section at the Annual Meeting of the British Medical Association<sup>3</sup>. In brief a radio isotope is a radioactive form of a chemical element which is normally stable. It behaves chemically as do stable isotopes of the same chemical element, emits beta particles or gamma radiation or both from which its presence can be identified and has a half-life (period of decay to half-intensity) varying from a fraction of a second to thousands of years. Radio isotopes may be produced either plentifully in a nuclear pile or in smaller quantities by the bombardment of normal stable isotopes by high-energy particles from an accelerating device of which a cyclotron is at present the most practical for the purpose. Most radio-isotopes can be produced in a nuclear pile and the cyclotron method would only be used to meet some particular requirement which the pile could not undertake.

Radio isotopes are formed by the fission of the uranium atom—that is by the same process by which energy is released in nuclear piles. But owing to the fact that the uranium atom can split in a large number of different ways, the result is a mixture of radioactive atoms of many elements. These are formed in the uranium rods which are part of the structure of the pile and for most purposes have to be chemically separated before they are of use. Since the level of activity may be extremely high this is a difficult undertaking and is not the method of choice. The more usual method is therefore to expose special containers to neutron irradiation within the pile and provision made in the design of the pile for this method of production.

### The Nuclear Piles

Two piles are at present in operation at Harwell. The first, the gleep (graphite low energy experimental pile) came into operation in August 1947 and has a power output of 100 kilowatts. Externally it appears as a large concrete cube of the height of a substantial three-story building and the only sign

of activity is in the control room, which except for variations in the instruments used might equally well be that of any other plant to which electrical methods of recording and control are applied. Inside the five-foot thick walls of protective concrete is a cylindrical structure composed of rods of pure graphite and uranium arranged axially. This is the pile proper. The control rods, which limit the activity of the pile, are lowered into it from on top. Half-way down the main cylindrical structure there is a clear space in the horizontal plane into which a further graphite bar can be inserted, in this bar there are a number of holes to take the containers to be irradiated.

The second Harwell pile, with a rated power output of 6,000 kilowatts, has only lately come into operation and is at present at the testing stage. It is a slightly larger structure than the gleep, and differs principally from its predecessor in the greater amount of air cooling which has been provided. Because of this it can be run at a power output sixty times greater, and larger amounts of material can be irradiated. In place of one irradiation channel there are forty, but the general arrangement is the same, with the irradiation channels running from side to side through the main structure.

Irradiation is carried out in aluminium containers. In the gleep these are cylinders of 30 ml volume and of about the same cross-section as that of a halfpenny. These containers are inserted in graphite blocks of rectangular cross-section, each of which is drilled with eight holes of the same size and shape as the containers. Larger containers may be used in the new pile. Duration of irradiation depends on the radio-isotope which is being produced, the degree of activity required, and the intensity of radiation within the pile. Typical figures in the case of the gleep are: sodium or potassium, a week-end, iodine, a fortnight, sulphur, a month, calcium, three or four months. With the new pile times will be reduced and quantities can be increased, and it will be possible to extend supplies to members of the Commonwealth and other overseas countries. The production of radio-cobalt (cobalt<sup>60</sup>), which offers promise as a therapeutic substitute for radium, is to be undertaken at an early stage, and it was stated by Sir John Cockcroft that amounts equivalent in gamma-radiation to 100 g of radium could be readily produced if required.

### Cyclotron Production

Like the two piles, the Harwell cyclotron (Fig. 1) is being built in a hangar. It consists of a 700 tons magnet, with poles 110 inches in diameter between which particles will be whirled round and accelerated to energies of 200 million volts. It is expected that it will be completed about the end of this year, in effective use by April, 1949, and that for some years thereafter it will remain the most powerful British equipment of its type. It is primarily intended for nuclear research, but will also be used as required to produce particular radio-isotopes which cannot be made in the two piles.

Most radio-isotopes produced in the piles are obtained by irradiation of the same chemical element which it is desired to obtain in radioactive form. In these cases no further processing is required, and after removal with long forceps from the graphite blocks the containers can be transferred direct to lead containers. In a few cases chemical separation is necessary, and this is true generally of radioactive material resulting from the fission process. For this reason, as well as for the separation of the plutonium formed in piles, it is necessary to provide special chemical laboratories where all operations are performed in fume cupboards with a high rate of air-exhaustion and behind protective walls built up from interlocking lead bricks. The present chemical laboratories are in a converted barrack block. But because of the special problems which will arise when larger quantities of materials are being handled a new "hot" laboratory is being built of a size comparable with that of many complete research institutions. Only the ground floor of this building will be in normal use, the whole of the upper floor being occupied by the ducts of the ventilating system and servicing provision. The two active wings are separated from the central offices by vestibules and changing-rooms, in which the air pressure will be maintained at a slightly higher level than in the laboratories.

<sup>1</sup> *British Medical Journal* 1947 1 263

<sup>2</sup> *Brit J Radiol* 1946 19 481

<sup>3</sup> *British Medical Journal*, 1948 2 164



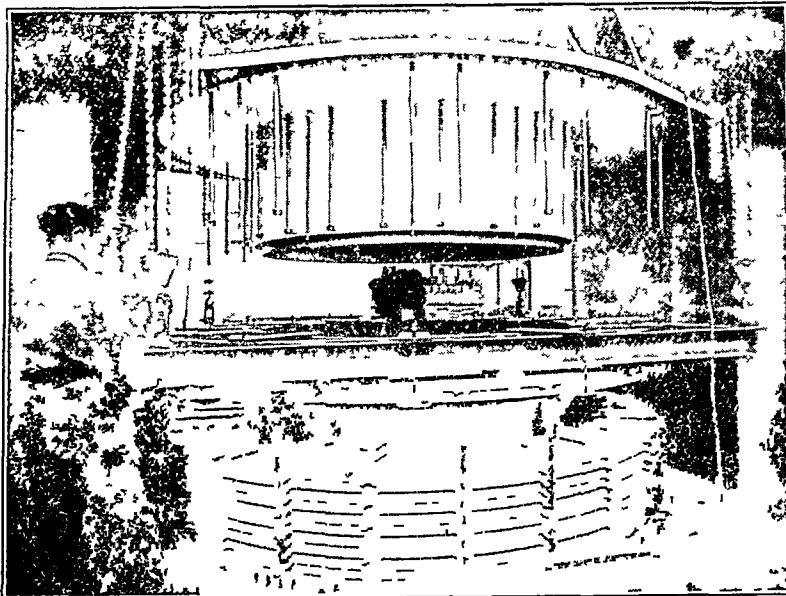


FIG 1—General view of 110 in (275 cm) cyclotron magnet during erection. The magnet contains 700 tons of steel. Some of the copper windings have been installed on the lower pole. There will be six pairs on each pole when the magnet is completed, containing a total of 70 tons of copper. At maximum power a current of 600 amps at 500 volts is passed through the coils. The gap between the pole faces in the picture is 40 in (1 m). When the magnet is completed this will be reduced to 12 in (30 cm), and it is in this gap that protons or deuterons are accelerated. (Crown copyright)

Over a hundred specimens of radioactive isotopes have been dispatched in each month from March, 1948, onwards. Laboratories and institutions which have received supplies include the following: the Medical Research Council, the Christie Hospital, Manchester (for cancer research), Manchester University (chemistry of anaesthetics), the Royal Cancer Hospital, the National Centre of Radiotherapy (heart diseases), Cambridge University (cancer), University College (biophysics), University College Hospital (blood research). Other British research uses have covered such varied applications as chemistry, physics, photographic films, mechanical friction, textiles, fertilizers, and plant growth. Supplies have also been sent to users overseas.

In general it is expected that bulk supplies will be distributed through the Radiochemical Centre at Amersham, and that individual research requirements will continue to be met direct from Harwell in a large proportion of cases. An advisory service on the experimental use of radio-isotopes is being provided, and arrangements are also being made whereby research teams from the establishment can carry out experiments for the user on the user's premises. This is primarily intended for industrial applications, but it might also be helpful in the medical field. It means, at any rate, that the use of the radioactive tracer method will not necessarily be confined to institutions which themselves possess the required specialized staff and facilities.

Stable isotopes differ from one another only in the mass of their atoms, and, like radio-isotopes can be used in "tracer" research, though more difficult techniques are involved. There is a considerable demand for the carbon isotope of mass 13, and an experimental plant is being built for its separation from normal carbon. The process adopted makes use of a small difference of about  $2.0^{\circ}\text{F}$  ( $1.1^{\circ}\text{C}$ ) in the boiling points of liquid carbon monoxide containing the two isotopes. The plant will be complete in a few months' time, and will produce carbon 13 at a rate of about 0.3 g per day by the end of the year. This is expected to be enough to meet immediate demands. Work is also being done on three other methods of separation.

#### Health Services

The essential problem of the health service at Harwell is to ensure that no members of the staff are exposed to excessive radiation. This is done by a combination of individual monitoring, permanent local monitoring in active areas, and further

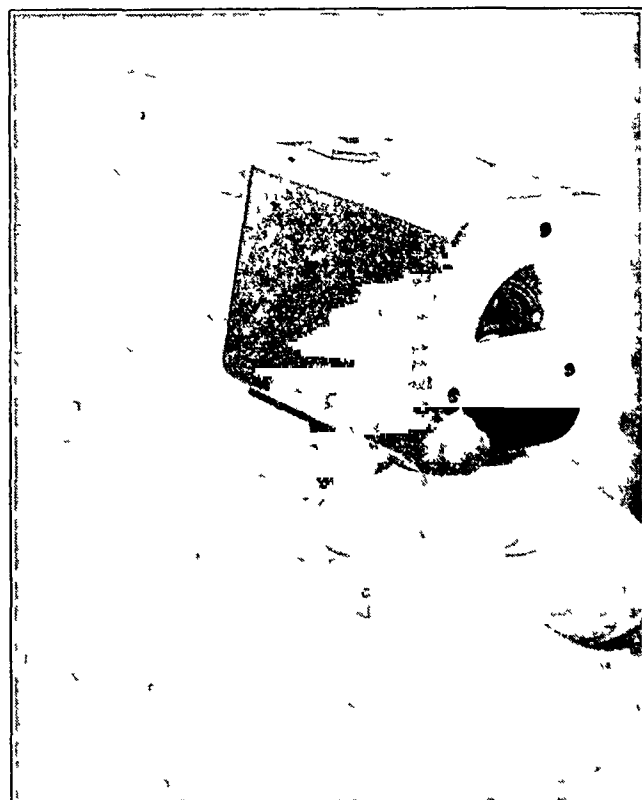
surveys, including the taking of air samples, as required. The standard adopted, which was recommended by the Medical Research Council, is that the total integrated dosage of the individual should in no case exceed 0.5 r per week, but the present average for the establishment is less than one-fifth of this figure. This includes gamma radiation, beta particles, and fast and slow neutrons, and in area surveys these are measured separately and added together.

Individual monitoring is based on the use of three different types of recorder. The first, carried by all workers liable to exposure, is a radiation-sensitive pocket film. These are collected weekly and forwarded to the National Physical Laboratory for development under controlled conditions. Films showing more than the usual darkening are reported by telephone. The routine reports are plotted for all individuals as a weekly record of radiation received. The two further types of individual recorder are for more immediate ascertainment of dosage rate where this appears desirable. The simplest type, comparable in size with that of a nasal inhaler, is a pocket condenser. This is charged to a prescribed voltage, and is gradually discharged by exposure to radiation. Measurement is carried out in the laboratories of the health physics group. The third type of instrument resembles an overgrown fountain-pen, and with it the individual recipient can make his own observation of dosage received at any time. It is an

electroscope of the Stephen type in which a quartz fibre is deflected electrostatically from a metal plate. Both these two instruments can conveniently record a dosage rate one-tenth of the average permitted.

Fixed radiation meters are provided for the measurement both of integrated dosage and of the current dosage rate. The scale of the former is calibrated in hours, the permitted dosage for a day's work corresponding with a reading of 8 hours. A glance at the "clock" is thus sufficient to inform the individual

FIG 2—Pistol monitor. This is typical of the portable health instruments employed in work with radioactive substances at Harwell. It can be used to measure the intensity of either beta or gamma rays in laboratories and elsewhere. (Crown copyright)



worker in such an area whether he is above or below the acceptable rate and, if necessary, he will transfer his activities to a less active area. The current dosage meter is intended to guard against unduly high temporary radiation and can be set to sound an alarm at a predetermined level. Both types of meter add together the combined effect of different types of radiation which for this purpose are separately recorded.

Area monitoring includes the checking of radiation levels with portable instruments (Fig 2) the taking of air samples, the checking and maintenance of all health instruments, and the demarcation of restricted areas to which access by unauthorized persons is forbidden.

The Medical Division is responsible for the health of all workers in the establishment. All are given a full examination when joining, and this is repeated periodically. All workers exposed to radiation have regular blood counts but since no case of over exposure has yet occurred the blood examinations are regarded rather as in the nature of insurance.

### Prevention of Contamination

The permissible standard of radioactivity in water returned ultimately to the Thames is described as being such that the medical and biological effects "due to the consumption of water during the life span of human beings would be for all practical purposes negligible." The tolerance adopted was laid down by the Medical Research Council, and control is in the hands of the health physics group of the establishment.

Water is to be separated for disposal purposes into three categories. The most highly active is removed and not returned to the Thames. The second category is treated as described below, and the third, which has been used for cooling and domestic purposes is mixed with the second on the last stage before disposal. The sequence of treatment for water in the second category is as follows. In the first stage it is pumped rot gravitally fed, into one of two 300,000 gallon tanks built of acid resisting brick. In the next stage it is chemically neutralized. Thirdly sludge containing a large proportion of the radioactive material is mechanically separated, pressed into solid cakes, and retained. Finally, the water thus treated is mixed with "safe" water and sampled before discharge. The whole process will extend over three weeks.

## STUDENTS' INTERNATIONAL CLINICAL CONGRESS

### MEETINGS IN LONDON, OXFORD, AND BIRMINGHAM

What is believed to be the first international gathering of medical students was held successively in London, Oxford, and Birmingham from July 6 to 22. The idea of an international clinical congress of students was put forward at Prague two years ago when delegates from the British Medical Students Association were present, and that body undertook the responsibility of organizing a British meeting in 1948. The Congress was attended by just over 100 students from 24 countries. The number of accredited delegates from Great Britain was 30, one from each medical school.

On the afternoon of their arrival in London the visitors were entertained at a reception at B.M.A. House, when Dr Charles Hill gave a description of the National Health Service. Later the President of the B.M.S.A., Mr Stephen Drancz, of Edinburgh welcomed them saying how much British students were looking forward to this international exchange. A suitable response was made by an American student, and the Congress was formally opened by Mr Zachary Cope who spoke of it as reviving in a new form the habit of the Middle Ages when students travelled to the places of learning in one country or another.

### A Flexible Programme

The programme on which the students then entered was different in each of the three centres visited. In London the typical British method of bedside teaching with rounds, out-patients, and lectures, was followed and the students spent two whole days in one or other of four hospitals—London, Middlesex University College or St Mary's. Small groups also visited some twelve special hospitals as well as the laboratories of

pharmaceutical firms. The London week ended with a lecture-demonstration at the National Hospital, Queen Square, a visit to the Royal College of Surgeons, and a reception by the British Council. A "film festival" at the Wellcome Institution was an evening feature.

At Oxford, where the Congress was welcomed by the Regius Professor of Medicine and entertained at Magdalen Hall, the general theme was "Recent Advances in Medical and Surgical Research," and lectures and demonstrations were given by Sir Howard Florey on antibiotics, Professor R. R. Macintosh on anaesthetics, Professor Chassar Moir on analgesia in childbirth, Sir Hugh Cairns on pyogenic and tuberculous meningitis, and Professor L. J. Witts, Dr J. Trueta, Professor R. G. Macfarlane, Dr A. H. T. Robb Smith, Dr Isaac Berenblum, and others on their special subjects. The departments of physiology, anatomy, biochemistry, and social medicine were visited, and one evening was devoted to a showing of medical films, including one of the Blalock operation for pulmonary stenosis. One of the discussions, presided over by the Dean of Oriel, was on food problems in post-war Europe. The concluding address at Oxford was given by Professor A. D. Gardner, of the School of Pathology.

The four days at Birmingham, where the students were welcomed by Sir Leonard Parsons, Dean of the Faculty, and also attended a civic reception given by the Lord Mayor, were spent in attending demonstrations on aspects of industrial medicine and public health. The United Hospitals, the Accident Hospital, and the clinics of large factories were visited. An afternoon was devoted to a discussion on the National Health Service and local government services, and the Birmingham functions concluded with a dinner given by the University Medical Society.

### The Presidential Address

The shadow on the Congress was the illness which prevented its president, Professor J. A. Ryle from taking part and leading the Congress at Oxford. He wrote that he had pleaded with his doctors to be allowed to attend this event even if it meant breaking many engagements in the coming months but his advisers were adamant and he knew that they were right. In his presidential address, which formed part of the proceedings, Professor Ryle discussed the growth of specialization—such a steady growth that "alas, the general physician of the type who taught me and my father at Guy's has become a *rara avis*." In many directions, of course, knowledge and the treatment of the sick had been very greatly advanced by all the new technologies and skills, but a stage had now been reached in which it could be said, with equal justice, that the teaching of students and the practice of medicine had in the process quite considerably suffered. The logical attitude and thoughtful integrations of ideas and subjects were tending to go by the board. The new technology and over-specialization had led too often to a neglect of the philosophy which could co-ordinate all our sciences and methods. "We have, in brief, gone astray in no small measure because of the multiplicity of our new tools and tests and our impatience to employ them. Meanwhile we are suffering—and our patients with us—from a very serious dearth of men and women with a physicianly training and physicianly minds, of men like the old *chef de clinique* and the good family doctor, of men like Balzac's hero in *Le Medecin de Campagne*."

Although the days of the Congress were full of work, the evenings were mostly devoted to pleasure. Among other events were a buffet supper given by the British Council, a sherry party by the Royal College of Physicians and a concert by the St Mary's Hospital Musical Society. Visits were paid to Windsor, Hampton Court, and Stratford-on-Avon, and at Oxford the river was an attraction. At Birmingham the president of the Medical School, Dr H. W. Feathers, gave a garden party at his country house.

Congratulations were tendered to the Organizing Committee of the B.M.S.A., under the chairmanship of Mr H. E. Reiss, who carried through this ambitious programme, and appreciation was expressed of the co-operation of the medical schools and hospitals at the centres, the British Medical Association, the Royal Colleges, the British Council, and the International Union of Students. Mr B. Wainfeld, the chairman of the Medical Faculty Bureau of the International Union, said that the Bureau

would be instructed by the Congress about the activities to be organized in order to help to solve the problems the Congress had been discussing. The I.U.S., representing the overwhelming majority of students throughout the world, had the task of serving the needs and defending the interests of students everywhere, and the Clinical Congress was both an end and a further means through which the International Union could best fulfil this responsibility.

## BRITISH EMPIRE CANCER CAMPAIGN

### AWARD TO PROFESSOR E C DODDS

The twenty-fifth annual meeting of the British Empire Cancer Campaign was held in the Moses room of the House of Lords on July 19, Viscount Hailsham presiding. The "Garton" medal and prize (£500) was presented to Professor E C Dodds for his contributions to cancer research, notably the synthesis of stilboestrol. Professor Dodds, after acknowledging the help of many collaborators, returned the £500 as a contribution to the Campaign's special appeal.

A delegation from the Campaign, led by Lord Horder, has been visiting Canada and the United States to strengthen the bond between cancer research organizations on both sides of the Atlantic. A cablegram from Lord Horder was read stating that their welcome had been most cordial, and that valuable contacts and observations had been made at both research and organizational levels.

It was reported that the Campaign's expenditure on research was steadily increasing, and that before the close of 1947 over £110,000 had been already voted for application during 1948.

Mr J P Lockhart-Mummery, who has edited the annual report during the entire existence of the Campaign, presented the report for the year 1947. He mentioned that from headquarters alone, without counting the branches, there had been allocated during 25 years a grand total of over £1,000,000 sterling to research centres and individual workers. "We have almost completely succeeded in one of our original aims—namely, the co-ordination of cancer research. Where, 25 years ago, one man was devoting his time and energies to cancer research, there are hundreds doing so to day, and we hope soon greatly to increase this army of investigators." Of the new chemical substances tried for the control of cancer, the most notable was stilboestrol, which in suitable cases could control cancer of the prostate gland, urethane appeared able to control leukaemia. The study of the minute structure of the healthy and the cancerous cell had made great progress as a result of the use of the electron microscope, and it began to look as though some of the important secrets of the cancer cell and the way in which it developed would not much longer elude us. More electron microscopes were badly needed, they were expensive instruments, costing about £3,500 apiece.

### Reports from Research Centres

The annual report, which was adopted by the meeting, contains accounts of their year's work by some 19 research departments, as well as reports from a number of individual workers and from institutes and foundations in the Dominions. Every year the Clinical Cancer Research Committee presents a statistical analysis of cases of cancer in some part or organ, this year it is on 126 cases of cancer of the kidney, 451 of the bladder, and 399 of the prostate. A report is included from the Marie Curie hospital on the radiological treatment of 1,900 cases of carcinoma of the cervix of the uterus, 1,580 of which were treated some five years ago.

The reports from the research centres this year seem to pay more attention to radiological methods than usual. Some account is given of the investigation of high-energy radiations, carried out under the aegis of the Medical Research Council by the staff of the departments of physics and chemistry of the Royal Cancer Hospital. This relates to the use of the 14 Mev synchrotron at the Telecommunications Research Establishment, Malvern. Preliminary work has been done on the development of techniques for measuring the radiations in roentgens, the precautions necessary to obtain satisfactory beams, and the ascertainment of the distribution of energy to be expected in the body at these voltages. At the Christie Hospital and the Holt

Radium Institute, Manchester, work is proceeding on the association of urethane with x rays in the treatment of neoplastic diseases, and at the Cambridge University Research Centre another chemotherapeutic agent is being studied as likely to be of value when combined with radiotherapy in treatment, this is the compound known as tetrasodium 2-methyl-1,4-naphtho-hydroquinone, which is of low toxicity and exhibits vitamin-K activity, though such activity has probably no relevance in this application.

The problem of carcinogenesis is being attacked on many sides. The relationship of sex hormones and carcinogenesis, the histogenesis and histopathology of the tumours induced by acetylaminofluorene in the lungs of rats, and the possibility of a biological "chain reaction" in skin carcinogenesis are lines of work which are being pursued in the Chester Beatty Institute of the Royal Cancer Hospital, the Department of Pathology at Sheffield, and the Sir William Dunn School at Oxford, respectively. At Glasgow Royal Cancer Hospital the question of overheated foods has been studied. Evidence points to some unidentified carcinogen present in fats heated to 300° C or more. Various irritants used as condiments have been tested for possible co-carcinogenic activity, but so far without positive results. With the help of several large restaurants, supplies of heated-fat residues from ovens and frying-pans used in large-scale cooking have been obtained and subjected to chemical fractionation and spectrographic and other analysis, but no known chemical carcinogens have been detected in any of these materials.

Another interesting point comes out of some research by Sir Ernest Kennaway and others in the Pathology Department of St Bartholomew's. The question of the prevention of cancer of the penis by circumcision in the Jewish manner on the eighth day of life has been examined, and no record has been found of any case in which this protection has failed. On the other hand, cancer of the penis occurs in Moslems, among whom the operation is performed between the third and fourteenth year. Records, all from the United States, of 16 cases of cancer following surgical circumcision by methods of the present day have been obtained. The operation was carried out at ages from 14 to 45, and cancer developed after an interval of 8 to 41 years (average 23). It is suggested that the failure of this operation when deferred until the fourteenth year to give the protection afforded by it when carried out on the eighth day may mean that the train of events leading to malignant growth is set going early in life, and that subsequent removal of the cause does not then avert the development of cancer at a much later age. This principle may hold good in other forms of cancer, which, arising in the second 25 years of life, may have been predestined to occur by factors to which the body was exposed during the first 25 years. The idea is of interest in connexion with the possibility of preventing cancer by attention to the hygiene of youth.

## THE KING'S FUND

King Edward's Hospital Fund for London, which has now entered its second half century, held its annual meeting at St James's Palace on July 9, when the Duke of Gloucester presided. The transfer of hospitals to the State, said His Royal Highness, was not the only—perhaps not the most important—change that was taking place in the hospital world to day. That world was in the throes of evolutionary developments, the outcome of which no one could foresee. New conceptions of hospitals as a system closely integrated with medical practice and with preventive and social welfare activities were abroad, and these in their turn reacted upon the position of the Fund. The Duke suggested that it now became a Foundation rather than a Fund, and he went on to say that the Fund was establishing relations with the great foundations of America—those bearing the famous names of Rockefeller and Kellie, and also the Commonwealth Fund—which were playing a part as pioneers in the hospital world, and it might be some modification of the machinery of the Fund on the part of these American foundations would prove to be convenient. The word "Fund" in the title of this organization has been entirely appropriate. The King's Fund has been more than a mere grant-distributing agency. Its activities

connexion with district nursing with nursing recruitment with hospital diet catering and domestic supervision and with the emergency bed service are well known. In the new hospital arrangements its function as an agency of distribution although it will continue may be expected to bulk less largely in comparison with other activities. But it is no small advantage to have an organization with such large resources under its own control giving a guarantee of freedom and elasticity to the new Service. It will encourage voluntary work in that large field which lies just beyond the border of State provision and as the annual report states it will be open to hospitals in the metropolitan area whether teaching hospitals or those coming under the four regional boards, in any matters which are experimental or which seem to go beyond the normal activity of a hospital under the Act, to lay proposals before the Fund and seek its assistance.

In 1947 although the National Health Service Act was already law and the shape of the hospital service was clearly seen a sum of £34 000 was contributed to the King's Fund by subscribers and donors. This however, is only about one-tenth of its total income, which comes mainly from investments. The ordinary distribution to 145 hospitals and 53 convalescent homes, was £503,250. Until it has been decided how the resources of the Fund can be most usefully applied, a conservative policy may be necessary but the Fund is looking forward not to restriction but to increased opportunities. Among the immediate activities are the inauguration of an information service, the continuation of bursaries for the training of hospital administrators and the establishment of new bursaries for hospital almoners, and the setting up, in consultation with the Ministry of Health and the Royal College of Nursing of a resident training course on new lines for those about to take up posts as ward sisters.

## Nova et Vetera

W G GRACE

William Gilbert Grace was born on July 18, 1848, and fifteen years later achieved prominence as a cricketer when he scored 32 runs in a match against the All-England Eleven. He was the fourth son of Mr Henry Mills Grace, who practised as a surgeon at Downend near Bristol, and was himself an ardent cricketer. His uncle, Alfred Pocock, and his father introduced him at an early age to the delights of our national sport, and when only nine years old he played for West Gloucestershire against Bedminster. At the age of 17 he played twice for the Gentlemen v Players being selected then for his prowess at bowling rather than batting, and thereafter continued to play in first-class cricket until 1900. In first-class matches his highest score was 344, made in 1876 for the MCC against Kent two days later he made 177 for Gloucestershire v Notts, and two days after that 318 not out for the same county against Yorkshire.

Endowed with a splendid physique—he stood 6 ft. 2 in., and was powerfully built—W G Grace excelled also at running and hurdling and two days after scoring 244 not out for England v Surrey in 1866 he won a race at the National and Olympian Association meeting at the Crystal Palace. Commenting on Grace's fine physique Dr Clippington pointed out that the surname derives from the French "Gros" a sobriquet originally bestowed on men of large stature. As soon as the cricket season was over he threw himself energetically into sports more adapted to the English winter—running with the beagles, hooting, and hunting.

Grace qualified in 1879 with the L.R.C.P. of Edinburgh and the M.R.C.S. of England and practised at Bristol until 1899 being at one time medical officer to the Barton Regis Union, accoucheur to a district in the union and surgeon of the Pennwell Collieries. In that year he gave up practice and moved to Sidenham to become secretary and manager of the London County Cricket Club. He died of heart failure after a short illness in 1915.

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## Correspondence

### Pain in Phantom Limbs

SIR—The correspondence in your columns on this subject has been extremely interesting. It seems possible that the disappointing results from the treatment of this condition may be due in part to a failure to appreciate that at least two distinct types of phantom limb pain may occur in amputation stumps. The presenting symptom of pain may be (1) a painful paraesthesia associated with a tender neuroma, or (2) causalgia. It is to Weir Mitchell that we owe the term causalgia and it is clear from his writings that he restricted the use of the term to the immoderate burning pain which is a *sine qua non* of the condition. Modern usage has extended the term to include the peripheral manifestations of the syndrome (coldness, hyperidrosis, hyperalgesia).

Phantom limb pain may be of a causalgic type and give a typical history, but on the other hand and much more commonly, it may take the form of painful paraesthesia. This latter type of pain is quite different from that of causalgia, being of a stabbing, shooting, or tingling quality, in which the characteristic burning of causalgia is absent. Reference of pain to the phantom limb occurs in both types of case. Some degree of paraesthesia is common to all neuromata whether of amputation stumps or of peripheral nerve injuries and in the large majority it can only be elicited by an obvious mechanical stimulus of the neuroma. Associated with this "stump tenderness," however, may be a paraesthesia of a much more serious and disabling nature, which occurs—apparently spontaneously—as a result of the constant irritation of regenerating sensory nerve fibres which are sprouting freely into the scar tissue from the cut end. This type of phantom limb pain, the aetiology of which is mainly if not entirely peripheral, can usually be relieved by a careful resection of the neuroma with or without reamputation of the stump. It is unlikely to be affected by sympathectomy. On the other hand, unfortunately, the causalgia is very seldom if ever cured by local operative procedure alone.

A minute investigation of the history of the onset and evolution of the pain, of its quality, and of its aggravating and relieving factors should help to differentiate between the two types and thus act as a valuable guide to the form of operation most likely to prove successful.—We are, etc.,

R E M BOWDEN  
J R NAPIER.

London WC1

### Short Leg

SIR—May I reply to the interesting letter of Captain Robert Fuller and Lieut Douglas L. Woolf (July 10, p. 109)? The first thing to decide when the examination of a patient reveals a short leg is if the shortening is real or apparent. A real short leg will cause a tilting of the sacral top and is bound sooner or later to lead to a scoliosis with the convexity towards the shorter leg. In that case a lift under the short leg, sufficient to make the sacral top level, will be indicated. If, however, the shortening is due to fixed backward rotation of the ilium on the sacrum a lift will make the sacral top level, but will at the same time make the backward rotation of the ilium permanent. The resultant ilio-sacral strain is one of the most fruitful causes of chronic backache. The rational treatment of this type of short leg is forward rotation of the ilium by manipulation, which will equalize the length of both legs, make the sacral top level, and either prevent a scoliosis or, if it has developed, bring the lumbar spine into normal alignment.

There are two methods to decide if the shortening is real or apparent. The one is a standing A.P. x-ray of the pelvis and lumbar spine. If a thin wire exactly parallel with the floor or the surface on which the patient is standing while the film is exposed is fixed across the Potter-Bucky differences in the level of the trochanters, femoral heads and acetabula down to 1/4 in (0.63 cm) or even less can be easily appreciated. The second method is of help only indirectly in so far as it helps to determine the range of mobility of the sacro-iliac joints in a given case. A short left leg, for example, may be due to a

forward rotation of the *right* ilium on the sacrum, with an apparent lengthening of the *right* leg. In that case again a lift under the short leg would be contraindicated. The correct treatment would be manipulative backward rotation of the right ilium, which will result in equal length of legs and levelling of the sacral top. To decide if a shorter (or longer) leg is due to a backward (or forward) rotation of the ilium the test described by Downing is invaluable. If my memory serves me right it is also mentioned in Menell's book on backache. It has been out of print for years and I do not possess a copy—I am, etc.,

Bristol

H WOHLFELD

### Repair of Indirect Inguinal Hernia

SIR—Vt E S R Hughes and Mr J T Fathi (July 17, p 135) record an interesting observation on the anatomy of the internal ring in cases of indirect inguinal hernia, and the refinement of technique which they introduce is worthy of attention. A sentence in their opening paragraph, however, invites comment. They state "It is this weakness [at the internal ring] that may account for the high percentage of indirect herniae as well as their early reappearance after operation." This can only be taken to mean that a high proportion of "recurrence" after operations for indirect hernia occur at the internal ring. This appears to have been the case in those operated upon in the Services during the late war, a fact which has coloured much recent writing on the treatment of inguinal hernia.

In twenty years of civilian practice I have encountered my fair share of "recurrent" herniae, and almost without exception a direct hernia has been found in Hesselbach's triangle with no hernia at the internal ring. The discrepancy is possibly accounted for by the observation made in the Service cases that the sac had been left behind or incompletely removed at the first operation.

It is questionable whether a post-operative hernia in Hesselbach's triangle after radical cure of an indirect hernia should properly be called a "recurrence." Though the term is useful in that it reflects the patient's probable view of the matter and that it fastens the responsibility on the surgeon, it is misleading in that it obscures the pathology. The fact that the great majority of acquired inguinal herniae, whether post-operative or otherwise, are *direct* shows that in the absence of a patent processus vaginalis Hesselbach's triangle and not the internal ring is the weak point of the inguinal canal.

The moral surely is that to avoid post-operative hernia attention must be concentrated on reinforcing the medial part of the posterior wall of the canal, and that plastic procedures applied to the site of emergence of the spermatic cord at the internal ring are at most of only secondary importance.

If a relieving cut is made in the internal oblique aponeurosis well above its lower free border and extending well into the rectus sheath, a stitch firmly uniting its medial end to the periosteum of the pubic spine will hold the conjoint tendon down so that it lies practically in apposition with Poupart's ligament. These two structures can then be united by a row of stitches which do not need to be so tight as to cause either undue tension or strangulation of the contained tissue.

The effectiveness of this method in preventing post-operative hernia through Hesselbach's triangle—so called "recurrence"—is such that fascial grafts, darns with silk or nylon, filigrees, and the rest can be reserved for exceptional cases. Failures of the method are, I am sure, due to insufficient exposure of the pubic spine and consequent inadequate placing of the first and all-important stitch—I am, etc.,

Edgware, Middlesex

FRANK FORTY

### Penicillin in the Treatment of Neurosyphilis

SIR—Will you allow me to add a postscript to your leading article on penicillin in the treatment of syphilis (July 17, p 141) or rather to that paragraph of it which deals with neurosyphilis? Our American colleagues have a larger number of cases to treat than we have in this country, and it seems most likely that the question whether malarial therapy will still be necessary in G P I and allied conditions will be settled by their experience, and their reports are now coming forward so rapidly that our few British accounts are superseded by the time they are published.

In a recent paper by Stokes<sup>1</sup> and his colleagues entitled "Three Years of Penicillin Alone in Neurosyphilis," observations on 321 cases are summarized. These authors continue to take the view (which I am unable to share) that the immediate

clinical improvement with penicillin in cases of paresis is not as great as that with malaria, but among their conclusions are the following:

"Malaria in paresis is superior to penicillin alone in the clinical improvement produced when compared with the first year or two of penicillin responses, but penicillin rapidly overtakes malaria in the second and equals it in the third year of observation. Taking the durability of penicillin effect, the comparative simplicity, short duration, and safety of penicillin therapy into account, it begins to look as if penicillin alone were the equal of malaria in paresis. Spinal fluid results are apparently superior with penicillin to those obtained with malaria."

"In tabo paresis the fluid improvement with penicillin definitely surpasses that obtained with malaria, and the symptomatic improvement with penicillin is equal after the second year in meningo-vascular neurosyphilis; the results are markedly superior serologically and equal clinically."

Dathner<sup>2</sup> has recently summarized his observations on 151 patients treated with penicillin alone. Among these were 33 cases of general paresis and 19 cases of tabo-paresis, and they are considered chiefly in relation to the spinal fluid results. In two cases of general paresis the results were regarded as indefinite, but in all the others they were satisfactory in that the spinal fluid syndrome indicated an arrest of the disease process. Dathner is more clear than some other observers that all that can be expected from treatment is the extermination of the infection, and that symptomatic improvement thereafter depends on the recovery of the nervous tissue—a process which we have as yet little power to influence—I am, etc.,

London W 1

J PURDON MARTIN

### REFERENCES

- <sup>1</sup> *Amer J Syph* 1948, 32, 28
- <sup>2</sup> *Med Clin N Amer*, 1948, 32, 707

### Prevention of Venereal Disease

SIR—There will be no quarrel with the aim of the National Society for the Prevention of Venereal Disease, which in Lord Horder's words (July 17, p 171), is "to set the people free from V D", but there is no such general agreement as his letter implies, even among the experts, about the methods by which it is likely to be attained. Many would contest his assertion that in the protection of the fighting Services during the war the enthusiasm of the officer-in-charge" (for preventive measures) was the decisive factor where such "protection" was achieved. Indeed, some medical officers having pressed prophylactic measures by every means at their disposal were driven to the conclusion that by so doing they had not diminished but increased the rate of infection in their units. "Enthusiasm" in this context is inseparable from the assumption that promiscuous sexual behaviour will be the general rule. That assumption, especially when openly avowed by the M O, is bound to lower the resistance to such behaviour, among young soldiers in particular, and therefore leads to a higher exposure rate.

A good deal of wartime experience indicates that the amount of disease prevented by the "enthusiastic" advocacy of prophylaxis was balanced (some would say was outweighed) by the amount of infection among those who, without the prophylactic policy and its powerful suggestion, would not have incurred the risk of it. To retort that most Service men are promiscuous and that therefore all should be protected is precisely to beg the question, for even if the assertion be true it cannot be known how far the assumption by those in authority that the Service man's promiscuity is simply a fact to be reckoned with and, so to say, provided for is a major cause of the problem. No one should be too dogmatic upon point. But Lord Horder and those who think with him should give due weight to the results in a number of units of different assumptions about the men's standards and conduct and of the "combined operations" of C O's, M O's, and men who tackled the problem in a more constructive and, I to affirm a more enlightened way.

Lord Horder speaks of the "violent prejudice" which a society has to combat. It may be that all the prejudice is on one side, and that those who insist that V D must be viewed as a medical problem and no more are leaving out of account factors which, however imponderable, are in the end decisive. V D is not just a medical or even a social problem, it is

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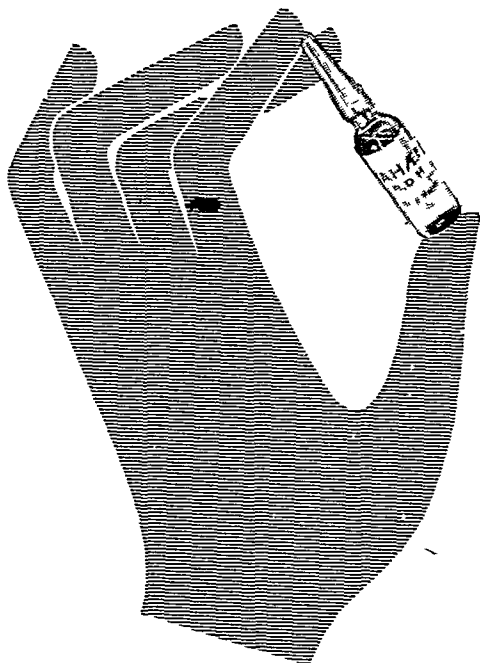
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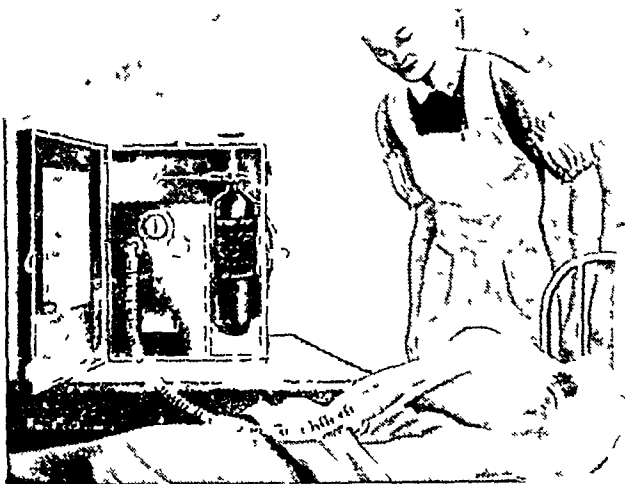
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port and effect of a human and therefore a moral problem attempts to deal with it on any narrower basis cannot hope to succeed—I am, etc.

Perth S. 177

G. L. RUSSELL

SIR—In the *Journal* of July 17 (p. 171) Lord Horder writes on this important subject. There is no real proof that chemicals in prevent infection. It is probable but not certain that they may be effective under carefully selected experimental conditions, but in view of the known speed with which syphilis becomes spread from the point of implantation, and the obvious difficulties of use under the conditions of sexual exposure their use in practice is another matter. Condoms protect a limited area and again, for reasons not difficult to deduce, they are feeble defences.

In actual fact I have had extensive experience of organized prophylaxis in the Royal Navy, the Army, and to a less extent in relation to a very large civilian clinic. My considered opinion is that these measures are futile. As a venereologist I did not find they had protected my patients, nor did they appear to affect the volume of my work. Indeed, I am certain from discussions with thousands of persons of various social and intellectual levels that the sense of false security encouraged by taking of risks. Chemicals may also prevent the appearance of local lesions although the individual actually acquires the disease; such persons spread infection as symptomless carriers and may later suffer the grave results of untreated, unsuspected infection.

Even in the Services, where self-treatment was an offence and specialist advice was readily accessible, prophylactic materials were used for self-treatment and this is even more likely in civil life. The degree of protection given by a limited rubber envelope plus chemicals is not one which I would regard as adequate for my hands if exposed to infective discharges in examining a patient. For the genitals, in the more prolonged and intimate contact of coitus they are even less reliable.

For those who nevertheless wish to experiment on themselves condoms are sold and also mercurial and silver preparations, and I am therefore at a loss to know what action Lord Horder wishes the State to take. I am certain from my own practical experience that those who do so experiment will in time discover that there is no reliable prophylaxis for venereal infections—I am, etc.

Tedworthen 1. 108

R. C. WEBSTER.

SIR—It is a matter for regret that Lord Horder has suggested July 17 (p. 171) that V.D. is on the increase, when the fact is that in England the number of cases of fresh infection reporting at V.D. centres is again declining. Not that the actual figures give cause for complacency but the trend is in the right direction, as was to be expected when the effects of demobilization began to subside and infections from the army of occupation were more effectively dealt with.

The Trevelthick Committee (1922) whose report shared the usual fate of being entirely ignored by the Government, made two suggestions that might have been adopted with advantage. The first quoted by Lord Horder was that "properly and promptly applied disinfection would almost certainly prove effective" and the National Society for the Prevention of Venereal Disease maintains that V.D. is on the increase (which it is not) because the facts of disinfection have been withheld from the civilian population. The second suggestion of the Committee was that for an experimental period in a limited area measures of compulsion were worth trying.

It may do little harm if Lord Horder and his followers proclaim from the house tops the virtues of urination after coitus with soap and water, potassium permanganate solution and calomel cream. But is this message of hope really worthy of the extravagant language of his letter? A great campaign to set the people free. The scope and magnitude of this great attack depends upon the support we receive from the profession. Are we really to rally to the cry of "Potassium permanganate and calomel cream"? Are we not rather soberly and sadly to reflect that in England only V.D. clinic officers and M.O.H.s have no legal powers to prevent persons known to be infected from spreading gonorrhoea and syphilis, or to bring under treatment the husband of a wife he has infected, the parents of infected children and the brothers and sisters of young congenital syphilitics?

On balance it might not be to the disadvantage of the public health that the sale should be legalized of preventive materials with instructions for their use although sometimes these would be used to treat early symptoms. But the danger arising from the renewed activity of the NSPVD is that the public may be misled into imagining that nothing more is needed to eliminate V.D.—I am, etc.,

Brentwood Essex

ROBERT FORGAN

SIR—Space permits only a brief and dogmatic reply to Lord Horder's letter (July 17, p. 171), but the following points merit consideration.

1 The only sure preventive of V.D. is chaste living by both men and women outside marriage and fidelity within marriage.

2 Any propaganda which obscures this fact is likely to increase promiscuity and hence to increase the opportunity for the dissemination of V.D.

3 Propaganda of the kind advocated by Lord Horder is of this nature. It can only interest personally those who choose to lead a promiscuous or illicit sexual life, but the weak and the unprincipled, especially among the young, will be influenced by it.

4 A degree of safety through such scientific chemical methods is of course possible to men and women who are prepared to take immediate steps regarding self-disinfection with every act of illicit sexual intercourse, and to become adepts at "mournful medical immorality." Even if used with the utmost care, however, preventives are not 100% safe. Without such care they merely give a false sense of security.

5 Persons who want knowledge of and access to such preventives can obtain them if they make sufficient effort. There is no need to make the practice of immorality easy or to encourage the waverers.

6 The armed Forces have for many years had easy access to prophylactic packets, are instructed in their use and often encouraged to use them. Yet the incidence of V.D. in the armed Forces is always one of the greatest worries of the authorities—I am, etc.,

K. B. HARDWICK

General Secretary  
The Association for Moral and Social Hygiene

London S.W. 1

SIR—I believe that the great majority of those who have had practical experience of the problems associated with venereal disease will disagree very strongly with the ideas put forward by Lord Horder (July 17, p. 171). The first part of his letter seems to imply that in some ways the Ministry of Health is to blame for an increase in venereal diseases in 1945.

Now I am sure that the Ministry needs no defence from me but I think that in common fairness it should be stated that at least the results of the provisions for the diagnosis and treatment of V.D. by the Ministry in the past have been very good indeed, even though there is room for improvement.

Lord Horder says that the "alarming setback has dismayed everyone." Surely everyone who knew anything about venereal disease or its history expected a "setback." Has there ever been a war that did not produce an increase in venereal disease? The only surprise to most informed observers was that the setback was delayed.

A necessary inquiry, which has a very considerable bearing on the propaganda suggested by Lord Horder, is as to the reason for the setback. I would suggest that it arises to a not inconsiderable extent by the use of the very methods advocated in his letter. For have not the troops in Germany and elsewhere been given this type of education, which tells them that V.D. can be easily prevented and are not these same troops very largely responsible for the spread of venereal disease in our civil population to-day, particularly to their wives? We are told that the V.D. incidence among the troops in Germany was 185 per 1,000 for 1947. What an advertisement for prophylaxis!

Lord Horder goes on to say that a great deal of V.D. can be easily prevented. What is meant by "easily prevented" is a matter of opinion but in any case the crux of the matter lies in a later statement that "properly and promptly applied disinfection would almost certainly prove effective." Does

Lord Horder think for one moment that a person without any medical knowledge could or would apply an antiseptic "properly or promptly"?

In reply to the threefold policy I would say that it is not a scientific fact that V D can be easily prevented, that to "supply interested persons" with details of preventive measures without proper safeguards seems to me to be the best possible method of promoting the spread of venereal disease and immorality, and that to allow the indiscriminate advertisement and sale of these preventive materials must inevitably encourage immorality—I am, etc.,

Birmingham

E W ASSINDER

### National Hearing-aid

SIR,—A headband is as inconvenient to a man as it is to a woman who needs some aid for hearing, and the disadvantages of easily detached parts are only too evident among travellers and country residents, so that in Natal one commonly encounters deafened persons who have purchased expensive aids but have been forced to discard them. A short trial of an instrument is of little avail, for a small mechanical defect is likely to occur at any time unless the attachments are fool-proof, and devices which prove suitable close by, as in a store, are of little avail when seeking to discern speech at a distance. Unfortunately international trade still keeps the price in South Africa to approximately £35 for one instrument in spite of favourable notices about most of the makes by the National Council for the Deaf's widely circulated magazine—I am, etc.,

Durban

F GORDON CAWSTON

### Training of Nurses

SIR—Dr J H Weir's letter (July 10, p 109) confirms the opinion of many members of the profession that the standard of "medical" learning required of nurses is unnecessarily high. Like Dr Weir I attempt to infuse into groups of exhausted, young women the details of clinical medicine expected by their curriculum.

Unlike the ward and out-patient work of the medical student, their daily labours, comprising practical nursing, have little in common with "academic" medicine. Doctors with experience in general practice know that a high percentage of women who have had no training can provide excellent nursing after very little tuition. Experience during the war showed that men could provide the same. At a time when the nursing profession is so short of members it seems absurd to continue the high standard of the past. In the medical profession doctors are graded by examination and experience into general practitioners and specialists. I see every reason why a similar practice should be adopted in the nursing profession—I am, etc.,

Chester

PHILIP R GRAVES

### Administration of Medicine

SIR—May I, as one who had the privilege of serving with him in the C M F, be permitted to make some comments on the first of the two Croonian Lectures delivered by Dr E R Boland in November, 1947, and reproduced in an abridged form in the *Journal* of July 3 (p 9)? Although it is indeed a pleasure to read an article, lecture, or other communication by an extemporary member of the medical branch of one of our fighting Services which is not filled with carping and too often destructive criticism of the Service concerned, certain points raised and statements made by the lecturer appear to require elucidation or even correction in fairness to the authorities concerned.

**Medical Planning.**—In the first place one notes with relief that Dr Boland avoids the all too frequent and usually unfair comparison between our medical services and those of our American friends and allies. It is indeed true, and how often did one hear it said, that the Americans (to use one of their own expressions) "got things done", thus they certainly did and usually in a far shorter time than we were or had been accustomed to. But it should be remembered that to obtain this rapid and no doubt effective result they were most uneconomical both in man power and material, this being the inevitable result of the immense resources of both available to them, especially in the field of "transportation" by land, sea, and air.

**Standardization of Treatment.**—Apart from the reasons in favour given in the lecture, it should, I think, be stressed that this was bound up to a great extent also with the availability or shortage of some drugs and items of medical equipment. How often does one recall impassioned appeals from hospital divisional officers or specialists for some drug, dressing, or item of special equipment for use in some "special" case or series of cases? Frequently the item in question was either not available or was in short supply, nor in point of fact was it really necessary in a standardized and general medical service. In no case, so far as my personal experience went, was there ever any but a very temporary shortage of any essential item, at least in the C M F.

**Suggested Improvements.**—1 Higher Administration. Desirable though it may appear that the medical services should be divorced from control by the Adjutant-General, it should be realized that such a "revolution," and revolution it would be, cuts right across a long-established practice in respect of other administrative services and also that of the sister fighting services both British and Allied. In many ways, we in the British Army were far better placed in this respect than those in the Royal Navy, Royal Air Force, or the American Army, in none of which could the medical services be said to hold any "executive" authority. Though it may be true, as Dr Boland puts it, that "recommendations and observations have to pass through intermediaries who have the power of suppressing or altering them," in point of fact it was seldom if ever that any alteration or suppression was made, and direct access by the director, if not to the commander-in-chief at any rate to the chief administrative officer and/or the chief of staff, was always available. In the C M F all heads of services attended both C O's and C A O's conferences and were asked their opinions in any relevant discussion at such *directly* and not through the chief staff officer of the adjutant or quartermaster general.

2 Professional Status and Promotion. Here again one cannot but agree with the lecturer in principle, but at the same time some of his statements are not strictly accurate. It is true that in war promotion to higher rank has up to now been far easier to attain on the "administrative" as compared with the "professional" side. No reference however, is made in the lecture to the many professional improvements instituted as a result of the Warren Fisher Committee recommendations some years before the last war. Since the time of this committee officers of high professional attainment have had far more than the four senior appointments quoted by Dr Boland to aim at, I need only mention officers i/c hospital divisions (who had in the large majority of cases been specialists for some time before the war), professors and assistant professors at the R A M College, deputy or assistant directors of hygiene and pathology, O C school of hygiene, command consultants, etc.

**Stores and Equipment Branch.**—The following points should, I feel, be stressed in fairness to the small but devoted and efficient cadre of quartermasters who organized and administered base and other medical stores. (1) Supply. This was largely, as indeed it had been before the war, under "civilian" control, at any rate at the source. Shortages were world wide in certain commodities, especially those obtained from Eastern sources, and although large reserves had been built up in peacetime these could not be expected to compare with those of the Americans with their greater resources and shorter "carry". (2) Distribution. From home to overseas bases immense difficulties did occur, largely if not wholly due to shortage of shipping space or enemy action, but from bases to forward areas, at any rate in the C M F, distribution never failed, and forward shortages, if they ever occurred, were rare (subject to my comments under "Standardization"). (3) Accounting. The method finally evolved in the C M F could hardly be described as "archaic," and it was certainly not "lacking in system." As far as base depots were concerned it should be realized that estimates had to be calculated six months or more in advance in overseas theatres owing to the long "carries," and that the "turn over" was enormous owing partly to the practically unrestricted use of drugs and dressings and also to the necessity of avoiding deterioration in many commodities. That the system was efficient is I think proved by the fact that the C M F Base Depot, containing at the time some 4,000 tons of stores of a value of over £1,500,000, was eventually closed down and the contents disposed of with infinitesimal losses and without the prolonged courts of inquiry necessitated in the case of some other administrative services.

—I am, etc.,

Pulborough Sussex

G P KIDD

### 'The Homosexual in the Courts'

SIR—While Dr Eric Coplans' letter (July 3, p 53) is certainly timely, it seems only fair to impute to legal and public opinion the primary responsibility for the retention of our archaic laws on homosexuality, and to absolve from blame in respect psychiatrists and sociologists who have for many years fought to overcome the "conspiracy of silence" and ignorance.

Indeed ever since the latter part of the nineteenth century eminent medical men seeking to shed the light of science on puritanical curiaturism have clearly advocated a more rational attitude on the part of the law and society. Krafft-Ebing<sup>1</sup> stated that the punishment of homosexuality *per se* does not deter from crime and has no corrective influence for pathological manifestations are not removed by penal remedies. Decidedly it is not an atonement for a criminal act which can only under certain and mostly false presumptions be considered as criminal and thus may lead to acts of gross injustice. The writings of Havelock Ellis, Raffalovich,<sup>2</sup> Moll,<sup>3</sup> Stekel,<sup>4</sup> and above all Hirschfeld<sup>5</sup> detailed and forthright discussion of the whole question must also be mentioned. Clifford Allen has ably criticized the still prevalent legal misconception that sexual perversion is the result of wicked impulses capable of being checked by advice and resolution.

A clear and constructive sociological analysis of this problem has recently been made by H. Mannheim<sup>6</sup> who states that the fact that the invert's sexual activities which he is often unable to regard as abnormal are treated as serious crimes by the law is likely to make him profoundly anti-social and produce the mentality of an outlaw. Alexander and Staub<sup>7</sup> concluded that the solution of the problem is not the punishment of the adult, but the proper management of the child. The revengeful attitude of society towards the victims of its own mistakes is cruel, useless, and purposeless. Ruth Benedict<sup>8</sup> has well stated the effect on the homosexual of social and legal condemnation. "His guilt, his sense of inadequacy, his failures, are consequences of the disrepute which social tradition visits upon him, and few people can achieve a satisfactory life unsupported by the standards of their society. The adjustments that society demands of them would strain any man's vitality, and the consequences of this conflict we identify with their homosexuality."

It must be stressed that contemporary English law on this question is embodied in the Offences against the Person Act 1861 and the Criminal Law Amendment Act 1885, is derived from Exodus xxii 19 and Leviticus xxi 17-20 and xx 13-16. There is no reference to female homosexuality in either. These Old Testament laws may or may not have conformed to the ethical and social needs of the Jewish Kingdom about 625 B.C. but they can have little place in our western civilization of the twentieth century A.D. Discussing the evolution of the attitude of Christianity to homosexuality, Weite marsh<sup>9</sup> says:

To be called wrong an act must be productive of other harm than the mere inversion it causes, provided that the agent has not in an indecent manner shocked any one's feelings. Any moral condemnation of homosexual practices (nobody can, of course, be blamed on account of his abnormal desire) must be founded on an opinion of their hurtfulness individual or public, whatever they may be. But thoughtful people will be on their guard against the common tendency to seek a rational justification for judgments springing merely from sentimental dislikes.

The very least that could be hoped for then would be the modification of English law on homosexual offences to bring it more into line with that on heterosexual offences as is the case in the French *Code Pénal* (art. 330 ff.), and the rational treatment of those who have committed anti-social sexual acts. For the words of Isaac Ray<sup>10</sup> on the legal concepts of insanity are in this instance also as true to day as they were over a century ago:

It is to be feared that the principles laid down on this subject by legal authorities have received too much of that reverence which is naturally felt for the opinions of our ancestors and that innovations have been too much regarded rather as the offspring of new fangled theories than of the steady advancement of medical science. The ministers of the law seem to have forgotten that the real dignity and respectability of their profession is better upheld by frankly receiving the truth from whatever quarter it may come than by turning away with blind obstinacy from everything that conflicts with long-established maxims and decisions."

—I am, etc.

10-3-48 S.W.

R. H. AHPENFELDT

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## Obituary

G. W. GOODHART M.D. F.R.C.P.

Dr. G. W. Goodhart died at his home in London on July 16 after an illness from which he had suffered many attacks during the last five years. His courage in this time was an inspiration to all who knew him. He had almost reached his 66th birthday and he retired only 1st year from his post as pathologist of the group laboratory at St. Mary Abbots Hospital in the London County Council's Public Health Department.

Gordon Wilkinson Goodhart was the younger son of Sir James Goodhart Bart., of Guy's Hospital. He was educated at Westminster School, Trinity College, Cambridge and Guy's Hospital, and graduated M.B. in 1908. At his teaching hospital he became house physician, Gull research student, Douglas demonstrator in pathology, and senior assistant bacteriologist. Subsequently he worked in Germany in Aschoff's department at Freiburg and in Berlin. His next principal appointment was that of clinical pathologist at University College Hospital. During the war of 1914-18 Dr. Goodhart was in France with the R.A.M.C., acting as pathologist to the 2nd London General Hospital. After the war he resumed his work at University College Hospital and over the next thirteen years developed his considerable and very individual talents as a clinical pathologist. During this time he gave his assistance to physicians and surgeons, taught students and junior colleagues, and did research work with Charles Bolton and Price Jones.

In 1931 Dr. Goodhart was appointed one of the pathologists in the hospital services of the London County Council first at Archway Hospital and after 1933 at St. Mary Abbots Hospital, Kensington. He gave skilled service to patients and colleagues in a way that placed medical work in its proper perspective among the duties and satisfactions of human fellowship. His work in different committees was most helpful because by his good judgment he convinced others. It was typical of him that an address which he once gave on the significance of leucocytosis was the result of years of experience and gave a surprisingly illuminating view of a well-worn subject. He was president at different times of the Association of Clinical Pathologists of the Medical Society of London and of the Section of Pathology of the Royal Society of Medicine. He married in 1914, Alice Stransham La Touche and they had two daughters and a son.

Dr. Janet Vaughan writes: England has produced not a few physicians, surgeons and pathologists of international repute in the last thirty years. Gordon Goodhart who died in London last week was probably not known outside this country and yet he made possibly as great a contribution to English medicine in those years as his better-known contemporaries. He carried out at one time a considerable amount of original work, particularly in association with Charles Bolton on problems of gastric secretion, but his greatness lay in his power of synthesizing the science of the laboratory with the art of the physician—a synthesis which he achieved quite unconsciously. By his own example he taught a long succession of students at University College Hospital and many colleagues in the medical service of the London County Council that work in the laboratory cannot be divorced from work at the bedside. What he saw down the microscope in the test tube, or in the post-mortem room only became real to him in relation to the individual sick man, woman or child, whom he had always to see with his own eyes—it was not enough to hear a case report. It is easy to say that Gordon Goodhart was one of the first men in this country to teach and practise clinical pathology as we know it to-day. It is true but it does not give the full measure of his quality which was compounded not only of knowledge but also of wisdom and experience and of judgment perhaps inherited in part from his father. Gordon Goodhart was indeed a beloved physician. He was also the most trusted friend, unfailing in his help and understanding of personal problems. During the years of the war he was often ill but he carried on his hospital literally blitzed to rubble round him, with a gay courage that will never be forgotten by those of us who were

lucky enough to work in the same part of London and inevitably turned to him for help in elucidating the new problems that war brought to medicine and to individuals. Many men and women to-day would say that Gordon Goodhart taught them what has really mattered in their medicine. They would also like to say how much they loved him.

Dr Joan Taylor writes: Clinical pathologists throughout the United Kingdom will mourn the death of Dr G. W. Goodhart. Clinicians and students alike were always welcomed to his laboratory with a courtliness rarely encountered in these modern times. His mellow voice, ready smile, and kindness made many of us seek him out whenever possible, as we knew that apart from his friendly advice we should not go away without some addition to our knowledge of pathology. He was at his best when discussing a problem in the wards, giving details of laboratory investigations and correlating these with the clinical findings. Such discussions frequently merged into reminiscences of similar or related conditions which he had encountered; these were most amusing and of the utmost educational value. I well remember him collaborating with the late Dr Charles Bolton on changes in the test-meal found in various intestinal conditions. These two white-haired benevolent gentlemen would retire to the laboratory, where they would get through much experimental work and in addition discuss the life and progress of the hospital in all its detail. Those of us who had the advantage of being his assistants know that our fundamental outlook and attraction towards clinical pathology were engendered by him. He was beloved by all who knew him and was the outstanding example of the fact that the good clinical pathologist is not only a laboratory worker but a physician with a profound knowledge of the art of his subject.

Dr J. E. McCartney writes: On behalf of the group pathologists of the London County Council Pathological Service I should like to pay tribute to our great friend and colleague the late Dr Gordon W. Goodhart. He came to the service at its inception in 1931, and his mature experience and wise counsel assisted greatly in its rapid development. He was appointed first to the Group Laboratory at the Archway Hospital, and when he had organized this he then developed the laboratory at St Mary Abbots Hospital. Goodhart was much liked and respected by all his colleagues and staff, and his help and advice, particularly in haematology, were ever forthcoming. His absence through illness was a great loss to us, and his death now robs us of one whom we held in affection and esteem.

#### SIR HENRY SYMONS, KBE, CSI

Major-General Sir Thomas Henry Symons died on July 3 at Church Crookham, Hampshire, following an accident. He was 76 and had been Director-General of the Indian Medical Service for the four years preceding his retirement in 1930.

Thomas Henry Symons was born at Falmouth in 1872. He was a student at Charing Cross Hospital and qualified in 1894. After acting as house-physician and resident obstetric officer at Charing Cross Hospital he successfully competed for the IMS in 1896. He had five years on the military side before being posted to Madras in charge of the general hospital there. Later he was a district civil surgeon until the outbreak of the first world war, when he was given command of the hospital ship *Madras*. In 1923 he was appointed surgeon-general to the Madras Government, an appointment which he held for three years. Then in 1926, when Sir Charles MacWatt retired, he succeeded him as Director-General of the IMS and continued in that capacity until his own retirement in 1930. Sir Henry Symons was president of the South Indian and Madras Branch of the British Medical Association from 1923-6, and in the following year he presided over the Congress of the Far Eastern Association of Tropical Medicine. He was created KBE in 1929.

P. H. writes: During the past few weeks we have lost some of the veterans of the Indian Medical Service. "Jullundur" Smith, John Lunham, "P. P." Kilkelly, and "T. H." Symons were well known throughout India. But how many of their fellow-countrymen at home noted their passing? The late General Sir Ian Hamilton has told us in one of his best books that the

British people dislike versatility. All these four men were surgeons, Smith and Kilkelly ophthalmic surgeons, Lunham and Symons general surgeons. But the claims of Kilkelly, Lunham, and Symons to niches in the temple of fame do not rest upon surgical skill. They will be remembered rather as Kilkelly the dashing cavalryman, Lunham the polo player, and Symons the master of hounds. The Indian Medical Service has provided many masters for Indian packs of hounds, and shall we say, *primus inter pares*, General Sir Henry Symons, Director-General of the Service, master of the Madras and Delhi hounds, and well known in the Ooty country, where he rode many winners of point-to-point races. The Indian Medical Service, like the Bengal Lancer, has gone with the wind. But those of us who had the honour to belong to that grand corps may perhaps be forgiven for casting a wistful glance back to those days of colour and panache when Irvine and Symons hunted hounds and showed us such sport.

#### ALEXANDER BALDIE, MB, DPM

Dr Alexander Baldie died at St Lawrence, Isle of Wight, on June 23 at the age of 62. He was born in Cape Colony, South Africa, but received his medical education at Edinburgh and the London Hospital, qualifying MB, BCh in 1912. Throughout the first world war he served in the RAMC, and in 1917 was awarded the French Médaille d'Assistance Publique. He next held the appointment of DCMs under the Ministry of Pensions in Southern Ireland during the very 'troubled' period 1920-3. It was shortly after his return to England that he became deeply interested in psychological medicine and particularly psychotherapy and the problems of delinquency. He was one of the first honorary psychotherapists to be appointed to the West End Hospital for Nervous Diseases, and he continued his association with that hospital, where his admirable work was always greatly appreciated, for the rest of his career. He also took the diploma of psychological medicine in 1934 and became a member of the staff of the Institute for the Scientific Treatment of Delinquency.

Dr Baldie's outstanding and most valuable work, however, was performed during the long period that he acted as surgeon to the important C, D, and E divisions of the Metropolitan police area. These divisions include the West End of London and contain the well known stations of Bow Street and Vine Street. Of Dr Baldie it may be truly said that he was a pioneer in introducing the psychological aspect of delinquency to magistrates' courts and pointing out that in many instances the offence was the result of psychological abnormality rather than of deliberate criminal intent. Dr Baldie was thus instrumental in changing the attitude of many judicial authorities and in numerous cases he was able to secure that young offenders were sent to appropriate schools and that adult delinquents were referred for suitable treatment. Further, on account of his scrupulous fairness and sound judgment he enjoyed the confidence of the judges and magistrates before whom he gave evidence. By the police force he was held in the highest esteem and his opinions were invariably accepted. The work of such an important police area, however, was very arduous and exacting. Dr Baldie was not the man to spare himself and there is no doubt that overwork contributed to his final illness. He developed hyperpiesis, and early in 1944 had his first attack of cerebral thrombosis. Nevertheless, as soon as he had recovered from the more disabling effects of the malady he insisted on resuming much of his work, until a second attack in 1945 compelled him to retire.

Dr Baldie was always a keen member of the British Medical Association, and was chairman of the Kensington Division in 1936 and the Marylebone Division in 1943-4. He also served on the Dominions Committee for four years. Of quiet and unassuming personality, he was an indefatigable worker and a staunch friend. Although he made some valuable contributions to medical literature, particularly on the diagnosis of intoxication with alcohol and drugs and on "alcohol and the motorist" it is to be regretted that his exacting and practical duties prevented his writing more extensively on his unique experience in medico-legal matters and the psychological problems of delinquency. Dr Baldie's remains were cremated and the ashes scattered over the sea facing his charming house at St Lawrence.—E. W.-D.

## D A WELSH MD FRCPd

Dr D A Welsh a graduate of Edinburgh University who became Emeritus Professor of Pathology at the University of Sydney, died on May 13 at Wahroonga, Australia at the age of 82.

David Arthur Welsh was born in Forfarshire, Scotland. He graduated MB, CM with first-class honours in 1893, proceeded MD four years later and was elected FRCPd in 1911. He was lecturer in pathological bacteriology and senior assistant to the professor of pathology at Edinburgh University for some years. Then in 1902 he went to Sydney to take up the newly created chair in pathology there. He acted as honorary pathologist to the Royal Prince Alfred Hospital until 1925 and as honorary consultant pathologist until 1936. When a radium clinic was opened in Sydney in 1928 Professor Welsh with a number of collaborators including his son Dr Arthur Welsh began a study of the radio sensitivity and radio resistance of cancer cells which was to continue for the rest of his professional life. In 1935 the Senate of the University of Sydney formally recorded its appreciation of the services he had rendered to the University over the previous thirty years and appointed him Professor Emeritus.

Professor Welsh wrote his MD thesis on the parathyroid glands and from that time onwards he contributed a number of important papers to the literature on this subject and on diseases of the blood. He also did valuable work on snake poisoning, hydrid disease, tuberculosis and, particularly in the last ten years of his tenure of the chair of pathology on cancer. A complete bibliography and a very full appreciation by Professor Keith Inglis appear in the July 3 issue of the *Medical Journal of Australia*.

## F McG LOUGHNANE FRCS

W P G writes. The death of Mr Farquhar McGillivray Loughnane (July 24 p 229) has come as a sad blow to his many friends. Concerning his outstanding professional achievements and contributions others are better fitted to speak but the writer can look back on a long period of pleasant and fruitful professional association which commenced in 1933, when he was appointed as consultant urologist to the Bethnal Green Hospital. As a cystoscopist and intravesical instrumentalist he was seen at his best, the speed and precision with which he could remove a prostate with the resectoscope was a revelation of what could be done in this direction. Of a reserved disposition, Loughnane was not easily known, but once his confidence had been gained he proved to be a delightful friend and most agreeable colleague. To patients and members of the nursing staff he extended an old world courtesy which was pleasant to observe. Remembering perhaps his own early struggles he was kindness itself to junior members of the staff. It was always the junior member of the team who passed the cystoscope for him and he went to great pains to demonstrate cystoscopic appearances to junior nurses. In his young days he had been a keen golfer but towards the end he got caught up in those most enthralling of hobbies—restoration of old country cottages and gardening. He liked in his spare moments to steal away to his home on the Kentish coast and there to mingle with the country folk and fishermen. We who knew him well revere his memory and our deepest sympathy is extended to Mrs Loughnane.

Dr PERCY EDWARDS died at the home of his younger son Dr C K D Edwards in Ainsdale, Southport, on June 14 after a very brief illness at the age of 84. He was the son of James Latchford Edwards and was born in Rochester. He was educated at Mill Hill and University College London qualifying in 1886. After a period as house-surgeon at the Western General Dispensary in London he was appointed medical superintendent at Sheffield Fever Hospital and later resident assistant medical officer at Monsall Fever Hospital, Manchester. Dr Edwards made several trips to America and Africa in the capacity of ship surgeon before he began general practice in Newton Park, Liverpool in 1894. He remained there until he retired in 1927. He was honorary medical officer to the Liverpool Seamen's Orphanage for more than thirty years. Dr Edwards had been a member of the British Medical Association since 1888 and served as honorary secretary of the Liverpool Division from 1918 to 1921. He was a representative at the Annual Representative Meeting held at Portsmouth

in 1923 and was elected chairman of the Liverpool Division for 1923-4. During the 1914-18 war he served on the Central Medical War Committee in London and for his services was awarded the OBE. Since boyhood he had been keenly interested in entomology and he possessed a particularly fine collection of British moths and butterflies all of which had been collected or bred, by himself. This collection he eventually presented to the Liverpool Museum. He married in 1894 Eleanor Blanche the younger daughter of Henry Smith of Dartmouth who predeceased him. He leaves two sons—Dr F H Edwards of Shrewsbury and Dr C K D Edwards of Ainsdale, Southport.

Mr Hugh Reid writes. Dr Percy Edwards was a man who never failed his patients however arduous the task before him. In those much more difficult days of medical practice before the first world war when the facilities of hospital and laboratory organization were relatively primitive he could tackle with confident efficiency whatever emergencies came his way. Neither obstetrical alarms nor industrial accidents nor the complicated problems of medical practice dismayed him, for he had studied and worked and prepared for them. His relations with his medical colleagues approached the ideal for he expected the best from them. Whether in the many committees of the BMA where he devoted so much of his time and skill or in the more direct contact with his fellow practitioners his sage counsel was unstintingly given. His more intimate friends remember especially his profound knowledge of English history, his fascinating collection of entomological specimens, and his justifiable pride in the two sons whom he leaves to carry on the ideals and the traditions of which he was the true example.

Dr ALBERT JONES, who had been medical officer of health and school medical officer for Widnes for the past thirty five years died suddenly at his home on June 17 at the age of 62. Dr Jones was born in Liverpool and educated at Wallasey Grammar School and Liverpool University, where he graduated MB, ChB in 1902. He took the DPH two years later and proceeded MD in 1913. Dr Jones was in practice in Ormskirk for about two years and was then on the staff of the Lancashire County Council before being appointed as the first full-time medical officer of health and school medical officer for Widnes. He did a great deal of valuable work in the town in connexion with maternity and child welfare. Dr Jones joined the RAMC early in 1915 and quickly rose to the rank of lieutenant-colonel with command of a field ambulance. He was awarded the MC in 1917 and the DSO in 1918. Towards the end of his service he was DADMS of a division in France. Dr Jones was an Officer Brother of the Order of St John of Jerusalem, and during the recent war, in addition to his ordinary duties, he was largely responsible for creating the ARP services in his area. Dr Jones leaves a widow and four sons, three of whom are doctors.

Dr CHARLES WILLIAM WINDSOR died in a nursing home at Royston on June 22 at the age of 77. Dr Windsor was educated at Magdalene School, Brackley, at Cambridge, and at St Thomas's Hospital. He graduated MB, BCh in 1894 and proceeded MD three years later. Early in 1898 he joined the partnership of Balding and Archer in Royston and there he continued in general practice until 1941. During the 1914-18 war Dr Windsor served with the RAMC and was with No 55 General Hospital in France until 1919. He was a member of the Royston Urban District Council for over twelve years and was at one time chairman of the council. He was also a justice of the peace for the county and a well-known churchman. Dr Windsor had been an invalid since his retirement and the sympathy of all who knew him will be extended to his widow and two sons, one of whom is in practice at Walton on Thames.

## The Services

Wing Commander (acting Group Captain) C A Rumball OBE, RAF, has been appointed Honorary Physician to the King.

Air Commodore E D D Dickson, CBE, RAF, has been appointed Honorary Surgeon to the King.

Major-General W E Tyndall CB CBE MC late RAMC, has been appointed Honorary Surgeon to the King and Major-General J J Magner CB MC and Brigadier H T Findley, late RAMC, have been appointed Honorary Physicians to the King in succession to Major-Generals E A Sutton CB CBE MC and Sir Trevelyan O Thompson KCSI CB, CBE, and Lieutenant-General Sir Alexander Hood, GBE KCB KHP late RAMC retired respectively.



## Universities and Colleges

### UNIVERSITY OF OXFORD

D S Hayton-Williams, MRCS, LRCP, LDS, has been approved at the examination for the degree of BA, with honours in jurisprudence

### UNIVERSITY OF ST ANDREWS

Robert Brockie Hunter, MBE MB, ChB, MRCPed, has been appointed to the Chair of Materia Medica in the University in succession to Professor F J Charters, MD

The following candidates have been approved at the examinations indicated

MD—<sup>1</sup>A D MacPherson <sup>2</sup>W L M Perry W M Shearer  
MB ChB—<sup>2</sup>W K Stewart <sup>3</sup>T Carrie <sup>3</sup>A Clark <sup>3</sup>Marjorie Crumpton  
<sup>2</sup>C Davidson <sup>2</sup>G F Edmondson-Jones <sup>3</sup>H Fraser <sup>2</sup>W A Hogg <sup>3</sup>G S Nelson <sup>3</sup>J H Renwick <sup>2</sup>W F Walker C K Anderson J A Black (*in absentia*),  
R J P Blyth D M Brough, K A Buchanan A L Cairns T G Cameron,  
Jessie D Carrick Alison Chapman D H Cook I W Davidson D R Edwards  
J Eytton Jones Sheila R Fisher Elizabeth M Ford A Gerrard Mildred F Gordon J G Grounds Margaret B W Gyle Phyllis H Jewitt R P W Kupp,  
T M R Lee N Levinson Margaret S Lewis D E Macdonald R S McKelvey  
C A Moodie D S Munro D C Murdoch Edith M Nairn, Megan C Pratt  
Joan A Robertson Catherine E E Sharp Mary E Shelswell A L Stead  
P A N Wainwright F W Wigzell Katharine F Wilson  
<sup>1</sup>With honours <sup>2</sup>With distinction <sup>3</sup>With commendation

### UNIVERSITY OF GLASGOW

The following medical degrees were conferred in June and July

MD—A McE Lamont (*in absentia*) W Fowler J A C Knox R Leishman  
C E B Lynch Jean M Neville J A O'Connor J M Rostie  
MB ChB—<sup>2</sup>D C Aird G W Allan J B Allan J M Anderson D S Andrew R Bain Agnes R Baird J W Baird G D Ballantyne Janet M Bell,  
Verne A Bennett J Bingham J F Boyd Doris J H Brechin A M Brown  
J H I Bruce A Bryce J R Bryson R A Buchanan G I Cameron D Campbell A M Chalmers Martha A A Chisholm Jeanne M Clarke E N Coleman Marion R C Cornock P M Crawford R J Cruickshank D P Daly  
J Dickson J Donnelly R L Duncan J F Dunn I D Ferguson T B Ferguson  
F Fischbacher A M Fotheringham T Gardner Jean Gibson Winifred A Gibson I Gilfillan O C L Gloster W F Gordon C P D Grant R N Greenhalgh Enka P Grossfeld M Hamilton J R W Harrington J M Hiddleston C Hodes J F Kay T Kempton M Kennedy G M Kerr P McC Kinloch Lilias H Liston Edith B Loudon C M Macaulay I G W McDonald  
I R Macdonald J A McFadzean J P R MacFarlane H C McGilp G S McGregor Robertson S S MacLellan G K K McKay Anne E C MacKinnon Janet J Mackintosh Christina I Maclean Sheona D MacLeod W McRoberts R D Maurs W S Manderson W W Marshall R H M Mavor A W Morrison E D Morton J W Muir Mairi C Nicolson Nanette H Nisbet W Norris J L Patterson P B Pullar Rhona A Reid J Ritchie J M Robertson Ellen M A Russell Hazel E A Saunders Hope B T Scott W G Semple I C Seymour Hazel McC Short J B Sloan A N Smith A I Smith Anne F Smith G D Smith W Snipper F Stewart A E Stuart P Sullivan H I Tinkel A C S Taylor A J Tear J S Termie H Thompson I B Thomson W M S Thomson R N Thorburn I M Todd Janet F Walker J-an L Walker A D Wallace P N Waugh D H Wilson D L Wilson W M Wilson Jean Margaret H Wotherspoon

The following diplomas were awarded on July 1

DPH—A S Brodie Betsy Brown H B Brown L G Bruce W Cormack A P Curran G G Lindsay J M McEwan Margaret W Macgregor J MacLachlan I Macleod A N MacPhail G A Mills May B Paterson J S McK Pollock I M Richardson E M Sewell J Smith J Thompson R T B Watson Margaret L Williamson

### UNIVERSITY OF DUBLIN

#### SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated

MD—D H A Irwin B Kernoff Ethna M MacCarthy R Resnekov  
MB BCh, BA O—Elizabeth E Bird Doris J Black G W Brown N P Browne Maureen A Byrne, J A Campbell J E F Coolican C J Davis, R B Dockrell R F Doyle C M Elliott J L England R B Flood, Sheila S Hanbridge, J A R. Hanna Hetty Hool N B Hool D T Irwin Anna E Johnston P A Johnston A L Jones H A Karrach Margaret K B Knox I J Krutzinger, Edith E Kyle D F V Lane Muriel T McKenna T B Madden M J P O'Brien M S O Grady Dorothy C Oswald N McN Parkes P K Storah, Blanche Weekes, A M Wiley

LICENCE IN MEDICINE SURGERY AND OBSTETRIC SCIENCE—H G Alton

DIPLOMA IN GYNAECOLOGY AND OBSTETRICS—G P Balouny A S Choudhuri M Ghannam, S Haydari A J B Paes

### UNIVERSITY OF LONDON

The Governing Body of the British Postgraduate Medical Federation, on behalf of the University of London, has made the following appointments of Regional Advisers in Postgraduate Medical Education for the London Metropolitan Hospital Regions D F Ellison Nash, FRCS (North-East), H G McGregor, MD, MRCP (South-East), P H Mitchiner, CB, CBE, MD, MS, FRCS (South-West) No appointment has yet been made for the North-West Metropolitan Region

### UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examination indicated

DIPLOMA IN PSYCHOLOGICAL MEDICINE—Part II C L Casimir N P Chamarette A Clark N A Cohen Barbara M Dick J H Kahn R W Lennon M M Macrae W V Wadsworth

### UNIVERSITY OF EDINBURGH

At a Graduation Ceremonial held on July 14 the following medical degrees were conferred

MD—<sup>1</sup>A H Banton <sup>1</sup>Agnes A Brash E Christianson A S Crawford  
J J C Gilroy <sup>1</sup>G MacKenzie D J MacRae M Sim A D C Young  
CM—J C Gougher  
Pa.D—In the Faculty of Medicine N K Chowdhury IC C M James  
G F A Rahim  
MB ChB—D W Atkinson Alison M S Bell J D Bell Jean Bowden  
G R Brackenridge N M Bremner A A Brown Patricia M MacB Brown  
Constance Bruce J G Bulman Helen L Burns Anne Cairns W C Campbell  
A B Carmichael Kathleen M Carmichael A B Cassie Maureen D Connolly  
Charlotte W Cordin J K Davidson L A G Davidson Rosemary H M Davie (with honours) W Davidson D A L Dick S M Drancz J Drummond  
R B Duthie Bridget A Evans Mary C Ewing Elizabeth W Ferguson,  
Sir James D Fraser Bt D L Gardner W A Gentle A H C Gieben A J Gilles J F Gould W D Graham G A Gray J D Haldane J Hampson  
J W Harless C P Hay G W Hickish Joan S Hiscock Fiona J Holder  
Jean C Horwill J F Houston Elizabeth M Ingles (*nee* Scott) R H B Johnston  
T F Kean J Keenan Jean H N Kendall G Kennedy A W S Kerr D A Lamont N Laurie Smith J A R Lenman S J A Lucas J Lugton J L J Lumley E I Lunn Anne P McCall Janet N McCulloch I K McIntosh  
Blanche M MacIver Mary L Mackay H MacLean T W McWhirter Lorna D Malloch J H Marks E J Meisels M W Mills J H Mitchell A Morrison  
I A Morrison Irene R B Muir G F Murnaghan J G MacMurray  
Marjorie K Murray Isabella R Napier Elizabeth M H Neill Elizabeth C Nelson T B M Norman I M Ogilvie J Oliver R B Otley Dorothy M Pargeter Lorraine M Paterson A S C Peden Lillias E Penman, Ruth Porter  
J L Potter R P Powell J K M Quartey H A J Reay J L Rennie J Richmond, J A Riedel D H H Robertson, I D Robertson Joan E Rowlands,  
J J B Russell A McC Ruxton Joycelyn H W Sandison D B Scott C J Sikkel F F Silk Esme J Simpson Beryl E Sinclair, Evelyn A C Skinner (with honours) J B Smith Margaret C Smith Elizabeth L T Stoddart J F Stone G Stout Jean M Thoburn A W H Thomson Ethel M Wallis A T Watson I H Watson A A Wild Jean A R Wilkie Man Hung Wong Elizabeth J A Yool  
J B Wilson MB ChB has been admitted to second-class honours in pathology, after graduation

The following diplomas were awarded

DPH—W J Bell J D Crombie J A Eadie W Edgar H J Gibson  
G Graham Cumming Minnie K Herring <sup>1</sup>D J M Mackenzie H B Martin  
J G Masterton G O Mayne H C Milligan <sup>1</sup>E H Murocetti S M Musgrave  
J K Prabhakar S N P Stobie <sup>1</sup>Agnes W C Storrar W F J M Thom J E Tinne Elizabeth Whalley  
DTM AND H—P K Mathur Jean A Robertson <sup>1</sup>G P Stille T B M Sloan E Evans Anfon, E A Frayworth J Ram A C B Singleton, H C W Stinger

DIPLOMA IN MEDICAL RADIODIAGNOSIS—W Cockburn J Cowen C P M Feltham J D Recordon

DIH—H O Engel J H A Forrester <sup>1</sup>A B Guild A S McLean P C Mahanty K K Mathur <sup>1</sup>H D Paviere <sup>1</sup>D G Waddell <sup>1</sup>H D Wilson

The following scholarships bursaries prizes etc were awarded in the Faculty of Medicine  
Ethel Scholarship and Leslie Medal Scottish Association for Medical Education of Women Prizes Buchanan Scholarship in Obstetrics and Gynaecology Dorothy Gilfillan Memorial Prize Keith Memorial Prize in Systematic Surgery and Pattison Prize in Clinical Surgery Rosemary H M Davie Vans Dunlop Scholarship in Materia Medica and Medicine J L Potter Vans Dunlop Scholarship in Pathology and Surgery and Lawson Gifford Prize in Obstetrics and Gynaecology G F Murnaghan Stark Scholarship in Clinical Medicine C W M Wilson Mount Scholarship in the Practice of Physic James Scott Scholarship in Obstetrics and Gynaecology Beane Prize in Anatomy and Surgery and Royal Victoria Hospital Tuberculosis Trust Medal Evelyn A C Skinner Gunning Victoria Jubilee Prize in Botany N F Robertson Gunning Victoria Jubilee Prize in Anatomy G J Romanes Gunning Victoria Jubilee Prize in Obstetrics T M Abbas Annandale Medal in Clinical Surgery I D Robertson Murdoch Brown Medal in Clinical Medicine A H C Gieben Sirtun Bursary Anne T Lambie Colonel Thomas Biggam Memorial Medal and Prize in Pathology D M Hastings MacLagan Prize in Forensic Medicine A J M Carlin Cunningham Memorial Medal and Prize in Anatomy and Senior John Aitken Carlyle Bursary in Anatomy and Physiology D N S Kerr Whiteside Bruce Bursary and Vans Dunlop Prize in Physics and Chemistry E T Fauch Junior John Aitken Carlyle Bursary in Anatomy and Chemistry E T Fauch (resigned) W D Smith Mackenzie Bursaries in Anatomy Jean M Macdonald W J Newlands, R C Phellias H W Wright Ian Oswald Prizes in Anatomy Elinor M Cleland K Wood Anderson Henry Prize in Botany J C Compton Vans Dunlop Prize in Botany and Zoology A Banks and E T Fauch (equal)

<sup>1</sup>In absentia - Commended for thesis

### UNIVERSITY OF DURHAM

The following medical degrees, etc, were conferred in Congregations on June 29 and 30

MD—G Lorrman \*D M Prinsley \*E G Saint  
MB BS—G D Allen G S Anderson Phyllis A Armstrong E A Barnett Joan M Bates J F P Bell C W Bewick J P Birkett E L Blair T D Blott A N Bond J Bowden A D Bowman D T Bryant A O Cassels Elsie B Chambers A D Charles D R Cook W E Corringham E V Cox Ida M Drake G H Dunstone F Ellis T A Forster N D Fraser, J L Gibbons J Gilroy R A Goodhead R W Gould Margaret H Grant N Hargreaves, K S Henley J E Howson (with distinction in surgery) W E Hurford J M Jewitt H C Jones Joan King Daphne S Magee R J Marley G F G Marshall Avril E M Matthews J O'Neill S G Owen J K Oyston T Parker A H Pettit D L Postlethwaite J R K Robson, Joyce M Robson Josephine Rutter J D Sinson G C Slade R T Swinburne D Tacchi Joan M Traves T Ward Sybil A B Ward Ann K Wilson Mary A Wood R S Yager  
DPH—J Ardley, A W Hry Mary C Mclean J W G McDougall, Helen R Wilson \*S C J Falkman \*G S Michelson \*D A Smyth  
LDS—C A Anderson MB BS

\*In absentia

### UNIVERSITY OF WALES

The following candidates for the degrees of MB, BCh at the Welsh National School of Medicine have satisfied the examiners at the examinations indicated

MEDICINE—Maureen M Bassett S I Cohen A V Coleman, Joan V Davis Janet Dean Jones J A Emanuel E F Griffiths Anne Guy E G A Jackson Marjorie L James J H Jones D M D King R H Lewis C S Livingstone

Joan A. McLay J. E. Mitchell M. A. Owen C. L. Perry E. G. Rees Frances M. Richards Sybil H. Stephens, C. E. Stroud Augusta J. Taylor J. H. S. Wakelin  
OBSTETRICS AND GYNAECOLOGY—D. P. Davies H. E. F. Davies E. H. Evans  
G. A. Jackson, D. W. James Lilian M. Morgan Mary C. Sumption G. Thomas

## UNIVERSITY OF LIVERPOOL

At a Congregation held on July 3 the following medical degrees were conferred

MD—G. M. Ardran B. K. Ellenbogen E. W. T. Evans K. B. Gibson  
A. L. Latner I. Leveson J. M. Swinbank  
CHM—R. Marcus R. A. Smith (*in absentia*)  
MASTER OF RADIOLOGY—H. G. Frank A. M. Fraser, I. Pierce Williams H. L. Ross G. D. Scarrow W. I. Walker, J. Winter  
MB ChB—H. T. G. Williams (with second-class honours) C. Alexander  
June P. Arnold W. B. Ashby D. J. B. Ashley, Mary F. Barrie A. J. Bathurst,  
F. Bell L. B. Bruce C. R. Cartwright G. D. Currie A. Dalzell F. J. Dunn  
E. C. Edwards H. L. Goffman T. D. H. Gray E. Gruber, Elspeth M. Hill  
Sylvia S. C. Hinde C. I. Hood A. W. Howell Evans, C. O. Le C. Hughes J. C.  
Humber J. Humphreys Mair Humphreys P. F. Jack Dorothy M. Jennings  
Elizabeth M. Johnson C. H. Jones W. W. Jones P. Kilburn J. G. Kingan  
Christine Lewis J. F. Lynch A. G. Mackinnon Mary K. Marchant G. Marsh  
E. Martindale, D. N. Menzies Margaret J. Miller Helen T. Morgan E. G.  
Myerscough J. O'Donoghue Mary C. O'Hare W. R. Parkes Leslie M. Pinkerton  
Gwyneth E. Pritchard Millicent M. C. Regan Freda M. Roberts J. R. Roberts  
R. V. Roberts Kathleen M. Roby Barbara F. M. Shirley S. S. Swift H. M.  
Thomas Haral Thompson Joyce K. Watkin W. K. M. C. Watkins D. B.  
Wilkinson

## UNIVERSITY OF BRISTOL

The following candidates have been approved at the examinations indicated

MD—G. H. Wattleby  
FINAL MB ChB—Barbara Brosnan Suzanne K. R. Clarke R. S. G. Davies  
C. C. Downie M. J. Dunn Molly I. Govier, Pamela I. Hannaford A. H. Levy  
(with distinction in forensic medicine) Jenny Pym F. A. A. Ruggeri, B. F.  
Vaughan, G. Wintermiz R. H. Wood *In Group II (completing examination)*  
Elizabeth H. Chard *In Group II only* G. D. Teague, A. S. Wallace *In Group I only* Pamela L. C. Watson  
D. P. H.—Part II R. G. Brennan J. B. M. Davies D. M. M. Jones E. W.  
Moore W. Nicol  
DIPLOMA IN PSYCHOLOGICAL MEDICINE—Part II W. L. Jones R. Maggs  
J. R. Stuart  
DIPLOMA IN RADIOTHERAPY—Part II A. A. G. Flemming F. A. Hanna

## ROYAL COLLEGE OF SURGEONS OF ENGLAND

On July 1 Sir Harry Platt was re-elected and Mr. R. C. Brock and Sir Archibald McIndoe were elected members of the Council of the College. The result of the poll was as follows

Sir Harry Platt (Royal Infirmary, Manchester)	672
Sir Archibald Hector McIndoe (St. Bartholomew's Hospital)	454
Russell Claude Brock (Guy's Hospital)	418

The following were the other candidates	
Arthur Dickson Wright (St. Mary's Hospital)	416
Rodney Honor Maingot (Royal Free Hospital)	353
Eric William Riches (Middlesex Hospital)	331
Angus Hedley Whyte (Royal Victoria Hospital, Newcastle-upon-Tyne)	266
Alan Cecil Perry (London Hospital)	239
Harold William Rodgers (Royal Victoria Hospital, Belfast)	217
Hugh James McCurich (Royal Sussex County Hospital, Brighton)	206
Ronald Henry Ottywell Betham Robinson (St. Thomas's Hospital)	205
Hubert Wallace Symons (General Infirmary at Leeds)	178
Marriott Fawcner Nicholls (St. George's Hospital)	149
Alexander Croydon Palmer (King's College Hospital)	132

In all 1,588 Fellows voted, in addition 22 votes were found to be invalid

## ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting of the College held on July 20, with the President, Dr. W. D. D. Small, in the chair, Dr. D. R. Maitland (Edinburgh) and Dr. E. K. Morris (Edinburgh) were introduced and took their seats as Fellows of the College. Dr. J. Laurie (Dumfries) and Dr. W. M. Wilson (Edinburgh) were elected Fellows of the College.

Drs. D. R. MacCalman (Aberdeen), J. G. A. Davel (Pretoria), H. D. Jenner (Prince Albert, Saskatchewan, Canada), J. Sandilands (Iron Aston, Gloucester), I. C. Gilliland (London) E. M. Donaldson (Edinburgh), P. W. Hannay (Edinburgh), V. V. Shah (Bombay), J. Green (Glasgow), J. S. Theron (Bloemfontein), R. W. Biagi (Bangour, W. Lothian), D. I. McCallum (Edinburgh), T. Parkin (Sheffield), A. R. Wilson (Edinburgh), A. A. C. Ross (Milton Bridge, Midlothian), Amy Jungalwalla (Bombay), D. M. Forsyth (Edinburgh), N. C. Begg (London), D. S. Harling (Edinburgh), R. G. Mathers (Wallasey) E. V. B. Morton (Edinburgh), J. K. Scott (Bangour, W. Lothian), J. A. Tulloch (Forres, Morayshire), D. Naidoo (Busby, Lanark), J. A. Morton (Edinburgh), D. Banerji (Calcutta), T. W. G. Kinnear (Edinburgh), A. M. Kassim (Bombay), C. F. Rolland (Edinburgh), A. C. Arthur (Edinburgh), and H. D. Ritchken (Johannesburg) were elected Members of the College.

## Medical Notes in Parliament

## NATIONAL HEALTH SERVICE

MR BEVAN announced on July 20 that as an interim measure he had approved the continued use for doctors' private patients of any hospital accommodation so used immediately before the appointed day until regional boards could review the position and draw up considered proposals. The hospital management committee concerned was responsible for the admission arrangements. Hospital charges would be determined by the committee in accordance with the National Health Service (Paybed Accommodation in Hospitals, etc.) Regulations (Supplement p. 61), which also prescribed maximum fees recoverable by the medical practitioner for professional services. Receipts from hospital charges would be paid into the Exchequer.

## Prescriptions for Private Patients

SIR ERNEST GRAHAM LITTLE asked on July 20 why the patients of doctors who remained outside the National Health Service were debarred from receiving free medicine although eligible for free treatment?

MR BEVAN answered that the diagnosis, the prescription, and its provision must be treated as part of one process. He could not justify separating the prescription as Sir Ernest suggested.

## Rural Practitioners and Special Hardships

MAJOR TUFTON BEAMISH on July 22 asked if the Minister of Health was aware that, owing to the fact that no travelling allowances were paid to doctors for visiting patients in their homes, doctors in rural districts were obliged to refuse registrations from persons living more than a short distance from their surgeries. He asked Mr. Bevan to take steps to prevent the health of the rural community suffering in this way.

MR BEVAN said special payments, details of which are under discussion with the British Medical Association, would be made to meet such cases. He added that there was no financial justification for a doctor refusing a patient in the circumstances described.

DR. SANTO JEGGER said many doctors who had joined the National Health Service were in serious financial difficulties because their income from private patients had largely ceased. Their panel cheques paid early this quarter had been exhausted by their regular commitments, and they had no current money to meet day-to-day expenses. He asked Mr. Bevan to arrange for doctors to receive interim payments, on account of their basic salary or otherwise, to bridge the interval until their next regular payments became due.

MR BEVAN did not think there could be many such cases but proposed to arrange for advances to be made in cases of special hardship.

Replying to Mr. CHETWYND, MR BEVAN stated that the provisional figure of the number of general practitioners who had joined the Service in England and Wales by July 10 was 18,575. The figure was subject to further checking. He added that the total number of general practitioners in England and Wales (including assistants who would not normally be included in the medical list) was believed to be about 21,500.

## Streptomycin

MR SWINGLER raised on July 21 the subject of the supply of streptomycin to hospitals. He gave details of a case a week earlier in which a doctor in the Staffordshire Infirmary applied urgently to the Ministry of Health for streptomycin for treatment of a young girl suffering from tuberculous meningitis. He was refused a supply on the ground that the Staffordshire Infirmary was not a hospital authorized to have a supply. He was told that the patient must be sent to the nearest authorized hospital, which was the Queen Elizabeth Hospital in Birmingham. There he was told that although there was a supply of streptomycin there were no vacant beds. Mr. Swingler said an appeal was made to him for assistance and he was told that application must be made to the Emergency Bed Service, which would allot a bed in a hospital where there was a treatment unit employing streptomycin. The Emergency Bed Service in London had no immediate vacancies in any of the hospitals which had streptomycin. Yet at the same time the Ministry of Health issued a statement saying that the supply of streptomycin was now fairly satisfactory. The upshot of the case was that the supply of streptomycin in Staffordshire Infirmary was authorized by the Minister of Health. Mr. Swingler

asked about the position of the manufacture of streptomycin in the United Kingdom and how soon the nation would be independent of supplies from the USA. How many more hospitals did the Minister expect to be authorized to have a supply and a treatment unit when the regional boards had made their plans? If there were not sufficient beds in these hospitals who had discretionary power to send a supply to other hospitals?

MR BEVAN said it was undesirable that where a time-lag developed between the discovery of a drug and its use throughout the whole health system there should be sensational propaganda alleging that people were dying because it was not available and at the same time raising false hopes and fears in the breasts of those concerned about individual cases. He hoped the British press would not sensationalize incidents so as to cause a feverish atmosphere when what was required was calm and judicial investigation. The use of streptomycin was still in its early stages and it should be administered under hospital conditions and preferably with laboratory controls. The Medical Research Council had established that some cases of tuberculous meningitis did react favourably to the use of streptomycin. In about 31% of the cases hopeful results had been realized—which showed that it was still ineffective in the majority of cases. Restriction of the therapeutic use of streptomycin in Great Britain was inevitable until the Ministry had satisfied itself that its clinical use was safe. It had now been established that it was to some extent efficacious both for tuberculous meningitis and miliary tuberculosis. Arrangements were being made to provide treatment for as many such cases as possible. Similar arrangements would apply if streptomycin was reliably shown to be of value in other cases. A supply was being planned and British production increased to meet these needs. All regional boards had been asked to say at what hospitals or sanatoria these cases could be brought together. To economize the skilled services of the doctors concerned it was desirable to group these cases, 26 such treatment centres had been provided. As soon as the location of additional ones was known supplies of streptomycin would be provided for them. In other hospitals arrangements had been made to supply streptomycin for cases if there was no bed for them in a recognized centre. A doctor at any hospital could get streptomycin for such cases by applying to the Ministry of Health's Supplies Division, whose telephone number was Kensington 3471, Extension 102.

From July 14 to July 19, 1,150 g of streptomycin had been supplied in response to twenty-five requests of this kind. Clinical trials now suggested that cases of tracheobronchial tuberculosis should be brought within the treatment scheme. Regional hospital boards had been asked to say which hospitals should receive supplies of streptomycin for this purpose. An expert medical committee was being set up to advise what other types of case, in the light of clinical trials, should be brought within the scheme. Arrangements would be extended on the basis of that advice. In order to treat all cases of miliary tuberculosis, tuberculous meningitis, and tracheobronchial tuberculosis in the country, not more than 40 kg of streptomycin would be needed every month. From November, 1946, to August, 1948, 309 kg of streptomycin would have been imported from the United States at a cost of \$777,000. A further 50 kg were on order. Large-scale production of streptomycin in this country was beginning. It was expected that 25 kg would be packed, tested, and ready for issue this month and at least 50 kg in August. By the autumn, production should reach 100 kg a month. Plant with much larger capacity should come into operation early next year. If the extent of the therapeutic use of streptomycin was not increased before the end of the year we should be in a position to meet all domestic needs and to export some streptomycin, but domestic claims must come first. Mr Bevan pointed out that the Ministry of Health was not administratively responsible for this matter until July 5. He contended that it had carried out with considerable speed the reorganization of hospitals concerned with the use of the drug.

### Food Inspection

In a statement on July 21 Mr STRACHEY announced that under the Transfer of Functions (Food and Drugs) Order, 1948 which came into operation on March 1, and the Public Health (Amendment) Regulations, which came into operation on June 1 the Ministry of Food had taken over from the Ministry of Health the central responsibility for food inspection and food hygiene generally. He intended to seek the co-operation of local authorities and their officers, the food trade, and the public in a concerted effort to combat the dangers to health which result from the preparation, storage, or handling of food in unclean or otherwise unsatisfactory conditions. Shortage of essential equipment and of building labour and

materials hampered immediate improvements. However, existing legislation could be made more effective by the voluntary adoption of codes of practice applicable to particular trades, and by stimulating among all concerned a more positive attitude to food hygiene. In these matters the Ministry of Food would work in close consultation with the Ministry of Health, which remained responsible for measures for dealing with infected food and food poisoning, and with the local authorities concerned with the enforcement of the relevant provisions of the Food and Drugs Act, 1938, and of the regulations made thereunder.

*Dentists in N H S*—Answering Mr Sharp on July 20, Mr BEVAN estimated that about 10,000 dentists were in general practice in England and Wales. By July 10, 5,386 had joined the Service, an increase of 824 in five days.

*Scottish Chemists*—Replying on July 13 to Mr NIALL MACPHERSON Mr WOODBURN announced that he had reached an understanding with the representatives of the Scottish chemists on July 1, and that the chemists had been providing pharmaceutical services under the new National Health Service scheme since July 5.

*Medical Students*—According to the latest information there are 9,671 full time medical students at universities in England and Wales, and 2,840 are directly State aided. In addition, an unknown number hold local education authority major awards.

## Medical News

### Princess Alice Emergency Hostel for Mothers and Babies

The National Children Adoption Association (71, Knightsbridge, London, S W 1) has converted "Castlebar," Sydenham Hill, London, S E., previously the Princess Alice Nursery Training College, into an ante- and post natal hostel, now known as the Princess Alice Emergency Hostel for Mothers and Babies. Up to forty mothers can be admitted, twenty ante- and twenty post-natal cases, and there is a nominal weekly charge. Antenatal cases are accepted by arrangement, but the expectant mother, however, may not be admitted less than two weeks before the expected birth of the child. Post-natal cases are accepted upon the discharge of the mother and baby from hospital, and mothers may remain up to three months with their infants if they so desire. Alternatively, should a mother wish to have her baby adopted the association would make the necessary arrangements. The mothers are left entirely free to decide the future of their children.

### Central Council for Health Education

The Central Council for Health Education held its twenty-first Annual General Meeting and Council Meeting on July 22. Lord Woolton was reappointed President, and the Vice-Presidents of the Central Council, Sir Allen Daley and Dr Charles Hill, were re-elected. Mr Henry Lesser retired from the chairmanship and was succeeded by Dr E. K. Macdonald, the Medical Officer of Health for the City of Leicester. Dr W. A. Bullough, County Medical Officer of Health, Essex, was elected Vice-Chairman. Sir Graham Savage, who had served as Honorary Treasurer for four years, retired from that office and was succeeded by Dr Robert Forgan. Mr Henry Lesser said that from September onwards the Council would provide two day courses in health education free of charge every two or three months at over a dozen universities in England, Wales, and Northern Ireland. The lecturers would include several outstanding authorities whose daily duties gave them many opportunities for health education.

### Sir Max Page

Sir Max Page has been appointed an officer of the Legion of Honour by the French Government.

### Lyttel Lily Cup

Dr A. M. Amsler has been awarded the Lyttel Lily Cup of the Royal Horticultural Society. Dr Amsler was medical officer at Eton College for thirty years.

### Streptomycin

The Ministry of Health points out that under the arrangements for supplying streptomycin for cases of miliary tuberculosis and tuberculous meningitis applications by telephone should be made as follows: 8.30 a.m. to 6 p.m., Monday to Friday, and 8.30 a.m. to 2 p.m. Saturday—Kensington 3471, Extension 102, all other times (night and week-ends), Whitehall 4300. In the recent debate in the House of Commons on streptomycin only the Kensington telephone number was mentioned.

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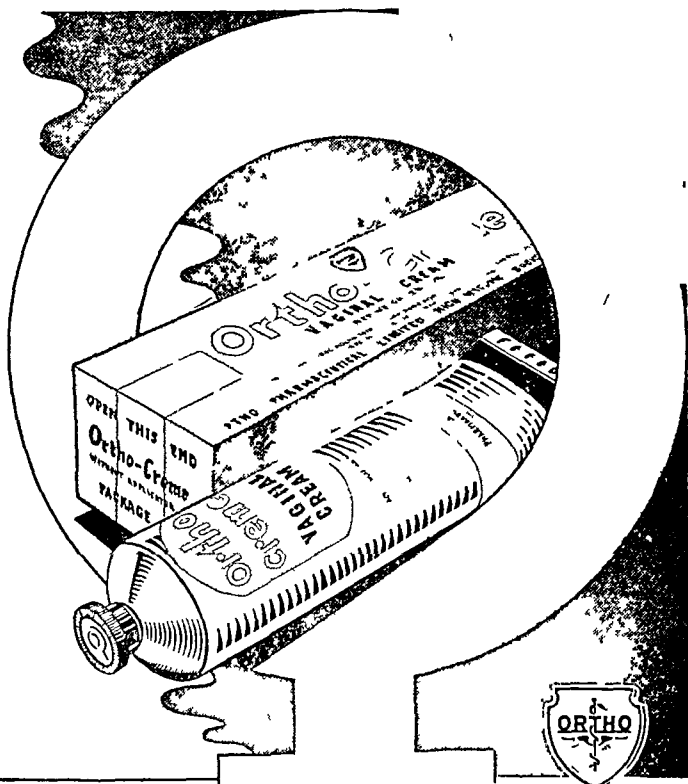
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Fig 1

### Case History

GHH Aged 38 Dock Labourer Injured his left shin whilst at work On attending the clinic he had a deep traumatic ulcer surrounded by an inflamed area of skin no varicose veins (Fig 1)

**Treatment.** August 9th, 1946—Jelonet was applied to cover the ulcer and inflamed area, and a pad of cotton-wool to cover the ulcer only The leg was bandaged from toes to knee with Viscopaste (Fig 2)

August 23rd, 1946—The inflamed area was re-dressed with Jelonet covered by strips of Ichthopaste A well-bevelled adhesive sponge rubber pad was applied to cover the ulcer, and the leg firmly bandaged with Elastoplast

Sept 13th, 1946—After liberally painting with calamine in oil, covered with Ichthopaste, a large pad of cotton-wool



Fig 2

## TRAUMATIC SHIN ULCER HEALED WITH JELONET, VISCOPASTE, PARAGON SPONGE RUBBER AND ELASTOPLAST

was placed to cover the ulcer and the leg again firmly bandaged with Elastoplast

October 4th 1946—Ulcer healed (Fig 3)

October 18th, 1946—Patient discharged to work

**Comment.** Although initial bandaging with Viscopaste resulted in marked improvement, there was not sufficient pressure as was evident on August 23rd when, although the ulcer was reduced in size, there was pronounced granulation tissue This resolved rapidly with concentrated compression beneath sponge rubber with the additional support of Elastoplast (August 23rd and September 13th)

Details and illustrations above are of an actual case T J Smith & Nephew, Ltd, Manufacturers of Jelonet, Viscopaste, Ichthopaste and Elastoplast are privileged to publish this instance, typical of many, in which their products have been used with success, in the belief that such authentic records will be of general interest



Fig 3

**Memorial to the late Professor Noah Morris**

A Morris Memorial Lectureship has been created at Glasgow University in tribute to the memory of the late Professor Noah Morris of the Chair of Materia Medica. Distinguished lecturers in branches of medicine in which Professor Morris was interested will be invited from time to time to address meetings, which will be open to undergraduates, graduates, and the general public. Subscribers to the Memorial Fund include the Students Representative Council, the Student Medical Societies, the Unions, and the Athletic Club, in all of which Professor Morris had taken an enthusiastic interest. Representatives of these bodies and of his medical colleagues and friends met recently, and the cheque representing the contributions to the Memorial Fund was handed over to the University. Mr Marshall Walker in doing so referred to Professor Morris's great gifts as a teacher, his sympathy, moral and intellectual integrity, his enthusiasm and ability to talk, and his knowledge of his subject. He had the gift of winning his students and of transmitting something of his own earnestness and enthusiasm.

**Order of St John for Scotland**

The following members of the medical profession were invested in the Chancery of the Order of St John for Scotland in Glasgow on June 23. As Commander W J Moore, FRFPS, JP (from Officer), as Officers (Brothers), W F J Whitley, MD (from Serving Brother), N G W Davidson, OBE, FRCS, as Serving Brother A A F Peel, DM, FRFPS.

**Rubber Stamps**

The Minister of Health states in a letter to local executive councils that it is legally permissible for a medical practitioner, when signing Form E.C.1, to use a stamped facsimile of his signature or a rubber stamp supported by his written initials. He also suggests that in the present exceptional circumstances—say, up to the end of July—executive councils may accept a stamped form even if it is not a facsimile and not initialed.

**New Journal of Experimental Psychology**

The first number of the *Quarterly Journal of Experimental Psychology* has appeared under the editorship of Mr R C Oldfield, M.A., of the Institute of Experimental Psychology, Oxford University. It is published by Messrs W Heffer and Sons of Cambridge, for the Experimental Psychology Group. The journal will publish chiefly papers on experimental work but will also include others if they advance scientific knowledge. The present number includes a paper on "Traumatic Amnesia," by Dr W Ritchie Russell, and one by Dr N H Mackworth on the Breakdown of Vigilance during Prolonged Visual Search. The subscription is £1 10s a year for four numbers, single copies may be obtained at 8s. Orders should be placed with the publishers.

**Teaching Hospitals at Cambridge**

The Chesterton Hospital at Cambridge has been included in the Cambridge group of teaching hospitals by regulations (SI No 1579) made under the National Health Service Act.

**Wills**

Dr Cyril Strickland of St Helier, Jersey, formerly professor of medical entomology at the Calcutta School of Tropical Medicine and Hygiene, left £20,538. Dr Cyril Henry Howkins, LDS, of Birmingham, formerly examiner in dental surgery to the Royal College of Surgeons of England, left £20,978. Dr William Wynn-Williams, of Middlesbrough, £49,761. Dr Laurence William Pole, formerly MOH for Llanelly, South Wales £1,169, and Dr Alexander Benham Stutch, of Old Heathfield, Sussex, £19,115.

**COMING EVENTS****International Congress on Population and World Resources**

The Family Planning Association has organized an International Congress on Population and World Resources in Relation to the Family to be held at Cheltenham from Aug 23 to 27 inclusive, when representative delegations will attend from some twenty countries. The subjects to which sessions will be devoted include "World Resources," "Population Trends," "Migration," and "Sociological, Religious, and Political Implications of Contraception in Various Countries," as well as "Current and Future Research into Such Problems." The speakers will include Lord Horder (President of the Congress), Sir John Boyd Orr, Dr Julian Huxley (Unesco), Lady Denman, Mrs Ottesen-Jensen (Sweden), Mrs Margaret Sanger (U.S.A.), Dr C P Blacker, Mr Aleck Bourne, Dr Emde van de Boas (Holland), Mr Kenneth Walker, Prof E Brandstrup (Denmark), Prof T H Davey, Prof David Glass, Prof Joseph Needham, Dr Nils Nielsen (Sweden), Mr Kenneth Rose (U.S.A.), Dr Hugh Sinclair, Dr Abraham Stone (U.S.A.), Dr Durand-Wever (Germany), and Prof Whelpton (U.S.A.). The fee for registration is £2 per delegate, and applications for registration and accommodation should be addressed to the Congress Organizer Mr N A Howell Everson, at 27 Park Street London, W1.

**Medical Historians**

A meeting of the United Kingdom, Dominions and United States Official Medical Historians Liaison Committee will be held at Corpus Christi College, Oxford, from August 3 to 7. The object of this committee which is sponsored by the Governments concerned is to provide opportunities for the medical historians to consult together on technical questions and propose solutions of problems about correlation of data, balance between one official medical history and another, and methods of presentation. The delegates will be the guests of the British Government at a dinner at the Savoy Hotel, London, at the conclusion of the conference. The first meeting of the committee was held in Ottawa in September, 1947, at the invitation of the Canadian Government.

**SOCIETIES AND LECTURES****Friday**

KENT AND CANTERBURY HOSPITAL—At Slater Hall, Canterbury, July 30 7.45 p.m. Clinical meeting. Film on Poliomyelitis, followed by a general discussion.

**Tuesday**

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Anatomy Lecture Theatre, Edinburgh University, August 3, 4.30 p.m. "The Present Position of the Rhesus Factor," by Professor D F Cappell.

**APPOINTMENTS**

PHILPS, A SEYMOUR, FRCS, Surgeon in charge of Eye Department, St Bartholomew's Hospital, London, SE.

Mr Philps qualified at Bart's in 1929 and took the FRCS in 1931. He was formerly Assistant Ophthalmic Surgeon at Bart's.

FAIRMAN H D MB BS, FRCS, Ed DLO Honorary Surgeon to Ear, Nose and Throat Department Bristol Royal Hospital.

HARRISON EIRWEN M MB ChB DPH, Assistant Medical Officer of Health Essex County Council.

HUNTER R M M MB ChB DPH DPM Deputy Medical Superintendent Herrison Mental Hospital Dorset.

McWILLIAMS L F MC MB BCh DPH, Nottinghamshire County Council Assistant Medical Officer and Medical Officer of Health for Hucknall Urban Council.

PATERSON D E MB ChB Radiologist Union Hospital, Hankow China (London Missionary Society).

ROBERTS H G MB BCh Wales FRCS, Ed Surgeon in-charge Woolston House Hospital Newport, Mon.

TAYLOR G C, MB, ChB DPH Assistant Administrative Medical Officer, Scottish Eastern Regional Hospitals Board.

WALKER V R MB ChB DPH North Hertfordshire Divisional Medical Officer Hertfordshire County Council.

WRIGHT S L MD MRCP DPH Medical Officer of Health and School Medical Officer for Croydon.

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

Bellon—On July 17 1948 at Middlesex Hospital London to Zaha (née Covitz) wife of Mr Ben Bellon FRCS a daughter—Marianne Jean.

Colthe—On July 21 1948 at the Middlesex Hospital to Dorothy Mary wife of Dr Jan Colthe a son.

Currie—On June 30 1948 at Dar-es-Salaam Tanganyika to Ysobel (née Garland) wife of Donald Currie MB BChir a son.

Forritt—On July 19 1948 at the Lindo Wing St Mary's Hospital to Kay wife of Mr A C Forritt FRCS a daughter.

Robinson—On July 18 1948 in Sheffield to Florence wife of Mr R G Robinson GM FRCS a daughter.

Taylor—On June 28 1948 at The Lady Chancellor Maternity Home Salisbury S Rhodesia to Edna (née Parish) wife of Dr P A Taylor Karoi S Rhodesia a daughter—Susan Rachel.

**DEATHS**

Baldie—On June 23 1948 Alexander Baldie MB ChB Ed DPM of St Lawrence Isle of Wight.

Fuller—On July 19 1948 very suddenly at Perranporth Cornwall Andrew Radburne Fuller MRCS LRCP DPH aged 55.

Logan—On July 22 1948 at Edinburgh after a brief illness William Robert Logan MD FRCP Ed.

McGowan—On July 24 1948 at 13 King Street Oldham James Sinclair McGowan MD in his 82nd year.

Owen—On July 21 1948 Emrys D Owen MB BCh of Maesyrhaf Neath.

Rowney—On July 11 1948 at Tunbridge Wells William Rowney MD Lieutenant-Colonel RAMC retired aged 93.

Scott—On July 16 1948 at Glenugie Longside Aberdeenshire William Francis Gordon Scott LRCP & S Ed LRFP Glasgow in his 68th year.

Snelling—On July 17 1948 at 130 High Town Road Luton Trevor Richard Snelling MRCS LRCP aged 58.

Smith—On June 28 1948 Frank Addinsell Smith MD Lieutenant-Colonel TMS retired.

Smith—On June 8 1948 at Kew Melbourne Australia Henry Smith MD aged 83.

Sykes—On July 14 1948 at Sledmere 27 Bradford Road Combe Down Bath, John Lewis Sykes MRCS LRCP.

Watson—On July 15 1948 at 75 York Road West Hartlepool Thomas Blandford Watson MB BS.



No 28

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 10

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland  
Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland  
A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	24	1	20	1	—	67	1	18	1	—
Diphtheria Deaths	150	19	39	19	4	181	25	40	10	11
Dysentery Deaths	56	5	34	—	—	50	4	15	—	—
Encephalitis lethargica acute Deaths	—	—	—	—	—	2	—	—	—	—
Erysipelas Deaths	—	—	23	8	4	—	—	25	9	1
Infective enteritis or diarrhoea under 2 years Deaths	34	2	7	40	1	82	6	4	52	2
Measles* Deaths†	8 837	585	83	71	53	9 133	473	54	172	8
Ophthalmia neonatorum Deaths	37	6	13	—	—	82	7	23	—	—
Paratyphoid fever Deaths	6	—	1 (B)	—	—	8	—	1 (A) 2 (B)	—	—
Pneumonia influenzal Deaths (from influenza)‡	340	15	7	5	4	332	31	5	1	2
Pneumonia primary Deaths	116	13	108	28	3	19	123	9	7	9
Polio encephalitis acute Deaths	2	1	—	—	—	16	6	—	—	—
Poliomyelitis* acute Deaths§	23	3	2	1	—	110	9	7	8	—
Puerperal fever Deaths	—	—	9	—	—	1	18	—	—	—
Puerperal pyrexia   Deaths	84	6	3	—	—	115	9	10	—	3
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 658	89	297	42	33	918	95	114	39	33
Smallpox Deaths	—	—	—	—	—	3	—	—	—	—
Typhoid fever Deaths	5	1	—	3	1	12	1	2	2	8
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	3 075	259	17	88	7	2 000	267	42	56	15
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	231	22	33	13	11	340	33	66	23	12
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4,001	605	515	141	101	3 730	563	540	171	101
Live births Annual rate per 1 000 persons living	8,317	1328	1069	356	280	9 327	1468	1156	434	231
Stillbirths Rate per 1 000 total births (including stillborn)	205	29	23	—	—	219	31	38	—	—

\* Measles and whooping cough are not notifiable in Scotland and the returns are therefore an approximation only

† Deaths from measles and scarlet fever for England and Wales (London (administrative county)) will no longer be published

‡ Includes primary form for England and Wales, London (administrative county) and Northern Ireland

§ The number of deaths from poliomyelitis and polio encephalitis for England and Wales, London (administrative county) are combined

|| Includes puerperal fever for England and Wales and Eire

## EPIDEMIOLOGICAL NOTES

## Vital Statistics for the June Quarter

Infant mortality in England and Wales for the June quarter of 1948 established a new low record<sup>1</sup> The rate was 31 per 1 000 live births The previous lowest rate for any quarter was 32 in the September quarter of 1947 The best previous rate for a June quarter was 39 in 1947 The rates for the six months ended June 30 and for the twelve months ended on that date also establish new low records The uncorrected rate for the first half of 1948 was 36, the corresponding rate for 1947 was 46, for 1946 it was 45 For the twelve-month period July 1947, to June, 1948 the uncorrected rate was 37, for the twelve-month period July 1946, to June, 1947, it was 42, for the calendar year 1947 it was 41

The accompanying table of corrected quarterly rates since 1943 indicates that the rates in each of the past four quarters have been lower than the rates recorded for the corresponding quarters in previous years

## Quarterly Infant Mortality Rates per 1 000 live births in England and Wales from 1943-8

(Corrected for delays in registration of births and for changes in annual births)

Year	1948*	1947*	1946	1945	1944	1943
March quarter	41	55	55	60	58	60
June	31	39	40	41	42	47
Sept	—	32	35	37	40	40
Dec	—	39	43	45	43	50

\* Provisionally corrected (full data for correction not yet available)

The stillbirth rate for the June quarter, 1948, was 23 per 1,000 total births This is the lowest recorded rate for a June quarter In the June quarter of 1947 the rate was 24 and in the corresponding quarter of 1946 it was 28 A rate of 23 has previously occurred in the September quarter of 1947 The stillbirth rate for the first six months of 1948 was lower than for any previous year It was 23.5, compared with 25 for the first six months of 1947 and 28 for the first six months of 1946 The rate for the twelve month period July 1947, to June, 1948 was 23, which may be compared with 26 in the corresponding period from July, 1946, to June, 1947

The accompanying table of quarterly stillbirth rates shows that, as with infant mortality, the rates in each of the past four quarters are lower than the rates recorded for the corresponding quarters of previous years

## Quarterly Stillbirth Rates per 1 000 total births (live births and stillbirths) for England and Wales from 1943-8

Year	1948	1947	1946	1945	1944	1943
March quarter	24	26	28	28	29	32
June	23	24	28	27	27	30
Sept	—	23	27	27	27	29
Dec	—	24	27	28	28	30

The number of live births registered during the quarter was 203,711, compared with 202,184 in the previous quarter and 235,174 in the same period last year The corresponding rates were 19.0, 18.9, and 21.9 respectively

There were 110,356 deaths registered during the June quarter representing a record low death rate for any June quarter of 10.3 per 1,000 total population, compared with 11.0 for the second quarter in 1947 and the previous lowest rate for a second quarter of 10.4 in 1945

In the following table the numbers of live births stillbirths and deaths registered in the June quarter 1948 and the corresponding rates are compared with those for the June quarters 1947 and 1938

Second Quarter	Live Births		Stillbirths		Deaths		Infant Mortality	
	No	Per 1 000 Total Population	No	Per 1 000 Total Live and Still Births	No	Per 1 000 Total Population	No	Per 1 000 Related Live Births
1938	164 179	16.0	6 639	38.9	119 188	11.6	8,006	50
1947	235 174	21.9	5 831	24.2	118 011	11.0	9 195	39
1948	203 711	19.0	4,733	22.7	110 356	10.3	6 336	31

<sup>1</sup> The Registrar General's Weekly Return of Births, Deaths and Infectious Diseases for the week ended July 17, 1948 H.M. Stationery Office York House Kingsway W.C.2 Price 6d or post free 7d

## Discussion of Table

In *England and Wales* increases were recorded in the notifications of whooping-cough 168, scarlet fever 126, and diphtheria 9. There were decreases in the incidence of measles 150, cerebrospinal fever 18 and dysentery 13.

The largest increases in the incidence of whooping cough were Lancashire 42 and Surrey 40, the largest decreases were Yorkshire West Riding 41, Yorkshire East Riding 40 and Cheshire 40. The rise in the notifications of scarlet fever was due to a small increase throughout the country, the only local increase of any size was 37 in Lancashire.

The incidence of measles, broadly, showed a slight increase in the Midlands and a fall in the remainder of the country, the largest decreases were Essex 194 and London 95, and the largest rise was Staffordshire 82. No change of any size was reported in the local returns of diphtheria.

An outbreak of dysentery affecting 20 persons was notified from Hertfordshire, Hatfield RD. The largest of the other returns of dysentery was 7 in Lancashire. The only administrative area with more than one case of poliomyelitis was Norfolk Norwich CB 2. The other counties with more than one notification of poliomyelitis were London 3, Dorset 2, Middlesex 2, Essex 2, and Derbyshire 2.

In *Scotland* infectious diseases were less prevalent during the week, and the decreases included scarlet fever 56, measles 37, and acute primary pneumonia 26. A small fall in the incidence of these diseases was recorded throughout the country. An increase in the notifications of cerebrospinal fever from 7 to 12 occurred in the city of Glasgow.

In *Eire* decreases were recorded in the returns of measles 61 and scarlet fever 12, while increases were reported for diarrhoea and enteritis 28, whooping-cough 19, and diphtheria 8. Of the 40 cases of diarrhoea and enteritis 24 were notified in Dublin CB.

In *Northern Ireland* the notifications of scarlet fever rose by 10 while the notifications of measles fell by 12.

## Quarterly Returns for Eire

The birth rate during the first quarter of this year was 21.4 per 1,000 and was the lowest rate recorded in recent years for a March quarter. Infant mortality was 63 per 1,000 births, being 29 below the rate for the first quarter of 1947 and the lowest rate recorded in a first quarter. Maternal mortality was 14 per 1,000 registered births. The general death rate was 14.1 per 1,000 and was the lowest rate recorded in a first quarter and 7.3 below the rate for the March quarter of 1947. Deaths from infectious diseases included 104 from diarrhoea and enteritis, 74 from influenza, 52 from whooping-cough, 20 from measles, and 13 from diphtheria. Deaths attributed to pulmonary tuberculosis numbered 692 and, to other forms of tuberculosis 164; these were 112 and 68, respectively, below the average of the five preceding March quarters.

## Scotland's Health in 1947

A report issued by the Department of Health records a birth rate of 22 per 1,000, the highest rate since 1923. A slight rise occurred in infant mortality due mainly to gastro-enteritis. There were 1,123 deaths in the 16 towns attributed to infantile diarrhoea as compared with 642 in 1946. Maternal mortality was 2.0 per 1,000 live births and was the lowest yet recorded. A rise occurred in the incidence and mortality of tuberculosis. There were 10,117 cases and 4,096 deaths from all forms of tuberculosis compared with 9,713 cases and 3,984 deaths in 1946. The 1947 outbreak of poliomyelitis was the largest ever recorded; there were 1,434 confirmed cases, compared with 33 and 41 in 1945 and 1946. During the year 131 deaths were attributed to poliomyelitis.

## Week Ending July 17

The notifications of infectious diseases in *England and Wales* during the week included scarlet fever 1,703, whooping cough 416, diphtheria 183, measles 9,459, acute pneumonia 377, cerebrospinal fever 25, acute poliomyelitis 36, dysentery 67, paratyphoid 12, and typhoid 4.

The Paddington Medical Society has issued its annual report for the year 1947-8. The following officers were elected: president and acting honorary secretary, Dr L. Zeitline; vice president, Dr S. Brown; treasurer, Dr Z. Green. The following were members of the executive committee: Drs J. Green, H. James, A. Lewis, R. Post, Reece, E. T. Wright, and J. H. Porter. The society held several scientific and clinical meetings during the year, at one of which Dr Dickson Wright introduced a film on "The Treatment of Anaesthetic Conditions and their Complications."

## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

## Embalming

**Q**—What is the simplest and most economical method using substances likely to be available anywhere of embalming bodies for preservation during transport elsewhere for burial (e.g. in ships or in tropical countries) when it is necessary to preserve them for a matter of (a) days and (b) weeks?

**A**—From time to time a practitioner is asked to advise regarding the embalming of a dead body, and circumstances may even require that he should carry it out himself. Preservation is attained by permeating the body with a suitable fluid through the vascular system and thereafter injecting a similar fluid into the body cavities and any areas where the penetration of the fluid appears inadequate. It is not essential that the venous system should be drained of fluid blood as a preliminary, but such drainage facilitates penetration of the embalming fluid. Various standard embalming fluids are used, in most of which formalin is the essential ingredient—for example, 20% formalin with 5% borax and 5% glycerin in water. In an average case rather more than 2 gallons (9 litres) of the fluid will be required.

Injectations are made into the arterial system, the arteries selected being the femorals, the brachials, and one of the common carotids. After the arteries and their corresponding veins are exposed, the injections are directed towards the distal extremities of the limbs and, in the case of the common carotid first towards the head and then towards the heart. Penetration is promoted by gentle massage and by flexing and extending the limbs. A satisfactory degree of permeation is indicated by a venous return of the embalming fluid and by a progressive firmness of the part of the body under consideration. The fluid is best introduced into the arteries under pressure through a cannula from a cistern raised about 6 ft (1.8 m). Alternatively, a syringe of the Higginson type may be used but no attempt should be made to force or hasten the injection.

After the arterial injections are completed and after allowing an interval of some hours if possible, further fluid is introduced into the pleural and peritoneal cavities by means of syringe and needle. If there is any aggregation of serous fluid in the pleura, this should first be aspirated, and, similarly, an attempt should be made to remove any fluid or gas from the abdomen. Permeation of the preserving fluid is aided by gentle kneading of the abdomen during and after the injection. Alternatively, the abdomen may be opened and the entire thoracic and abdominal contents removed. They are then washed and placed in alcohol for 24 hours before returning them to the body. In the meantime the cavity walls should be dried as thoroughly as possible. Further injections should then be made into any parts of the body which by their softness indicate an inadequate penetration of fluid. Finally, the entire skin surface, or at all events those parts which will remain exposed, should receive a liberal application of an ointment consisting of 10% thymol in petroleum jelly to prevent the growth of moulds.

There are of course many modifications, some departing slightly, some considerably, from the procedure described. The vascular system may be flushed out by an initial transfusion of saline, for example, and sometimes both carotid arteries are injected instead of only one. A single point of injection, usually into the axillary or femoral artery, may be preferred to the four-point method suggested above, and all the cavity injections, thoracic and abdominal, can be made by means of a long trocar inserted at the umbilicus. Where it is desired to avoid any suggestion of a post-mortem examination the evisceration method will obviously be inapplicable. But the principles are the same in all cases, and the suggested methods, if carefully and thoroughly carried out, will ensure the preservation of the body for very considerable periods even in warm climates. Professional embalmers employ additional means to

provide or procure a pleasant and lifelike colouring and appearance, but even without such additions the results of straightforward methods are often very satisfactory even in these respects

### Haemophilia

**Q**—A healthy woman who comes of haemophilic stock—two brothers were severely afflicted and died of the disease and there is ample earlier family history—has a healthy little daughter. Is it possible to tell whether the child is a carrier?

**A**—Haemophilia is due to a recessive gene carried on the X-chromosome. A woman who carries the gene on one of her X-chromosomes is outwardly normal, but will pass on the chromosome with the abnormal gene to half her children on the average. Of the children who receive it the daughters will be outwardly normal carriers like their mother, but the sons will be haemophiliacs, for they possess but one X-chromosome and there is nothing to oppose the action of the abnormal gene. The mother of this woman was a carrier, as is shown by the birth of two haemophilic sons. The chance that she is also a carrier is one in two, and so the chance that her daughter is a carrier is one in four.

An important study by Andreassen carried out during the war (*Opera ex Domo Biologicae Hereditariae Humanae Universitatis Hafniensis* vol 6 Einar Munksgaard, 1943) indicates that the gene may not after all be perfectly recessive, for he was able to demonstrate a delayed coagulation time in carrier women. In his series there was no overlapping, the shortest carrier time exceeding the longest control time by half a minute. Andreassen's work was discussed in a recent annotation (*British Medical Journal* 1948, 1, 697). It is greatly to be hoped that this technique will prove equally successful in the hands of other serologists, and that it will become available in this country. When this happens it should be possible to decide, at least in the great majority of instances, whether women from haemophilic families carry or do not carry the abnormal gene.

### Chronic Lymphatic Leukaemia

**Q**—What is the latest treatment for chronic lymphatic leukaemia? Are urethane and radioactive preparations of value?

**A**—Urethane has been used quite widely in the treatment of chronic lymphatic leukaemia with a fair degree of success. The general impression is that this method of treatment is almost as effective as x-ray therapy and is much cheaper. Another advantage is the general availability of the drug. 3–5 g a day may be given until a satisfactory response has been obtained. It should be stopped when the white cell count falls to, say, 40,000 per cmm. Radioactive phosphorus,  $P^{32}$  has been used, about 1–2 millicuries being injected intravenously on the first day and followed by 0.5–1 millicurie at intervals of three or four days, and then, after some four doses have been given, by 0.5–1 millicurie a week until the white cell count falls to, say, 30,000 per cmm. The general opinion is that  $P^{32}$  offers no advantage over deep x-rays as a form of therapy except for those suffering unduly from irradiation sickness. More recently pteroyl triglutamate has been introduced, but no reports of its efficacy are yet available.

### Hypertension and Flying

**Q**—A woman aged 55 suffering from hypertension (B.P. 250/150) wishes to fly to Canada. Is her hypertension a contraindication to this?

**A**—Oxygen should be available if this patient flies above 10,000 ft (3,050 m). The hypertension need not preclude her from a transatlantic flight unless there are other complications. The stresses are unlikely to be as great as those of a sea passage when the water is rough.

### Penicillin Inhalation for Bronchiectasis

**Q**—What strength and volume of penicillin should be used for inhalation therapy in a patient who has advanced bronchiectasis?

**A**—A usual dose is 100,000 units dissolved in 3 ml of water administered twice daily. A suitable inhaler must produce an extremely fine mist which will penetrate to the lungs, and must be fitted with a face-mask.

## NOTES AND COMMENTS

**Promamide in Leprosy**—Dr GORDON A. RYRIE, Medical Secretary of the British Empire Leprosy Relief Association, writes: "There is a printer's error in the July 24 issue of the *Journal* under the title 'Any Questions' (p. 235). This occurs in the answer regarding 'Promamide in Leprosy'. The dosage is given as '0.3 g daily intravenously'. This should read '3.0 g daily'. In the experience of American workers who have had most experience of this drug the dose can be safely raised to 5 g per day under the same conditions as described in your answer. The treatment of leprosy is fraught with considerable difficulty and may have untoward results in relatively inexperienced hands. In the treatment of any case of leprosy in this country it is probably desirable to seek the advice of the medical consultants of this Association."

**Treatment of Ringworm**—Dr P. M. R. HEMPHILL (Ardglass, Co. Down) writes: "In your answer to the recent question about animal ringworm in farm workers (May 1, p. 865), you never mentioned treatment with the old favourite, Whitfield's ointment, neither did the questioner try this apparently. Recently I have had several cases of this condition in farm workers, some of them severe, with a fierce follicular pustular reaction as you describe, and have achieved rapid healing using Whitfield's ointment spread thickly with a knife on lint strapped over the area, usually the wrist or lower forearm, the dressing being changed daily. This is nothing new, but it may be of some little interest."

**Princess Tsa-hai Hospital Appeal**—The Princess Tsa-hai Memorial Hospital in Ethiopia is appealing for a further £20,000 for the purchase of equipment in Britain. Donations will be gratefully received by the Hon. Treasurer, Lord Horder, c/o H. Reynolds and Co., Hon. Accountants, 1, Bloomsbury Court, High Holborn, London, W.C.1.

### Corrections

Dr F. R. Berridge (Cambridge) has asked us to make it clear that the cases he saw in Germany (*Journal* July 17, p. 163) had no evidence of vitamin deficiency. The reference to vitamin deficiencies in the report of his paper, read in the Section of Radiology, concerned changes seen in the small intestine in other states of malnutrition and in patients other than the German series. The reference to "100 g of barium sulphate suspended in 100 ml of normal saline" should have read "150 ml of normal saline."

Dr J. F. Goodwin, Sheffield, writes: "My attention has been drawn to a possible source of confusion to readers in the first table contained in my paper on liver function during thiouracil therapy (July 10, p. 64). The words 'before first test' should be removed from the heading 'Duration of treatment before first test'. The time at which the first test was performed can be ascertained from the column headed 'When first test performed'. Type of abnormality. In addition, Cases 3 and 6 should read 22 months and 10 months respectively 'after stopping treatment' instead of 'after starting treatment'. Case 16 should read 'after 20 months' treatment T.A. positive (4 months before stopping treatment)."

In the annotation on Remuneration of General Practitioners (July 17, p. 143) it is stated in the third paragraph: 'Apart from this central fund, however, there will be an additional amount to be distributed of over £4 million, or approximately £200 per general practitioner in the Service. Furthermore, over and above the capitation fee there will be available to general practitioners income from any one or more of the following sources.' The word 'furthermore' should be deleted. The sources from which income will be available to general practitioners in addition to the capitation fee represent in the aggregate a sum of over £4 million. The main sources were listed in the annotation but the list is not exhaustive.

In our report last week of the meeting of the Section of History of Medicine of the Royal Society of Medicine the last line but one in column two on page 221 should read "Liston's first public operation under ether."

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: Allotory, Westcott London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 31 1948

## PAY-BED ACCOMMODATION

### FEES PAYABLE BY PRIVATE PATIENTS

*The National Health Service (Pay-Bed Accommodation in Hospitals etc.) Regulations 1948 No 1490 were laid before Parliament on July 1 and came into operation on July 5. We print them below.*

The Minister of Health, in exercise of his powers under sections 4 and 5 of the National Health Service Act, 1946 (a), and of all other powers enabling him in that behalf, hereby makes the following regulations:

1 These regulations may be cited as the National Health Service (Pay-Bed Accommodation in Hospitals, etc.) Regulations, 1948, and shall come into operation on the 5th day of July, 1948.

2 (1) In these regulations, unless the context otherwise requires, the following expressions have the respective meanings hereby assigned to them:

'The Act' means the National Health Service Act 1946,  
'The average daily cost per in-patient' means the average daily cost per in-patient of the maintenance of the hospital and the staff thereof and the maintenance and treatment of the in-patients therein,

'Specialist' means a medical practitioner appointed to a hospital for the purpose of practising a special branch of medicine with full responsibility for the treatment of patients or the carrying out of clinical, pathological or ancillary methods of investigation,

'The Minister' means the Minister of Health.

(2) Where any charge authorized to be made by the Minister under these regulations for accommodation or services includes a fraction of a shilling that fraction shall be disregarded if it represents less than sixpence, but otherwise it shall be reckoned as one shilling.

(3) The Interpretation Act, 1889 (b), applies to the interpretation of these regulations as it applies to the interpretation of an Act of Parliament.

#### Charges for Accommodation in Single Rooms or Small Wards

3 The charge to be made by the Minister under section 4 of the Act for accommodation in a single room or small ward in a hospital shall be:

(a) for accommodation in a single room, six shillings a day or any part of a day,

(b) for accommodation in a small ward with two or more beds, three shillings a day or any part of a day.

Provided that if in the latest financial year for which information is available the average daily cost per in-patient in the hospital as calculated by the Hospital Management Committee or Board of Governors was less than twenty-four shillings the said charges shall be reduced proportionately.

#### Charges for Private Accommodation

4 The charge to be paid under section 5 (1) of the Act in respect of the accommodation and services provided for an in-patient in special accommodation set aside under that section for patients who undertake, or in respect of whom an undertaking is given to pay such charges as are therein mentioned shall be for each day or any part of a day the standard daily charge as determined in accordance with the provisions of the next following regulation, but subject to any deduction which may be required to be made under regulation 6.

5 The standard daily charge for the purpose of regulation 4 shall be determined in manner following:

(1) If the Board of Governors or Hospital Management Committee are in possession of data which enable them to estimate for the current financial year the total cost of the maintenance of the accommodation set aside in a hospital under section 5 (1) of the Act and the maintenance and treatment of the patients treated therein, the standard daily charge to be made in respect of each in-patient shall be determined by reference to the nature of the accommodation occupied by that patient, so however that the total of the standard daily charges fixed in respect of the various types of such accommodation will so far as can be calculated cover in the financial year the total cost above mentioned.

(2) If the Board of Governors or Hospital Management Committee are not in possession of such data, the average daily cost per in-patient during the said financial year at the hospital is estimated by the Board or Committee, increased by twenty-five per centum in case of a single room, fifteen per centum in case of a double bedded room, or five per centum in case of a room containing more than two beds, shall be the standard daily charge.

6 If an in-patient occupying special accommodation set aside under section 5 of the Act makes arrangements under subsection (2) of that section for treatment by a medical practitioner as a private patient there shall be deducted from the standard daily charge—

(1) Where the practitioner is a specialist, an amount representing the average daily cost per in-patient as estimated by the Board of Governors or Hospital Management Committee of the remuneration of the specialists on the staff of the hospital during the financial year, and

(2) Where the practitioner is a general medical practitioner an amount representing the average daily cost per in-patient as estimated by the Board of Governors or Hospital Management Committee of the remuneration of the whole of the medical staff of the hospital during the financial year.

7 The charges to be paid under section 5 (1) of the Act in respect of accommodation and pathological, radiodiagnostic, radiotherapeutic or physiotherapeutic services provided for a patient who makes arrangements under subsection (2) of that section with a specialist for treatment as an out-patient shall in the case of those services described in the First Schedule to these regulations be the charges specified therein.

Provided that, if the Board of Governors or Hospital Management Committee are satisfied on data in their possession that the cost of the accommodation and any radiodiagnostic or radiotherapeutic services is greater or less than the charge so specified, they may make such adjustment of the charge as may be required to secure that it is designed to cover the cost thereof.

#### Medical Fees Payable by Private Patients

8 The charges to be made and recovered by a medical practitioner in respect of the treatment of his private patients in pursuance of arrangements made under section 5 (2) of the Act shall not in the case of any treatment described in the Second Schedule to these regulations exceed the charges specified therein or in the case of treatment not so described the charge so specified in respect of the treatment which approximates most nearly to the one in question. Any question arising as to the proper classification of any treatment shall be determined by the Minister.

Provided that if the total of the maximum charges which might under the foregoing provisions of this regulation be made by all the medical practitioners concerned in respect of one series of treatments of a patient for relief of the same

condition exceeds 75 guineas the amount of the maximum charge which may be made for any treatment in that case by any medical practitioner under this regulation shall in the case of each medical practitioner concerned be an amount bearing the same proportion to the appropriate charge specified in the said Schedule as 75 guineas bears to the total of the maximum charges referred to above

Provided also that if the Board of Governors or Hospital Management Committee are satisfied that the patient or some person acting in his behalf has agreed with the practitioner to pay charges in excess of those so specified they may, subject to the provisions of the next following regulation, give notice to the practitioner and the patient or the person acting in his behalf that the limitation on charges imposed by this regulation shall not apply to that case

9 The Board of Governors or Hospital Management Committee shall secure as far as may be reasonably practicable that not more than fifteen per centum of the accommodation made available in a hospital for the purposes of section 5 (2) of the Act is occupied at any one time by patients in respect of whom the limitation on charges has been removed under the last preceding regulation

Provided that if such accommodation comprises less than twenty beds three beds may be so occupied

### FIRST SCHEDULE

#### Hospital Charges to Private Out-patients

1 *Pathology*—(i) For single examinations involving less than 1 hour bench work, 7s 6d, (ii) For multiple and more complicated examinations, 15s

2 *Radiodiagnosis*—Group 1 One extremity, teeth one area foreign body, demonstration of, gall bladder, plain, spine, one area, jaws abdomen, plain, salivary glands, pelvis, chest, without screening, £1

Group 2 Foreign body, localization of all teeth, extremities, several areas, chest, with screening, urinary tract, plain, pregnancy, pelvimetry, cephalometry, mastoid and petrous temporal bones, sinuses, skull, cystography urethrography abdomen screening, cholecystography, cholangiography, fistula, injection of contrast medium, £1 10s

Group 3 Localization of foreign body in eye spine, more than one area, tomography kymography, barium meal, oesophagus, barium meal, stomach and duodenum, barium enema, hysterosalpingography, arthrography, sialography, £2

Group 4 Full barium meal, angiocardiology, arteriography, venography, bronchography, ventriculography, encephalography, myelography, £3

3 *Radiotherapy*—For each treatment, 15s

4 *Physiotherapy*—For single treatments, 7s 6d For compound or multiple treatments in one day, 15s

### SECOND SCHEDULE

#### Medical Fees Payable by Private Patients

(a) *In relation to the services of a specialist*

##### 1 Surgeon

(i) Cases involving operation For all services rendered including operation and any necessary attendances and including operations for the implantation of radium or radon seeds—Major operation, 50 guineas Intermediate operation, 25 guineas Minor operation, 10 guineas, provided that if more than one operation is required for relief of the same condition the total fees charged in respect of operations of all classes shall not exceed 75 guineas (For the purpose of this Schedule, 'major,' 'intermediate,' and 'minor' operations are the operations respectively so described in the Third Schedule to these regulations and any other kind of operation which the Minister may from time to time by order classify as falling under one of those headings)

(ii) Cases not involving operation For the first consultation, 5 guineas For the first two days of attendance (including first consultation), 10 guineas For each subsequent day of attendance or consultation, 1 guinea Provided that the above charges shall not together exceed 25 guineas

##### 2 Obstetrician

(i) For booked cases, whether normal or abnormal, including all attendance in the antenatal and post-natal periods, and during labour, and including caesarean section, where necessary, 50 guineas

(ii) Obstetric emergencies, 40 guineas

3 *Physician and any other consultations and attendances not specifically mentioned elsewhere*

For the first consultation, 5 guineas For the first two days of attendance (including first consultation), 10 guineas For each subsequent day of attendance or consultation, 1 guinea Provided that the above charges shall not together exceed 25 guineas

##### 4 Psychiatrist etc

Deep insulin therapy, full course, 75 guineas Modified insulin therapy, electric convulsion treatment, electronarcosis, for each treatment, 3 guineas Special individual psychotherapy, i.e., various analytic methods, narcoanalysis, first consultation or attendance, 5 guineas, subsequent consultations or attendances, 3 guineas each Other cases First consultation or attendance, 5 guineas Subsequent consultations or attendances, 2 guineas

##### 5 Anaesthetist

For each operation, 2 guineas, plus 10% of the surgeon's fee

##### 6 Pathologist

(i) For examination and report Single examinations involving less than 1 hour bench work, 1½ guineas Multiple and more complicated examinations, 3 guineas

(ii) Examinations with clinical consultations, 5 guineas

##### 7 Radiologist

Group 1 One extremity, teeth one area, foreign body, demonstration of, gall-bladder, plain, spine, one area, jaws, abdomen, plain, salivary glands, pelvis, chest, without screening, 2 guineas

Group 2 Foreign body, localization of, all teeth, extremities, several areas, chest, with screening, urinary tract, plain, pregnancy, pelvimetry, cephalometry, mastoid and petrous temporal bones, sinuses, skull, cystography, urethrography, abdomen screening, cholecystography, cholangiography, fistula, injector of contrast medium, 3 guineas

Group 3 Localization of foreign body in eye, spine, more than one area, tomography, kymography, barium meal, oesophagus, barium meal, stomach and duodenum, barium enema, hysterosalpingography, arthrography, sialography, 4 guineas

Group 4 Full barium meal, angiocardiology, arteriography, venography, bronchography, ventriculography, encephalography, myelography, 6 guineas

##### 8 Radiotherapist

For each treatment, 3 guineas, up to a maximum of 25 guineas

9 *Long-stay cases other than psychiatric* 2 guineas a week in addition to any fees payable in respect of surgical operation

(b) *In relation to the services of a medical practitioner other than a specialist*

Any surgical operation including all attendances and other services rendered, 7 guineas For each consultation or day of attendance 15s up to a maximum of 15 guineas

### THIRD SCHEDULE

#### SURGICAL OPERATIONS

##### Major

Abscess of brain	Gastrectomy
Acute appendicitis	Gastro enterostomy
Amputations at hip	Harelip
Amputation of penis (total)	Hernia (strangulated)
Amputations at shoulder	Hydatid of lung or liver
Amputation through thigh	Implantation of radium or radon seeds in the cranium, chest, abdomen, or bladder
Any operation involving intestinal suture	Laminectomy
Biliary fistula	Meningeal haemorrhage
Carcinoma of the colon	Nephrectomy
Cholecystectomy	Perforated ulcer of the alimentary tract
Cholecystenterostomy	Plastic operations requiring tubular graft
Cleft palate or radical operation for malignant growth of palate	Prefrontal leucotomy
Closure of faecal fistula or artificial anus	Prostatectomy
Complete prolapse of rectum involving laparotomy, colostomy, or intestinal anastomosis	Pyelo or nephro lithotomy
Complicated fistula	Radical removal of breast
Cystectomy	Rammstedt's operation
Depressed fracture	Removal of stone from ureter
Diverticulitis	Rupture of bladder
Double inguinal hernia	Rupture of urethra
Drainage of bile ducts	Splenectomy
Epithelioma of the anus	Subphrenic abscess requiring transthoracic or transperitoneal access
Epithelioma of the tongue with radical operation upon the glands	Sympathectomy
Excision of larger joints	Thyroidectomy for toxic or exophthalmic goitre
Excision of rectum	Transplantation of ureters
	Tumour of the brain

## Intermediate

Abscess of prostate  
Adenoma of thyroid  
Amputation of limbs, save fingers and toes (minor) and thigh, shoulder, and hip (major)  
Amputation of penis (partial)  
Appendicitis (non acute)  
Castration  
Diathermy to growths of tongue or mouth  
Diathermy to growths of bladder (First time intermediate, afterwards minor)  
Drainage of gall bladder  
Empyema  
Enterotomy, colotomy, colostomy  
Epithelioma of lip with excision of glands in submandibular region  
Excision of cysts or tuberculous glands of neck (deep to deep fascia)

Fistula in ano  
Gastrostomy  
Gastrotomy  
Grafting with tube grafts  
Haemorrhoidectomy  
Hernia—inguinal, femoral, umbilical, or ventral (simple)  
Hydrocele (radical)  
Imperforate anus  
Implantation of radium or radon seeds, except where included under "major or minor"  
Injection for pruritus ani  
Intussusception not requiring intestinal suture  
Peritonitis (tuberculous, pneumococcal)  
Prolapse of rectum  
Radical operation for anal fissure  
Sacrococcygeal dermoid sinus  
Rectal polyp  
Simple removal of whole breast  
Suprapubic cystostomy

## Minor

Abscess  
Amputations of fingers or toes  
Any condition treated by surgical diathermy under general anaesthesia, other than mouth, or tongue or bladder  
Aspiration of cerebral cyst  
Blood transfusion (Grouping and expenses of donor extra)  
Cystoscopy  
Dilatation of anus for fissure  
Dilatation of rectal stricture  
Dilatation of urethra  
Division of fibrous anus  
Examination under anaesthetic  
Hydrocele (injection)  
Implantation of radium or radon seeds for treatment of a skin tumour  
Injection of Gasserian ganglion

Ischiorectal abscess  
Lupus  
Naevi, except in severe cases  
Plastic operations not requiring a tube graft and of a simple kind  
Pyelography (not including services of radiologist)  
Removal of anal warts and anal papillae  
Removal of needles from hand or foot or elsewhere  
Rodent ulcer not involving bone or eye  
Sebaceous cysts  
Skin grafting  
Tuberculous caseous glands of neck (curettage)  
Varicocele

## GYNAECOLOGICAL OPERATIONS

## Major

*Vulvo-Vaginal*  
Anterior and posterior colporrhaphy  
Any vaginal operation when combined with coeliotomy, viz., colpoperineoplasty with ventrofixation  
Radical excision of vulva and glands

Repair of vaginal fistulae  
*Uterus and Adnexa*  
Cyst of the broad ligament  
Hysterectomy  
Salpingectomy (acute inflammation, complicated pyo- or hydro salpinx, extrauterine gestation)

## Intermediate

*Vulvo-Vaginal*  
Colpoperineoplasty  
Colporrhaphy  
Perineorrhaphy  
*Uterus and Adnexa*  
Dilatation with intrauterine operations  
Evacuation of retained products

Simple myomectomy  
Simple ovariectomy  
Simple salpingectomy or salpingostomy (chronic)  
Simple ventrofixations  
Simple ventrosuspension  
*Cervix*  
Trachelorrhaphy and amputation

## Minor

*Vulvo-Vaginal*  
Circumcision  
Clitoris, prolapsus urethrae  
Colpomy  
Cysts or simple tumours  
Relief of atresia vaginae  
Removal of caruncle

*Uterus and Adnexa*  
Induction of radiation menopause  
Curettage  
*Cervix*  
Biopsy of endometrium  
Dilatation  
Insufflation  
Removal of polyp

## EAR, NOSE, AND THROAT OPERATIONS

## Major

All operative treatment of malignant disease  
Bronchoscopy (operative)  
Excision of larynx  
Excision of upper jaw  
External operations on the sinuses and radical operations for tumours of sinuses  
Intracranial complications such as cerebellar abscess

Laryngo fissure  
Ligature of jugular vein and opening of lateral sinus  
Oesophagoscopy (operative)  
Pharyngotomy  
Plastic operations requiring a tube graft  
Radical mastoidectomy

## Intermediate

Diagnostic bronchoscopy  
Diagnostic oesophagoscopy  
Intranasal operations  
Laryngoscopy (operative)

Removal of tonsils by dissection without use of guillotine (18 years and over)  
Simple mastoidectomy  
Simple tracheotomy

## Minor

Diagnostic laryngoscopy  
Guillotine removal of tonsils (18 years and over)  
Opening of quinsies  
Opening of retropharyngeal abscesses

Paracentesis  
Plastic operations not requiring a tube graft  
Reduction of deformity, fractured noses, and facial bones  
Simple removal of facial polyp

## OPHTHALMIC OPERATIONS

## Major

Corneal grafting  
Detachment of retina  
Exenteration of orbit  
Extraction of senile cataract  
Glaucoma, acute or chronic  
Iridectomy  
Kronlein's operation

Operation for dislocated lens  
Ptosis  
Reconstruction of eyelids  
Removal of intraocular foreign body  
Removal of intraorbital tumours  
Strabismus

## Intermediate

Conical cornea  
Corneal abscission or tattooing  
Corneal wound  
Epicanthus  
Excision of lacrimal sac, all methods  
Excision of rodent ulcer  
Excision or evisceration of eyeball  
Exploration of orbit

Lacrimal abscess  
Needling capsule after senile cataract  
Needling juvenile cataract  
Orbital abscess  
Paracentesis  
Radon applications for neoplasm  
Trichiasis

## Minor

Canaliculus and lacrimal duct exploration  
Cauterization of corneal ulcer  
Chalazion  
Ectropion  
Entropion

Excision of pterygium  
Peritomy  
Removal of dermoid  
Removal of foreign body embedded in cornea  
Suturing lid wounds

## ORTHOPAEDIC OPERATIONS

## Major

Amputation through thigh  
Congenital club-foot  
Congenital dislocation of the hip  
Disarticulation of the hip and shoulder  
Excision of cervical rib  
Excision of larger joints  
Internal derangement of the knee and other joints  
Laminectomy  
Open reduction of fractures  
Operative treatment of compound fractures  
Radical operations for bone tumours  
Reconstructive operations on bones and joints  
arthrodesis  
arthroplasty  
bone grafts

Repair of intricate tendon injuries  
Secondary nerve sutures  
Severe congenital and acquired deformities requiring open correction  
Spina bifida  
Tendon transplantation  
Other orthopaedic operations requiring an equivalent degree of surgical skill  
Note—Charges for the above operations to include the immediate mechanical after-treatment and subsequent changing of splints and plasters (with or without anaesthesia)



**Intermediate**

Amputation of limbs, save fingers and toes (minor) and thigh, shoulder, and hip (major)	Manipulation of larger joints
Closed reduction and fixation of fractures involving joints or shafts of larger bones	Open correction of simpler deformities
Emergency operations for acute osteomyelitis and acute suppurative arthritis	Hallux valgus
Excision of bursae communicating with larger joints	Hallux rigidus
	Pes cavus
	Torticollis
	Primary nerve and tendon repairs
	Other orthopaedic operations requiring an equivalent degree of surgical skill

**Minor**

Amputation of toes and fingers	Manipulation of smaller joints
Application of plaster-of-Paris casts with or without anaesthesia	Removal of exostoses
Hammer toe	Removal of small bursae
	Simple manipulation or tenotomy and plasters

## TRANSFER AND COMPENSATION REGULATIONS

The National Health Service (Transfer of Officers and Compensation) Regulations, 1948, which the Minister of Health has made under Section 68 of the National Health Service Act, 1946, and which have been issued with Ministry of Health Circular 124/48 of July 3, will concern whole-time medical and lay officers of public health or hospital staffs who on July 5 were transferred from the service of a local authority to that of a local health authority or from municipal or voluntary hospital service to that of the regional hospital boards. They concern also whole-time officers of hospitals, insurance committees, and other bodies which now become part of the National Health Service, or those who gave part of their whole time to hospitals which are now transferred or for functions which ceased or were transferred on the appointed day. The regulations do not, however, concern part-time officers—for instance, general practitioners who gave part-time service to local authorities for welfare clinic work, vaccination or immunization, and so on.

**Transfer**

Regulation 6, which lays down eligibility for transfer from a local authority to a local health authority, is quite clear in its effect on departmental medical officers of the metropolitan and non-county boroughs or county districts which have hitherto been welfare authorities, but is not so clear in its application to the medical officers of health of such minor authorities. The wording is:

"All officers who immediately before the appointed day were employed by the Common Council of the City of London, the council of a metropolitan borough or the council of a county district solely or mainly for the purposes of functions transferred from that council on consequence of the Act to a local health authority shall on that day be transferred to and become officers of that authority."

There may clearly be some uncertainty arising from the word 'mainly' in the case of an M.O.H. much of whose time has hitherto been devoted to administrative and clinical work in maternity and child welfare. The only criterion of the proportions of his various duties may be the allocation of his salary by percentages to public health, maternity and child welfare, school health duties, and perhaps an infectious diseases hospital. As the Society of Medical Officers of Health has pointed out to the Ministry, these percentages are not a very reliable guide, since they have often been arbitrarily fixed according to the policy of the local authority in grant matters. Indeed, it could appear that, if more than 50% of his salary had been allocated to a function transferable under the Act, the M.O.H. would be automatically transferred to the service of the local health authority in whose county area his borough or district was. This is clearly not the intention, and the Society

suggested to the Ministry that, whatever the proportional allocation of his salary, an M.O.H. should be regarded primarily as an M.O.H., the statutory office in which he has security of tenure. In practice it is believed that some county councils have proposed to their boroughs or districts that the services of their M.O.H. should be lent to the county for maternity and child welfare or other Part III functions on a repayment basis. This procedure will leave the M.O.H. concerned as officers of the borough or district in the same way as borough S.M.O.s in "excepted districts" for school health service purposes. It will also, however, preclude the M.O.H. from entering the new National Health Service superannuation scheme. If, on the other hand, he is definitely appointed as divisional or assistant county M.O. for more than half of his time, he would appear to be eligible under Regulation 39 (3) of the Superannuation Regulations to enter the new scheme if he so wishes.

All appeals regarding transfer as distinct from questions of eligibility for and the assessment of compensation should be made to the Minister (Regulation 9).

**Grounds for Compensation**

Regulation 10 provides that every existing officer (eight years' service is the qualifying period) "who suffers loss of employment or diminution of emoluments which is attributable to the passing of the Act shall be entitled to have his case considered for the receipt of compensation under these regulations" (to be determined in accordance with provisions of the Schedule).

The above general statement is subject to the following conditions set out in Regulation 11:

"Nothing in the last preceding regulation shall entitle a person to have his case considered for compensation unless

(a) the cause of the claim to compensation arises not later than ten years after the appointed day, and the claim is made not later than two years after the date on which the cause of claim arises, and

(b) (i) his office is abolished and he is not offered a reasonably comparable office in the Government service or the local government service or under any body constituted under the Act, or (ii) his appointment is determined because his services are not required or because his duties are diminished (no misconduct being established), or (iii) his emoluments are diminished.

Provided that for the purposes of this regulation a person shall not be deemed to have been offered an office which is not reasonably comparable with an office which is abolished by reason only of the fact that the duties of the office offered are duties in relation to the administration of a different service from that in connexion with which his office was held or the duties which involve a transfer of his employment from one place to another within England or Wales."

Debatable points are likely to be the interpretation of the words "reasonably comparable office" in (b) (i) and the first alternative in the proviso, that the offer of duties in the administration of a different service shall not be deemed unreasonable and therefore a ground for compensation. It may be assumed that a senior assistant medical officer who has been engaged in the administration of a non-county borough's maternity and child welfare service might have a claim for compensation if he or she were assigned to purely clinical duties in the county council's maternity and child welfare service, but would not have a claim if he or she were given administrative duties in the county's school health service. The second alternative in the proviso, in the case of a public health medical officer transferred from a non-county borough or district to the county council in whose area he works, means only that it is not a ground for compensation if he is moved to duties in a different part of the county. In the case of a hospital medical officer he would have no claim against transfer to any other part of England and Wales, but this is not a very likely contingency.

**Procedure and Assessment of Compensation**

An officer who decides that he has a claim for compensation will have to make it in a form approved by the Minister and deliver it to the compensation authority, which is defined as follows:

(a) where the claim is by an officer of a county or county borough council or by an officer of a local authority who suffers through the transfer of functions to the local health authority, the county or county borough council,

(b) where the officer suffers by the cesser (coming to an end) of any function of his authority, that authority

(c) where the officer is employed by a committee or joint board which is dissolved by section 78 (1) of the N.H.S. Act the local authority which appointed the committee or one of the constituent authorities of the joint board

(d) in any other case (e.g. a medical officer in a hospital or in the tuberculosis or V.D. services which are transferred to the regional hospital board), the Minister

Any dispute as to which is the compensating authority will be determined by the Minister, or if he is a party to the dispute by the Treasury

The compensating authority have to consider any claim forthwith and notify the claimant within one month from the receipt of the claim if they are not satisfied that he is eligible under Regulations 10 and 11. They must likewise notify the claimant within three months of their decision and assessment of compensation if he is considered eligible. If the claimant is dissatisfied with a refusal to admit the eligibility or with the compensation assessed he may refer the matter to a tribunal appointed by the Minister of Labour in consultation with the Lord Chancellor which may co-opt an assessor with special knowledge or experience on the subject matter.

The first stage of compensation will consist of an interim payment (not exceeding two-thirds of the loss of remuneration) for a period not exceeding three months from the date of claim while suitable alternative employment is being sought and the claim investigated. This interim payment is only payable on loss of employment, not on diminution of emoluments. During this stage the claimant may be required to attend before the compensating authority or the Minister's representative, and may file with him a representative empowered to state his case (Schedule 1 and 2). The interim payment will cease if he finds other employment or if the compensating authority are satisfied that he is not actively seeking employment or has unreasonably refused suitable alternative employment (Schedule 5 (3)).

The second stage if the claim is admitted, will be the annual payment until normal retiring age is reached of one-sixtieth of the net emoluments lost for each completed year of service, plus a further one sixtieth for each completed year since reaching the age of 45 if the claimant is over that age at the date of the loss up to a maximum of two thirds of the emolument lost, but again any other remuneration obtained or offered will be set off against the compensation payment (Schedule 9 (2) Proviso). In assessing compensation the relative security of tenure of the employment lost and of new employment obtained has to be taken into account.

Within two years after the decision is notified by the compensating authority or the tribunal the former may review their decision or that of the tribunal and increase or decrease the compensation in the light of any material change in the case. The claimant also has a right to require a review within the same period and to refer the decision to the tribunal if he is dissatisfied. If at any time the officer obtains employment remunerated from public funds the amount received will be counted against his compensation payment, and he has to notify the compensating authority (Schedule 37 and 38). Successful claimants have an option to retain any existing rights as to widows' pensions.

Claims for compensation for diminution of emoluments will be dealt with on lines similar to those for loss of employment but there will be no interim payments and no claim will be admitted where the diminution is less than 5% of the net emoluments of the claimant (i.e. = total remuneration less contributions to the superannuation fund). Compensation payable under this heading will be a proportion of that which would have been payable for loss of office not exceeding the proportion on which the sum lost bears to the previous remuneration for the whole employment (Schedule 29).

The third stage in the case of a pensionable officer is reached when he attains normal retiring age. The annual compensation payment then lapses and is replaced by (1) an annual payment for life equivalent to the accrued pension rights at the date of the cause of claim either in respect of the complete loss of office or in respect of the diminution of emoluments with provision for the compensating authority to give added years (up to 20 or such number as he could have normally served which-

ever is the less) if he was over 40 at the date of the cause of claim (Schedule 20) and (2) a lump-sum retiring allowance if the officer would normally have qualified for this.

For example a medical officer who lost office after 25 years' contributory service at age 57 and who fulfilled the requirements of the regulations would receive compensation as follows:

From age 57 to 65 37/60ths of the net emoluments for the lost office (25/60ths for actual years of service plus 12/60ths for year over age 45 at date of claim)

From 65 (normal retiring age) Up to 33/60ths (i.e. 25/60ths the pension which would have been payable if at the date of the loss he had attained normal retiring age, plus up to 8/60ths for added years at the discretion of the compensating authority)

A medical officer of the same age and service who had suffered diminution of emoluments by say £200 per annum could receive compensation calculated in the same way as a fraction of the £200 only.

## INSURANCE ACTS COMMITTEE

### ITS FUTURE DESIGNATION

A meeting of the Insurance Acts Committee was held on July 8 with Dr E. A. Gregg in the chair its first business being to consider the designation and constitution of the committee itself under the new set-up. The first question was about the organization of its electorate and whether the organization should be on parallel lines with that recently decided for the representation of consultants and specialists. Should the representation be on a regional-board or executive-council area basis? The opinion was stated that the regions, which cut across local-authority and executive-council boundaries, were ill adapted to the representation of general practitioners and that although the reconstituted committee would function for general practitioners in much the same way as the Consultants and Specialists Committee would function for its constituents there was no need to have parallelism in territorial representation. The number of specialists was relatively small and could not have local medical committees in the same sense as general practitioners could have them in executive-council areas.

At the same time the 'regional' idea found some support one member saying that he hoped the time would come when general practitioners would be associated much more closely with the hospitals and therefore unless the group machinery were shown to have great advantages over the regional he would support the latter if only for that reason.

The Secretary (Dr Charles Hill) pointed out that the regional method had one small administrative advantage in that there were to be on the regional consultants' committees representatives of the local medical committees in the region, otherwise the method had many disadvantages. He suggested that the existing arrangement which held good for the election of the Insurance Acts Committee should be continued for the present and a change made later if this was considered desirable.

It appeared that the majority of the committee were in favour of the present group system for election, based upon local medical committees the successors of the panel committees and this plan was agreed to on the understanding that it might be amended in the light of experience.

### Name of the New Committee

Various suggestions were put forward for the name of the newly constituted committee. One was that it be called the 'Central General Practitioners Committee,' which conveyed exactly what it would be. Another was 'Health Service General Practitioners Committee.' In the interests of brevity the term 'Central Medical Committee' found some favour but it was pointed out that such a committee would be presumed from its title to have a much wider field than in fact it would cover.

After some discussion it was agreed that the title should be the 'General Medical Services Committee.'

### Local Medical Committees

The committee then turned to the question of the constitution and election of local medical committees, a draft model scheme

of which had been put forward by the General Practice Sub-committee of the Negotiating Committee. General approval was given to this scheme, subject to the inclusion of a provision for a postal vote and to a reconsideration of a matter of procedure concerning the filling of vacancies. This model scheme has been circulated to local medical committees with an urgent request for early elections. It was agreed also to suggest to local medical committees that the power to co-opt additional members, which is proposed in the draft model scheme, might be used for the purpose of bringing in any medical member of the local executive council nominated by the committee.

### The Minister's Recent Speeches

Attention was drawn by Dr Wand to a speech by the Minister of Health at Preston on July 5, as well as on other occasions which contained a misleading reference to two million persons who had not yet 'registered,' and made some people believe that they were liable to a heavy fine if they did not place themselves on doctors' lists. Further, in a circular which an employee of a local authority had received it was stated that he must join a doctor's list because an official certificate would be required if he was absent from work owing to illness. Dr Wand urged that the utmost publicity should be given in the Press to the patient's rights in the matter of joining a doctor's list.

### Medical Cards

A protest was made by some members of the committee that the medical cards which were being issued did not give effect to any of the Medical Card Subcommittee's recommendations for alterations of wording.

The chairman explained that the new medical card was prepared some time before the subcommittee's proposals were made, but owing to the suspension of negotiations between the profession and the Ministry, the Ministry, stating that the matter was urgent, found itself compelled to proceed without awaiting their views. These views had since been communicated to the Ministry, but the printing of the card had already proceeded. After some discussion, in which several members made protests on the subject one of them pointing out that according to the instructions on the card a patient could change his doctor immediately he wanted to do so, the following resolution was adopted:

That the Insurance Acts Committee are dissatisfied with the results of their representations to the Ministry of Health on the subject of medical cards, and request the appropriate committee to press strongly for urgent revision of the "General Information" section of the medical card.

### Other Business

The committee expressed itself in agreement with a resolution from the Derbyshire Local Medical Committee that where it had memoranda, reports, etc., for submission to statutory bodies concerned with the national Service such documents should be submitted where possible to its constituent committees for approval or amendment.

The committee expressed itself in favour of a levy (voluntary or statutory) for the purpose of financing local medical committees.

The Rural Practitioners' Subcommittee was requested to formulate its views on the question of general practitioners in relation to specialist services rendered by them in cottage hospitals.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union, or other organization:

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Tottenham, WallSEND

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huryton-with-Roby, Portslade, Redditch (restricted to new appointments), Tyldesley

## HEARD AT HEADQUARTERS

### Clean Sheets

A pleasant but by no means a new compliment to National Health Insurance practitioners appears in the annual report, just issued, of the Ministry of Health. The report states that during the year under review the service continued to function efficiently and to meet requirements satisfactorily, as indicated by the small number of complaints made by insured persons and by approved societies against medical practitioners working the Act. During the year the sum of £119 was withheld from fourteen doctors for breaches of the terms of service. That £119 needs to be considered against the background of £15,200,000 which represents the remuneration of practitioners in England and Wales, and the fourteen substantiated complaints against the figure of eighteen and a quarter million people on practitioners' lists. During this same year no inquiry was called for in consequence of representations that the continuance of a practitioner in the service was prejudicial to the interests of the insured. It is a pretty good record. Hard things are still sometimes said about those who are still called "panel doctors," usually by those who have never been insured patients, and some of the prejudice carries over into the new Service, so that it is just as well to have it from the horse's mouth in Whitehall that, judged at any rate by this negative test, the service is a jolly good one.

### Dentists at Variance

A curious case occupied the Dental Board at its recent sitting and is worth putting on record. Two prominent dentists, having an address in the West End of London as well as in Hertfordshire were summoned before the Board on the complaint that they had advertised for the purpose of obtaining patients or promoting their professional advantage by the issue of a circular to a number of persons. The circular stated that "Mr — and Mr — wish to inform you that, under strong protest, but in the interests of the unity of the profession, they have finally acceded to the wishes of their colleagues in the locality and will in future be unable to accept National Health Insurance letters. To those patients, however, who would normally present such letters they will be happy to render their professional services at any of their surgeries on payment of a fee equivalent to the proportion which would have been paid by the patient under National Health Insurance." The complainants were nine other dentists, two of whom gave evidence, as did both the respondents. After a lengthy hearing and deliberation *in camera* the Board came to the conclusion that the facts alleged had not been proved to its satisfaction and discharged the case.

### The Plague of Initials

Mr Zachary Cope, in his address to the International Students' Clinical Congress, made an amusing reference to the manner in which the English language nowadays, including medical language, is contracted to initials. Initials, as he rightly said, are a dreadful form of language, and yet in medicine they flourish like weeds. Mr Cope gave the following example, which he did not claim to be authentic: "One of the members of the ISCC part of the IUS, who took the MRCS, LRCP, MB, BS, was a B1 at UCH, and although not C3 in health, but in fact almost A1, he wrote to the BMJ at the BMA asking if the MRC in UK or the NRC in US had notes on BCG in the treatment of TB." It was suggested that the proper answer was "O.K." The students at their congress, by the way, which lasted 17 days, spent a strenuous time. Their itinerary for just one day at Oxford was as follows: 10 a.m., lecture on analgesia in childbirth, 11.30, lecture on tuberculosis in the boot and shoe trade, 2.30 p.m., lecture on blood diseases, 5.0, lecture on blood coagulation, and then, after dinner in Magdalen Hall, three discussion groups on medical training.

Regulations have been made providing for interchangeability of service with preservation of superannuation rights between English and Scottish health services, and between either of two services and the Local Government Service and the Teaching Service.

## National Health Service News

### Compensation for Loss of Right to Sell Goodwill

The Ministry of Health states that doctors who retired from practice or the personal representatives of doctors who died between the date of the passing of the Act (Nov. 6 1946) and July 5 1948 and whose practices have not been sold in whole or part by July 5 1948 should make early application to the Secretary Medical Practices Committee Devonshire House, Mayfair Place, Piccadilly, W1 for a certificate that the conditions laid down in Section 37 of the Act are satisfied. If the conditions are satisfied a claim for compensation for the loss of the right to sell the goodwill of the practice may be made on a form which the committee will supply. The completed claim form must be sent to the Ministry of Health by Oct. 31 1948. Doctors on medical lists on July 5 1948 will receive a claim form from the local executive council for the area in which they reside. Any doctor who does not shortly receive his claim form should apply to his executive council.

### Doctors Dispensers

The Ministry of Health has had under consideration the position of doctors dispensers whose employment has terminated following the coming into operation of the National Health Service. Some of them have passed the examination of the Society of Apothecaries for assistants in dispensing, others have been trained in the R.A.M.C. or Royal Navy as sergeant compounder or sick berth petty officer, others have had long experience with doctors or in retail pharmacies. They may be regarded as capable of dispensing medicines in both retail and hospital practice under the supervision of a pharmacist.

Under the provisions of the Control of Engagements Order disguised dispensers will generally register for employment with the local offices of the Ministry of Labour and National Service who have made special arrangements for handling these cases. Hospitals and retail chemists who need the services of experienced assistants are therefore advised to notify any vacancies to the Ministry of Labour local offices.

## Correspondence

### Superannuation Scheme

SIR—I have read with considerable interest the article "Reflections on Superannuation" by Mr. A. N. Dixon (*Supplement* July 3 p. 23). This is a very excellent contribution on a subject which is undoubtedly puzzling a great number of practitioners.

In my capacity as Midlands branch manager of a life assurance company I received requests from a considerable number of our doctor policy-holders in the Midlands for clarification. An advisory service was opened to give advice to practitioners on the implications of the alternatives of the two schemes. Between June 20 and July 5 my staff and I had the opportunity of discussing this question with well over 100 doctors. The great majority were completely in the dark, because in certain cases they had not at that time received the official explanatory booklet, and also up to June 30 only one or two isolated practitioners had received the Form S.D.D. (Fortunately both these documents were in possession by June 24).

(1) Any practitioner who was not already paying the qualifying premium of £50 per annum had the afore-very limited time in which to make a decision to stay in or out of the scheme, and many will of course be reluctant to joining the State scheme compulsorily.

(2) In our discussions with doctors we have endeavoured to give them on somewhat the same basis as outlined by your correspondent, and as we are very anxious indeed to be completely fair in explaining the pros and cons accurately, the few certain points in your correspondent's could assist us by confirming.

(3) Your correspondent indicates a 2.5% tax relief on £54 only, but a premium of £150. Has the tax position been definitely fixed by the Inland Revenue authorities? If so on what basis is the 2.5% determined?

To satisfy the condition for opting out a policy of a suitable period can be either an endowment assurance or a deferred annuity contract. The Inland Revenue authorities do not normally allow relief of tax on deferred annuity contracts to individuals except through an authorized staff pension scheme; they do allow relief of tax on endowment assurances. To a doctor who has been paying a sufficient premium on an endowment assurance the Government will allow an amount equivalent to 8% of income which is the same amount as its contribution would be under the superannuation scheme. Is it maintained that a doctor with an endowment assurance must lose the greater part of the tax relief he was receiving before the National Health Service commenced while a doctor with a deferred annuity contract loses nothing? This is inconsistent with the Government's encouragement of the paying of life assurance premiums.

(b) There seem to be very divided opinions among these people who have given this matter considerable thought as to the income tax position. It would be in the interests of practitioners if the income tax position of both the employees' and employers' contributions were clarified by the Inland Revenue or authoritative information published in your *Journal*.

(c) In the list of tabulated figures Mr. Dixon quotes "a return after the first year of £72 after the 3rd year £223." I would like to ask Mr. Dixon if he has overlooked the fact that these contributions are returned with 2½% compound interest but less income tax, and with income tax at its present rate of 9s. in the £ these cash returns would be sadly reduced.

(3) In the tabulation figures in the article Mr. Dixon refers to the pension payable at the age of 65 from the capital proceeds of the life assurance policy. If this capital sum is used to purchase what is known as a split guaranteed annuity, the income would not only be guaranteed to the doctor for life but to his estate for certain for 10 years after age of 65, and he would also for the first 10 years enjoy a much reduced income tax charge. This method of pension is calculated in two parts: (a) return of the capital and (b) a deferred annuity. The capital return is not taxable, the interest portion only being taxable. This means that averaged over the 10 years about 7/8ths of the pension is free of income tax. There will be many cases where such a pension will provide a higher net income after age 65 than the pension under the superannuation scheme would do. The fact that this guaranteed annuity is payable for 10 years at least after age 65 is a most valuable safeguard for a dependant.

(4) Your correspondent dismisses the injury pension and benefits for incapacity very briefly because they "provide for contingencies so remote as to carry little weight in the general balance." These contingencies may be remote, but when permanent incapacity does occur it is the worst thing that can happen to a professional man. There are undoubtedly a great many doctors who are more concerned about providing for that contingency than they are about death itself. It is in fact, economic death. It could be argued that the chance of any particular house being burnt down is remote, but few neglect to take out fire insurance. It is well that the ordinary scheme makes some provision for incapacity in the later years. In any alternative arrangement the advisability of covering permanent incapacity in the earlier years is certainly worthy of consideration.

(5) As under the present regulations it is possible to provide a tax-free pension for a widow to cover all the years between death of the doctor and the retirement year (age 65) this deserves consideration by doctors who would like to close the greatest gap of all in the State superannuation scheme. At the end of this income-paying period the widow would have a lump sum with which to buy an annuity.

(6) The special benefits mentioned in parts 3, 4, and 5 are part of the modern developments of life assurance, and can be obtained from most of the progressive life offices.

(7) It is felt that the decision to accept the scheme or to "opt out" should be taken only after very careful consideration of all the facts. It is an individual problem and should be investigated fully by every practitioner.

—I am etc

Birmingham

R. N. YOUNG

\* We have shown this letter to Mr. A. N. Dixon, whose reply is printed below.—ED. B.M.J.

SIR—I am grateful to Mr. R. N. Young for raising a number of points all of which are of interest and one at least—the income tax position—is fundamental. I should have liked to have enlarged on all these and certain other issues in the original article, but, considerations of space apart, I concluded that the subject was already sufficiently technical and that further details might only confuse the issue. Perhaps it would be most satisfactory if I now deal with Mr. Young's points in the order in which they arise.

(1) I entirely agree with him that earlier notice would have been most desirable and there is no doubt that many difficulties would have been avoided if earlier information had been made available. However, I must confess that, reading between the lines, I feel the Ministry never intended that there should be any alternative to the superannuation scheme in the sense that any doctor could make a personal choice in the matter. I believe that the option was allowed purely to provide for the practitioner *already committed* to premiums which might possibly prove inconvenient, and who might otherwise have been financially prejudiced. If this interpretation is correct, then the lack of notice affects only those whom it was never intended to assist, and not much real damage has been done.

(2) (a) and (b) At the time of writing the article the tax position in regard to the Government's 8% contribution to assurance was not clear, and even now there are conflicting views on the position. Therefore some assumption had to be made, and in my view the only equitable basis on which to proceed was to assume that, in relation to the *Government's contribution* a practitioner should not be worse off under an agreed parallel alternative than under the superannuation scheme itself—i.e., that in no circumstances would he be expected to bear income tax on the *Government's contribution*. Equally clearly he could not expect to claim tax relief on that contribution, and the figures to which Mr Young refers are explained accordingly. It has now been suggested that the Government's 8% contribution to approved life assurance will be aggregated to income and so become subject to tax. Whatever the ultimate outcome, I submit that this arrangement is wholly inequitable, but practitioners must proceed warily and take this contingency into account. Obviously it adversely affects the assurance comparison, but, if it is enforced, then of course the whole premium (i.e., £150 in the example) becomes subject to tax relief at the two-fifths rate.

Broadly, I think it will still be found that up to retirement age the assurance method provides an appreciably better result, but that, on retirement, pension benefits will be even more markedly in favour of the Government scheme.

As regards the question of deferred annuity contracts, Mr Young's argument is sound so far as it goes, but he may not be aware of the B.M.A. and National Health Insurance Practitioners' Pension and Insurance Schemes, which are basically a form of deferred annuity combined with family provision, and which have been "approved" by the Inland Revenue. An enormous number of these policies are in being and no doubt it was to cater for this position and possibly also for the practitioner no longer able, on medical grounds, to secure life assurance, that this deferred annuity provision was inserted. Obviously no encouragement would be given to opting out purely on deferred annuity lines, for is not a deferred annuity almost exactly what the superannuation scheme itself so very efficiently provides?

(c) It is agreed that in the figures quoted tax has not been deducted. I have been unable to trace in the regulations any reference to the application of such a deduction in the case of death and so I omitted it from my calculations. At this stage in the table the comparison is so overwhelmingly in favour of the life assurance method that any further reduction in the figures of the superannuation scheme is almost superfluous, even if established.

(3) In considering the question of pension I had not overlooked the advantages of the "split guaranteed annuity," an arrangement quite familiar to me, but in writing the article I had set absolute impartiality as a first principle. It was essential, therefore, strictly to compare like with like, and this is not quite the case in Mr Young's example. Under the superannuation scheme a pension is payable throughout the lifetime of the male and one-third of that amount *throughout the lifetime of the wife* if she is the survivor. By the split annuity method, payment is made for ten years certain and then so long as the male shall live. Therefore it does not protect the widow if she survives the male for more than ten years from *original retirement*. Taking into account probable disparity in age and known favourable female mortality, this is not only possible but likely. There are two further reasons why I did not bring in the split annuity method, the first is that, while this arrangement is permitted by the Revenue at the present moment, it does not follow that such will be the case in future, and,

secondly, neither does it follow that saving of tax necessarily arises in every instance. In the lower pension groups, where the full incidence of tax is not felt, it is questionable whether this method shows any advantage over the normally higher immediate annuity, because only the lower rates of tax, and possibly no tax at all, may apply. In any event, it is open to the practitioner to take his capital and use it in whichever manner is found to be the more advantageous at the time.

(4) Your correspondent mentions that I dismissed too lightly the "injury pension and benefits for permanent incapacity." If he will refer again to the article I think he will find that he has confused the position. What I really dismissed were "injury pension," "short service gratuity," and "return of contributions," *not* "permanent incapacity." I still maintain that "injury pension" (which can arise only from injury in the discharge of duty) is remote. Permanent incapacity may arise from a variety of ills, but this is covered under the normal "pension" section, and that is a valuable cover. However, this is not to say that no gap exists, because clearly it does. Permanent disability is covered (for pension benefit) after ten years' service, but thereafter the earlier pension scales are somewhat inadequate, and of course there is no benefit for temporary incapacity. I feel most strongly that both the entrant into the scheme and the "opt-out" should cover these liabilities, and in fact I stress it in the latter part of the article.

Finally, I am in complete agreement with your correspondent that the decision to opt out should only be taken after the most careful consideration and that it is purely one for the individual himself. For my part, I tend more and more to the view that in the majority of cases, and making due allowance for the income tax position, it is desirable to enter the scheme and then to cover the obvious gap by external assurance arrangements—I am, etc.,

Medical Insurance Agency

A. N. DIXON,  
Manager

SIR—May I in one letter reply to the letters of Dr Bernard Samuels and Dr T. J. Cronin (*Supplement* July 17, p. 49) and also comment on the article on superannuation in N.H.S. (p. 47)? Dr Samuels is quite wrong. The Superannuation Regulations are not so difficult to follow if we pay strict attention to the precise definitions given in the first pages. They bestow upon us considerable benefits, for in the long run we get back not only the 6% deductions but also the 8% contributed by the employing authority. The benefits are equivalent to an increase of from 12% to 20% in the capitation fee, the higher figure applying where the remuneration falls within the first range of surtax.

Advice to Dr Cronin and all other practitioners under 60 leave the life assurance option alone, even if it means increasing your overdraft. It does not appear to have been pointed out that this concession is completely upset by income tax considerations. In the superannuation scheme neither the 6% nor the 8% will be subject to income tax, so that if a practitioner's remuneration after allowing for expenses is £100 his income tax will be assessed on £94 and £14 will be placed in the fund for his benefit. If he takes the option and draws the £8 to pay his policies, his income tax will be assessed on £108 and he will get only the usual policy allowance. This will usually mean that he loses £6. The option is of interest only to the who will have less than five years' contributory service whose premiums are sufficiently large to take up the whole the 8%. So it is of no interest to anyone under 65 unless he does not intend to avail himself of the extension of pensionable age and complete five years, and it is of interest to him only because, having less than five years' contributory service, he loses the benefit of the 8%, getting back only his own 6% contributions.

The extension of pensionable age is a most important regulation. Without it the distribution curve of benefits shows very objectionable singular points occasioned by the qualifying periods. Thus, without the concession a practitioner who was 5 on July 4 would have drawn only two thirds of the benefits which his contributions and those made by the employing authority on account of his services would meet, and of this amount 40% would not be paid in his lifetime. His more fortunate colleague born two days after him would draw 50% benefits than the corresponding contributions would meet. It is difficult to understand why these qualifying periods

the pension is proportional to contributions. The scheme is quite different from the National Insurance Act.

It would be interesting to know if a practitioner now over 65 and under 70 can apply for the later pensionable age. If so a practitioner with four years to go before reaching 70 who is remunerated at £1,000 a year would have £240 deducted but could get it all back with 3% interest on retiring but if not admitted to the scheme he would have more income tax to pay and would finish up with just over £150 instead of £240. It is to be noted that the life assurance option and the extension of pensionable age apply only to practitioners. Consultants and specialists on hospital staffs who are not also on the list of an executive council are excluded. These must see to it that their previous hospital service ranks as qualifying service and so establish their claim to pension, though the pension will of course be calculated on the number of contributory years—I am, etc.

Greenfield

J. P. DAVIE

### Superannuation for Medical Women

Sir—I read the article on superannuation by Mr Dixon (*Supplement* July 3 p. 23) with considerable interest, but the writer seems to have ignored completely the position as it could apply to married medical women and particularly to medical women married to non-medical men. Presumably women engaged in public practice will be required to contribute under the superannuation scheme in precisely the same way as the opposite sex and it would be interesting to learn what benefits would accrue in the varying conditions of survivorship—that is where (1) the wife survives the husband (2) the husband survives the wife—in each case where death occurs either before or after retirement. What is the medical woman's position on reaching retirement age?

The elucidation of these points would I am sure, be of great interest to the large numbers of medical women in public practice—I am, etc.

London N.22

MARJORIE POLLARD

\* The Secretary of the B.M.A. states that the following benefits would accrue:

(1) *Where the wife survives the husband*—If the husband dies before retirement (a) provided he has completed ten years' service a widow's pension would be payable amounting to one-third of the pension the husband would have received at the time of his death but no widow's pension is payable to a woman who is herself in receipt of a pension under the scheme when her husband dies. (b) a death gratuity would be payable provided the husband had completed five years' service of an amount up to a maximum of one year's pension. (c) the husband's contributions would be refunded with interest if no death gratuity or widow's pension is payable. If the husband dies after retirement a widow's pension would be payable amounting to one-third of the husband's pension, provided she is not herself in receipt of a pension under the scheme when her husband dies. (There would have been paid to the husband on retirement in addition to his pension a lump sum retiring allowance equivalent to one year's pension.)

(2) *Where the husband survives the wife* (a medical woman in practice under the scheme)—If the wife dies before retirement (a) a death gratuity would be payable provided she has completed five years' service of an amount equal to the greatest of (i) 4% of her remuneration for each year of service or (ii) the contributions with interest or (iii) the amount of the average remuneration during the last three years. (b) contributions would be refunded with interest if no death gratuity is payable. If the wife dies after retirement no pension will be payable to her husband unless on retirement she has exercised the option of allocating a part of her pension to him. She will be received on retirement in addition to the pension a lump sum retiring allowance equivalent to three years' pension.

During the debate on the resolutions in the House of Commons (July 20 1947) it was asked on behalf of the Ministry of Health if a doctor does not have more than the bachelor's allowance there can be no pension and a table is carried out of the pension table and where there is no such pension the pension is a mere 5% of the pensionable income.

### Remuneration of General Practitioners

Sir—Mr Ralph Green (*Journal* July 10 p. 110) calls attention to some of the very bad effects of the new Bavin Act but as he deals with several separate matters in a somewhat confused letter the main facts need dissecting out to clarify them. The truth is that the 1 in N.H.I. has been struck out and an S substituted: the whole nation of 47,000,000 has now been placed on a State panel. Because of the extreme costliness of the Beveridge social insurance scheme the vast majority will feel compelled to use the Health Service part of the scheme and in fact be and become panel patients. Did people desire that?

The profession as a profession has lost its freedom and as a profession is ruined. It is now no longer possible to buy or to sell a practice except of the very private and non-transferable type. Originally I supported the proposed new Service because I believed that it would do three things: (a) decommercialize medicine (b) enable every man willing to work to have a fair share of the work and (c) lead to a redistribution of medical personnel. It seems clear now that the first two will not be realized. Health centres are essential to the sharing of work.

In the typical rural area considered by Mr Ralph Green he assumes that the 10,000 people in the whole area will provide a maximum sum of some £7,500–£9,000 per annum for the ten medical practitioners in the area. He forgets there will be in addition (1) some private fees, (2) midwifery (3) mileage (4) appointments not covered by N.H.S. Of the ten practitioners five may constitute a ring or "combine" and have 3,500 N.H.I. cases × 2½ = approximately 8,200 State patients under the scheme bringing in approximately £6,150 + £1,500 in basic salaries = £7,650. That leaves only 1,800 State patients for the remaining five men (two of whom practise as physicians only) so that it is self-evident that two or three will be dismissed from the new National Health Service in 1950 for having less than 500 on their lists. "To them that hath shall be given"—I am, etc.

The Senate House, London W.C.1

CHARLES A. H. FRANKLYN

\* A doctor cannot be dismissed from the Service for having too few patients but a doctor drawing the basic salary may have that discontinued if he does not have 500 N.H.S. patients on his list within two years of entering the Service—Ed. B.M.J.

Sir—Many will feel grateful to Dr Ralph Green (*Journal*, July 10 p. 110) for his careful presentation of the impending financial plight of those GPs with mixed private and panel practices. More than 20,000 doctors have joined the scheme so the average list will be 2,000 which should indeed be the maximum if a man is to do good work.

At the proposed capitation fee the net income of the practitioner with a list of 2,000 will be no more than £1,100 per annum (allowing one-third for expenses). This is considerably less than the Spens figures plus say 50% for betterment. It is therefore imperative that the Negotiating Committee take as strong a line over the new capitation fee as they recently did over the panel capitation fee and we should be prepared to support them with our resignations if the amount offered is less than 25s—i.e. Spens plus adequate betterment computed in terms of the average not the maximum list—I am, etc.

Preston

CARL MYRPS

### Supply of Doctors' Cars

Sir—I feel that the letter from Messrs R. Gresham Cooke and A. W. Griffin on behalf of the distributive side of the trade (*Supplement* June 26 p. 186) will do very little to comfort those who have ordered new cars. Any reasonable person realizes that most new cars are going abroad but orders here must continue to be by make and indeed by horse-power as very few of us can afford just to say "Order me a car." I note the accusation which is brought out *ad nauseam* that some doctors have abused the privilege. Among any 60,000 people one would expect a few frail vessels but have the B.M.A. inspected "a considerable body of evidence" and do they consider that the cases referred to were numerous enough over several years to affect the question?

The implied claim that doctors get "preferential" delivery cannot always be supported. One present Honorary Secretary



of a Division was informed firmly by a large area distributor that his firm gave no preference of any kind to doctors. As regards my own position, inquiry to-day of my agent brings the encouraging news that at the present rate of delivery my car, ordered in July, 1946, may be expected in 8½ years. In these circumstances one may well agree with the advice that doctors should not refrain from placing an order until their car is on its last legs.

Incidentally, have Messrs Cooke and Grafton advised the members of their respective bodies who have accepted a deposit from those ordering cars to return this on request now that this "deposit racket" has been officially disapproved?—I am, etc.,

Lewes Sussex

F LANGFORD

### A Provocative Minister

SIR—At the time of our first plebiscite the Minister of Health was misguided enough to suggest that much of the opposition which he was meeting from the medical profession was inspired by the Tories—this in spite of the fact that the Tories had pledged themselves to support a national health service whichever Government proposed to introduce it. The Minister's remarks caused considerable anger in the profession at the time, and he was sensible enough to refrain from any further remarks in this vein till Sunday, July 4, at Manchester, when on the eve of the full implementation of the Health Service Act he chose to launch a most violent and bitter attack against the Tories. The fact that he chose such a time to make such remarks may have been a mere coincidence but, although it is my opinion that doctors should not be engaged actively in politics, it would appear as if we will have to be very careful from now on as to where and when we express our political views should such views in any way differ from the professed politics of Mr Bevan.

That such a state of affairs is probable can only cause the gravest of doubts—perhaps they were already there in the minds of many of us—as to the true intentions of Mr Bevan and his political colleagues. We have heard much from the gentleman on the vexed question of the Press and its "prostitution". Unless we are very careful our noble profession will soon be on the down-road to a similar fate.—I am, etc.,

Bridlington

M A LINELL

### Professional Secrecy

SIR—Dr Arthur and the Gateshead Division are, I submit, to be congratulated (*vide Supplement* July 3, p 14) on their protest against the serious threat to professional secrecy foreshadowed in the increasing tendency to disclosure to lay persons by Government departments of professional confidences contained in medical certificates. Using his powers under Section 66 of the Act the Minister of Health has issued Regulations (Statutory Instruments 506 and 507, 1948, dated March 24, 1948) of which Section 14 (No 507), occupying 62 lines, makes detailed rules for the compilation and inspection of medical records to be kept by the practitioner of public patients as distinct from private patients, and the importance attached by the Minister to this new obligation is demonstrated in every line of the section.

The duty of the doctor in the State Service to compile and furnish full medical details of public patients under his care was insisted upon throughout the passage of the Bill and to enable him to do so generous clerical assistance was to be supplied to the doctor as part of the service given by the health centres. This provision is temporarily suspended, but a new committee, the Medical Service Committee, consisting of a lay chairman, three lay members of the local executive council, and three members of the local medical committee, is charged with the duty of investigation and supervision of record keeping and in the absence of health centres (where records were to have been housed) "access is to be given to the committee at all reasonable times to the practitioner's surgery or other place where record cards are kept, for the purpose of inspection of such record cards". The practitioner may be further required to furnish to members of the committee "any such record cards and any necessary information with regard thereto as they may require". The committee shall report to the Minister where there has been any failure on the part of the practitioner to carry out these exacting obligations and such action shall be

taken by the Minister as "the extent and gravity of such failure may warrant. I imagine that Dr Arthur and the Gateshead Division had not noted these Regulations, examination of which would have materially supported their protest.—I am, etc.,

House of Commons

E GRAHAM-LITTLE

### Hospital Superintendents

SIR—At the annual meeting of the R B it was reported by Dr MacArthur (*Supplement* July 3, p 17) that a memorandum had been circulated 'to all committees of management (without previous negotiation and consultation with the leaders of the profession) instructing them that they should appoint secretaries whose duties and powers made them the superior of the medical superintendent from the point of view not only of his power and authority but also of the scale of salary'.

It was proposed and seconded that before any final settlement is arranged with the Government the B M A should insist that the principle that the medical superintendent is recognized as the administrative head of the hospital be maintained. There was no dissentient to the motion, and yet the chairman of the Hospitals Committee intervened to suggest that the matter be referred to the Council, which was adopted. He stated that it was the policy of the Association that the administrative head of a large hospital or group of small hospitals should ordinarily be a medical practitioner and designated as medical superintendent and that the negotiating committee had discussed it with the Ministry.

It is evident that the drafters of the memorandum quoted by Dr MacArthur have ignored the policy of the Association and therefore the adoption of the motion was entirely justified. As a past medical superintendent of many years' experience I shall, however, be surprised and gratified if even as strong an action as this would have any effect on the determination of the Civil Service, as evidenced by the memorandum, to subordinate the profession to lay officials. One may wonder what the reaction of the Admiralty would be to the suggestion that the supreme authority in a ship should be not a sailor but one of the clerical staff!—I am, etc.,

St Mawes Cornwall

B H SHAW

### A R M Correction

SIR—May I beg the favour of some of your space to correct the report of what I said at the A R M (*Supplement*, July 3 p 8)? The Division I represent is given in an anatomical variant of its name (St Pancras). Further, it is incorrect to state that at the meeting of the Health Committee of the TUC to which I referred it was said from the TUC side that the only organization which represented the medical profession was the B M A. That was not the statement made on that occasion. The statement was that "the British Medical Association was recognized as the organization which represented the medical profession". The words reported may represent in condensed form a natural interpretation of what I said in my speech in the light of the whole of the speech, or may indeed be due to my having expressed myself badly, and if so I should like to correct it.

Finally, at the end of the speech the word 'not' is omitted in the report. The final words should be 'He was by no means satisfied that the Association was in the legal position described in which it could not carry on negotiations, discussions and activities to their full logical length without seriously involving itself in the likelihood of a legal disaster'.—I am, etc.

London NW 1

E A GREGG

## Association Notices

### Meetings of Branches and Divisions

#### DUMFRIES AND GALLOWAY DIVISION

The Annual Summer Meeting, under the chairmanship of Mr R L Beveridge, was held at Newton Stewart on July 11. The meeting was addressed by Dr A K Bowman, Senior Medical Officer to the Western Regional Hospital Board. The address was in two parts, the first being on American medicine and medical personalities and the second on some historical aspects of the early colonization of America. Dr Bowman was interesting and informative and he took the opportunity of pleading for better understanding between this country and America, and for the acceptance of Marshall aid in the spirit in which it is being given. Dr Clayson proposed a vote of thanks at the end of the meeting.

## ANTIHISTAMINE SUBSTANCES\*

BY

SIR HENRY DALE, OM, GBE, FRCP, FRS

As one of those who took part in the recognition of histamine in nature and in the first detailed examination of its intense physiological activities, I shall try to avoid the temptation to be unduly reminiscent. I may just remind you that at that time, nearly 40 years ago much interest in circles concerned with experimental pathology was centred on the syndrome of the anaphylactic reaction and on the curious differences which it presented in the different species. You can imagine that Laidlaw and I (Dale and Laidlaw 1910, 1911) had to discipline our eagerness as we examined one by one the actions of histamine on the different organs and systems of the dog and the guinea-pig in particular, and found them fitting neatly, like units of a jigsaw puzzle, into the contrasting pictures of the anaphylactic reactions in those two species as others had then recently described them. Biedl and Kraus (1910) had already drawn attention to the close correspondence—even closer, in fact—between the contrasted reactions of the normal dog and guinea-pig to intravenous Witte's peptone and those of the anaphylactic dog and guinea-pig to the reinjection of the antigen. I well remember Biedl's account of this at the International Physiological Congress in Vienna in 1910 and my own description later in the same programme of the newly discovered and, except for a few points, identical effects of histamine on the same two species. There was, of course, an obvious probability that a correspondence at so many points would have some significance but it was difficult to guess just what it might mean. It certainly did not mean, what some were too ready to assume, that histamine was the hypothetical "anaphylatoxin" of which there was then so much talk, as a poison supposed to be liberated in the blood by some kind of enzymatic cleavage of the reinjected antigen, for there were features of the anaphylactic and peptone shocks which were not represented in the actions of histamine such as the gross swelling of the liver and the failure of the shed blood to clot, and Laidlaw and I thought, and said, that these gaps must be taken into account in any discussion of the meaning of the general correspondence.

That of course, is ancient history, and a great deal has happened since to clarify what was then obscure. Fortunately there have been several most valuable reviews of the all too abundant literature. I may mention the monograph of Feldberg and Schilf in 1930, Gaddum's (1936) monograph on vasodilator substances and quite recently a review-lecture by Gaddum (1948), full of suggestive thought, dealing chiefly with later and contemporary work. Let me just indicate what seem to me a few of the landmarks of progress on the way to the present position and then mention certain outstanding problems which seem to be

worth further attention, if only to provide us with a more completely rational basis for the use of the so-called antihistamines with which to-day's discussion is largely concerned.

### Landmarks of Progress

First, as to the pharmacological action of histamine, I suppose that we shall now agree that it is a general stimulator of the tone and rhythm of plain muscle in most mammalian species, the *Muridae* presenting an exception and then that the vasodilator-depressor action which it produces so conspicuously on intravenous injection into certain species, including the human, is due to a special inhibitor action on the tone of minute blood vessels, involving always the tone of the capillaries and extending in some species, man among them, but to different levels in the different species, on to the ultimate arteriolar branchings. The involvement of the capillaries, and the resulting permeability of their walls if the action is powerful, came to light when Laidlaw, Richards, and I resumed the study of the action of histamine in the middle of the first world war under the stimulus of the demand for any light which experimental work could throw, even obliquely, on the obscure problems of wound shock, a demand which was naturally revived in the second world war. Concerning our work (Dale and Richards, 1918, Dale and Laidlaw, 1918) in 1917-18 I should just like to note, in passing, the useful and stimulating coincidence with our conclusions at that juncture of those reached by others who were then working on similar reactions. Krogh (1929), as we learned a little later, was already engaged on his more general study of the variable tone of the capillary vessels, Lewis, Cotton, and Slade (1917) had already published a year earlier the initial stage of what became Lewis's classical studies of the "threefold reaction" of the small blood vessels of the human skin to various injuries and, still more aptly for our immediate purpose Sollmann and Pilcher (1917) had just shown that application of histamine itself in high dilutions to the human epidermis after microscopic breaches of its surface caused local capillary dilatation and weal formation. We ourselves being impressed by the analogy, pointed out that a not too destructive local injury, such as a blow from a whip or cane would produce a closely similar local vascular effect just as the generalized effects of histamine on the blood vessels which we were describing resembled those of a generalized tissue injury.

What was known of the pharmacological actions of histamine was thus already sufficient to arouse a suspicion that its release in response to injury of tissue cells might account for a substantial part at least of the resulting vascular and other reactions, whether the injury was produced by mechanical trauma, by corrosive or precipitant

\*Read in opening a discussion in the Section of Pharmacology at the Annual Meeting of the British Medical Association, Cambridge, 1948.

chemicals, or, in an anaphylactic subject, by the specific antigen. For by that time I think it was generally agreed that the anaphylactic condition was due, at least in the main, to the predominant attachment of a precipitating immune substance to the tissue cells, and that the different symptomatology of the shock in different species was due to the way in which this sensitizing antibody was allocated among the cells of the different organs—being mainly attached to those of the liver of the dog, and mainly to those of plain muscle in the guinea-pig. We were not yet entitled, however, to indulge in any definite theories about such a release of histamine, since we had no real evidence so far that it was a constituent of normal tissue cells; we had only the early finding of it by Barger and myself (1911) as a constituent of intestinal mucosa, which we could hardly regard as a typical tissue for this purpose. Most of a further decade was required, then, before the evidence from different sources once again converged to a new point of advance. We had the resumption of the brilliant series of experiments, chiefly on human skin, by Lewis and his team, producing cumulative evidence of the release by the various kinds of mild injury of something having all the observable properties of histamine, but always by them called "H-substance" with a truly scientific caution. I think there can be little reason to doubt that they were dealing with histamine itself, either free or in loose association with some more complex vector.

I suppose that everybody working with this group of phenomena had in mind the possibility that the effect of the specific antigen on the cells of the anaphylactic animal might be to cause histamine to appear. I, rather perversely perhaps, had myself been inclined (Dale, 1919) for a time to discount it, pointing out that for aught we knew the action of histamine itself might be to produce an aggregating effect comparable to that which we had reason to impute to the reaction between anaphylactic antigen and cell-fixed antibody. Abel and Kubota (1919) had favoured the idea that histamine was somehow concerned, but I believe that it was Lewis (1927) who, having seen a dermal allergic reaction and recognized the characteristic "threefold response," first definitely attributed the effect to the appearance of histamine, or, more strictly, "H-substance." It was at this point, however, that there was once again such a convergence of researches, for at that same period an irrelevant side issue had led me to organize with Best, Dudley, and Thorpe (1927) an effort to obtain unequivocal evidence regarding the nature of the substances with histamine-like actions extractable from different fresh tissues—liver first, then lung, then muscle, then spleen. In all cases it was histamine itself; detachable without any drastic treatment from more complex materials, its tendency to cling to which had apparently misled earlier workers. So that it did not seem necessary to suppose, as Abel and even Lewis had been inclined to do, that histamine was formed in response to injurious stimuli, including that of the anaphylactic antigen, or allergic haptene; it was there already, held inside the cell in inactive association, and we had only to postulate its release. And then that chapter seemed to be rounded off and completed when Dragstedt and his associates found histamine in the lymph flowing from the dog's liver in the anaphylactic shock (Gebauer-Fuelnegg, Dragstedt, and Mullenix, 1932), and Feldberg with his team found it appearing in the effluent from the perfused lungs of an anaphylactic guinea-pig (Bartosch, Feldberg, and Nagel, 1932) when the antigen was added to the inflowing saline solution and evoked the bronchial constriction.

All this evidence, of course, left it not only possible but practically certain that active and normally intracellular

constituents other than histamine would also be liberated with it. We know now, for example, that heparin is liberated from the liver by peptone or the anaphylactic reaction to make the blood incoagulable. Histamine, however, is by a long way the most potent in pharmacological action of any such cell constituents as are known, and it is the one which particularly concerns the present discussion. Let us consider, then, some points concerning the manner of its release which bear on our problem, and others on which more evidence would be of value.

### Mode of Histamine Release

1 Consider the relationship between the cells from which histamine is released—the sensitized cells on which the antigen or haptene acts in the case of the allergic reactions—and those which react to the released histamine, producing the familiar syndrome. The cells which release histamine and those which respond to it may be identical, as they probably are when sensitized plain muscle encounters the antigen, and we may plausibly picture this as a reaction to histamine internally liberated and speak of it as a response to *intrinsic* histamine. On the other hand, when histamine is released in the liver it is obviously carried widely by the circulation to other histamine-sensitive tissues, causing a general vasomotor collapse and stimulating the plain muscle of remote organs. Even when the injury releases histamine from epidermis or nasopharyngeal epithelium it is not the epithelial cells which respond to it but the subjacent vascular plexus, which thus reacts to *extrinsic* histamine. It will be clear that the antagonism of an antihistamine, whatever the precise mechanism of its action, may be widely different against histamine from within and histamine from without. There might obviously be analogies with the action of atropine in suppressing readily certain effects of acetylcholine applied from without while leaving practically unchanged corresponding effects of its release from nerve endings. There is an even closer analogy in Schild's observation that the guinea-pig's sensitized plain muscle can be made tolerant of excess of histamine in the surrounding fluid so that it gives no response to further additions of histamine to the bath but still responds to the specific antigen—presumably, therefore, to *intrinsic* histamine. Such considerations may throw light on the relative effectiveness of antihistamines in urticaria and vasomotor rhinitis on the one hand and in spasmodic asthma on the other. The point is at least worth discussion in the light of clinical experience of the relative values of these drugs in different types of allergic reaction.

2 I think that we need more evidence yet concerning the manner of the release of histamine which might furnish more details to show whether, when so liberated, it is in free solution or associated with larger molecules as an "H substance." Even if we accept the view that disturbance of the colloidal dispersion of the protoplasm liberates the histamine we still need more evidence whether it does so directly or by setting in action some enzyme system to which the actual liberation of histamine is due. Rocha e Silva's evidence that pure trypsin has this action is highly suggestive (Rocha e Silva and Andrade, 1945; Rocha e Silva, 1946), as are the earlier observations of Feldberg and Kellaway (1938) on the special factors concerned in the generally similar effects of cobra and bee venom. Kellaway's recent lecture (1947) gives a valuable review. We ought to know more, too, about the apparent new formation of "histamine" in scalded mice as recorded by Dekanski (1945).

3 We need still more information about the form in which histamine circulates in the blood. Estimates of histamine extracted from whole blood must, I think, be difficult.

to interpret physiologically. The blood is a tissue, and histamine held inactive in its cells need have no different functional significance from that locked up in the cells of solid tissues. Code's (1937) work in my laboratory seemed at the stage which it reached, to be pointing to the eosinophil cells as the source of most at least of the histamine extractable from normal blood, and, though it is also true that the abundant layer of platelets obtainable from citrated rabbit's blood seems to be the rich source in that species, I venture to suggest that a more critical haematology might throw light on the still rather curious anomaly that rabbit's whole blood yields so much more histamine than that of other common species. Another point which would, I suspect, repay further investigation is that of the possibility of the formation of histamine from proteins by hydrolysis, whether by enzymes or by heating with acids (cf. Abel and Kubota, 1919). I believe that it would be useful to have more definite evidence on the extent to which solutions containing "incoagulable" protein products can be heated with acid with a certainty that the histamine found in the product will be only that which was preformed in the original blood or other material.

4. Lastly it seems to me that it might have an important bearing on our conception of the proper and safe use of the antihistamines if the evidence for the concern of histamine in the vasodilatation of normal functional activity were clearer and more consistent. I raised the question of this as a possibility in a lecture in 1919, pointing out how the relaxation of capillary tone by histamine would make it the ideal agent of a fine adjustment of the circulation to local metabolic needs if we had evidence that it existed in the tissue cells and that it was liberated by their normal activity. We have evidence of its presence now, but the evidence produced by Anrep and his colleagues for its liberation from active muscle still lacks confirmation. I need hardly point out that failure to detect an increase of it in the venous blood does not of necessity exclude the possibility of its local liberation and local action. It might, however, suggest the possibility that in relation to antihistamines it would behave more like "intrinsic" than "extrinsic" histamine. In any case, I suggest that further attempts to settle the matter, perhaps by experiments under conditions not so close to those of natural circulation, might provide useful information, and that clear evidence on this point might give valuable warning or reassurance concerning the use of the antihistamines in practice.

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## CAFFEINE AND GASTRIC SECRETION

BY

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The effects of caffeine on gastric secretion have recently been investigated in animals and in man by Roth and Ivy (1944a, 1944b, 1944c) and by Merendino *et al* (1945). It has been shown that, although there is a wide variation in sensitivity between species, caffeine stimulates gastric secretion in man, cat, guinea-pig, and dog. Man is relatively sensitive to this action of caffeine, while the dog is rather resistant. The effect is probably exerted directly on the parietal cells.

Roth and Ivy (1944a) showed that the intravenous injection of 65–125 mg of caffeine into cats anaesthetized with chloroform provokes a secretion of acid gastric juice for about 45 minutes. Later they reported (Roth and Ivy, 1944c) that caffeine and histamine act synergistically in stimulating gastric secretion in the cat. The effect was considerable, and in one animal a previously ineffective dose of histamine stimulated secretion of highly acid juice after injection of caffeine. The doses of caffeine used were themselves large enough to cause a secretion of acid gastric juice, and it was desirable to determine whether the effect of histamine was potentiated by smaller doses of caffeine which did not stimulate gastric secretion. This was particularly necessary, since doses of 125 mg of caffeine are bordering on the toxic for the cat, and attempts to repeat the experiments of Roth and Ivy often resulted in early death of the animal. At the same time theobromine and theophylline have been compared with caffeine in respect of this relation to histamine.

## Methods

The cat, anaesthetized with sodium pentobarbitone intraperitoneally, was prepared for continuous drainage of gastric juice by Roth and Ivy's (1944a) modification of Lim's (1923) method. Ligatures were tied around the cardia and duodenum and a cannula was inserted into the stomach through the pylorus (see Wood, 1948). Juice was collected in graduated centrifuge tubes, and the free and total acid was estimated by titration with N/50 sodium hydroxide, using thymol blue as indicator for both end-points.

One hour after the completion of the preparation, secretion being basal (less than 0.05 ml in 10 minutes), histamine acid phosphate was injected subcutaneously in a dose equivalent to 0.27–0.65 mg of histamine (about 0.18 mg per kg of body weight). The resultant secretion of juice was measured at intervals of 10 minutes until the basal level of secretion returned.

The particular xanthine compound was then slowly injected intravenously over a period of two to five minutes. Solutions (1 or 2%) of caffeine sodium benzoate, theobromine sodium salicylate, and theophylline sodium acetate were used containing respectively about 1/2, 1/2, and 5/9 of caffeine, theobromine, and theophylline (w/w). Doses of caffeine were 10–20 mg per kg (20–75 mg total dose), of theobromine 20 mg per kg (34–54 mg), and of theophylline 20 mg per kg (42–62 mg).

Two groups of experiments were done with caffeine. In one group of seven cats the second dose of histamine, the same as the first in any one cat, was injected 40–60 minutes after caffeine. This interval allowed enough time for any possible stimulant action of caffeine to pass off. Caffeine itself caused a significant increase in secretion in only three

of the seven cats. In another six animals the second dose of histamine was injected immediately after the caffeine. Collection of juice was continued until the basal level of secretion returned. The second dose of histamine was injected 40–60 minutes after theobromine or theophylline in all experiments with these substances.

### Results

**Caffeine**—Following the intravenous injection of 20 mg of caffeine per kg there was at first irregularity and some slowing of the heart and a transient fall of blood pressure. A temporary respiratory stimulation also occurred. Neither of these effects was so obvious after theophylline or theobromine, the blood pressure often rose about 10–15 mm Hg after theobromine. Both the magnitude and duration of the histamine stimulation of gastric secretion were increased after caffeine (Table I). This was observed in all 13 experiments. In three of the seven cats where there was an interval of 40–60 minutes between the injections of caffeine and of histamine there was a mild stimulation

of secretion due to the caffeine alone. Thus caffeine has a potentiating action which is still present 40–60 minutes after it has been injected. Since these doses of caffeine have only a slight, if any, secretory stimulant action, the two sets of results have been combined to obtain average figures from 13 animals. A typical graph of the secretory response to histamine before and after caffeine is shown in the Chart.

**Theobromine and Theophylline**—Results with these two xanthine derivatives were much more variable than those with caffeine. The histamine effect was appreciably increased after theobromine in three out of six cats (Table II). In one of these (No 90) free acid secretion due to histamine was increased from 1.2 to 36.25 ml of N/50 HCl. In cat No 93 theobromine had some stimulant effect itself, but there was no significant increase in the effect of histamine after theobromine. The smaller effect of histamine after theobromine in cat No 89 cannot be attributed to the theobromine, since second doses of histamine often have less effect than the first dose. There was some

TABLE I—Secretion of gastric juice and free acid (in ml N/50 HCl) due to histamine before and after intravenous injection of caffeine (10–20 mg/kg)

Cat No	Secretion Due to								
	Histamine			Caffeine			Histamine after Caffeine		
	Juice (ml)	Free Acid (ml)	Duration (min)	Juice (ml)	Free Acid (ml)	Duration (min)	Juice (ml)	Free Acid (ml)	Duration (min)
70*	0.35	0.0	40	—	—	—	4.0	15.7	60
71	2.65	4.75	70	—	—	—	2.95	11.05	90
72	0.95	0.6	40	—	—	—	2.05	7.15	70
73	1.6	1.8	80	—	—	—	5.85	23.0	80
74	1.55	3.6	60	—	—	—	4.15	15.0	60
75	1.5	0.0	60	—	—	—	4.85	5.6	110
76†	2.5	12.3	60	0.3	0.8	60	4.6	22.65	100
77	1.5	1.4	60	1.05	3.15	60	4.8	20.45	90
78	2.75	6.15	60	2.35	6.05	60	13.35	64.8	140
80	1.7	0.85	60	0.1	0.4	30	6.0	25.25	110
81	1.55	2.45	70	0.25	0.45	40	6.4	18.7	90
82	3.0	9.9	80	0.4	1.6	40	7.65	38.75	140
83	1.35	1.5	70	1.15	1.35	50	6.75	27.95	80
Average	1.8	3.5	62	0.8	2.0	49	5.7	22.8	94

\* In cats Nos 70–75 the second histamine dose was given subcutaneously immediately after caffeine.  
† In cats Nos 76–83 the second histamine dose was given subcutaneously 40–60 minutes after caffeine.

TABLE II—Secretion of juice and free acid (ml N/50 HCl) in response to subcutaneous histamine before and after 20 mg of theobromine per kg intravenously

Cat No	Secretion Due to								
	Histamine before Theobromine			Theobromine			Histamine after Theobromine		
	Juice (ml)	Free Acid (ml)	Duration (min)	Juice (ml)	Free Acid (ml)	Duration (min)	Juice (ml)	Free Acid (ml)	Duration (min)
89	9.2	45.8	110	0.4	2.3	50	6.95	28.15	110
90	1.25	1.2	70	0.75	2.75	60	27.65	36.25	110
91	3.0	11.7	80	1.35	2.55	50	3.4	12.05	90
92	1.0	0.7	60	0.9	2.1	50	1.2	2.8	50
93	1.55	0.9	70	1.8	4.2	60	0.75	1.15	60
94	0.65	0.1	60	0.15	0	20	3.5	4.9	80
Average	2.8	10.1	75	0.9	2.3	48	7.2	14.2	83

TABLE III—Secretion of gastric juice and free acid (ml N/50 HCl) in response to subcutaneous histamine before and after 20 mg of theophylline per kg intravenously

Cat No	Secretion Due to								
	Histamine before Theophylline			Theophylline			Histamine after Theophylline		
	Juice (ml)	Free Acid (ml)	Duration (min)	Juice (ml)	Free Acid (ml)	Duration (min)	Juice (ml)	Free Acid (ml)	Duration (min)
85	1.0	0.85	60	1.0	1.0	60	1.1	2.2	70
86	2.6	2.55	80	1.7	3.15	60	12.05	53.9	150
87*	2.15	4.65	100	0.3	0.7	50	0.15	0.25	40*
88	0.95	0.6	50	1.6	5.25	60	0.45	1.7	60
95	0.65	0.1	50	0.25	0.1	40	0.5	0.15	60
96	1.1	1.05	60	0.65	0.8	50	0.8	0	60
Average	1.4	1.6	67	0.9	1.8	53	2.5	9.7	73

\* This cat died 40 minutes after theophylline.

secretory response after theophylline in two, or possibly three, out of six animals (Table III). In one of these (No. 86) the histamine effect was very greatly increased after theophylline, there being five-fold and twenty-fold increases

respectively in the volume of juice and free acid secreted. In this animal theophylline itself had a stimulant effect on secretion. There was a possible potentiation in cat No. 85.

The effect of histamine was less consistently altered after theobromine or theophylline than after caffeine, but occasionally there was a considerable increase.

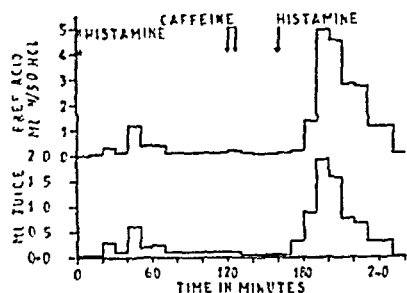


Chart showing the effect of histamine (0.35 mg subcutaneously) on gastric secretion before and after a dose of caffeine (20 mg per kg) which did not stimulate secretion. Juice measured at intervals of 10 minutes (cat No. 81, weight 2 kg).

**Controls**—In control experiments repeated injections of a dose of histamine at intervals of one or two hours never gave an increasing response. Indeed, as Roth and Ivy (1944c) and others have indicated, there was a tendency towards a reduction in the secretory response to successive doses of histamine. Thus an increased effect of histamine after caffeine, etc., may be fairly attributed to the xanthine compound but a reduction in the effect of histamine as in cats Nos. 87 and 89 is probably not due to the xanthine compound. Inspection of the gastric mucosa at the end of the experiment confirmed the findings of Roth and Ivy (1945). There was obvious hyperaemia and engorgement of the mucosa, particularly in those animals treated with caffeine. No quantitative estimate of the change was made, but it appeared much less after theophylline or theobromine. No similar effect was observed in the mucosa of any cat after repeated histamine injections or after continuous histamine infusion for several hours.

### Discussion

Roth and Ivy showed that caffeine stimulates gastric secretion in the cat and also acts synergistically with histamine. They suggest that "the stimulation of gastric secretion may not necessarily be attributed to the same property of caffeine which is responsible for the synergism," since the synergistic action persists when the stimulant action of caffeine is over. The present results, showing that in doses which have no stimulant action on gastric secretion caffeine can potentiate the effect of histamine, support the probability that some other mechanism is responsible. Roth and Ivy (1945) have suggested that persistently increased blood flow accompanying vasodilatation might be a factor. Their later observations on the vascularity of the mucosa after caffeine strengthened this view. Observations on ulcers induced by caffeine in cats led them to suggest the following sequence of events caused by caffeine in the gastric mucosa: "vasodilatation and engorgement, vascular stasis, local anoxia, increased capillary permeability, transudation, exudation and decreased cell nutrition." The vascular and cellular changes due to caffeine may make the mucosa more susceptible to the proteolytic action of acid and pepsin secretion.

The present results with theobromine and theophylline are less consistent and convincing. There is evidence that theophylline at least is a more potent vasodilator than caffeine and it might have been expected to be at least as active as caffeine in potentiating the secretory action of histamine. To that extent this affords some evidence that the effect on blood flow is not necessarily the cause of the

potentiating effect of caffeine. It is known that caffeine increases the oxygen uptake of resting frog muscle and that this increase is sensitive to azide (Stannard 1939). It may be that caffeine also has some effect on an intracellular enzyme system concerned in gastric secretion, and this may underlie the potentiating effect of caffeine on histamine-induced gastric secretion. Whatever the explanation of the observed effect, certain conclusions are permissible. Even if histamine is not intimately concerned in either the physiology or pathology of gastric secretion, then consumption of large amounts of caffeine-containing drinks may be a factor in peptic ulcer formation or perpetuation. If histamine is associated with normal gastric secretion or with ulcer formation then the danger of excess caffeine intake is increased. It is still not justifiable, as Roth and Ivy (1946) stress, to conclude from the experimental results in animals that caffeine can cause peptic ulceration in man. It is known, however, that after a caffeine test-meal secretion of acid gastric juice is greater and more prolonged in ulcer patients than in normals (Roth, Ivy, and Atkinson, 1944).

The present experiments in normal cats show that caffeine potentiates the action of histamine on gastric secretion, and that theobromine and theophylline can have a similar action in some animals. Our results support Roth and Ivy's (1944b) conclusion that ulcer patients should restrict their intake of beverages containing caffeine, and also suggest that it is desirable to limit their consumption of foods and drinks containing theobromine and theophylline. These substances should equally be avoided by the patient with hyperchlorhydria but no ulcer.

### Summary

Caffeine injected intravenously in a dose which does not usually stimulate gastric secretion in the anaesthetized cat consistently potentiates the gastric stimulant action of histamine.

A similar but less consistent effect was observed after theobromine and after theophylline.

The significance of these findings is discussed in relation to the management of the patient with peptic ulcer.

It is a pleasure to acknowledge the encouraging help given by Professor E. J. Wayne and the technical assistance of Mr. E. Salvin.

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Mr. John Edwards, Parliamentary Secretary to the Ministry of Health, paid tribute to the work of insurance committees when he addressed members of the London Insurance Committee on July 1 at their last meeting. "I think the finest tribute to their work is the decision to base much of the new health service on the existing arrangements. Without the co-operation of insurance committees it would have been very difficult for executive councils to prepare for the new scheme. They have most generously assisted executive councils from the very beginning by making the services of their staff available and by placing their offices and equipment at the councils' disposal. Wherever possible the Minister has included insurance committee members among his appointments to executive councils. I am quite sure that their experience will help to guide the councils over the difficult transitional period and ensure the continuity of administration which we are anxious to maintain." London, he said, had faced a special task. "Not only have you the largest register in the country but you also have the largest number of doctors and chemists in contract with you. I understand that there are 1,675 doctors on your list and that the chemists in contract with you have some 1,200 shops. Indeed, the magnitude of everything in London is always a challenge to those responsible for administration—a challenge which your committee has always successfully accepted."



## RECTAL CANCER AND PRESERVATION OF FUNCTION\*

BY

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No single standard operation is suitable for all cases of rectal or recto-sigmoid cancer, for the operation should be planned to suit the rectum rather than the rectum cut to suit the plan. The ideal is the efficient removal of the growth with preservation of normal defaecation. A permanent colostomy is not too high a price to pay for the efficient removal of a rectal cancer provided it is essential, it is a heavy burden if it is not. Clinical surgery suggests, and pathology supports the view, that in a number of these cases the internal sphincter, that mechanism of continent defaecation, is needlessly sacrificed through devotion to a stereotyped operation. At the same time it is salutary to remember that some surgeons have in the past abandoned anastomotic operations through the fear and the experience that such methods sometimes lead to an inefficient extirpation of the growth.

### History

An operation to excise a rectal growth and preserve a functioning anus is no novelty, it is probable that it was a more fashionable ambition for the surgeon in the past century than it is now. Even a brief study of the literature on this subject makes it apparent that it would now be almost impossible to devise a truly original operation of this type, save perhaps in its minor details. The ingenuity of many surgeons has explored every conceivable route. Extensive reviews of the literature have been made by Bacon (1945), d'Allaines (1946), and many others. It will suffice here to mention some of the methods which seem to have influenced the present trend of surgical opinion.

It was not until the latter part of the last century that excision of the rectum became common. Though not the first, one of the more interesting of the early attempts to perform a resection-anastomosis on a rectal growth is that described by Maunsell in 1892. The rectum was mobilized through the abdomen and was then prolapsed through a dilated anal orifice to an assistant working in the perineum, who divided the outer layer of the prolapse, pulled down the growth, and performed a resection-anastomosis. Maunsell's immediate post-operative treatment consisted in making his patients drink large quantities of hot water, for he had found that he "had more success with hot water than with any other remedy." However unusual the post-operative treatment of half a century ago may seem to-day, the steps which Maunsell described have been the basis for many subsequent methods. Rayner (1935) quotes Sebrecht as utilizing the abdominal mobilization followed by the dissection upwards of the rectal mucosa from the mucocutaneous junction and the suture of the sigmoid to the anal canal. In 1908 Miles introduced the abdomino-perineal operation, and this discouraged attempts to restore anal function, at least in this country. In 1932 Babcock described the operation of procto-sigmoidectomy without preliminary colostomy, the salient features being the abdominal mobilization, excision of the lymphatic field at a high level, the perineal approach from within the external sphincter, and the removal of the internal sphincter, the sigmoid being brought out as a terminal colostomy through

the anus. Devine (1937) advocated a preliminary transverse colostomy followed by resection and anastomosis on a clean and empty bowel. Dixon (1944) and Wangenstein (1945) have adopted a purely abdominal approach in suitable cases. Lockhart Mummery (1908), Pannett (1935), and others have described combinations of the abdominal and perineal approach, and Lloyd-Davies (1939) has described a "pull-through" method with drainage of the presacral space through the anastomotic line.

It will be apparent from even this superficial survey that the surgeon who essays resection and anastomosis for a rectal growth has a wide choice of operation. Fortunately it is no shame to follow another's path—to be original it is necessary only to think for oneself and not necessarily unlike everyone else. He who constantly performs the same operation sometimes acquires not only dexterity in his particular method but a reluctance to attempt another. Certain aspects of this type of operation require special consideration, from these we must draw our personal conclusions.

### The Sphincter Mechanism

Milligan and Morgan (1934) have made a careful study of the internal and external sphincters, and it is generally accepted that perfect continence requires an intact ano-rectal ring—that condensation of the circular muscle fibres of the rectum in association with the pubo-rectalis fibres of the levator ani muscle. It is true that Bacon and Babcock rely on the external sphincter for control after procto-sigmoidectomy, sutured round the sigmoid colon two to four weeks after resection. They state that 80% of their patients may be classified as continent, though 40% wear a protective perineal pad. While there can be no doubt that a varying degree of control may be obtained from the external sphincter even after it has been divided and repaired, certain continence requires an intact ano-rectal ring and, since the sense of perception is important, an intact lining to the anal canal. A good abdominal colostomy is probably better than an incontinent or untrustworthy anus.

### Essential Pathological Requirements

We owe to Miles the first sound description of the pathology of rectal cancer and its implications on its surgical removal. He stressed the lymphatic spread upwards in association with the superior haemorrhoidal artery, laterally with the middle haemorrhoidal vessels, and downwards with the inferior haemorrhoidal vessels. Subsequent pathological studies, while bearing out the importance of the upward spread, have shown that Miles laid undue stress on the frequency of lateral and downward lymphatic spread. The work of Gabriel, Dukes, and Bussey (1935), Gilchrist and David (1938), and Collier, Kay, and McIntyre (1940) has shown that the main lymphatic spread of rectal cancer is in an upward direction, lateral and downward spread taking place only when the lymphatic system above is blocked by growth. Few lymphatic glands over 1 in (2.5 cm) below a rectal growth are likely to contain metastases, still less those 2 in (5 cm) below, and it would seem to be a reasonable conjecture that a distance of 2½ to 3 in (6.25 to 7.5 cm) below a growth is outside its lymphatic spread except in advanced cases. Here the involvement of the glands above the growth is likely to be such that complete removal of infected glands is impossible and any retrograde spread will be of secondary importance.

Dukes (1944) has demonstrated that 17% of rectal growths excised show involvement of the adjacent veins, though this does not necessarily denote hepatic metastases. He has also shown that the cancer cells may grow down the lumen of a vein in a retrograde manner, appearing sometimes as

\*Based on a lecture delivered at the British Postgraduate School, Hammersmith

a nodule of carcinoma in the mucosa below a growth. While this retrograde venous spread is probably uncommon, and such cases must inevitably have a rather poor prognosis, it is an additional reason for removing a margin of normal bowel below a growth.

There is a further pathological consideration to an operation of anastomosis. It is well known that adenomata are often found in the neighbourhood of a rectal cancer, and two primary growths are not uncommon. Some years ago, when pointing out the advantages of a purely abdominal resection for recto sigmoid and high rectal growths in infirm patients, I drew attention to the possibility of another growth developing in the rectal stump (Muir, 1939). Gabriel and others have since recorded cases in which a carcinoma developed in this site after an abdominal excision. An abdomino-perineal or other combined operation removes completely the rectum and the greater part of the sigmoid colon, but the surgeon who performs an anastomotic operation must bear in mind the possibility, however small, of another primary growth developing from an adenoma in the rectal stump, or indeed in the remaining portion of the sigmoid colon. It is probable that the majority of patients would prefer to accept this risk rather than a permanent colostomy, but the presence of numerous adenomata below a high rectal growth should be regarded as a contraindication to the retention of any rectal mucosa and therefore to an anastomotic operation. The removal of all rectal mucosa while it has other disadvantages, is in this respect a point in favour of the Babcock-Bacon operation.

The essential pathological requirements for an anastomotic operation are that the lymphatic drainage system of the rectum must be removed at its highest practical level by ligation of the inferior mesenteric artery either between the sigmoid branches or immediately below the last sigmoid branch, that the division of the bowel must be at least 2½ to 3 in below the growth and that the presence of numerous adenomata below the growth contraindicates this type of operation.

There are perhaps two occasional exceptions to these rules: the operable growth with small hepatic metastases, and the small growth in the rectal ampulla which clinically appears to be an 'A' case. In both these cases there are strong grounds for trying to preserve a functioning anus even if such methods of resection necessitate a reduction in the margin of normal bowel below the growth.

#### Frequency of Cases Suitable for Resection-anastomosis

Bacon, analysing the site of the growth in 1401 cases of rectal recto-sigmoid and sigmoid carcinomata considered that over 80% were suitable for resection with preservation of a functioning anus. It should be remembered when considering these figures that Bacon accepts every growth 3 cm above the ano-rectal line or 6 cm above the anal margin as suitable for procto sigmoidectomy, that the internal sphincter is not preserved in this operation and that sigmoid growths are included in this series. Such sigmoid growths might well be those requiring ligation of the inferior mesenteric artery for their proper removal but even if they (315) are excluded, 1086 cases of rectal and recto-sigmoid cancer remain. Of these 231 were recto-sigmoid: 148.5 in (125 cm) and 211.4 in (10 cm) from the ano-rectal line. Thus 590 or more than half might appear suitable at least in theory for a method of resection-anastomosis which preserved the internal sphincter.

Clinically growths just palpable at the tip of the finger or discovered only on sigmoidoscopy are usually suitable. The prolapse of a recto-sigmoid growth may be misleading.

A growth 2 to 3 in above the cervix or vesicles may appear suitable but in many cases a final decision can be made only at laparotomy. The rectum is not a straight tube, but undulates from side to side lying curved in the hollow of the sacrum, a growth easily accessible on rectal examination may lie at the level of the abdominal wall when the rectum has been fully mobilized. In general, apart from being operable growths suitable for these operations should lie at least 2 to 3 in (5-7.5 cm) above the lowest level of peritoneal reflection in the pouch of Douglas, though this peritoneal level is by no means constant in its distance from the ano-rectal ring. Growths of the rectal ampulla are unsuitable for operations of this type.

#### The Sigmoid Colon

Since it is necessary to ligate the inferior mesenteric artery either above or immediately below the last sigmoid branch, the blood supply to the distal sigmoid may be jeopardized. In one of my cases, intended for an anastomotic operation, ligation obliterated the arterial supply to the greater part of the sigmoid, and it became necessary to perform an abdomino-perineal resection. A good blood supply is essential to that part of the sigmoid which is to be brought down to the rectal stump or anal canal. After ligation some surgeons have advised marking the most distal part of the sigmoid with visible pulsation by means of a silk stitch. Poor vascularity is associated with infection and is far less likely to cause trouble when no actual suturing is used as in "procto-sigmoidectomy," or when the operation is performed on a clean, empty, and non-functioning bowel.

A long and mobile sigmoid is of great assistance: an unusually short bowel or diverticulitis may render the operation impossible. The length of the sigmoid is of more importance in a "pull-through" method than in a purely abdominal resection and anastomosis when sufficient bowel can usually be obtained by mobilizing it in the left iliac fossa. A pre-operative estimate of the length and condition of the sigmoid can be obtained by a barium enema.

#### Preliminary Colostomy

A preliminary transverse colostomy, as advocated by Devine, permits the operation to be performed on a non-functioning and through the use of lavage and sulphaphthaladine, an almost sterile bowel. A left iliac colostomy "takes in slack" and reduces the mobility of the sigmoid.

A preliminary colostomy is not a routine in all methods. It is unnecessary in the Babcock-Bacon technique, where a terminal colostomy is established through the anus without bowel-suturing. Nor is it used by Wangensteen in his method of abdominal resection and anastomosis, employing deep pelvic clamps. d'Allaines performs colostomy at the time of the resection, on the grounds that a defunctionalized bowel is shorter, shrunken, and more difficult to anastomose.

Necrosis and infection are not only more likely but are also more dangerous when they occur in functional bowel. A preliminary colostomy will require closure, and its use may add three to four weeks to a patient's stay in hospital but it adds such a degree of safety to these operations that I regard it as essential.

#### The Route

The necessity for removing the lymphatic field at its highest level makes abdominal mobilization an essential part of the operation. The resection may be carried out from the abdomen alone thus requiring an anastomosis

between the sigmoid and the rectal stump in the depths of the pelvis, or the abdominal mobilization may be combined with a perineal anastomosis. This may be performed above the levator muscles, aided by their partial division, or outside the anal canal, by prolapsing the rectum, the growth, and the sigmoid through a dilated anus. Finally, as in procto-sigmoidectomy, the sigmoid may be brought out as a terminal colostomy through the anal orifice. My personal choice is for two methods: abdominal resection and anastomosis without clamps, which I believe to be applicable to the majority of suitable cases, and a "pull-through" resection, which, at least in my hands, requires a long sigmoid.

**Abdominal Resection and Anastomosis without Clamps**—The use of clamps deep in the pelvis presents considerable difficulties. I have not had the opportunity of using those devised by Wangenstein for this purpose, but any clamp in this situation takes up valuable room and leaves devitalized tissues. I think it is therefore preferable to dispense with clamps for the purpose of the anastomosis. This operation is suitable for recto-sigmoid growths and many of those in the upper third of the rectum. A preliminary transverse colostomy is performed 14 days before the resection (combined with laparotomy if there is any doubt whether the case is suitable) and the distal bowel cleared by wash-outs and sulphaphthaladine emulsion. The first step in the resection consists in placing the patient in the lithotomy position and carefully swabbing out the rectum. The coccyx is removed and a corrugated drain introduced through the presacral fascia into the presacral space behind the rectum. Drainage should be provided for an anastomosis performed under some difficulty and surrounded by loose cellular tissue, and this is best obtained through the space left after excision of the coccyx. The patient is then placed in the full Trendelenburg position and the initial stages of the usual abdomino-perineal operation are performed. Before ligating the vascular pedicle the blood supply of the sigmoid loop should be carefully examined, bearing in mind the length of the mesosigmoid and the distance to which it must reach. As a rule I have ligated between the sigmoid branches where there is a long and mobile sigmoid and below the last sigmoid branch where the bowel is short.

The effect of this ligation will become evident on the sigmoid colon while the rectum is mobilized. This is carried out to a low level, anteriorly from the vagina or pros-

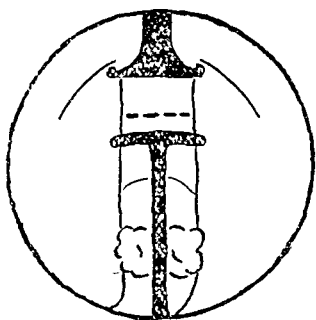


FIG 1—Clamp and retractor applied. The proposed line of incision in anterior rectal wall is shown.

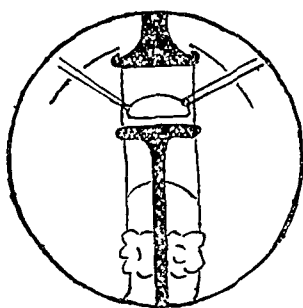


FIG 2—Anterior rectal wall divided. Two cobbling "stay" sutures are inserted.

tate, posteriorly, and laterally. A hysterectomy clamp, which takes up less room in the pelvis than any other, is applied 3 in. below the growth, and an assistant working from the perineum once more carefully swabs out that part of the rectum below the clamp. With the bowel on traction, the anterior wall of the rectum is now opened below the clamp (Fig 1). Two cobbling "stay" sutures are inserted on each side (Fig 2), the posterior wall of the

rectum is divided, and two further sutures are inserted. These sutures serve to hold the rectal stump, to narrow the lumen of the rectal ampulla, which is larger than the sigmoid, and to prevent eversion. A point on the sigmoid with a good blood supply is selected, the mesosigmoid divided, and the sigmoid cut obliquely and anastomosed to the rectal stump (Fig 3). Penicillin-sulphathiazole powder is sprayed around the anastomosis and the pelvis peritoneum is sutured over it and to the sigmoid colon.

**The "Pull-through" Resection**—The essential features of this operation have been described. Its disadvantage is that a long sigmoid is of considerably more importance than in the preceding operation; its advantage, that it enables the surgeon to divide the bowel still closer to the ano-rectal ring. As an alternative to the "synchronous combined" position adopted by Lloyd-Davis (1945), the abdominal part may be first completed, the patient being subsequently placed in the lithotomy position. As in the preceding operation, I prefer drainage through the coccygeal space with complete suture of the anastomosis. After both these operations the transverse colostomy will require closure. Two to four weeks appears to be a suitable interval if the anastomosis is sound. I do not believe a long delay to be either necessary or desirable in the majority of cases.

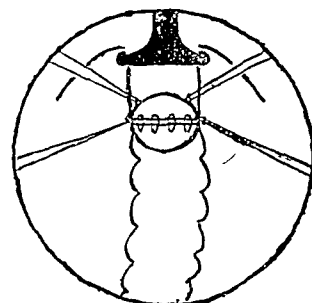


FIG 3—Four "stay" sutures are in position. Anastomosis with sigmoid has begun.

## Results

The personal series here reviewed is of 86 consecutive cases of rectal and recto-sigmoid cancer operated upon since the war. Too small in number and too recent for any consideration of the end-results, they serve to show the frequency with which suitable cases may occur.

Abdomino-perineal or other combined operation	49
Abdominal resection and anastomosis	18
"Pull-through" resection and anastomosis	3
Abdominal resection (Hartmann)	1
Perineal resection (palliative)	1
Inoperable	14

Operability rate 84%  
(Two patients upon whom resection was performed had small hepatic secondaries)

It will be seen that about one-third of the cases considered operable were found suitable for an anastomotic operation. I believe this percentage is too high: two of my cases should have had a combined operation. The abdomino-perineal is likely to remain the most common surgical attack against rectal cancer.

**Complications**—Pelvic infection, fistula, stricture, and incontinence are the more serious complications which might follow these anastomotic operations. Necrosis of the rectal stump through interference with its blood supply has been described by Dixon. If the lateral ligaments of the rectum are fully divided the middle haemorrhoidal arteries must be severed and the rectal stump will depend mainly on the inferior haemorrhoidal arteries for its blood supply. These complications are less likely to occur and will be much less serious in their effects when the operation is performed on a non-functioning and "sterile" bowel. The last two patients upon whom I performed "resection-anastomosis" both developed fistulae. One of these was into the vagina, now happily healed, while the other was into the presacral space. These have been the only fistulae in this series.

The healed anastomotic ring, easily palpable on rectal examination, is always smaller than the rectal ampulla, since it is the junction with the sigmoid. I have had several cases with a small anastomosis, but none have yet required dilatation with bougies. All anastomotic cases have been left with full control. There has been some rectal prolapse after the operation in two of my cases, and this complication has been noted by others.

**Mortality**—There have been two deaths in this short series, in which 72 cases were submitted to some form of resection. Assuming a high operability rate, all operations for rectal cancer must carry a definite mortality, having regard to the age group of these patients. However, the mortality has altered very considerably during the past 20 years. Those who had the privilege of watching Miles perform his operation know that this is not due to any improvement in surgical technique but to the surgical aids and in particular to the sulphonamides and penicillin. The danger from sepsis, considerable in the past, is now small. The mortality rate of these operations should now be not more than 5%.

**End-results**—The end-results of operations for rectal cancer which preserve a functioning anus have been discussed by Babcock, Bacon, Dixon, and others. d'Allaines,



Fig 4

Lloyd-Davies (1948) has recently described recurrences in "A" cases taking place at the suture line.

I have at present a patient upon whom I performed an abdominal resection and anastomosis for a high rectal growth two years ago. Examination of the operation specimen showed that an adequate length of bowel had been resected, all glands examined below the growth appeared free, but metastases were present in a gland at the highest level. This patient, a woman of 59, recently developed a polypoid carcinoma at the anastomotic site and a full abdomino-perineal resection has now been performed (Fig 4). I am indebted to Dr Cuthbert Dukes for the following report:

The specimen measured 11 in (28 cm) and consisted of a portion of the pelvic colon and the rectum. The line of

anastomosis from the original operation could be clearly seen about 3½ in (8.75 cm) above the ano-rectal line. There was a slight narrowing of the lumen in this region, but otherwise the mucosal surface looked normal except for a protuberant tumour half an inch (1.25 cm) in diameter situated on the posterior quadrant. The tumour was attached to the mucous membrane by a broad pedicle, and from its general appearance it certainly seemed to be derived from the mucous membrane. In its gross characters the tumour appeared to be a pedunculated adenoma of doubtful malignancy. There was no evidence of extension into the adjacent perirectal tissues, which, however, were tough and fibrous.

Section shows the tumour to be an adenocarcinoma very well differentiated in character and, judged from its histology, of a relatively low grade of malignancy. There is evidence of spread to the submucous coat and slight invasion of the rectal muscle only. Sections cut through the thickened extra-rectal tissues show fibrosis and inflammatory infiltration but no sign of carcinoma. There was no sign of venous spread. Seven lymphatic glands were found and sectioned, but these were all free from metastases.

This is undoubtedly either a fresh primary tumour or the result of an implantation at the site of anastomosis of the previous operation.

If implantation is the cause of this type of recurrence it behoves the surgeon to exercise the greatest care in his technique, but it is a risk to which all bowel surgery for cancer must be exposed to some degree. By comparison I have two other patients who underwent an abdomino-perineal resection for rectal cancer within the past year and who have now developed fresh growths at and just above the terminal colostomy. These are surely examples of the inevitable and deadly trend of unhealthy and precancerous bowel. An abdomino-perineal operation will give increased protection against a further growth, but may not prevent it. Apart from the presence of obvious adenomata, our present knowledge does not allow us to predict when the retention of any rectal mucosa is fraught with any danger to a patient, though there are some who would say, "Always!"

Apart from the foregoing, it is germane to remind ourselves of several other points in the prognosis of rectal cancer. A high operability rate will almost certainly mean a reduced survival rate. It is known that if the lymphatic glands are not involved at the time of operation the prognosis is relatively good, in such cases the amount of bowel removed below the growth is not likely to affect the issue materially from this aspect. If at operation the glands are already involved the ultimate prognosis is less satisfactory, though considerably better with high removal of the lymphatic field than with a perineal resection. The operations which aim at the preservation of normal defaecation do remove the main lymphatic drainage system of the rectum to the same high level as an abdomino-perineal excision. If therefore a judicious selection of cases is made there is little reason why the results should not be comparable and a permanent colostomy be avoided in certain cases of rectal and recto-sigmoid cancer.

### Conclusions

There is a sound pathological basis for operations which aim at preserving a functioning anus in high rectal and recto-sigmoid growths, but even in early cases and with adequate excision carcinoma can reappear at the anastomotic site.

To be certain of continence the ano-rectal ring must be preserved.

Of the various methods abdominal resection-anastomosis and a "pull-through" resection appear preferable.

A preliminary transverse colostomy lessens the risk and dangers of infection and should always be employed.

The use of sulphonamides and penicillin has reduced the mortality of all methods of rectal resection to a low figure.

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## THE CLINICAL FEATURES OF MUSTARD-GAS POISONING IN MAN

BY

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The occurrence of general systemic symptoms following exposure to heavy dosages of mustard vapour or to massive liquid contamination was well recognized in the 1914-18 war. Since then experimental work on the subject has been largely concerned with the pathological changes observed in animals following the administration of mustard gas by different routes. These investigations have been reviewed by Smith (1943), who gives a comprehensive account of the literature.

In the absence of any large body of human experimental material, investigations on the changes in the haemopoietic system and blood chemistry of animals have tended to relegate to the background the clinical symptomatology produced in man by exposure to mustard gas. Isolated cases of accidental exposure have occurred from time to time, and some have been reported in the medical press (Hobbs, 1944). In these also, however, attention has been focused on the pathology rather than on the symptoms, many of which are nevertheless of the greatest importance, since their occurrence in the case of mustard-gas burns throws light on the mechanism by which similar symptoms arise following thermal burns.

It is difficult to demonstrate the occurrence of systemic manifestations in cases of slight or moderate mustard burns in temperate climates. In the Tropics, however, systemic poisoning by mustard gas is much more readily produced. From 1943 to 1945 I had the opportunity of observing a series of 438 volunteers exposed to mustard gas under tropical conditions, and thus of becoming familiar with the clinical picture of systemic mustard-gas poisoning.

### Material and Methods

Of the 438 men observed 320 were exposed to mustard vapour and 118 to contamination by liquid mustard. In both the vapour and liquid groups the resultant burns were of all degrees of severity, ranging from a faint erythema of a localized area of skin to multiple ulcers many hundreds of square centimetres in area. All the men exposed to vapour and 77% of those exposed to liquid were fully effective respirators throughout exposure.

The occurrence of systemic poisoning in these men was assessed both objectively, by daily clinical examination for a minimum period of 21 days after exposure, and subjectively, by daily interrogation. Each man was examined separately, and was asked only, "How are you feeling to-day in yourself?" No leading questions or suggestions were used.

Not all the symptoms of which the volunteers complained were easy to evaluate. Great care, however, was taken in each case to exclude adventitious causes, such as indulgence in the local mixture of lower alcohols, and to sort out genuine complaints from those which might be regarded as suspicious. In general, it was impossible to assign any accurate degree of severity to the subjective clinical symptoms owing to the variation in the general character and education of the volunteers. It is felt that considerable confidence can be placed in the findings, since they were recorded in men classified as A1 who were in good physical condition and well acclimatized to the Tropics. Further, the men had all volunteered to be exposed to mustard gas, and showed the keenest interest in the work.

Owing to lack of time and facilities it was only possible to follow blood changes in selected groups of men. The clinical pathology of some of the severely affected men was more extensively investigated.

### Observations

#### Threshold and Severity

No symptoms attributable to systemic poisoning occurred in any vapour case in which no lesion more severe than erythema developed. There were 84 such men. Similarly, no man with liquid burns in whom the total raw surface ultimately produced was less than 20 square centimetres in area complained of systemic symptoms. In this category 83 men were included. Of the remaining 271 men, 102 reported one or more symptoms.

The severity of the effects varied within wide limits. In 35 men systemic manifestations were present on one day only, and in most of these cases the symptoms were in no way incapacitating. At the other extreme were cases in which systemic symptoms were a major factor in producing prolonged disability. In 37 men never more than one symptom was present, while the remaining 65 complained of two or more symptoms at various times. In general, the latter group included the more severely affected men.

#### Time Factors

Of the 102 men affected 66 (65%) showed symptoms within 24 hours of exposure, 83 (81%) were involved within 48 hours and 96 (94%) before the sixth day. It is also of interest that only 3 (16%) of the 19 cases in which the onset of symptoms occurred later than 48 hours after exposure could be described as more than very slightly affected. In contrast the onset of systemic symptoms in some of the worst cases preceded even the appearance of erythema of the skin.

Fig 1 shows the number of men complaining of one or more systemic symptoms on each day after exposure. The number is largest on the first day, and falls fairly regularly till the end of the second week. No complaints were received from any man after the forty-fifth day. It is interesting that there is no correlation between the number of men complaining of systemic symptoms and the severity of the skin burns. Characteristically, the latter developed slowly, and in the vapour cases did not reach their maximal development until, on the average, 11 days after exposure. This time appeared to be independent of the severity of the lesions (Sinclair, unpublished work,

1944) The time taken by the liquid burns to attain their maximum varied considerably, but in general was somewhat shorter. Considering the group as a whole, there was a steady rise in the extent and severity of the skin lesions

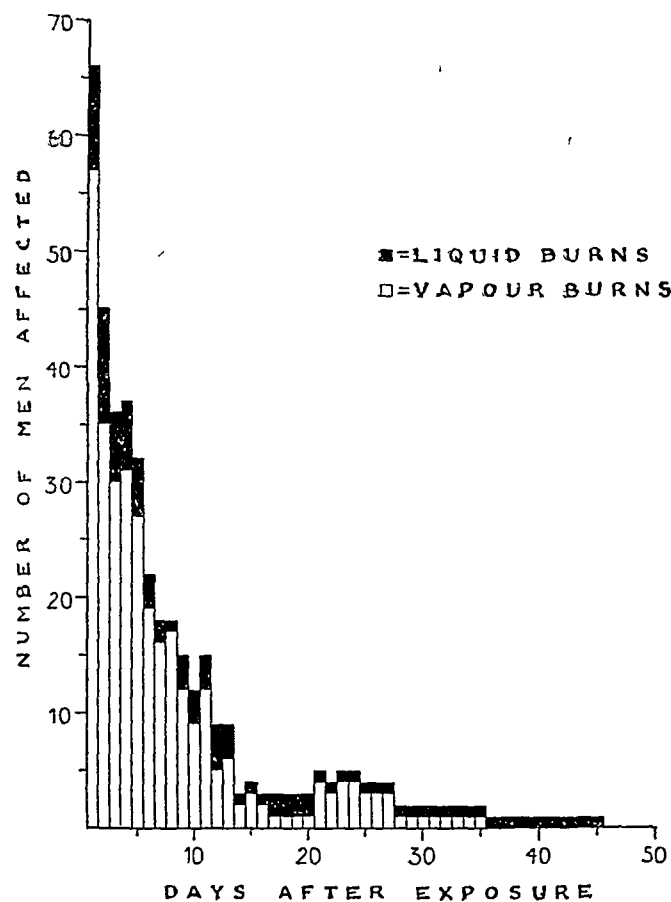


Fig 1—Distribution of systemic poisoning in time

until the eleventh day, whereas during this time there was a steady fall in the number of systemic symptoms recorded

#### Symptoms and Signs

Table I sets out the various symptoms observed in this series. It is evident that most of them might be produced by any state of general intoxication, and are not in any way

TABLE I—Relative Incidence of Symptoms

Symptom	Vapour Cases		Liquid Cases		All Cases	
	No of Men Com-plain-ing	Percentage Com-plain-ing (out of 86)	No of Men Com-plain-ing	Percentage Com-plain-ing (out of 16)	No of Men Com-plain-ing	Percentage Com-plain-ing (out of 102)
Nausea	50	58	11	69	61	60
Headache	36	42	6	38	42	41
Lassitude	33	38	6	38	39	38
Insomnia	26	30	5	31	31	30
Vomiting	16	19	3	19	19	19
Anorexia	14	16	5	31	19	19
Abdominal pain	13	15	1	6	14	14
Diarrhoea	9	10	2	13	11	11
Tremor	5	6	2	13	7	7
Vertigo	6	7	0	0	6	6
Tachypnoea	4	5	1	6	5	5
Anxiety state	1	1	2	13	3	3
Total no com-plain-ing of one or more symp-toms	86		16		102	

peculiar to mustard-gas poisoning. Two rather more unusual signs—tremor and tachypnoea—were restricted to severely burned cases. Table I also shows, for each symptom, the percentage of the total number exhibiting systemic symptoms who complained of that symptom. It

will be seen that there is a striking agreement in these percentage figures between the vapour and the liquid cases, thereby indicating that the overall clinical picture of each group of men was similar in spite of the differences in the type of skin lesion and its mode of production.

The clinical picture of systemic poisoning showed, nevertheless, a considerable variation with time. Table II

TABLE II—Distribution of Individual Symptoms in Time

Period	No. of Complaints of										Total
	Nausea	Vomiting	Anorexia	Abdominal Pain	Headache	Lassitude	Insomnia	Tachypnoea	Diarrhoea	Vertigo	Tremor
First day	41	10	3	3	18	12	4	5	1	4	6
Remainder of first week	82	7	17	18	37	47	53	—	11	1	9
Second week	15	7	17	14	12	11	24	—	3	1	7
Third week	2	—	14	2	3	1	—	—	—	—	7
Fourth week	5	—	12	15	6	—	—	—	1	—	7
Fifth week	—	—	7	7	—	—	—	—	—	—	7
Later than fifth week	—	—	—	—	—	—	—	—	—	—	10
Total	145	24	70	59	76	71	81	5	16	6	53

shows the number of complaints made of each symptom during different periods after exposure. A consideration of this table shows, for example, that on the day after exposure nausea and vomiting between them accounted for 47.7% of the total number of complaints made on that day, whereas complaints of anorexia and abdominal pain taken together accounted for only 5.6% of this total. Thereafter, however, there is a gradual decrease in the proportion of complaints due to nausea and vomiting, while the proportion due to anorexia and abdominal pain steadily rises with time. Other symptoms show proportional changes which are less striking. Thus the percentage of total complaints due to headache remains fairly constant, and complaints of lassitude and insomnia are practically restricted to the first two weeks.

It may therefore be said that in the first week following exposure the most characteristic complaint was of nausea with or without vomiting, whereas after the beginning of the third week anorexia and abdominal pain accounted for the greater part of the complaints made.

To evaluate the relative frequency with which any given symptom "presented," a simple marking system was adopted. One mark was allotted to each man, and if there was only one presenting symptom the whole mark was entered under this symptom. If several symptoms presented simultaneously the mark was split proportionately between them. By this procedure it was found that nausea with or without vomiting was the commonest presenting symptom, receiving 38.3 marks. Headache and lassitude each received 22.8 marks, and all the other symptoms together accounted for the remaining 18.1 marks.

#### Individual Symptoms and Signs

**Nausea and Vomiting**—Of all the symptoms which have been recorded in man after exposure to mustard gas nausea and vomiting are the commonest (Norris, 1918, Moorhead, 1919, Wilson and Mackintosh, 1920, Soltau and Elliott, 1923, Aitken, 1943, and others). Vomiting is also frequent in experimental animals (Lynch *et al.*, 1918, Warthin and Weller, 1918, Smith, 1943). It has already been noted that nausea was the commonest individual symptom of the present series. A characteristic feature of the nausea was the occurrence of intermissions. Thus one man was nauseated on the first day, and then had no symptoms of any kind until the sixth day, when he had an attack of



severe nausea lasting four days. The onset of this attack preceded by two days a generalized outbreak of vesication. The complaints of nausea recorded in Table II in the fourth week after exposure were received from a group of men exhibiting abdominal symptoms in whom nausea accompanied the other complaints.

Vomiting was always preceded and accompanied by nausea. In the worst case there was repeated vomiting and retching over a period of 48 hours. It will be noted that in Table II vomiting is recorded several times during the second week. The circumstances of such delayed vomiting were carefully examined, but it was necessarily difficult to exclude factors other than the effects of mustard. It is possible that in some instances the vomiting may have a partly functional origin (Wilson and Mackintosh, 1920, Soltau and Elliott, 1923).

**Headache**—Headache of the type described by Moorhead (1919), Soltau and Elliott (1923), and Aitken (1943) was a feature of many cases. It was characteristically frontal, continuous rather than remittent, resistant to medication, and of a peculiarly unpleasant nature. In some of the worst cases headache was responsible for a considerable amount of disability. For example, one man complained of intense headache from the first to the third day, sufficient to make him cry out and to necessitate his admission to hospital on the fourth day. The headache disappeared on the seventh day, but from then until the fifteenth day intermittent nausea, vomiting, vertigo, insomnia, and anorexia were present. On the twenty-first day the headache reappeared in an even more severe form than before, and lasted until the twenty-seventh day. This man suffered from mustard burns which were only moderate in degree, but it was necessary to retain him in hospital solely because of his systemic manifestations. It is probable that he represents an unusual degree of sensitivity to mustard-gas poisoning.

**Lassitude**—Lassitude has been noted as a feature of mustard cases by Moorhead (1919), Wilson and Mackintosh (1920), and Aitken (1943). In the severe cases in this series the men were most unwilling to do anything more in their spare time than lie down and try to sleep. This finding has the more weight since it was recorded on Australian fighting troops in the absence of pain or severe burns. It might be expected that the occurrence of lassitude would run parallel to that of insomnia, but in only 12 of the men were lassitude and insomnia both present, and in only 5 of these were the two symptoms recorded simultaneously. It is evident, therefore, that the lassitude could not be attributed solely to loss of sleep.

**Insomnia**—Before attributing insomnia to the specific action of mustard gas it is necessary to exclude the factors of pain, irritation, or itching arising from the skin burns. It is probably for this reason that insomnia has rarely been mentioned as a symptom of mustard poisoning (von den Velden, 1921). Nevertheless, in their initial stages mustard burns are relatively painless (Soltau and Elliott, 1923). In 12 of the 16 more severely affected men the onset of insomnia occurred before the third day, and it is noteworthy that none of these men advanced the reason of discomfort as the cause of his complaint. It is possible, however, that insomnia occurring later was, at least in part due to pain or irritation.

**Anorexia and Abdominal Pain**—Reference to Table II shows that complaints of loss of appetite occurred not only in the first few days, as might perhaps be expected in any series of skin burns, but also as late as the fourth and fifth weeks after exposure. At the beginning of the fourth week a condition supervened in 4 men which was char-

acterized by anorexia, abdominal pain, and occasional nausea. Abdominal pain was also recorded in the early stages (Table II), but was usually not so severe as in the delayed cases. In the literature epigastric pain appears frequently as an early and acute symptom of mustard-gas poisoning (Mandel and Gibson, 1917, Moorhead, 1919, Soltau and Elliott, 1923, Chiesman, 1944), but its occurrence in the later stages does not appear to have been mentioned. Hobbs (1944) has described ulceration of the duodenum in a fatal case of mustard-gas poisoning, and the nature of the delayed pain observed in this series is of interest in this connexion. It occurred from half an hour to an hour and a half after meals, and lasted for a few hours. It was usually a steady ache, situated in the epigastrium and accompanied by a diffuse epigastric tenderness. It was not relieved by food, but could be alleviated by alkali, it did not interfere with sleep. Flatulence and heartburn were not observed, and the pain bore no relation to the type of food consumed.

**Diarrhoea**—Diarrhoea was in all cases mild and of short duration. Both Soltau and Elliott (1923) and Wilson and Mackintosh (1920) are emphatic that diarrhoea in gassed cases in the 1914-18 war was due to associated conditions rather than to mustard-gas poisoning. Moorhead (1919) mentions diarrhoea of a dysenteric type, but states that constipation was the rule. Nevertheless, diarrhoea is a prominent feature in experimental animals (Lynch *et al*, 1918, Smith, 1943), and it has been regarded as a leading symptom of systemic intoxication by mustard gas (Smith, 1943). In this series detailed records were not kept of controls, but it may be said that diarrhoea was certainly not more common in the volunteers than in the camp staff, who were living and working under similar conditions.

**Tremor**—The occurrence of tremor has been described in experimental animals following the intravenous injection of mustard gas (Warthin and Weller, 1918), but, except for one case mentioned by Wilson and Mackintosh (1920), does not appear to have been particularly noted in man. In this series it was restricted to severely burned men, in whom it appeared within a few hours of exposure. In all the vapour cases affected it involved the whole body, especially the hands, and at its worst resembled well-marked shivering. The men did not, however, complain of feeling cold and the body temperature was in all cases normal. The tremor was coarse and showed frequent remissions, it was not under voluntary control. The deep reflexes were invariably exaggerated, but examination of the central nervous system disclosed no other abnormalities. In all cases the tremor disappeared within 48 hours. In one man with liquid burns an exactly similar tremor was noted on the second day after exposure. In another a coarse tremor of the hands and fingers was present throughout his stay in hospital (45 days). This man had severe multiple third degree burns in 30 distinct areas. These areas were such as to preclude any testing of the usual deep reflexes in either legs or arms. He was, however, extremely unsteady and incoordinated. He became nervous and excitable, and his mental condition during the first few weeks approximated to an anxiety state. Examination of the central nervous system was negative, and by the time his burns had healed adequately the deep reflexes were normal.

**Vertigo**—Vertigo has been noted by Aitken (1943) in vapour cases, and was present in six vapour cases in this series. It did not occur apart from nausea, and never lasted longer than one day.

**Tachypnoea**—In four of the five vapour cases "tremor" tachypnoea began within a few hours, at the same time as erythema appeared. Nine hours after exposure the resting recumbent respiratory rate had risen in all four to 30 per minute or over, and in one case to 40 per minute.

Breathing was in all cases shallow and fairly regular, and there was no evidence of dyspnoea. Twenty-four hours after exposure there was no disturbance of respiration in any man.

One of the men severely burned by liquid also complained of considerable "breathlessness" during the first 24 hours, even while lying in bed. It is interesting to note that an increased respiratory rate has been reported in goats following the contamination of the skin by 40–50 mg/kg of liquid mustard (Allen, Cameron, Coles, and Rutland, unpublished work, 1944). These authors state that the respiratory rate "may reach high levels between the sixth and twelfth hours." Similar results were reported by Lynch *et al* (1918) in dogs. It is therefore probable that the tachypnoea seen in human cases is due to a direct action of absorbed mustard derivatives rather than to any non-specific cause connected with skin damage. Both Mandel and Gibson (1917) and Norris (1918) mention rapid breathing as an early symptom in mustard-gas casualties, but in the men they describe it is apparent that protection of the respiratory tract was inadequate, and that the rapid breathing was the first sign of bronchitis. Moorhead (1919) and Aitken (1943) note the occurrence of pain in the chest, probably from the same cause.

**Anxiety State**—Reference has already been made to the occurrence of a well-marked anxiety state in one of those severely burned by liquid mustard. Two other men, both badly burned, showed a very similar condition for the first two weeks after exposure. All three were "jumpy," irritable, and restless, and were afraid that they were going to die. In all cases recovery was rapid once the lesions had demonstrably started to heal. These men presented a marked contrast to the tired listlessness characteristic of many others in this series. Restlessness and irritability are described by von den Velden (1921), while Wilson and Mackintosh (1920) mention a case in which "mental excitement" was prominent.

**Temperature Pulse Blood Pressure**—Cases of marked toxæmia were sometimes accompanied by an irregularly raised temperature, which did not exceed 101° F (38.3° C). This was not associated with sepsis, which was very uncommon in this series. The pulse rate in such men was correspondingly increased. Elevation of the pulse rate on the first day usually appeared to be due to the effort of retching.

In Moorhead's series (1919) the blood pressure was often low, while in Aitken's cases it was slightly raised. In four cases of liquid poisoning in this series there were signs of surgical shock, accompanied by evidence of haemoconcentration and a rise in the blood non-protein nitrogen, but in none of these could the blood pressure be satisfactorily taken owing to the position of the burns on the arms and thighs.

#### Clinical Pathology

One of the most characteristic effects of severe intoxication by mustard gas is a gradual fall in the number of circulating leucocytes, with concomitant changes in the bone marrow (Needham, Cohen, and Barrett, 1947). In fatal cases a condition amounting to aleukaemia may precede death (Hobbs, 1944). In none of the men in this series was there any definite evidence of a leucopenia, but in some of the severely burned cases there was a statistically significant temporary fall in the ratio of neutrophil polymorphs to lymphocytes. A polymorphonuclear leucocytosis, attributable to the presence of raw skin surfaces, occurred in many cases of vapour poisoning about the end of the first week and lasted for about ten days.

Moorhead (1919) observed that in mustard-gas poisoning the coagulation time of the blood was often markedly

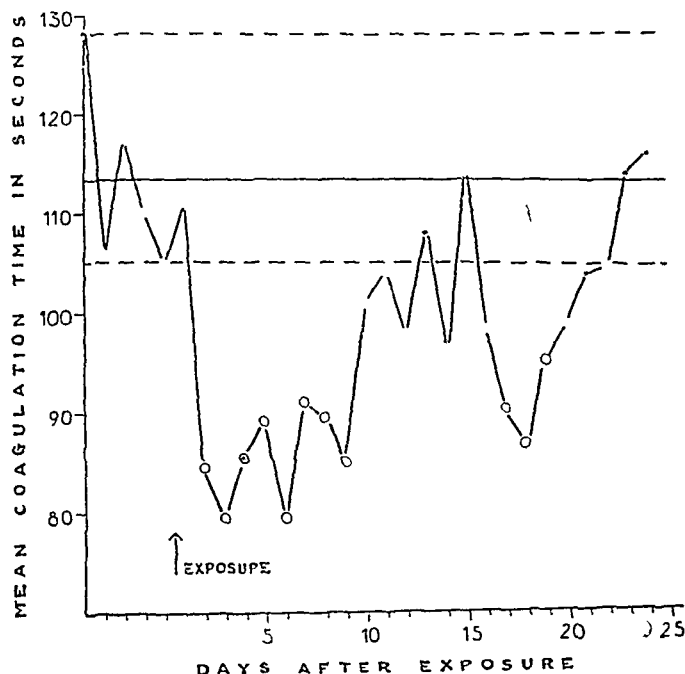


FIG 2—Effect on blood coagulation time. The course of the mean blood coagulation time in 10 men exposed to mustard vapour. The day of exposure is indicated by an arrow, the limits of the pre-exposure values by interrupted lines, and the mean pre-exposure value by a continuous line. Points on the graph showing statistically significant departures from this mean are circled.

decreased. This observation was confirmed in a number of vapour and liquid cases in this series. Fig 2 shows the course of the mean coagulation time for a group of ten men exposed to mustard vapour. It was unfortunately not possible to investigate the cause of this rapid coagulation of the blood.

In view of the occurrence of "abdominal" symptoms, and of the known association of peptic ulcers with mustard-gas burns (Hobbs, 1944), an investigation of the total and free acidity of the gastric contents was carried out by Thompson (unpublished work, 1945) on a number of men in this series. He concluded that "under the conditions prevailing exposure to mustard gas gives rise, in a proportion of cases, to a significant increase in the secretion of acid by the gastric mucosa." The rise in acidity was not immediate, and the maximum figures tended to occur about the eleventh day. No investigations on the gastric acidity of the men complaining of abdominal symptoms in the fourth week were carried out.

Even in the most severely burned men in this series no abnormal changes could be demonstrated in the sedimentation rate, the platelet count, or the composition of the urine.

#### Discussion

Lynch *et al* (1918) were among the first to suggest that many of the symptoms observed in men gassed by mustard were due to the action of mustard gas as a specific systemic poison. At the time it was believed by many that the effects were caused solely by the local tissue damage. Thus Soltau and Elliott (1923) state that "vomiting is due to the swallowing of saliva or nasal secretion which has been infected by mustard gas"—an explanation which was also accepted by Aitken (1943). Warthin and Weller in 1918 found "no evidence of any systemic poisoning by the absorption of dichlorethyl sulphide from the skin, eyes, or mucous membranes of the respiratory or gastro-intestinal tracts." Subsequent work, however, has left no doubt that mustard gas has a specific toxicity, manifested particularly by its effect on the haemopoietic tissues, irrespective of the route by which it is administered (Smith, 1943).

In 1943 work on the exposure of human volunteers in Australia showed that severe systemic symptoms could be produced despite the fact that fully effective respirators were worn throughout exposure. This condition also applies to all the cases reported in this paper, with the exception of five of the men exposed to liquid contamination, who wore eye-shields instead of respirators. The only possible channel of entry for mustard derivatives into the body was thus the intact skin. It follows that the symptoms and pathological changes observed can only be due either to the action of derivatives of mustard circulating in the blood after having been absorbed through the skin or to the absorption of non-specific metabolites from the damaged skin.

The latter explanation cannot be wholly neglected. Gibson and Brown (1944), reporting on shock following thermal burns, state that vomiting was frequent and often severe. Further, many of the symptoms occurring in the cases exposed to mustard are, by reason of their general character, difficult to attribute solely to the action of mustard derivatives. Nevertheless it is probable that the observed picture is for the most part due to this cause, for several reasons.

1 It has been shown that the systemic symptoms in experimental animals exposed to mustard vapour or to liquid skin contamination can be almost exactly reproduced by the intravenous injection of pure mustard or derivatives of mustard (Smith, 1943).

2 In this series the symptomatology of vapour and liquid cases was exactly similar in spite of the marked differences in the type of skin burn produced.

3 In the present series 65% of the men affected became so within 24 hours, and in very few of these was the degree of skin damage greater than an erythema by the end of this time. Indeed, in some cases the onset of nausea preceded the appearance of erythema. It is thus difficult to explain the symptoms solely on the basis of the liberation of toxic metabolites by skin damage. Further, in the group as a whole the severity of the skin lesions showed a progressive increase until the eleventh day, whereas during this time the number of systemic symptoms steadily fell.

4 The leucopenia characteristic of severe poisoning by mustard gas, however administered, is not produced by other, non specific, substances injurious to tissues.

It is reasonable, therefore, to regard most of the findings in these men as being due to the specific action of mustard. There is one group of symptoms, however, which may be in part due to a non-specific mechanism. Peptic ulcer is a well-recognized complication of thermal burns (Harkins, 1938), and it seems possible that the association of abdominal pain, anorexia, and nausea which occurred in a few of the men during the fourth week after exposure was in some way related to the skin damage rather than to mustard poisoning. The number of cases examined by Thompson (1945) is too small to show any definite relation between symptoms referable to the gastro-intestinal tract and the appearance of hyperacidity, but the findings merit further investigation.

The mechanism by which the mustard derivatives which have been found in the blood stream of experimental animals act to produce clinical manifestations is obscure, except that there is a specific toxic effect on the bone marrow (Needham, Cohen, and Barrett, 1947). It is possible that many of the apparently diverse symptoms produced in man have a common pathological origin. It must be pointed out that the results in this series show that systemic intoxication in both liquid and vapour cases occurs much more readily in the Tropics, probably owing to a generally enhanced power of the skin to absorb mustard gas (Cullumbine, 1948).

Not all the symptoms and signs observed had the same practical importance with reference to disability. In this respect the incapacitating potentialities of nausea, vomiting, and headache may be emphasized. The necessarily limited clinical pathological investigations in this series showed that, although changes in the leucocyte count and in the blood coagulation time were noted, these changes were in no instance such as to cause concern, and did not affect the clinical course of the cases.

### Summary

An account is given of the various clinical symptoms and signs encountered in 102 cases of mustard-gas poisoning observed in the Tropics.

These symptoms followed the absorption of mustard gas through the skin, and were in great part the result of a specific toxic action of mustard derivatives.

Severe systemic manifestations were produced in some instances, although the blood changes found were in all cases clinically unimportant.

The incidence of systemic symptoms was greatest on the day after exposure, and fell progressively thereafter.

The commonest individual symptom was nausea, in the more severe cases accompanied by vomiting. The possible relation of abdominal symptoms to a disturbance of gastric secretion is discussed.

Potentially incapacitating symptoms occur in the Tropics very much more readily than in temperate climates.

The kindness of the Australian Chemical Defence Board in permitting publication of the work carried out under its direction is gratefully acknowledged. Permission to publish has also been received from the Chief Scientist, Ministry of Supply.

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The Board of Trade reports that the President of Finland has submitted a Bill to the Diet proposing the establishment of a Government Company for the importation and distribution of medicinal preparations on a wholesale basis. The share capital of the company is to be 100 million Finnish marks, but can be raised to 300 million Finnish marks. The Government will hold all shares with the exception of two, which could tentatively be transferred to the Public Pension Board and the Helsinki University. In the preamble to the Bill the Government states that as long as the importation and distribution of medicinal preparations are solely in the hands of profit-seeking private companies there is always the danger that prices will be too high. It is therefore essential that the trade should also be conducted by a company whose objects are entirely confined to promoting the public welfare. As the Government company will sell the products at the lowest possible prices it will be the competing firms to make corresponding reductions in prices. The new company will also handle the distribution of products to the State and municipal hospitals.

## TREATMENT OF TYPHOID CARRIERS WITH PENICILLIN AND SULPHATHIAZOLE\*

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Chemotherapy has hitherto yielded very disappointing results in the treatment of typhoid carriers, and radical surgical treatment is by no means regularly effective. Bigger (1944, 1946) described a synergistic action of penicillin and sulphathiazole against various organisms, including *Salmonella typhi*, and Comerford, Richmond, and Kay (1946, 1947) treated two carriers with a combination of these drugs with apparent success. It was decided to treat a larger series of known chronic typhoid carriers with the same two drugs to see if the beneficial results could be regularly expected.

Experiments were carried out at the same time to determine the sensitivity of strains of *Salm typhi* to penicillin and sulphathiazole and to decide if penicillin is excreted in the bile in concentrations sufficient to influence the growth of *Salm typhi*.

### Sensitivity of Strains of *Salm typhi* to Penicillin and Sulphathiazole in vitro

The sensitivity of the strains of *Salm typhi* from the carriers to the separate and combined actions of penicillin and sulphathiazole was tested in nutrient broth treated according to the method described by Harper and Cawston (1945). One batch of culture medium was used throughout. Sixteen strains were tested—five of Vi-phage Type A, five of Type C, four of Type E1, and two of Type N (Craigie and Felix, 1947). Recently isolated cultures were maintained on Dorset's egg medium, and inocula for the *in-vitro* tests were prepared by two successive subcultures in broth at four-hourly intervals. Inocula varying from 5,000 to 1,000,000 organisms were subjected to the action of different concentrations of the drugs in 5 ml of broth. The absence of turbidity after incubation for 48 hours was recorded as evidence of inhibition. A quantitative estimate of the bactericidal effect of the drugs was then made by subculturing various quantities from the original tubes into fresh medium containing an excess of penicillinase and para-aminobenzoic acid.

The results of the *in-vitro* tests may be summarized as follows:

1. Penicillin alone in a concentration of 8 units per ml inhibited the growth for 48 hours of 11 out of 16 strains. The remaining 5 were inhibited by 16 units per ml. Complete sterilization was achieved by slightly higher concentrations, 12 strains being sterilized in 48 hours by a concentration of 16 units per ml and 4 strains by 32 units per ml. These results were more or less independent of the size of the inoculum between 5,000 and 1,000,000 organisms and of the Vi-phage type.

2. The action of sulphathiazole alone was dependent upon the size of the inoculum. With small inocula of 5,000 to 10,000 organisms 7 strains were sterilized in 48 hours by a concentration of 1.25 mg of sulphathiazole per 100 ml, 4 strains

required a concentration of 2.5 mg per 100 ml, and 5 strains 5 mg per 100 ml. An inoculum of 100,000 organisms was regularly inhibited by a concentration of 5 mg per 100 ml, but a lethal action in 48 hours was not common. With inocula of 1,000,000 organisms a concentration of 5 mg per 100 ml rarely inhibited growth.

3. When the joint action of the two drugs was examined the concentration of sulphathiazole was kept constant at 5 mg per 100 ml, the concentration of penicillin and the size of the inoculum being varied. As small inocula (5,000 to 10,000 organisms) were sterilized in 48 hours by a concentration of 5 mg of sulphathiazole per 100 ml, no studies were made of any possible joint action of the two drugs. With large inocula (1,000,000 organisms) the presence of penicillin in small amounts together with 5 mg of sulphathiazole per 100 ml often inhibited growth, but a sterilizing action was seldom demonstrable. Complete sterilization of the inoculum in most cases was achieved only when the concentration of penicillin approximated to that which would bring about this effect unaided by sulphathiazole. As an approximate measure it could be stated that the presence of sulphathiazole in a concentration of 5 mg per 100 ml reduced to one-half the concentration of penicillin required to effect sterilization of an inoculum of 1,000,000 organisms.

### Penicillin in Bile

Evidence was sought that penicillin is excreted in bile in sufficient concentration to kill *Salm typhi* or at least to inhibit its growth. A tube was passed into the duodenum of a healthy subject who was receiving intramuscular injections of 500,000 units of penicillin every three hours. Ten minutes after the fourth injection a sample of bile aspirated after the administration of magnesium sulphate as a chologogue contained more than 100 units of penicillin per ml and the Oxford staphylococcus was inhibited by a 1 in 6,000 dilution of the bile in broth. The bilirubin content of this sample was 150 mg per 100 ml. A similar examination in another person yielded a sample of bile containing more than 20 units of penicillin per ml.

A number of examinations were made of samples of bile from patients whose gall-bladders had been removed by surgical operation. In one patient a fine catheter was led into the cystic duct and left there for several days for the collection of samples of bile. After the second intramuscular injection of 500,000 units of penicillin the bile contained 25 units per ml, inhibiting the growth of the Oxford staphylococcus at a dilution of 1 in 1,280, and a concentration of 12 to 25 units was steadily maintained thereafter. A similar result was obtained in a patient whose gall-bladder was drained to relieve an empyema. Initially, this patient was given intramuscular injections of 100,000 units every three hours, and after 12 hours the fluid from the gall-bladder inhibited the growth of the Oxford staphylococcus at a dilution of 1 in 64 (approximately 1 unit), but *Salm typhi* was not inhibited. The dose of penicillin was increased to 500,000 units every three hours, and 12 hours afterwards the concentration of penicillin in the bile was between 10 and 20 units per ml. The bile inhibited the Oxford staphylococcus at a dilution of 1 in 1,000 and *Salm typhi* at a dilution of 1 in 8. In a third patient the contents of the gall-bladder excised one hour after a single intramuscular injection of 1,000,000 units of penicillin contained 12 units per ml.

There was thus evidence that penicillin is excreted in the bile in adequate concentrations to inhibit or destroy *Salm typhi* if injections of the order of 500,000 units are given at intervals of three hours.

### Therapeutic Trial

Seventeen faecal carriers of *Salm typhi* were selected for treatment. There were five carriers of Vi-phage Type A, five of Type C, four of Type E1, and three of Type N.

\*Based on a report to the Medical Research Council.

All were known to be regular excretors of *Salm typhi* as specimens of faeces had been examined in our laboratories at monthly or in some cases weekly intervals for very long periods. A single batch of yellow penicillin (Glaxo) was used for the majority of the cases, but in two who were given injections of 5 million units it was necessary to use crystalline penicillin.

Three different courses of treatment were tried, the results of these are shown in detail in the accompanying table.

*Courses of Treatment for Typhoid Carriers*

Course	Case No.	Known Duration of Carrier State	Vi phage Type	Total Dosage		Result
				Pen (mill units)	Sulph (g)	
1	1	6 years	A	30	45	Positive 11th day
	2	6 "	C	30	45	" 9th
	3	6 "	E1	28	25	" 30th
	4*	6 "	E1	30	45	" 14th
	5	15 "	E1	30	40	" 8th
	6	5 "	C	30	45	" 7th
	7	4 "	C	30	45	" 7th
	8	5 "	E1	30	45	" 7th
2	9	6 "	C	48	72	6th "
	10	6 "	C	48	72	1st "
	11	3 "	A	60	70	119th "
	12	14 "	A	60	70	1st "
	13	4 "	A	60	70	1st "
	14	9 "	N	60	90	28th "
	15	7 "	N	60	90	Negative 48 weeks
	16	6 "	N	60	90	Positive 12th day
	4*	6 "	E1	60	90	Negative 36 weeks
	5	15 "	E1	65	86	Positive 6th day
	6	5 "	C	60	90	" 7th
	14	9 "	N	60	90	Negative 36 weeks
3	13	4 "	A	120	36	Positive 1st day
	17	4 "	A	120	36	1st

\* Cholecystectomy two years before treatment

**Course 1 Continuous 5-Day Course**—In the continuous course of treatment 1,000,000 units of penicillin were injected intramuscularly and 15 g of sulphathiazole were given orally every four hours for five days. The total course thus consisted of 30 million units of penicillin and 45 g of sulphathiazole. Seven patients were so treated. An eighth patient received 28 million units of penicillin in doses of 500,000 units every three hours for seven days and a total of 25 g of sulphathiazole. Seven of the eight cases were found to be excreting typhoid bacilli within two weeks of the end of treatment. The remaining case was found positive on the 30th day, but as the patient had left hospital a few days after the end of treatment no specimens were received between the 7th and 30th days.

**Course 2 Intermittent 21-Day Course**—The intermittent course of treatment was designed at the suggestion of Professor J W Bigger. It consisted of the same four-hourly doses of penicillin and sulphathiazole in four courses each lasting two and a half days, the individual courses being separated by intervals of two to four days. The total dosage as planned was thus 60 million units of penicillin and 90 g of sulphathiazole, but in some instances slight adjustments were necessary. The precise amounts given to the patients are shown in the table.

Eight patients received the intermittent course in the first instance. Four of these gave positive cultures within one week of the cessation of treatment, one became positive on the 28th day, and one on the 119th day. One case due to Vi phage Type N has remained negative for 48 weeks to date and represents the only apparent success in the first 16 cases treated by a single continuous or intermittent course.

After a short interval four patients were selected for a further trial by the full intermittent course. Three of them had previously had the continuous course and one the intermittent course. Two of these four patients were positive again within a week of the termination of the second course. The other two were still negative 36 weeks after the treatment. It will be seen that two of the successes were obtained in Vi-phage Type N carriers, but a third carrier of this type (almost certainly the same strain) was not cured (Case 16). Two of the cured carriers who had harboured Vi phage Type N showed a definite drop in their typhoid Vi-agglutinin titre. The Vi-agglutinin titre of the third

apparently cured carrier (Vi phage Type E1) has so far unchanged.

**Course 3 Intermittent Course with Massive Doses of Penicillin**—When the results of the above attempts were reviewed it was decided that there was little ground for optimism, and no conclusion could be reached regarding a dosage which might be expected to give encouraging results. In a final attempt two carriers were treated with injections of 5 million units of penicillin together with 15 g of sulphathiazole orally every three hours for 24 hours, the total daily dosage being 40 million units of penicillin and 12 g of sulphathiazole. The patients were so treated on three occasions, separated by rest intervals of three days. Each carrier therefore received a total of 120 million units of penicillin and 36 g of sulphathiazole. One of these cases had been previously treated by the ordinary intermittent course of 21 days (Case 13 of the series), but the other had not previously been treated by penicillin or sulphathiazole. Both patients remained positive, and excretion of typhoid bacilli did not cease even temporarily.

*In-vitro* tests with the carrier strains isolated before and after treatment showed that they had not altered their resistance to penicillin and sulphathiazole.

### Summary and Conclusions

Attempts were made to clear 17 chronic typhoid carriers of infection. At first eight cases were given a continuous course of treatment similar to that employed successfully by Comerford *et al* (1946) in two cases. All eight cases resumed excreting typhoid bacilli soon after the end of the course of treatment.

When it became apparent that the continuous treatment was not as effective as had been hoped it was decided to try an intermittent course suggested by the work of Bigger (1944) as a method of eliminating 'persisters'. Accordingly much larger amounts of both drugs were given over a period of 21 days with rest intervals, and in eight cases there was one apparent success. Soon afterwards four of the unsuccessfully treated cases were selected for a further trial by this method, with two more apparent successes.

In order to decide if yet larger doses might succeed, two cases, one of which had been previously treated, were given 40 million units of penicillin and 12 g of sulphathiazole a day on three occasions. Both attempts were unsuccessful.

Although the results of *in-vitro* tests suggested that typhoid carriers might be cleared of infection by some combination of penicillin and sulphathiazole the results of the therapeutic trial were not encouraging. There were only three apparent successes out of 17 cases in spite of the very large amount of penicillin and sulphathiazole used.

We are indebted to the superintendents and medical staff of several hospitals and to several medical officers of health for their willing co-operation in making this trial. We are grateful to Dr A Felix FRS, for much co-operation and helpful criticism of this work.

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Seven holders of United Nations Social Affairs Fellowships from Greece, India, the Philippines, and Poland arrived in London on July 19 to spend from three to six months in Britain on course of study arranged by the British Council. Social Affairs Fellowships are awarded to those directly concerned in work of reconstruction and rehabilitation. Typical subjects of study are welfare in industry, child welfare, social aspects of tuberculosis, and juvenile delinquency. Lectures are being given on such subjects as health services, rehabilitation and resettlement of the disabled, the organization of welfare in industry, employment exchange services, the work of a borough council, the Education Act of 1944, housing management, town planning in London, administration of justice, delinquency, probation, and social security. Visits will be made to the House of Parliament, County Hall, St Helier's Hospital, Carshalton, an employment exchange, the Minerva Housing Estate, Bethnal Green and a meeting of Holborn Borough Council.

## PARATYPHOID OSTEOMYELITIS

## REPORT OF TWO CASES

BY

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Paratyphoid osteomyelitis is uncommon. We found only 21 cases recorded in the literature at our disposal. The following two case reports present some interesting features: the first patient was an infant, and in the second case there was an unusually long period between the initial infection and the appearance of the osteomyelitis.

## Case 1

A female infant aged 1 year was seen at the out-patient department on Feb. 19, 1947. The mother reported that the child had been feverish for three weeks, although the temperature had not been taken. On examination a tender swelling of the left shoulder was found and a preliminary diagnosis of osteomyelitis was made. The following day the child was admitted to the paediatric department. The past history was not significant.

Examination showed a well-developed child in a fair state of nutrition, with a temperature of  $37.5^{\circ}\text{C}$  ( $99.6^{\circ}\text{F}$ ) on admission. The liver was felt three fingerbreadths and the spleen one and a half fingerbreadths below the costal margins. Over the left acromio-clavicular region a soft swelling the size of a walnut was noted. The skin over the swollen area showed increased venous markings and fluctuated on palpation. The temperature of the affected area did not seem higher than that of the surrounding skin. No other abnormal findings were discovered on physical examination. The blood count on Feb. 21 was 3,400,000 erythrocytes, 19,400 leucocytes (neutrophils 34%, monocytes 2%, lymphocytes 58%, band forms 6%, no eosinophils). Routine urine examination was negative.

The diagnosis of osteomyelitis was confirmed by radiograph, and penicillin treatment was started (60,000 units daily). Aspiration of the swelling on Feb. 21 yielded 2 ml of red-streaked pus, a direct smear of which showed Gram-negative rods. Culture of the pus on MacConkey's medium produced a fine growth of non-lactose-fermenting colonies of a motile Gram-negative bacillus. By the usual routine sugar reactions and an agglutination test the organism was identified as *Salm paratyphi B* (Schottmuller). A second aspiration five days later again yielded a pure culture of *Salm paratyphi B*. This was also isolated from the urine and faeces. On Feb. 25 a blood culture was negative and a Widal test showed paratyphic B 1 in 500. Agglutination of the serum with own strain was positive at 1 in 5,000.

Penicillin treatment had no apparent influence on the course of the disease, and in view of the bacteriological findings it was discontinued. The further clinical course was uneventful, the swelling gradually decreased and 12 days after admission the child was discharged from hospital, but remained under observation. In a few weeks she made a complete recovery, confirmed by radiographs and by function of the affected shoulder.

## Case 2

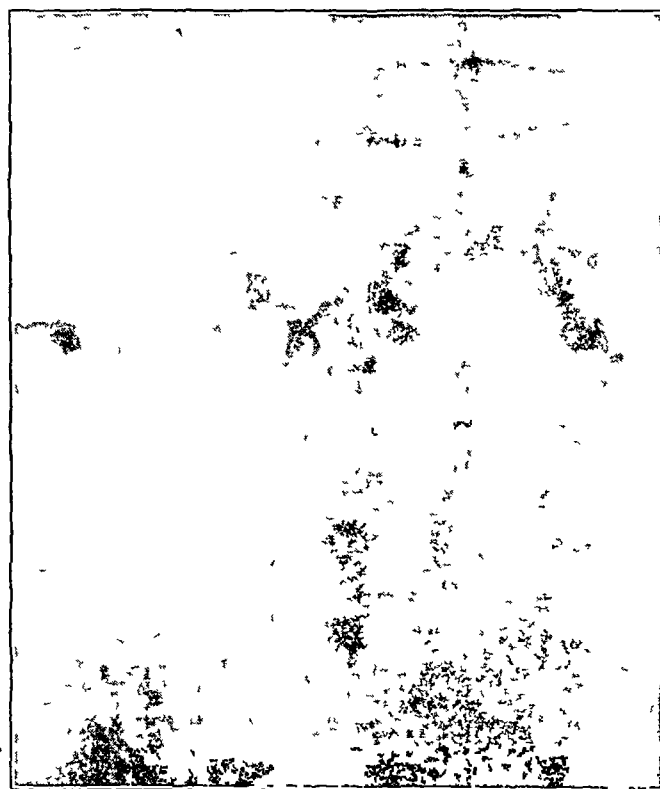
The patient was a 48-year-old man born in Turkey. At the age of 15 he fell from a height and injured his loin. One year later he suffered from enteric fever, which lasted about 10 weeks. During convalescence from this disease he began to suffer from pains in his thighs and loins, which became so severe that he was unable to move. His physician told him that he was suffering from "coxalgia" and he was put in plaster for six months. After removal of the plaster he felt well and there was no restriction of movement in the affected joints. Since that time he had always been in good health,

except for pneumonia 12 years ago, from which he recovered without any complications.

The patient was operated upon for bilateral inguinal hernia in August, 1946. A few weeks later he began to feel pains in his thighs and loins. At the same time his temperature became subfebrile ( $37.5$ – $38.5^{\circ}\text{C}$ ). The pain and fever lasted for three weeks, and he received penicillin treatment for 10 days in another hospital without result. On Oct. 18 he was admitted to the medical department of this hospital.

On examination he appeared pale and chronically ill. The only definite abnormal physical sign was a pronounced tenderness in the right loin and in the right hypogastric region. The temperature was  $37.5^{\circ}\text{C}$ , the pulse 100, the blood pressure 110/60 mm Hg. There were no other abnormal physical signs. Laboratory examination showed urine, no sugar or albumin, deposit, nothing of importance, blood urea, 21 mg per 100 ml, sugar, 89 mg per 100 ml, Kahn test, negative, erythrocytes, 4,550,000, Hb 75% (Sahl), leucocytes 17,000 (neutrophils 71%, monocytes 3%, lymphocytes 23%, band forms 2%, eosinophils 1%), ESR (Linzenmeier), 40 minutes, Weltman coagulation band, 3. Radiographs of the gastrointestinal tract, chest, and urinary tract showed nothing abnormal. Blood culture and agglutination test for brucellosis were negative. Widal test showed 1 in 200 for *Salm paratyphi B* only. A radiograph of the lumbar spine showed union of the bodies of the third and fourth lumbar vertebrae.

In view of the marked tenderness in the right loin, the persistent temperature ( $37.5$ – $39^{\circ}\text{C}$ ), the rapid sedimentation rate, and the shift of the Weltman band to the left the possibility of a perinephric abscess was considered. An exploration of the perirenal tissues was made by Dr E. Joseph on Oct. 29, but no pus was found. After the operation the temperature



The intervertebral disk between the third and fourth lumbar vertebrae is almost destroyed. Synostosis between these two vertebrae. In the region of the intervertebral space a cavity is seen towards which a fistula leads from the right loin.

fell to normal and there was some improvement in the general condition, although the blood sedimentation rate remained high. A fortnight after the operation the patient was discharged.

The following day a sudden rise of temperature occurred and the pain in the right loin reappeared. Two days later he was readmitted to hospital. Examination then revealed a hot well-defined swelling below the scar of the recent operation. This swelling was tender to the slightest pressure. A superficial incision (Dr E. Joseph) yielded a large amount of pus. On



microscopical examination Gram-negative rods were seen, and on culture the isolated organism proved to possess the biochemical and serological properties of *Salmonella paratyphi B* (Schottmüller). The same organism was isolated from another specimen of pus taken a few days later. The patient's serum agglutinated the organism isolated from his pus at a titre as high as 1 in 5,000. Urine and faeces yielded no growth of *Salmonella*. After the operation the temperature dropped, the ESR became less rapid, and the patient greatly improved. When he was discharged from hospital on Dec 12 the incision wound had almost healed. He reported back to the out-patient department a few weeks later complaining of pain in the right loin and renewed fever in the evenings. Into a small opening which remained in the incision scar lipiodol was injected, and an x-ray film showed communication with a cavity which tomography revealed between the third and fourth lumbar vertebrae (see illustration). Since then the patient has been seen repeatedly. When the fistula stops discharging the pain and fever reappear, but cease when drainage is re-established.

### Comment

According to various statistics, almost 1% of cases of typhoid are complicated by osteomyelitis. 0.82% according to Winslow (1923), 0.87% according to Keith and Keith (1926). The reported incidence of this complication in cases of paratyphoid is much lower. Webb-Johnson (1917) saw only two instances of bone involvement in 1,038 cases of paratyphoid. Winslow (1924) in 100 cases of paratyphoid observed no case of osteomyelitis. Ross Veal and McFetridge (1934) collected 16 cases from the literature and added two of their own. Their series does not include the cases of Reenstjerna (1910). Two additional cases have since been reported (Just, 1937; Jetter, 1938). Our two cases bring the total number recorded up to 23. From the historical point of view it is interesting to recall that *Salmonella paratyphi B* was first isolated—even before its definite identification by Schottmüller—from an osteomyelitic lesion of the sternoclavicular region by Achard and Bensaude (1896).

Osteomyelitis, both typhoid and paratyphoid, is rare in children. Winslow (1923), who collected all bacteriologically proved cases, found only four cases between the ages of 2 and 10. A typhoid abscess of the spine in a 3-year-old child was reported by Abbassy (1946). We were unable to find in the literature an instance of typhoid or paratyphoid bone abscess in infants. Our case of paratyphoid osteomyelitis in a 1-year-old infant seems to be the youngest recorded.

In Case 2 the abscess presented itself clinically 32 years after an attack of enteric fever. The coxalgia for which the patient at that time was put in plaster was apparently a paratyphoid spondylitis. The localization in our patient was typical, as the lumbar spine is involved in about 70% of cases showing spine lesions (Ross Veal, 1939).

The affinity of the typhoid and paratyphoid bacilli for the bone marrow invites consideration. The bacillus is already found in the bone marrow at the beginning of the infection (Storti and Filippi (1937). There is also good clinical and experimental evidence to show that the bacillus may persist in the marrow for a very long time (Dmochowski and Janowski, 1895; Ludke, 1909; Coplans, 1936; Ling *et al.*, 1940; MacDonald, 1941; Kernwein and Capps, 1943).

Ten cases of typhoid osteomyelitis have been reported in the literature in which the time interval between disease and the bone complication exceeded ten years. We found only one case of paratyphoid osteomyelitis reported in which the bone abscess appeared 20 years after the original disease (Jensen and Kock, 1913).

What are the factors involved in the sudden exacerbation of an infection after so long a latent period? Most

authors agree that trauma may upset the equilibrium between the bacilli and the defence mechanism of the body. The traumatic agent need not be a direct blow. Undue strain or fatigue, pyrexia, or anything likely to lower the body's capacity for defence may cause the latent infection to flare up and show itself clinically. In our case the herniotomy may well have acted as such a trigger mechanism.

### Summary

Two cases of paratyphoid osteomyelitis are reported, one occurring in a 1-year-old infant and the other in an adult 32 years after the initial infection.

Factors contributing to abscess formation and the incidence of this complication are discussed.

We are indebted to Dr J. Gurevitch, head of the department of bacteriology and serology, and to Dr A. Druckmann, head of the x-ray institute of our hospital, for their help.

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## SALM. ORANIENBURG SEPTICAEMIA REPORT OF A FURTHER CASE

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AND

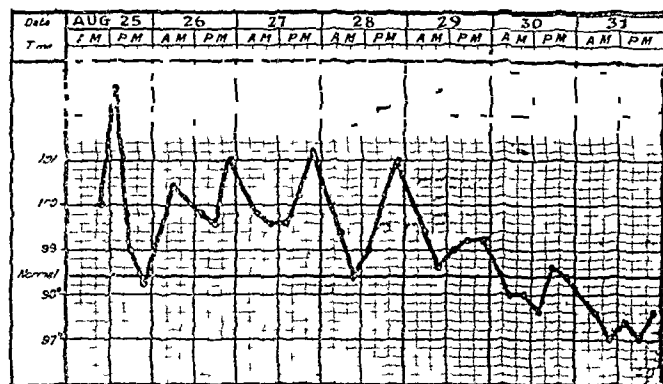
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In the first recorded case of *Salmonella oranienburg* blood infection in Britain the source of the infection was never discovered (Kerrin, Elder, and Smith, 1935). In the light of events in the recent war, when *Salmonella oranienburg* contamination of transatlantic dried egg was shown to be common, this original infection may well have been imported, for in 1935 food flowed in plenty to this country from all over the world.

A subsequent case was reported by one of us (Cooper, 1944), but, although intestinal infections with this *Salmonella* are not uncommon, blood infection has rarely come to light. For this reason we venture to publish a further case met with in this laboratory. There were strong reasons for suspecting dried-egg infection as the cause of the 1944 case but at that time it was ruled impolitic to say so. In our present case no history of dried-egg consumption could be obtained, but presumably this substance is an ingredient of a variety of creams and sauces which may be consumed in hotels and restaurants. The old view that the cause was rare in salmonella infections is no longer tenable. Our present patient was shown to be a convalescent for over five weeks. Food-borne infections of this origin are therefore probable.

## Case History

The patient, an unmarried woman aged 21, was first seen by her doctor on Aug 22, 1947, having returned on Aug 19 from a holiday in Jersey, where she spent Aug 16 in bed with headache, diarrhoea, and vomiting. The headache had persisted, and the doctor's view on the 22nd was that the patient was clinically likely to be suffering from typhoid fever. Next day he therefore requested the county laboratory to undertake a blood culture. At that time the patient's bowels were constipated. Pyrexia, lassitude, and headache persisted for a further nine days. There was no rash and the spleen was never palpable. The temperature chart is here shown, the pulse was



Temperature chart of case

of the order of 70 to 80 throughout. The headache, associated as it was with stiffness of the neck muscles and the incidence of an outbreak of poliomyelitis at the time, brought in the exclusion of that condition as a further problem. There was no history of the patient having had dried egg in a form she was able to recognize, but she had partaken of salad dressings while on holiday.

We withdrew 20 ml of blood. 5 ml was put into 100 ml of bile-salt broth, 5 ml into 100 ml of glucose-proteose peptone No 3 which contained 'liquoid' and para-aminobenzoic acid, 5 ml into Wintrobe mixture, and 5 ml of clotted blood was used for the Widal test. Growth appeared in the glucose-proteose after 48 hours' incubation. No growth appeared in the bile-salt broth. Subculture produced a non-lactose fermenting Gram-negative bacillus which was motile and grew freely in taurocholate media.

Acid and gas developed in glucose, maltose, mannite, and dulcitol—all within 24 hours. There was no reaction in lactose saccharose, or salicin, but a slight acid reaction in litmus milk. The indole test was negative. Gelatin was not liquefied.

Agglutination reactions: polyvalent *Salmonella A* negative, polyvalent *Salmonella B* negative, polyvalent *Salmonella C* positive titre 1 in 250, paratyphosum C "O," positive titre 1 in 50. An organism isolated from the stools on Aug 23, 24, 30, and Sept 5 and 29 produced identical results. The first negative result was obtained on Oct 25, and all three subsequent stools were negative. The organisms recovered from the blood and faeces were confirmed by Dr Joan Taylor as conforming to *Salm oranienburg*.

A blood count on Aug 23 showed haemoglobin, 92%, red cells, 4,630,000, leucocytes, 6,600 (polymorphs neutrophils 70%, monocytes 4%, lymphocytes 26%). Urine taken on Aug 23 was negative biochemically and bacteriologically. Widal reactions were negative.

## Discussion

Kerrin *et al* (1935) give a similar clinical story of their case, but hypostatic pneumonia and death occurred. Their blood culture was positive in taurocholate media. Cooper's (1944) patient presented as a case of gastro-enteritis with continuing pyrexia. This case also continued to excrete the organisms for at least 55 days. In our own case it is reasonable to suppose that infectivity of the faeces ceased midway between Sept 29 and Oct 25—about 40 to 50 days after the organism was first detected on Aug. 23.

## Summary

A further example of the isolation of *Salm oranienburg* from blood is recorded.

The value of blood culture in cases of pyrexia of unknown origin is re-emphasized.

The discovery by the same laboratory of two cases of blood infection with this organism draws attention to the occurrence of septicaemia in at least a proportion of salmonella infections.

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## Medical Memoranda

## Nitrogen Mustard in Polycythaemia Vera

Since Wilkinson and Fletcher (1947) reported the results of treatment of three cases of polycythaemia vera with nitrogen mustard the opportunity for treating a further case has occurred.

## CASE REPORT

The patient, a woman aged 51, had been a known sufferer from this condition since she had been admitted under the care of Professor Nattrass in 1935. At that time she complained of high facial colouring of four years' duration, with pain in the left side and nausea, dyspnoea, and palpitation of two years' duration. The haemoglobin was 106% (Haldane), the red blood cells numbered 7,910,000 per cmm and the white blood cells 12,000 per cmm. The spleen was palpable 2 in (5 cm) below the left costal margin. No treatment was then given. In December, 1947, she again reported, stating that although the nausea had disappeared she had had increased pain in the left side of the abdomen for six years, and during the last year the palpitation and dyspnoea on exertion had been more marked. Infrequent fainting attacks had also occurred. No cardiovascular abnormality was detected and the blood pressure was 150/90. The spleen was now palpable 10 in (25 cm) below the left costal margin. The haematological state is shown in the accompanying charts. It is noteworthy that though the haemoglobin and red cells had remained virtually unchanged over the last 12 years the white cells had risen from 12,000 to 36,000 per cmm.

The patient was given methyl bis(β-chlorethyl)amine hydrochloride intravenously in doses of 0.1 mg per kg of body weight on the 3rd, 8th, 19th, 23rd, 28th, 37th, 43rd, 57th, and 64th days after coming under observation. Apart from nausea and vomiting, which came on three hours after each injection and lasted for two to three hours, no untoward side effects of the treatment were encountered. As will be seen from the charts, the haemoglobin level and the red and the white blood cell counts dropped during the first month and thereafter there was a pronounced tendency for these values to increase in spite of treatment. There was no significant alteration in the size of the spleen during the three months period of observation. The patient stated that she experienced slight alleviation of her symptoms during the first two months.

This case falls into line with two of the three cases of polycythaemia vera in Wilkinson's series in which the therapeutic response to nitrogen mustard was unsatisfactory.

I wish to thank Professor Nattrass, Royal Victoria Infirmary, Newcastle upon-Tyne, for permission to publish this case, and Dr W A R Thomson, of Boots Pure Drug Co, Ltd, for the supplies of nitrogen mustard.

A W WOODRUFF MD, MRCP, DTM&H

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## Reviews

### VISIBLE SPEECH

*Visible Speech* By Ralph K Potter, George A Kopp, and Harriet C Green (Pp 441 illustrated £1 5s) New York D Van Nostrand Company, Inc London Macmillan and Co 1947

An important and indeed almost Utopian project has been launched successfully. The research workers at the Bell Telephone Laboratories show in this book how a machine can translate the sounds of speech into patterns which the eye can learn to interpret. A startling principle has been proved, and the imagination is roused by the possibilities which this opens up. The authors wisely do not exploit this emotional appeal, instead they describe in a careful and matter-of-fact way what has been achieved, how it was done, and how much more work will be required before the implications can be fully understood.

"Visible speech" as described in this book is a representation of sound according to frequency, intensity, and time. That such a representation could retain all the intelligence contained in the sound has long been appreciated, it is in fact similar to the analysis presumed to take place in the inner ear. But what is new is the experimental proof that the visual representation can be learnt and interpreted. Some experimenters have achieved considerable competence in this, and the authors give illustrations and a carefully devised commentary to enable the reader to learn the first steps for himself. The reader can thus obtain a clear idea of the processes of learning this new symbolism and assess the difficulties involved.

The authors discuss the possible application of this type of technique to problems of deafness, and these suggestions seem to promise much. Teaching the deaf has always been an arduous task, and this work may well become the foundation of an entirely new method. Though little work with the deaf is yet on record the authors mention the case of one congenitally deaf man who learnt by this technique to use a telephone. An extension of the technique may even result in the portable "translator" as a permanent aid for the deaf, but the technical problems involved are evidently still very great. The authors discuss other applications of the technique covering nearly all fields of sound analysis, linguistic and phonetic investigations, the study of animal calls, the suppression of mechanical noises, and numerous other problems may all benefit. A precise and permanent record that can be investigated at leisure may well provide a better means of classifying and analysing sounds than the rapid and subjective judgment made by listening.

It is evident that the most lavish experimental technique was used to produce that form of display which held out the greatest promise. The authors point out that there is nothing final about the present method, and they refer to some variants of it. But it would have been interesting to hear why a horizontal time scale, a vertical scale for frequency, and an intensity-of-light representation of intensity of sound were chosen through out all experiments.

THOMAS GOLD

### PRINCIPLES OF SURGERY

*Introduction to Surgery* By Virginia Kneeland Frantz, M.D., and Harold Dortic Harvey, M.D. (Pp 216, illustrated 12s 6d) New York and London Geoffrey Cumberlege, Oxford University Press 1946

The last sentence in this book runs thus: "Whether the student or young surgeon intends to further the cause of surgery as a clinician or as an investigator, a thorough knowledge of the principles included in this small book should help him acquire distinction in his field, extending the achievements of his predecessors." Even without the additional endorsements of such a well-known surgeon as Allen Whipple the candid reader cannot help agreeing with the sentiment expressed in that sentence. The principles of surgery are few, but they need to be inculcated at an early stage of the student's career and thoroughly explained so that he may apply them at every stage of his curriculum and practice. To try to learn surgery without first having a sound knowledge of these principles is to double the labour. Let the young student read, mark, learn and inwardly digest the contents of this book and he will lay a true foundation for his later work.

After giving that opinion we may perhaps be allowed to point out how the book might be further improved. Though the authors mention syphilis in the description of chronic infections they do not describe the tissue changes in gummatous inflammation, indeed there is nowhere an account of the infecting spirochaete or of the specific cures for the infection. They say that a boil is an abscess centred about a hair follicle, though they explain elsewhere that a slough of dead tissue comes away from it—that is, it is in reality a focus of infective gangrene. There is no mention of postural drainage for an infected knee-joint. In the section on actinomycosis we are told that "if the focus can be completely excised the result is good", we should not like to deny that, but we can assert that apart from cases of actinomycotic infection of the bowel excision should never be undertaken or considered until penicillin has been thoroughly tried. With these small points of criticism we leave the student to find out the merits of the book for himself.

ZACHARY COPE

### FOUNDATIONS OF NEUROLOGY

*Textbook of the Nervous System. A Foundation for Clinical Neurology* By H Chandler Elliott M.A. Ph.D. With an Introduction by Wilder Penfield M.D. (Pp 384, 158 illustrations, 62 subjects in colour and an atlas 48s) Philadelphia and London J B Lippincott Company

This is a remarkable little book which can be strongly recommended to those who wish to understand the foundations of neurology. The author expresses himself with great clarity, and his ability to simplify difficult facts must subdue the student's usual attitude of despair towards the subject. He explains the anatomical and physiological knowledge on which modern neurology is based in such a way as to rouse the student's interest to study some of the well-selected but not too numerous references given. Furthermore the author shows clearly where our knowledge of function ends and where it is merely groping to correlate a few facts. He gives the reader a balanced outlook which is rarely to be obtained from a textbook. There are many original and ingenious diagrams. For example in Fig 91 there is something about the human figure reclining between the red nucleus and the substantia nigra which will provide for most readers an enduring picture of the lamination of the medial lemniscus.

W RITCHIE RUSSELL

### HANDBOOK OF DERMATOLOGY

*Gardiner's Handbook of Skin Diseases* Revised by John Kinnear, OBE, TD, MD, MRCP Ed., DL Fifth edition (Pp 250, 20 coloured plates, 9 from Dufraycolour photographs 15s) Edinburgh E and S Livingstone 1948

This must be one of the smallest of the many textbooks of dermatology which have appeared in the last half century, containing as it does only 250 pages. It may well be asked whether this is an important point in its favour or not. Dermatology is a subject which is not well suited to dogmatic discussion. The skin is a very complex organ and the diseases to which it is subject are so multifarious and so interrelated that an adequate textbook of the subject must contain proper discussion of its problems at such a length that real brevity is necessarily excluded. Probably the original author of this book and his successor have been aware of this consideration but they have kept more in mind the needs of students, who are, as it were, pitchforked into the subject at a certain point of their clinical curriculum and become liable within a few months to satisfy examiners that they have some elementary knowledge of it. Readers in this category when faced with one of the exhaustive manuals of dermatology produced in almost ceaseless profusion by the dermatological specialists of Europe and America are apt merely to be impressed with the difficulty of the subject, to fail to discover any sound principles therein on which to base their own practice, and to be confused by the multiplicity of details. This little book is admirably adapted to the needs of such as these. It is clear, accurate and brief, and for its size it is very well and amply illustrated.

The introductory chapter is particularly good, and it is gratifying to see that the author draws attention to the complexity of functions undertaken by the skin, a complexity that no doubt accounts for the great variety of the pathological changes to which it is subject. He has brought this edition thoroughly up

to date and discusses well the many advances in therapeutics which we owe to the skill of our chemists and pharmacologists. Perhaps the author might have written rather more extensively on dermatitis and/or eczema, for this is the commonest and most important of all skin diseases now that social education has reformed the habits of the many, and it therefore requires consideration at length even in an elementary textbook. But by and large this is an excellent introduction to dermatology for students, and if they take the trouble to digest its contents during their three months' attendance at the out-patient clinic they will become better and wiser practitioners.

H HALDIN-DAVIS

## MEDICINE IN GENERAL PRACTICE

*Internal Medicine in General Practice* By R P McCombs M D, F A C P. Second edition (Pp 741, 122 illustrations 42s.) Philadelphia and London W B Saunders Company 1947

If it is held that the general practitioner's effective future depends on his capacity to become an efficient general physician then this book surely deserves a welcome. To earn a wide regard, however, such a book must prove that it meets the needs of the family doctor better than do the standard textbooks of medicine here and in the USA. Dr McCombs can claim this, for his book is a little cheaper and less than half the size (741 pages) of its established rivals. Since it is written by one man it has a uniformity of conception and performance which these other books notably lack. Moreover its author seldom loses sight of the whole patient in the enthusiastic concentration upon one part of him. He knows, too, the needs of the family doctor and the errors that may betray him, and the account of each system is preceded by a discussion of symptomatology and diagnostic methods which is altogether admirable. These are great merits, but the book cannot be unreservedly recommended to the British doctor.

The attention given to certain diseases is inadequate, for example diseases of the nervous system are described in no more than one eighteenth of the total space—cerebral tumour being dismissed in half a page. While this book has the excellent American practice, now followed in Britain, of giving a relevant bibliography at the end of each chapter, the references are almost exclusively American. It is apparent that a familiarity with the English literature would have led the author to change the presentation of certain sections of the book—as, for example the accounts of renal disease, heart failure, liver disease, and gastritis. (It is an odd result of the economics of American medicine that in the account of the investigation of gastro-intestinal disorders the author states that "the cost of x-ray study precludes its use as a nearly routine measure.")

Finally and most important, a reduction in size of a textbook of medicine must be obtained by the exclusion of material previously regarded as relevant. Dr McCombs has chosen to omit consideration of the basic sciences, nearly all the pathology and most of the physiology and anatomy which to day find their way into the orthodox textbook. The fundamental knowledge, one would surmise that the family doctor is most in danger of forgetting is thereby excluded. The book is well produced and nicely written, it is accurate and its information is up-to-the minute (there are accounts of streptomycin, nitrogen mustard, folic acid, radioactive iodine and cytochrome C), but it must be judged to fail not in its execution but in the initial misconception of its purpose.

D V H (BBLF)

It has been said that a medical student must learn the equivalent of a foreign language in order to master sufficient of the nomenclature needed to understand medical works, and all medical men no doubt pay some attention if only fleeting, to the structure of our terminology. Perhaps we are not critical enough else why should we accept such peculiarities as "antibiotic" and "deratization" so easily? Mr Peter D Ridge-Beedle, in *Why Not English?* (Stratford Press, 10s 6d), criticizes another aspect of the English language—its spelling—and propounds a reformed system that necessitates 42 letters in all. The author's system is not itself consistently phonetic for he uses the same sign 'r' for the "er" sound of 'father' and the 'r' sound in 'rough'. The obstacle of varying pronunciation appears in his spelling of the word 'language,' the last syllable of which he treats as if it rhymed with 'age,' whereas many would rhyme it with 'midge'.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Vitamine und Vitamintherapie* By E Abderhalden and G Mouriquand (Pp 408 28 Swiss francs) Berne Huber 1948  
A general account of clinical and experimental work on the vitamins

*Endocrinology of Neoplastic Diseases* Edited by G H Twombly, M D, and G T Pack, M D (Pp 392 60s) London Geoffrey Cumberlege 1947

A collection of papers by various American authorities

*Pathological Processes in Malaria and Blackwater Fever* By B Macgrath, M A, M B D Phil, B Sc (Pp 430 35s) Oxford Blackwell 1948

An account of the clinical and pathological aspects of malaria and blackwater fever, with references

*Myotonia* By E Thomassen (Pp 251 20s) London H K Lewis 1948

A monograph on the clinical aspects, treatment, and inheritance of the myotonias

*Eat and be Healthy* By L Nicholls, M D (Pp 56 4s 6d) London Associated Newspapers of Ceylon 1948

Instruction on sound diet for the layman in Ceylon

*Hodgkin's Disease and Allied Disorders* By H Jackson, Jr, A B, M D, and F Parker, Jr, A B, M D (Pp 177 45s) London Geoffrey Cumberlege 1947

An account of the pathology, symptomatology, and treatment

*Aids to Organic Chemistry* By S F Smith, M B, B S 3rd ed (Pp 127 4s 6d) London Bailliere, Tindall and Cox 1948

Intended for medical students

*Die Morphogenese der Hypertrophie und des Karzinoms der Prostata und ihre Bedeutung für die Klinik* By R Howald (Pp 40 4 Swiss francs) Basle Schwabe 1948

A monograph on prostatic hypertrophy and carcinoma, with photomicrographs

*Veterinary Protozoology* By U F Richardson, B Sc, M R C V S (Pp 240 18s) London Oliver 1948

An account of the protozoa that attack animals, particularly in the Tropics

*Plant Uses* By K M Smith, F R S (Pp 78 6s) London Methuen 1948

An introduction for the botany student or general reader

*La Mortalité de L'Enfant de Première Année* By C Candiotti and C Moine (Pp 64 No price) Paris Bailliere 1948

A monograph on infantile mortality in France

*A Primer in Clinical Science* By R D Wright (Pp 43 3s 6d) London Melbourne and Oxford University Presses 1948

An introduction to clinical work for the student

*Jaundice Its Pathogenesis and Differential Diagnosis* By E R Movitt, M D (Pp 261 42s) London Geoffrey Cumberlege 1947

A practical manual for the clinician with bibliographies

*The Use of Isotopes in Biology and Medicine* By H T Clarke and others (Pp 445 \$5 00) Madison Wisconsin Press 1948

A symposium on the use of isotopes in research

*Recherches Personnelles pour Servir à L'Étude de la Gonococcie* By A Guepin (Pp 218 No price) Paris Presses Universitaires 1933

An account of the author's experience in treating gonorrhoea

*Research Reports Feeding Problems in Man as Related to Environment* By R E Johnson, M D, D Phil, and R M Kark, M R C P (Pp 94 No price) Chicago US Army Medical Nutrition Laboratory 1947

An analysis of US and Canadian army ration trials and surveys during the recent war

## BRITISH MEDICAL JOURNAL

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## WORLD HEALTH ORGANIZATION

The World Health Assembly of the World Health Organization concluded its first meeting on July 24 after being in session for a month, during which the various committees (each a committee of the whole) were unremitting in their attention to the problems before them. Sixty-eight nations were represented by delegates and observers on this historic occasion, and the first meeting of the World Health Assembly provided a notable illustration of the well-worn saying that medicine knows no frontiers. The remarkable measure of agreement reached and the spirit of co-operation displayed were in no small part due to the skill and tact with which the President of the Assembly, Dr Andrija Stampar, of Yugoslavia, conducted its deliberations, and, also in no small part, to the efficiency of the secretariat under Dr G Brock Chisholm, newly appointed Director-General of WHO, who for the past two years has been acting as Executive Secretary to the Interim Commission. The work of the Assembly completed, the first meeting of the Executive Board was held, with Dr A T Shousha Pasha as Chairman and Dr K Evang and Dr W W Jung as Vice-chairmen. The immediate problem before WHO is the establishment of a permanent central staff under the Director-General and the setting on foot of projects considered to be urgent. It is expected that the Executive Board will meet in the autumn, when its eighteen members (representing eighteen States) will have had the opportunity to consider at greater leisure the numerous matters discussed in June and July. The first legislative act by WHO has already been performed by the issue of regulations laying down detailed methods of procedure to be used by the various member countries in the compilation of data on diseases and causes of death.

It will naturally take a little time before the central staff at Geneva finds its working feet, and it is therefore in some ways a pity that five of the regional organizations are to be set up before the central administration is firmly established. The six regions into which for the purposes of WHO the world is to be divided are European, Eastern Mediterranean, South-East Asian, Western Pacific, African, and North and South American. The last named has of course been admirably served for years by the Pan-American Sanitary Bureau, and negotiations are on foot for its integration in WHO. The desire to establish quickly offices in the other five regions is understandable, and with the good will displayed by the member States in the World Health Assembly difficulties that may arise should be easily solved. But the project which WHO has in hand is so tremendous in its implications that it would be a mistake if the desire to get something done speedily for reasons of prestige or justification were to encourage initial imperfection of

organization. The plans for the work of WHO must of necessity be worked out from year to year and framed in accordance with its annual budget. But it is not fanciful to suggest that the ideal that it has set itself would need a long-term policy conceived in terms of decades rather than calendar or financial years. It would seem, therefore, of the first importance that the foundations of its central and regional organizations should be laid with the utmost care if the structure to be raised upon them is to be adequate to the high purpose WHO has set itself of "the attainment by all peoples of the highest possible level of health."

To begin the first year of work of WHO the Interim Commission had proposed a budget of \$6,500,000 for 1949, and a decision to cut this to \$5,000,000 (about £1,250,000) came as a disappointment to many. It certainly seems a small enough budget with which to start health activities on a world-wide scale. Nevertheless, the expenditure of the United Nations and its specialized agencies amounts in all to a vast annual sum, about half of it being contributed by the USA. The sceptic might reflect that if the money spent by the United Nations was put at the disposal of WHO, in exchange for WHO's budget of \$5,000,000, the world would be a healthier and happier place to live in. But discarding this proposition as Utopian, we may believe WHO will find it will achieve concrete results by having to concentrate on carefully selected programmes of manageable dimensions. The six principal health problems it has decided to tackle in 1949 are malaria, tuberculosis, venereal disease, maternal and child health, nutrition, and environmental hygiene. These are matters which call for five- or ten-year plans, and even then so much depends upon the social and economic conditions, sanitation, personal and communal habits of different peoples that the success of an attack upon, for example, tuberculosis will reside as much in the solution of these as in preventive and curative measures. Granted peace, improved sanitation in backward areas, the alleviation of social and economic distress, there yet remains the provision of enough well-trained doctors and nurses and all the other skilled equipment of modern medicine. Beyond this there is the inculcation among peoples of the principles of health and hygiene. Many of these things are in the control of forces outside the world of medicine, but medicine has one potent instrument which it can put at the disposal of regions less favourably placed than, say, the USA—and that is expert knowledge. WHO should be a power-house of information on all those matters which come within its purview, and the insistence of many delegates at Geneva on the importance of the editorial and publications services of WHO showed their live awareness of this fact.

It may be pertinent here to trace the development of the idea of the international control of disease, which has now progressed to the idea of the international promotion of health. Quarantine as a protection against plague was introduced into the Mediterranean in the fourteenth century, the inspiration for this coming from the observations on leprosy in Leviticus. And similar action was taken in North America in 1647 against the fever (yellow fever) in Barbados. The spread of Asiatic cholera across Europe in the first half of the last century reminded Europe once

more that infectious agents are indeed international, and a formal international sanitary convention was drawn up at a meeting of the International Sanitary Conference in Venice in 1892<sup>1</sup>. The first health agency to operate for several Governments was, however, the Pan-American Sanitary Bureau, established at a conference at Washington in 1902. In 1909 the Office International d'Hygiène Publique (OIHP) was set up in Paris, and operated until 1946, when the decision was taken to amalgamate it with WHO. With the appearance of the League of Nations after the war of 1914-18 it was proposed to place international health bureaux under the authority of the League, but the OIHP continued its separate existence in a compromise arrangement with the Health Organization of the League—an organization which represented the one solid contribution the League made to human welfare. The war of 1939-45 naturally interfered with the work of OIHP and the League Health Organization, and the gap was temporarily filled by Unrra, whose activities ended in December, 1946, in Europe, and in March, 1947, in the Far East, some of its functions being transferred to the Interim Commission of WHO. The project of a new and comprehensive health organization was discussed at the United Nations conference in San Francisco in 1945, and in February, 1946, the Economic and Social Council of the United Nations set up a technical preparatory committee, which shortly after prepared draft constitutions for a world health organization. The next step was the holding of the International Health Conference in New York in June, 1946, when the constitution of WHO was signed by representatives of 61 States. The constitution was to come into force when 26 members of the United Nations had ratified their signatures, and the Interim Commission of 18 States undertook the preparatory work of establishment until ratification, it also continued the functions of former international health organizations and the consideration of urgent health problems. It was expected that the Interim Commission would have a life of only a few months, but this, in fact, was prolonged for about two years, ending with the official birth of WHO in April of this year.

There is not space here to enumerate the various activities of WHO IC during the past two years. We may note the completion of the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death, the appointment of an expert committee on malaria, the extension of work on biological standardization, field services in epidemiology, the provision of travelling fellowships, work on an international pharmacopoeia, and in particular the emergency committee established during the cholera epidemic in Egypt in the autumn of 1947.

The conception of WHO is one that should appeal to the imagination, and indeed it will call for imagination on the part of those directing its activities if its work is not to be hampered by the natural defence mechanisms of bureaucracy. In full recognition of the great progress already made we may suggest that one of the problems of WHO will be to keep its organization flexible and of such a size that the Director-General will be able to

remain in close touch with his staff. In a recent broadcast Sir Lawrence Bragg observed that when an institution grew beyond a certain size its director—he was of course referring especially to research—lost that close touch with his subordinates which made for efficient and productive team work. Establishments have a natural tendency to grow, but it is to be hoped that the number of permanent officials in WHO will be small enough for the Director-General through personal contact with each one to take that close interest in their work which is essential if an institution is to be something a bit more than an efficient organization.

## MEDICAL AND SCIENTIFIC INFORMATION

The burden of the printed word to-day lies heavily on the world of science, an inevitable outcome of the great volume of research work carried out in the laboratories of pure and applied science in the universities, research institutes, and industrial organizations of so many countries. Our civilization is no longer one based on the humane studies, pervaded as it was with a sense of leisure and free from obsession with the time-table. We live in a technological age when the speed of discovery and the application of what is discovered bring with them a sense of impermanence and insecurity. The unceasing accumulation of facts daunts even the most comprehensive mind, and man's capacity for analysis far outstrips his ability to provide a synthesis. The man of science who contributes to knowledge finds himself working in ever-narrowing fields of inquiry, so intense has specialization become. The spate of publications makes it increasingly difficult for him to know what workers in adjacent fields are doing. "As a result," to quote from a document issued by the Royal Society for its Scientific Information Conference in June, "the task of keeping up with scientific literature is becoming an impossible one, and is in turn leading to inefficiency and to a certain amount of frustration in scientific research and in the application of science." The Royal Society has once more put the world of learning in its debt by holding such a conference, which was attended by delegates from the Dominions and other countries.

Unfortunately its meeting coincided with the Annual Meeting of the B M A at Cambridge, but the B M A was represented by the Editor of its two abstracting journals, Dr G M Findlay, and by Professor Samson Wright. The Conference tackled through four sections the following problems: (1) Publishing and distributing original scientific papers. (2) Issuing and using abstracts to convey current awareness of availability and relevance of such papers. (3) Consolidating abstracts or other forms of reference into continuously cumulative indexes and using these and other library services for the retrospective searching of the literature. (4) Producing and utilizing periodical reviews of progress in designated fields of science. A number of valuable notes and memoranda were made available. If scientific knowledge is becoming unmanageable it is interesting to note that the science of documentation is providing methods to keep pace with it. Most are familiar with the use of the photostat and microfilm, but new to many will be the Dutch invention whereby "a foolscap page can

<sup>1</sup> For this and other information see *Official Records of the World Health Organization* No. 9.



be reproduced within the dot of a letter 'i,' or the whole of the *Encyclopaedia Britannica* on three quarto pages" This method enables very minute microphotographic images, legible through a microscope, to be printed on a paper base. Another Dutch invention uses diazo instead of silver chemicals for reproduction by reflex photography. New mechanical methods may revolutionize the method of presenting and distributing information and may yet be linked up with Professor J. D. Bernal's proposals for distributing scientific papers, the value of which was somewhat obscured by the controversy surrounding it at the outcome of the Conference.

Whatever direction future developments may take, abstracts of current scientific literature will become of increasing importance. The medical man who does research work is under the same pressure of specialization as other workers in science. There is hardly any field of medicine in which the observations and methods of the pure sciences do not find some point of application. The clinician who specializes tends to do so at the expense of his knowledge of medicine as a whole. To provide a synoptic view of medicine is the aim of *Abstracts of World Medicine*, and *Abstracts of World Surgery, Obstetrics and Gynaecology*. In his editorial notes for the Royal Society Conference, Sir David Chadwick observed that "the indefinite multiplication of largely unrelated abstracting agencies and of abstracts journals is not, however, a good solution"—an observation made under the heading of "Promptness in Issue of Abstracts". To grapple with this question in Medicine Unesco has during the past eighteen months<sup>1</sup> set up an Interim Co-ordinating Committee on Medical and Biological Abstracting in Paris to examine the situation and to look into possible ways of collaboration among existing medical abstracting agencies. The outcome of its penultimate meeting was discussed in a leading article in the *Journal* of Oct 11, 1947. The preliminary survey thus made was thought by the General Assembly of Unesco to justify the setting up of a co-ordinating committee in medical abstracts under the aegis of Unesco, whose function is that of convener and secretariat. At a meeting in Paris in April of this year under the chairmanship of the Editor of the *British Medical Journal* the matter was carried a stage further in a two-day conference in which representatives of the following organizations took part: *Abstracts of World Medicine*, *British Abstracts*, *Excerpta Medica*, International Federation for Documentation, Medical Library Association, U.S.A., and the International Federation of Library Associations. In addition to representatives of the above as members of the Committee, the United Nations, the World Health Organization, *Chemical Abstracts* and Ingeniors Vetenskaps Akadmién (Stockholm) sent observers who made valuable contributions to the conference. The meeting was organized by the Natural Sciences Division of Unesco under its director, Dr. Joseph Needham, and the Medical Counsellor of the Division, Dr. I. M. Zhukova. The meeting in April was of value in that those with expert knowledge of various aspects of documentation were able to pool their information and exchange ideas on what on the surface would appear to be a somewhat dull subject but is far from being

so. Towards the end of the meeting it became clear that there was enough useful and indeed urgent work to be done on the subject of medical abstracting to justify dropping the word "Interim" from the title of the Committee if other organizations see fit to become members of it. It was resolved, for example, that WHO and FAO should join Unesco in sponsoring the activities of this Committee, and this WHO has now agreed to do. Invitations have been sent to other abstracting agencies to join in the work of co-ordination, and it is hoped that a full meeting will be held in the early part of next year.

In a world which modern transport has reduced to a manageable unit of travel and communication the specialized agencies of the United Nations—Unesco, WHO, and FAO—have a greater chance of promoting international understanding than the parent world organization. If there had been any suspicion that Unesco was merely pursuing an academic exercise in seeking to co-ordinate the activities of medical abstracting this should have been removed by the stress laid upon this kind of work by the Royal Society conference in June. To translate discussion into action will be the problem of the Co-ordinating Committee on Medical and Biological Abstracting in its future conferences.

## NITROGEN MUSTARD

The therapeutic development of the nitrogen mustards or alkylamines is an example of the beating of swords into ploughshares, for it was following the observation of the effects of mustard gas on the haemopoietic tissues that the nitrogen compounds came to be employed in the treatment of Hodgkin's disease, leukaemia, and allied disorders. We publish elsewhere in this issue a paper by Dr. D. C. Sinclair on mustard-gas poisoning. Much of the experimental work with this substance could not be published at the time it was undertaken, and it is now evident that "security" robbed Dr. J. F. Wilkinson<sup>1</sup> and his colleagues in Manchester of priority in describing the therapeutic use of the nitrogen mustards, since their results were available to the American workers<sup>2,3,4</sup> in the same field who are generally given the credit for introducing these new drugs.

The two compounds used have been methyl-bis( $\beta$ -chloroethyl)amine hydrochloride and tris( $\beta$ -chloroethyl)amine hydrochloride. Both these substances are readily soluble in water, in which they rapidly undergo chemical rearrangement, forming first cyclic ethylene-imonium derivatives with powerful effects on mitosis and intracellular enzyme systems, and later other relatively inactive compounds. Most workers have used the "bis" compound, but there is no significant difference between the effects of the two. The initial dose has usually been 0.1 mg per kg of body weight, repeated on consecutive or alternate days until three to six doses have been given. It is administered intravenously, with precautions to avoid leakage into the subcutaneous tissues, for the nitrogen mustards retain the vesicant properties of mustard gas. Nausea and vomiting three or four hours after injection almost always

<sup>1</sup> *Lancet* 1947, 2, 540.

<sup>2</sup> Gilman A. and Philips F. S. *Science*, 1946, 103, 409.

<sup>3</sup> Goodman L. S., Wintrobe M. W., Dumashek W., Goodman M. J., Gilman A. and McLennan M. T. *J. Amer. med. Ass.*, 1946, 132, 126.

<sup>4</sup> Jacobson, L. O., Spurr C. L., Barron E. S. G., Smith T., Lushbaugh C., and Dick, G. F. *ibid.* 1946, 132, 263.

<sup>5</sup> Apthomas M. J. R. and Cullumbe, H. *Lancet* 1947, 1, 899.

<sup>6</sup> Wintrobe M. W., Huguley C. M., McLennan M. T., and Lima L. P. de C. *Ann. Intern. Med.* 1947, 27, 529.

<sup>7</sup> Chevallier P., Lamotte S., Brion, S. and Sibouraud *Sang.* 1948, 19, 97.

<sup>8</sup> *Blood* 1947, 2, 564.

occur, anorexia and headache are common during the three or four days of the drug's administration. The effect on haemopoiesis is apparent within two to five days and is commonly greatest by the 18th day after injection. The total leucocyte count falls in every instance, the first change is a lymphopenia, and this is rapidly followed by a neutropenia. With the doses in common use it is unusual for the leucopenia to be less than 2,000 per c mm, and a true agranulocytic syndrome occurs in less than 1%. Thrombocytopenia is less frequent, and the count seldom falls below 60,000 per c mm, but transient purpura has been noted. The effect on the erythrocyte count is variable and usually insignificant.

The therapeutic activity of the alkylamines has now been studied in a number of the proliferative and neoplastic diseases of haemopoietic tissue, and it is justifiable to attempt some assessment of their value. There is a remarkable unanimity in the numerous reports available.<sup>5,6,7</sup> Hodgkin's disease responds satisfactorily, and remissions lasting several months have followed a single course of injections, but they are usually shorter than after irradiation. Most workers have been impressed with the improvement shown by some patients in the stage of terminal cachexia and with the rapid relief of pain due to skeletal infiltrations. Nevertheless the alkylamines will not cure Hodgkin's disease, nor do they appear to be in general as effective as radiotherapy. In the related disorders the results are less satisfactory, but chronic myeloid leukaemia can often be controlled, and in the other reticulososes and in reticulosarcoma temporary improvement was sometimes seen. In myelomatosis and most epithelial neoplasms the results were bad, though occasionally patients with bronchial carcinoma have improved remarkably. Remissions were obtained in a proportion of patients with polycythaemia vera. An unsatisfactory result in a case of this disease is described by Dr A W Woodruff on page 299 in this issue. The initial fall in red blood cells was considerable, but thereafter the tendency to rise again was not controlled by further treatment. Mycosis fungoides varies in its response, most workers report indifferent results, but Henstell, Tober, and Newman<sup>8</sup> recorded immediate and striking remissions in six patients. They found that nitrogen mustard was most successful when reticulum cells dominated the cutaneous infiltrations, and they concluded that the drug had a selective action on this cell.

The importance of the nitrogen mustards lies not in their immediate therapeutic application but in the discovery of a group of chemical substances which have a lethal action confined to one particular type of cell. It is possible that more powerful and more specific drugs will become available, since numerous compounds related to the nitrogen mustards could be synthesized and given clinical trial.

### LIVE AND DEAD YEAST

The value of dried autolysed yeast as a source of some members of the vitamin-B complex is undoubted, and this material has been widely used by patients with symptoms of chronic vitamin deficiency. However, the usefulness of live yeast has not been so certain, and a group of workers<sup>1,2</sup> at Wisconsin University have recently obtained very different results with live and dead yeasts. In a series of experiments they found that the addition of up to 150 g daily of fresh yeast to the diet of normal individuals did not have the expected effect of increasing the urinary excretion of riboflavin, and that in the case of vitamin B<sub>12</sub>

the urinary excretion actually decreased. Analysis of the faeces showed that the vitamins had not been absorbed. The same results were obtained with three types of dried yeast which still retained life. Only dead yeast was found to increase the urinary excretion of riboflavin and aneurin. The conclusions drawn from these results are first that live yeast, though containing a large concentration of vitamin B<sub>12</sub> and riboflavin, is not in practice a good source of these vitamins, since they cannot be absorbed from the living cells, and therefore pass into the faeces; secondly, the living yeast appears actively to compete in the gut for such other vitamin B<sub>12</sub> as is available, and so actually reduces the amount that might be absorbed.

These results, if they remain undisputed, serve to point out the complexity of the factors which may affect the nutritional status of a patient. It is now realized, for example, that the requirement of a particular vitamin may vary with the quantity and quality of protein in the diet, indeed it seems likely that nicotinic acid is not needed at all if the diet contains sufficient tryptophan. Again, the microbiological synthesis of vitamins in the intestinal tract may be a significant source for man as well as for the ruminants. In the light of all these findings the too rigid use of tables of vitamin requirements and food contents seems unjustified.

### TREATMENT OF TYPHOID CARRIERS

The typhoid bacillus was formerly classed as a penicillin-resistant organism, but it is in fact the least resistant of the intestinal pathogens and must be classed among the bacteria which, in theory at least, can be successfully attacked with high concentrations of the drug. R W Evans<sup>3</sup> examined 66 strains and found that the concentration required to inhibit growth completely varied from over 25 (in only 1 strain) to 10 units per ml, which inhibited the majority. Lower concentrations retarded the growth of many strains, and sensitivity was unrelated to phage type. J W Bigger was the first to show that sulphathiazole acts synergically with penicillin on *Salm typhi*, this action was studied and confirmed by G T Stewart<sup>4</sup> and by J C Thomas and W Hayes,<sup>5</sup> whose elaborate experiments took into account every possible variable and fully confirmed previous belief that concentrations of the two drugs which are attainable therapeutically in certain situations should have a marked effect. Bigger's observations led directly to a trial by C J McSweeney<sup>6</sup> of the action of the two drugs in combination on typhoid fever, he reported very favourable results in six cases. The treatment was vigorous, penicillin being given at only two-hour intervals in doses of 200,000 units and sulphathiazole at the rate of 1g three hourly for periods of four days. Trials of this form of treatment in several Army Commands, reported by C G Parsons,<sup>6</sup> did not confirm the favourable impression formed in Ireland, but it is to be noted that McSweeney's treatment schedule was not exactly followed, in particular the interval between penicillin injections was longer in almost all cases, and, since the maintenance of a high concentration is obviously desirable, this may have been an important factor.

The possibility that typhoid carriers might be cured by this treatment has not been overlooked, but hitherto no adequate series of such cases has been studied. On page 295 of this issue R M Fry and his colleagues now report such a series. They studied the *in vitro* sensitivity of the strains of *Salm typhi* concerned to the two drugs separately and in combination, and, though the evidence of synergic effect

<sup>1</sup> Lancet 1946 2 113

<sup>2</sup> Ibid 1946 1 83

<sup>3</sup> J Hyg 1947 45 282

<sup>4</sup> Ibid 1947 45 313

<sup>5</sup> Lancet 1946 2 114

<sup>6</sup> Ibid 1948 1 510

<sup>1</sup> Price E L, Marquette M M and Parsons H T J *Nutrit*, 1947 34 311

<sup>2</sup> Kingsley H N, and Parsons H T *ibid* 1947 34 321

is perhaps less striking than that afforded by the experiments of Thomas and Hayes, it is sufficient to encourage hopes of effective *in vivo* action from large doses. They also confirmed that penicillin given in large doses intramuscularly is excreted in considerable concentration in the bile. Nevertheless the treatment of seventeen persistent carriers with penicillin and sulphathiazole gave singularly disappointing results. Three systems of treatment were tried employing progressively huger doses of penicillin, culminating in 40 million units of penicillin together with 12 g of sulphathiazole daily. Courses of both continuous and intermittent treatment were given. The net result was the apparent cure of only three of the seventeen patients. This is certainly not encouraging, and further search must be made for some chemotherapeutic procedure which will deal more successfully with these patients. It would be a mistake to interpret the results as evidence against the efficacy of these drugs in typhoid fever itself. To eliminate an organism from the body altogether is a far more difficult task than to suppress its activity sufficiently to alleviate an acute infection. There are other infections, notably streptococcal, of which the acute form is highly susceptible to chemotherapy while the carrier state is often resistant.

### THE REFLECTING MICROSCOPE

The action of the Nuffield Trustees in making a grant to the University of Bristol for the construction and development of the reflecting microscope designed by Dr C R Burch, of the Department of Physics of that University, is an indication of the potential value in research of this appliance. At the recent exhibition in London arranged by the Physical Society Dr Burch and his co-workers described some of the uses to which the reflecting microscope may be put. It is not to be supposed that the normal refracting microscope is in danger of being supplanted. Difficult technical procedures, including the precision testing and polishing of aspherical surfaces, will limit the production of the reflecting type of instrument, and it may be expected that its uses will be confined to those in which it offers specific advantages. One of these is a substantial increase in working distance. The existing reflecting instruments have a numerical aperture of 0.98 with oil immersion and 0.65 without. Yet the working distance can be 14 to 20 mm. This is of obvious convenience in micromanipulation, which is a sufficiently difficult technique without the further handicap of the more restricted working distance imposed by a refracting microscope of high magnification. In metallurgical research the increased working distance permits the examination of the surface changes which take place in alloys at temperatures up to red heat and somewhat beyond.

The second main advantage arises from the fact that the optical properties of a mirror system are independent of wavelength. Dr R Barer, of the Department of Anatomy and Physiology at Oxford, has been examining this aspect of the reflecting microscope, and though his work is still at an early stage sufficient has been done to indicate the technical possibilities of the method. One series of measurements has been on the absorption profile of a red cell over a range of wavelengths extending well into the ultra-violet. For this purpose there is a substantial advantage in a system which can be operated over a continuous range of wavelengths. The reflecting microscope can be used with shorter wavelengths than a refracting ultra-violet microscope. To what extent this may be an advantage for the normal purposes of microscopy must be a matter of opinion. There are those who consider that the probability that changes will be produced in the

material under examination—or, as such critics would say, under bombardment—outweighs the advantage of greater resolution from shorter wavelengths. The instrument should not, in any case, be regarded as rendering obsolete the refracting type of ultra-violet microscope, of which a new British representative was shown at the Physical Society's exhibition. The two should rather be regarded as complementary. In biological research the reflecting microscope is likely to be particularly useful for measuring selective absorption, as, for example, in the study of carcinogenetic substances.

The immediate programme is for the production of ten reflecting microscopes of the existing type, and as a long-term project for the development of an instrument with the highest possible aperture. This will involve the use of two aspherical surfaces instead of one in the objective. If reflection is also employed in the condensing system four aspherical surfaces will be required. This is no easy programme, for with more than one aspherical surface axial alignment must present greater difficulty. None the less it is hoped that a numerical aperture in the neighbourhood of 1.4 may be attainable.

### VASCULAR CHANGES IN SILICOSIS

The effect of silicosis on the pulmonary circulation is a subject on which there have been differences of opinion, and a study made by Geever<sup>1</sup> on the pulmonary vascular lesions and related pathological changes in 43 cases of silicosis is, therefore, of interest. The cases were unselected and consecutive, but were uncomplicated by gross pulmonary tuberculosis; they were compared with a similar control group of men over the age of 50. The author prepared sections of 40 pulmonary vessels of all sizes from each case, and he classified the silicosis into discrete nodular and massive conglomerate nodular forms. In the discrete nodular form the vascular lesions were not prominent and were found mostly in the arterioles, venules, and capillaries, whereas in the massive conglomerate form the vascular lesions were severe and were found in vessels of all sizes. These findings agree with those of the French school led by Policard,<sup>2</sup> which up to the present has done most work on this aspect of silicotic pathology. Fibroblastic proliferation is the first reaction in all layers of the arterial wall, followed by proliferation of capillary channels and degeneration of muscle and elastic tissue. The final result is occlusion and disruption of the vascular wall by infiltrating granulation tissue, which invades all the layers. Sometimes even thrombosis of large arteries occurs.

In 26 out of the 43 cases right ventricular hypertrophy was found, and in 11 of the 23 patients with massive conglomerate disease failure of the right heart occurred. These findings confirm the physiological observations of Cournand<sup>3</sup> and his colleagues, who showed that pulmonary arterial hypertension existed in two out of the three silicotic patients whom they studied.

These vascular changes are also important, because they probably are partly responsible for cavity formation. Gough<sup>4</sup> has shown in his lung sections that areas of progressive massive fibrosis in South Wales coal-miners frequently have a central cavity. Gardner,<sup>5</sup> while discussing pneumoconiosis of all types, mentioned anaemic necrosis as a cause of the irregular slit-like cavities which are found in silicotic fibrous masses, and Vorwald<sup>6</sup> also considered that the cavitation which occurred in conglomerate nodular fibrosis was secondary to interference with the blood supply.

<sup>1</sup> *Amer J med Sci* 1947, 214, 292.

<sup>2</sup> *Ann Anat path med chir* 1939, 16, 97.

<sup>3</sup> *J clin Invest* 1946, 25, 639.

<sup>4</sup> *Occup Med* 1947, 4, 86.

<sup>5</sup> *J Amer med Ass* 1940, 114, 535.

<sup>6</sup> *Amer J Path* 1941, 17, 709.

## Nova et Vetera

### THE FIRST ENGLISH MEDICAL JOURNAL

It has been stated<sup>1</sup> that the first English medical journal was the *Medicina Curiosa* only two numbers of which were published—in June and October, 1684. This claim has never been challenged, and if the term "medical journal" is taken to mean a periodical devoted exclusively to medicine, then the *Medicina Curiosa* has no rival. It is not, however, the first English journal dealing with medicine. Two and a half years earlier, on Jan 16, 1682, there was published the first number of what is undoubtedly the first English abstracting journal, and at least one-third of its space was given up to accounts of medical books and papers. This journal is now very rare and appears to have been overlooked by the medical historian (it is not mentioned even in Garrison's comprehensive list of seventeenth- and eighteenth-century medical and scientific periodicals), yet the quantity and importance of its medical contributions far exceed those of the *Medicina Curiosa*.

It appeared with the captivating title *Weekly Memorials for the Ingenious or An Account of Books lately set forth in several Languages With some other curious novelties relating to Arts and Sciences*. Each number consisted of eight small quarto pages, and its object was clearly stated in the preface to the first number:

"I cannot doubt but that this weekly paper will find a candid and cheerful acceptance amongst all ingenious persons, the design of it being to present them with a short view of the worthy Labours daily set forth by the Learned. The bare Titles of Books yearly printed in our Common Catalogues, are somewhat dry things, scarce able to raise in men that gust and appetite to Learning, which we may hope these brief Accounts will give them. I shall not confine my self in my Undertaking only to Authors of our own Nation, but shall likewise give Accounts of most Books transmitted to us from all other parts, and shall transcribe here as most valuable, as well in reference to Accounts of Books, as to other curious Novelties therein contained, and of these I may in time communicate what I may receive from elsewhere."

The anonymous writer of this preface was thought to be a certain Mr Beaumont, who, after the appearance of nine consecutive numbers, quarrelled with his publishers, Henry Faithorne and John Kersey, and on March 20 began to produce a rival journal with an identical title which was published by R Chiswel W Crook, and S Crouch. Undeterred, the original publishers carried on with their project until the end

of the year and produced fifty consecutive numbers. Beaumont's rival weekly expired after the twenty-ninth number.

The editor of the modern abstract journal surveying the ever-growing mass of medical and scientific periodical literature, must envy the leisurely task of his seventeenth-century forerunner. There were few journals of any kind in Europe at that time. The *Journal des Scavans* first published in January, 1665, anticipating the *Philosophical Transactions* of our own Royal Society by three months, was the first scientific journal in any modern European language. Nicolas de Blegny's *Nouvelles Descouvertes* (1679) was the first medical journal in the vernacular.<sup>2</sup> The well-known *Acta Eruditorum* did not begin until 1682. Abstracts of papers appearing in these journals were printed in the *Weekly Memorials* but books

were still the chief source of up-to-date information, and substantial abstracts of important medical books form the chief item in many numbers. The greater part of Nos 4 and 7 is taken up by an abstract of the first volume of de Blegny's journal, in the Latin translation made by Theophile Bonet and published at Geneva in 1680 with the title *Zodiacus Medicogallicus*. No 6 contains an account of a work by John Collins (London, 1682) on salt and its use in food-preserving, and a description of "The Physick of the Americans of Virginia" from the *Journal des Scavans*. *The Observationes Physico-Medicae* of Johann Hellwig is summarized in No 9, and a fortnight later the place of honour is given to a report of the biochemical and pharmaceutical experiments described in J H Juncken's *Chymia experimentalis Curiosa* an account which is continued in No 15. The inaugural dissertation of G W Wedel on arthritis is noticed in April, and an account of the same author's book on setons, or "artificial issues"—then popular as a preventive against plague and fever—occupies a half of the number for May 22. One of the most interesting seventeenth-century accounts of the

Chinese system of medicine, especially of the pulse theory, was the *Specimen Medicinae Sinicae* by Andreas Cleyer, published at Frankfurt, in 1682, and a good summary of this work is given in No 21.

The publishers of the *Memorials* did not hesitate to include abstracts of their own publications, such as the celebrated John Ray's *Methodus Plantarum nova* (24) and the little classic on

<sup>1</sup> P Johnston Saint. The First English Medical Journal, *Med Press and Circ* 1939 201 117. Douglas Guthrie. *A History of Medicine*, 1945, p. 192. London: Nelson.

<sup>2</sup> *Bull. Hist. Med.* 1934 2 285.

<sup>3</sup> This claim has been challenged by Eugène Guizard in his book *Deux Siècles de Presse au Service de la Pharmacie* (Paris 1913). He gives priority to the *Mémoires concernant les Arts et les Sciences* of J B Denis (1672), thus offering a curious parallel to the claims made in this article for the *Weekly Memorials*.

[ 179 ]      Dumb. 30.

# Weekly Memorials

FOR THE

# INGENIOUS:

OR,

An Account of Books lately set forth in several Languages,  
With other Accounts relating to Arts and Sciences

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Monday, August 7 1682.

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*Exercitatio Anatomico-Medica de Glandulis Intestinorum, earumq; usu & Affectionibus, cui subjungitur Anatomie Ventriculi Gallinacei Studio Joh. Conrad. Peyer. Amstelodami, 1681. 8vo*

**T**He Anatomical knowledge of the *Stomach*, and *Guts*, gives so great an insight into the Natures, and Operations of *Aliments*, *Medicines*, and several *Diseases*, that this Curious and Industrious Anatomist has been encouraged thereby to bestow much time, and pains in the search, and discovery of those Parts, and having taken notice that Dr *Willis* has given an exact Description of them, yet he assures the World, that they are more accurately done by *Wepfer*, so our Author thinking with himself, that he could add nothing alter two such great Men, makes choice of the *Glandules* only, for his subject, which he hath cultivated to that degree, as none ever did before him.

In the first place he gives the Reader the Situations, the different Figures, Magnitudes, Colours, Number, and Substance of these *Glandules* in the several *Guts*, together

No 30, with the first account in English of "Peyer's patches" (By courtesy of the Wellcome Historical Medical Museum)

brain surgery by the Plymouth surgeon James Yonge (29). The interest and importance of the matter in any abstract journal always depend upon the quality of original work available at a particular time, and in this respect the year 1682 seems to have been a fortunate one. In the latter half of the year the names of J C Peyer (Peyer's patches) and J C Brunner ('Brunner's glands') figure prominently in the *Memoriales Peyer's Parerga Anatomica et Medica Septem* (Amsterdam, 1681-2) is noticed at length in Nos 30 and 32, and the account of Brunner's *Experimenta nova circa Pancreas* occupies more than two thirds of No 37. Among other outstanding medical writers represented in the later numbers are J J van Meekeren, who was the first to record a bone-graft operation in 1668 and whose collected surgical observations, published at Amsterdam in 1682, are described in No 43. High praise is given to the work of the celebrated Swiss physician Théophile Bonet, and the account of his *Mercurius Comptatitius sive Index Medico-practicus* a forerunner of our modern 'systems of treatment,' closes with the suggestion that anyone who translated and published an English edition 'would do one of the best Pieces of Publick Service that ever has been perform'd in any Age, and next to the most Indefatigable and Learned Author himself, would deserve a Statue in all the Anatomical Theatres.' The influence of the *Weekly Memoriales* and the stimulus which it gave to English medical scholarship can be gauged from the fact that less than two years after this suggestion was made an English translation was published in a substantial folio volume by Thomas Flesher.

There is much else of medical interest to be found in these fifty numbers, but sufficient indication of the scope and value of the *Weekly Memoriales* has already been given to prove that it warrants consideration as a medical journal. If general agreement is forthcoming on this point then it must in future be regarded not only as the first English abstracting journal but as the earliest in our long line of medical periodicals.

F N L POYNTER

Wellcome Historical Medical Museum

## THE QUESTION OF LAY PSYCHO-ANALYSIS

BY

EDWARD GLOVER, MD

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The publication of a translation of Freud's essay on lay analysis could not have appeared at a more appropriate juncture,\* for the nationalization of teaching hospitals and clinics under the control of the Ministry of Health will sooner or later raise in an acute form the professional status of the lay worker. For the time being apparently the London Clinic of Psycho analysis has 'opted out' of the national service—a concession that could be the more readily granted in that the demand for trained workers in psycho analysis is notoriously in excess of the supply. The purveyors of a commodity in short supply can practically dictate terms to the consumer organization. Sooner or later, however, the position will change. Psycho analysis will be compelled to a closer affiliation with teaching organizations, and this in turn will involve a more official scrutiny of training methods and selection of candidates than at present exists. The recognition some years ago by a B.M.A. Committee that only students trained at psycho-analytical centres should be called "psycho-analysts" arose from an investigation of the alleged dangers of psycho analysis during which it was established that these sprang from the practice of "wild" analysis by untrained persons. But it was in no sense a binding pronouncement, and in practice meant next to nothing.

### Freud's Case for Lay Analysis

The arguments in favour of lay analysis "under conditions, presented by Freud in this essay, are roughly as follows. Starting from the premise that a quack is a person who undertakes

treatment without possessing the knowledge and capacity required for it, Freud pointed out that doctors themselves furnish the largest contingent of quacks in psycho-analysis. The training of medical students is almost exclusively in organic method, and the smattering of psychiatry they acquire is also non-psychological, certainly non-analytical, in tendency. Training in psycho analysis is lengthy and could not very well be included in an undergraduate syllabus, which, incidentally, to meet psycho-analytical requirements would have to include specialized courses in anthropology, sociology, language, literature, and the like—in a word, orientation in the nature of cultural development. On the other hand, apart from the desirability of having a "fine ear" for mental processes, the essential prerequisite of practice is a thorough "training analysis." The analysed layman who has learned the delicate technique of analysis and knows how to handle "transferences" and "resistances" is, in Freud's view, no longer a layman in the field of psycho-analysis.

He agreed however, that diagnosis and recommendation of treatment must remain a medical responsibility and that organic emergencies arising in the course of an analysis must be referred to a medical specialist, implying thereby that the lay analyst must work under medical supervision, but he pointed out that in the matter of organic crises even the medical analyst, being debarred from physical examination of a patient in treatment, must refer the case to a colleague for an opinion. Moreover, in the field of child upbringing and education many disorders of adaptation are found where the question of medical knowledge does not arise. It would in any case be impossible to stop the activities of such pedagogic analysts.

Finally Freud maintained that psycho-analysis deserves a better fate than to be "swallowed up by medicine and to find its last resting-place in textbooks on psychiatry—under the heading 'Therapy.'" The theory of the unconscious mind 'may become indispensable to all the branches of knowledge having to do with the origins and history of human culture and its great institutions.' 'At all events, it would be unreasonable to sacrifice all other uses to this one [the therapy of neuroses] merely because it touches the field of professional medicine.'

### Future Status of Psycho analysis

Reviewing these arguments at a distance of over twenty years (the essay was originally published in 1926) it is interesting to note that Freud's uneasiness about the future status of psycho analysis was not altogether without foundation. Partly because psychiatrists have in the meanwhile come to recognize that a knowledge of clinical psychology is essential to their work, and partly because of the filip given to it by the second world war, psychiatry has gained a not altogether warranted prestige and authority in psychological matters. True, its tardy dalliance with the principles of psychology has since undergone a considerable regression, stimulated no doubt by experience of various electrical and drug therapies. But the authority of psychiatry in mental medicine has come to stay. This is in many ways unfortunate. Although a sound knowledge of psychiatry is essential to the understanding of early mental development, psychiatry has no prescriptive authority in general psycho analysis. Indeed, there is considerable evidence that an absorption in clinical psychiatry dulls the "fine ear" for therapeutic processes. On the other hand, lay workers, not being registered medical students, are debarred from acquiring even that bare minimum of psychiatric experience that is obligatory in the medical curriculum.

An equally interesting development has occurred in the field of child psychotherapy. As happened in the case of psycho analysis of adults, the practice of child analysis was soon bowdlerized, groups of so called "play-therapists" whose technique bears a very remote resemblance to that of child analysis have sprung up all over the place, indeed, play therapy now receives the blessing of most directors of psychiatric centres and child-guidance clinics. Admittedly this form of treatment is carried out "under supervision," nevertheless its official recognition indicates that psychiatrists have departed very considerably from the intransigent attitude they once adopted towards lay therapy.

Now, for all practical purposes these changes cancel each other out, leaving the issue of lay analysis very much where

\*Sigmund Freud *The Question of Lay Analysis* Translated by Nancy Procter Gregg London, Imago Publishing Co., 1947 (pp 81, 9s)

was Under these circumstances the best way to clarify the situation is to list the mental disorders treatment of which should be carried out exclusively by medically qualified psychoanalysts and those in which it could be carried out without medical risk by properly trained lay analysts We can then consider the advantages and disadvantages of a medical training and of a lay approach respectively

### Medical Analysts

In the first place it may be laid down that psycho analysis of the psychoses, of borderline or larval psychotic conditions, of psychotic character cases, of severe cases of psychopathy, of most conversion hysterias and some of the anxiety states, of the traumatic neuroses and psychosomatic disorders of alcoholism and drug addiction, should, either because of the medical risk involved or because of somatic complications, be carried out only by medical analysts The analysis of most anxiety hysterias, a few conversion hysterias, most obsessional neuroses, general character difficulties (excluding schizoid and paranoid types), of sexual inhibitions and perversions, of most antisocial disorders, and of childhood disorders (excluding psychosomatic and psychotic types) could safely be conducted by lay analysts, who in any case are free to carry out pedagogic analyses and analysis of normal persons for purposes of research or training

Diagnostic considerations and medical risks apart, the main advantage of medical training is not so much the acquiring of psychiatric knowledge, important as that is, as the development of a "sense of illness" Unfortunately this is discounted to some extent by the fact that most medical students are not psychologically minded This, however, is no argument against the medical training of persons who are psychologically inclined and wish to practise medical psycho-analysis That existing medical curricula are practically barren of psychological orientation is merely an indication of the urgent necessity to reform these curricula In any case it would be quite practicable for any medical student to start training in psycho-analysis at a recognized institute as soon as he had completed the first part of his M B

### The Lay Approach

So far the main arguments in favour of recognizing the treatment by lay analysts of mental illnesses that are not strictly "medical" are that lay analysts are not "spoiled" by organic training, that there is a shortage of medical analysts and that by restricting practice to medically qualified persons some lay analysts of unusual capacity might be excluded There is something to be said for the first argument The advantage is however offset by the lay candidates' lack of scientific training a fact which has led some Institutes to insist on an 'equivalent' such as a degree in general psychology or a Ph D Unfortunately a training in normal psychology blunts the "fine ear" just as much as concentration on organic factors, and a Ph D is evidence of intellectual discipline only More objectionable is the jealousy of their medical colleagues displayed by many lay analysts, who often take a pride in being more royalist than the King regarding every cold in the head as being psychologically determined Moreover, lay analysts tend to have a rather dim idea of professional codes

Undoubtedly there have been a few lay analysts of outstanding capacity but the percentage of these is not any higher than that found amongst medical analysts The truth is that neither medical nor lay candidates conform to the standard of cultural development that is desirable for those undertaking the analysis of mental phenomena Not, by the way, that it is any lower than the standard accepted for medical students Nor can this situation be improved by adopting new-fangled and often ridiculous methods of selection The most that teaching bodies can aim at is technical competence and they are lucky if they get it As for the shortage of medical analysts this is a short-term argument of diminishing validity It dates from the pioneer days when the medical profession was, almost to a man violently antagonistic to the theories of Freud, which incidentally they had rarely read and when some distinguished members of lay professions displayed their scientific temper and

imagination by devoting themselves to the study of psycho analysis Being already in the middle years of life, it was not to be expected that they should spend another five or six years acquiring organic disciplines which under the then existing system of selection of cases they would not have occasion to use But times have changed and there is not now the same reason to exempt those who would adopt unrestricted psycho-analytic practice from taking a medical qualification

### Need for a Faculty of Medical Psychology

But when all is said the facts remain that non medical disciplines are just as essential to the study of psycho-analysis as training in organic methods and that many groups of cases can be expertly analysed with little more than an educated layman's knowledge of organic medicine It is clear, therefore, that the problem of lay analysis can be solved only provided universities and colleges create an alternative medical course Above all what is needed is the development of a Faculty of Medical Psychology By this I mean not just the appointment of Professors of Psychiatry or Directors of Psychiatric Centres qualified to prepare students for third-rate 'diplomas' in psychological medicine, but a faculty having power to confer special degrees in medical psychology It is not beyond the wit of university authorities to devise a course in psychological medicine in which training in organic disciplines would be drastically shorn of superfluous detail, which would give the student immensely more training in clinical psychology than is at present the case, and which would include chairs in anthropology, social and sexual disorders, the history of cultural development and all those ancillary studies which are essential to psychological training No doubt the further training of those who wished to specialize in psycho-analysis would of necessity remain in the hands of psycho-analytical institutes and clinics affiliated to the faculty But we might as well face the fact that the field of psychological medicine is as wide as if not wider than that of organic medicine and calls for elaborate and specialized training

This new creation would, however, leave two problems unsolved—namely, how to control methods of selection of psycho-analytical candidates, and how to ensure that they are soundly instructed in classical psycho-analysis Existing methods of selection should certainly be scrapped they are conspicuously unsuccessful The new degree in medical psychology would surely suffice for this purpose As for ways and means of ensuring that psycho analysis is soundly taught, that is a more ticklish problem Even in this country at the present time it has not proved possible to exclude from psycho-analytic teaching ideas and methods which would not be accepted by training institutes in other countries Possibly a system of exchange scholarships whereby a number of candidates could be trained at centres abroad would help to correct these parochial deviations from classical analysis But perhaps it would be enough if medical faculties ordered their own training on sound psychological lines, psycho-analytical institutes might then feel constrained to follow their example

The Liverpool Regional Hospital Board is to be congratulated on bringing out a well-printed booklet giving preliminary information about the hospital and specialists services provided by the Board This contains a map showing the position of all the hospitals supervised by the Board, and details are given of the 19 hospital management committees in the area The public and the medical practitioners in the Liverpool hospital region are told that it is not the Board's intention to bring about immediate sweeping reforms, in general they may expect to obtain their hospital services after the appointed day as they did before Useful information is included about how the admission of patients both to general and to special hospitals should be arranged, and the method of obtaining pay-beds is described Of particular value is the section on mental health services This makes the new procedure of reception into a mental hospital appear simple In the near future it is hoped to establish an emergency bed bureau service and to circulate among the practitioners in the area the names of those specialists who are prepared to undertake domiciliary consultations



## Correspondence

### Diabetic Coma

SIR,—We have read Professor R. H. Micks's article (July 24, p. 200) on diabetic coma and there are several points on which we must disagree. It is not true that all America agrees that the giving of glucose early in diabetic coma is dangerous and prevents recovery, a point of view advocated by Dr. Root at Dr. Joslin's Clinic in Boston and supported by Professor Micks. What we are chiefly concerned with, however, is his advice to everyone, practitioners included, to give enormous frequent doses of insulin even in cases of what we call 'pre coma'. We shall show that this is unnecessary and must involve the risk of grave hypoglycaemia.

Professor Micks does not give details of a single case to show how his theory works in practice, but we must quote some of his suggestions without taking them unfairly out of their context. If the patient can give a clear account of himself or is only "drowsy and confused" (hardly even pre-comatose) he should be given 100 units at first which should produce "an obvious improvement" in 15 minutes. In our experience a subcutaneous injection of insulin never shows any effect in 15 minutes even in the mildest diabetic. Again, "in an early case, if there is no obvious improvement in half an hour, give 100 units every half-hour until improvement is obvious"—i.e., probably many hundreds of units. We consider this unnecessary and dangerous.

The accompanying table shows four-hourly insulin dosage and blood sugars in three typical severe cases of pre-coma treated during the past year. In each case the patient could only be roused with difficulty and was therefore in a more advanced pre-comatose state than that suggested by Professor Micks's description quoted above. The total amounts of insulin required to remove the ketosis, control the blood sugar, and restore the patient to full consciousness were 124, 142, and 196 units respectively.

Hours	Case 1		Case 2		Case 3	
	Insulin	Blood Sugar	Insulin	Blood Sugar	Insulin	Blood Sugar
0	80	665 mg %	60	800 mg %	40	500 mg %
4	12	256	20	572	40	512
8	12	200	30	500	32	280
12	12*	222	24	—	40	214
16	8	143	8	—	20*	125
20	0	106	0	200	12	145
24	—	—	0*	256	12	167

\* Ketosis disappearing

It is obvious that hundreds of units were unnecessary and would probably have produced grave hypoglycaemia—difficult to combat, we find, when vast depots of injected insulin still remain potent. We should add that we have not lost a case of so-called coma of this type for years.

The occasional case, now rarely seen by us, of profound coma with *circulatory collapse* is quite different, as also is our treatment of it. We give hundreds of units of insulin but only when we find that the first big dose has had no effect in reducing the blood sugar in 4 hours, taking into account the slight blood-sugar dilution caused by liberal intravenous saline. We press these big doses rather empirically, thinking that owing to circulatory collapse most of this insulin is wasted and ineffective. Occasionally such patients die in spite of enormous doses of insulin and removal of ketosis because of failure to maintain an adequate circulation. This situation is quite different from the mild type mainly described by Professor Micks where hundreds of units in our opinion, are both unnecessary and dangerous.—We are, etc.,

Diabetic Department  
King's College Hospital  
London SE 5

R. D. LAWRENCE  
WILFRID OAKLEY

### Use and Abuse of Tonsillectomy

SIR—It would never do for anyone in authority to implement the opinion expressed by Dr. H. Stanley Banks at the Preventive Medicine Section of the Annual Meeting of the British Medical Association (July 17, p. 161) that the prohibition of tonsillectomy during epidemics (of poliomyelitis) is the only useful administrative measure of control (against the disease). But Dr. Banks's pronouncement is an important and a valuable one. Here is a well-known physician, a leader in his branch of medicine, who wants temporarily to stop all removal of tonsils during a time when some disease is prevalent that seems to him of greater importance. His opinion sounds like a challenge to Mr. V. E. Negus, speaking in another section on the same subject, to produce his evidence of the "various troubles caused by not doing the operation" until the epidemic is passed.

Let us see where such an order might lead us to. Poliomyelitis is not the only disease to which it might be applied. The post-tonsillectomy measles mastoid is so deadly that to take out tonsils during an epidemic of measles from a child who has not had the disease is as risky as to do so during an epidemic of poliomyelitis. Then were such an order made I should demand that it be extended to all such operations during the winter months and should have behind me the support of many leading physicians. I have applied the principle of cessation of tonsil operations during winter months and during measles epidemics for twenty years and have never seen any trouble arising from the delay. But if temporary cessations seasonal and epidemiological, of tonsillectomy are much to be desired, why should not the administrative fiat be extended to the whole host of tonsils that has been going on for a quarter of a century? It might be ordered that none should be removed under the age of nine, and then only for indications that could not be exceeded. No! Salutary as such orders would be in many ways, we cannot conduct the art of medicine by administrative fiat, and this part of the art must be amended by two other methods.

The first is that the profession as a whole should reconsider its approach to tonsillectomy. Practically every experienced physician in the land deprecates its excessive frequency. The Ministry of Education has short of dictation, done all it can to limit the number arising from its school inspections. Yet still it goes on to such an extent that it can only be explained as being due to a disharmony of the human mind. Future generations will, I believe, wonder and some may laugh at our propensity to it, just as we do at the bleeding and purging of the end of the eighteenth and beginning of the last century.

The other is that parents should again assume the responsibility for decision that they have so long laid aside. The doctor does not order, he advises. If parents would say, "No, I will not have my child operated on until the epidemic is over (or until the winter is past)" they would find that the child is none the worse for the delay and often that it has entirely recovered from the symptoms for which the operation was originally advised. The reassumption of their responsibility might thus lead inquiring minds to demand more from the doctors who advise this operation than they have in the past and this in turn might ensure the profession as a whole making that reconsideration that seems so necessary.—I am, etc.

London W 1

T. B. LAYTON

### Renal Complications in Diabetes Mellitus

SIR—We would like to make a comment on the interesting article on renal complications in diabetes mellitus by Drs. W. R. Gauld, A. L. Stalker, and A. Lyall (July 24, p. 194). They admit, and we agree, that there is no certain way of distinguishing during life between intercapillary glomerulosclerosis and subacute nephritis (we should prefer to say Type II nephritis). Having found one case (No. 13) in which the typical lesions of Kimmelstiel and Wilson were not found at necropsy, they create a new group of three cases of "subacute nephritis" complicating diabetes, although in the other two cases there has been no necropsy evidence. The only criterion used by the authors in putting the other cases into this group seems to be the of the patients.

It is wrong to assume that intercapillary glomerulosclerosis is only found in the elderly. In our present series of 16 cases (9 with necropsy confirmation) we have patients aged 47, 42, 31, 40, 42, 39 and 33. The first three of these have died and the characteristic lesion has been found. The 31-year-old patient had had diabetes for 21 years. Most of these cases have been seen by us through the courtesy of Professor T. H. Oliver, at whose diabetic clinic they have attended.—We are, etc

J. DAVSON  
ROBERT PLATT

Manchester

### Prevention of Dust Diseases of the Lung

SIR—Dr Leonard W. Hearn says (July 17, p. 172) that grit and dust particles cannot be inhaled through a simple butter muslin or gauze mask and suggests that all workers under dusty conditions could be assured of protection against pneumoconiosis if they wore such a mask at work.

Mr R. F. Hounam of the Pneumoconiosis Research Unit investigated the filter efficiency of a simple gauze and cotton wool mask that is produced commercially as a dust respirator and found the following results for coal dust clouds

Particle Size	% of Particles Penetrating Mask
5 $\mu$	30%
2 $\mu$	70%
1 $\mu$	90%
0.5 $\mu$	95%

Since it is generally agreed that small particles particularly those of 2  $\mu$  and under, are chiefly responsible for producing pulmonary fibrosis when inhaled it may be concluded that simple gauze masks would be ineffective in the prevention of pneumoconiosis.

Members of the scientific staff of the Chemical Defence Experimental Establishment are at present collaborating with members of the scientific staff of the Pneumoconiosis Research Unit in the design of a simple but effective filter-pad to cover the mouth and nose which could be discarded after use for a single shift and which should be wearable without discomfort. A pilot model of this mask is nearly ready for trial. However, even if this simple mask is found to be wearable and effective in practice we should not like to suggest that its use should supplant dust suppression in the prevention of pneumoconiosis. I have recently seen a miner who developed advanced silicosis after only six years' work drilling in rock, during the whole of which period he wore a Mark IV respirator at work. This mask in the laboratory is at least 95% effective for particles above 0.2  $\mu$ , but it is clearly not always effective in use. My plea was for "effective action directed to prevention and aftercare" in the problem of pneumoconiosis. In such action the provision of dust respirators will only play a small part.—I am, etc

Pneumoconiosis Research Unit  
London Hospital  
N. Cardiff

C. M. FLETCHER

SIR—The letter written by Dr Leonard W. Hearn (July 17, p. 172) is of very great interest to those of us who have spent many years in the mining areas and whose work has been more or less limited to the x-ray examination of miners' lungs. Dr Hearn is 'lost in wonder that no mention is made of the simple and sure means of prevention and protection by the use of the small pad' indicated by him. We also are lost in wonder that Dr Hearn did not at some time or other make known many years ago this "simple and sure means" and thus have saved not only the lives of colliery workmen and the misery and anxiety connected with deaths due to dust disease but also saved millions of pounds together with many hours of anxious work and research which have apparently been thrown down the drain by simple-minded people in the mining areas.

On whose authority does Dr Hearn state that the muslin pad is a 'simple and sure means of prevention'? We have failed to find any evidence of work which proves that there is 'a simple and sure means of prevention and protection in dust diseases of the lung'. No one has ever suggested that 'grit can be inhaled' but we are at a loss to know exactly what he means by "dust particles" as this term is, to say the least, very indefinite.

Many years ago one of us (A. H.) carried out experiments with various types of mask, and by a mask we mean a mask, and not merely "six folds of butter muslin" and watched over several years the effect of these masks including the Mk IV so kindly given to him for that purpose by the late Professor David Jones, who assured him that dust particles of 5  $\mu$  or less would not pass through this latter type. The filtering properties of "six folds of butter muslin" cannot in any way be compared to the filters used in the Mk IV mask. This tends to show that Dr Hearn has rushed in where others fear to tread as the results obtained controlled by x-ray examination for a number of years showed that the various masks were useless as the usual proportion of patients still died from lung disease due to dust inhalation which was proved on post-mortem examination.

Very many years ago we stated that x-ray examination of all entrants to the coal mining industry should be compulsory, and that periodic x-ray examinations of these men should be carried out so that on the earliest harmful evidence of pneumoconiosis the men should be given some other type of work away from all dust dangers. It would seem to us that, until the Medical Research Council or any other responsible persons publish evidence to the contrary this is the only "simple and sure means of prevention and protection" or until the mining engineer can eliminate "dusts" from colliery workings. Masks of various types and masks of varying degrees of uselessness are to be found on the scrap heap in any mining area where dust disease is prevalent.—We are, etc,

ARCHIBALD HARPER  
J. MANSEL MORGAN

Ammanford Carm.

### Service Doctors in Far East

SIR—The letter from Lieut. D. R. Morgan, R.A.M.C. (July 3, p. 54), complaining about the treatment of married non-regular officers in FARELF, is based on a misunderstanding of the regulations governing the grant of family passages. Owing to the shortage of quarters a points system was introduced, which was thought to be fair to all irrespective of age and rank. Married officers and men with the longest separation from their families were given the most points. The non-regular or National Service man with a total of two years to serve, and most likely not more than eighteen months overseas, is unlikely to acquire sufficient qualifying points. Families are not moved unless quarters are available, and unless the husband has at least one year's service to complete before being due to return to the United Kingdom. There are many regular officers who have had to serve their full term of three years overseas without acquiring sufficient points for their families to join them. There is no United Kingdom leave for any soldier during his three years overseas duty tour, except for soldiers in Europe.

Lieut. Morgan appears to feel there is some discrimination between regulars and non-regulars but both in estimating the points system and in the payment of local allowances and of marriage allowance. National Service men and regular soldiers are on the same footing. A married officer who is not living with his wife and family cannot expect to receive local allowances at the rate of a married officer accompanied by his family as he is already receiving marriage allowance at United Kingdom rates and is allowed overseas allowances for himself at single rates. The half-rate marriage allowance of officers under 25 is the same for both regular and non-regular and is not peculiar to FARELF, it applies everywhere.—I am, etc

R. EDGEWORTH-JOHNSTONE  
Major-General  
Director of Public Relations

The War Office

### Golden Jubilee of the R.A.M.C.

SIR—All will be gratified at the graceful acknowledgment by Major-General R. E. Barnsley (July 24, p. 223) of the decisive and successful action by the B.M.A. from 1896 to 1898 recorded in your leading article of June 26 (p. 1242) and commented on by Dr W. C. Souter (July 10, p. 107) which resulted in the long-overdue establishment of the Army Medical Corps. As an addendum I would, however, remind him that no account of the detail of this outstanding piece of work can be considered complete if it omits honourable mention of the

work of the late Dr W Gordon, of Exeter, who at that time was secretary of the South-Western Branch of the Association. Such was the strong line he took within the Parliamentary Bills Committee on the subject of reform of the Army Medical Service that a special subcommittee was formed, and a letter from him as chairman of this subcommittee was addressed to the Secretary of State for War (Lord Lansdowne), afterwards published.<sup>1</sup> Later in 1896 'the elaborate and able memorandum' on the subject by the subcommittee's chairman is referred to in the proceedings of the Parliamentary Bills Committee and the report itself was published.<sup>2</sup> Eventually, early in 1898 a highly authoritative deputation was well received by Lord Lansdowne.<sup>3</sup>

It is of course not recorded in the minutes, but it is within my knowledge privately from Dr Gordon, that Lord Lansdowne, before coming to his final and favourable conclusion, sought a further interview (which was a prolonged one) with Dr Gordon as chairman of the subcommittee. Such ability and energy had he exhibited in the conduct of this matter that at the succeeding Annual Meeting he was awarded the thanks of the whole Association on the success of his efforts. It is appropriate that at this moment these facts be again put on record, but a full account will be found in the BMA's *Annual Handbook* of 1921-2, which contains a special historical section, and in E Muirhead Little's *History of the BMA* p 153, *et seq*—I am etc

Newquay Cornwall

F A ROPER

#### REFERENCES

- <sup>1</sup> *British Medical Journal* 1896 2 308
- <sup>2</sup> *Ibid* 1896 2, 1331
- <sup>3</sup> *Ibid* 1897 1 732
- <sup>4</sup> *Ibid* 1898 1 329

### Lower-segment Caesarean Section

SIR,—As the author, in 1933, of the use of Willett's forceps in lower segment caesarean section I must strongly demur to Professor F J Browne's condemnation of them (July 10 p 105). I have so employed them for the last 16 years and have never occasioned injury to the child's scalp beyond, in about one case in three, a small swelling underneath it, which is almost certainly mostly serum for there is rarely any bruising and which disappears in a week or two. They were not advocated for violent traction on the head but only a pulling sufficient to keep it against the uterine incision and prevent bleeding from its edges. Forceful clumsiness no doubt makes them a barbarous instrument but the barbarity is in the operator's hands and not in the forceps. I generally have two and sometimes three on at the same time, and this diminishes the force brought to bear because it is distributed over a larger area. Meanwhile the uterine incision is enlarged until it is big enough to let the head slip out. The advantage of the forceps is that they permit of traction on the head while the uterine incision is still small, and this much reduces the amount of bleeding. Sepsis such as Professor Browne describes argues a failure of aseptic technique by someone during or after the operation—I am, etc

London W 1

VICTOR BONNEY

### Whooping-cough and Measles

SIR—There has recently been an outbreak of whooping-cough and of measles at an orphanage to which I have the honour to be medical officer. The children were isolated in two wards for the separate diseases but five whooping cough cases (aged 4-8, with duration of from 7-14 days) actual whooping and vomiting) subsequently developed measles in addition.

The first child so infected became acutely ill with bronchopneumonia, and to relieve the overworked staff I got him admitted to the local isolation hospital. The remaining four after the usual few days' discomfort of measles, made uninterrupted recoveries, with this interesting difference. From the second or third days from the appearance of the rash they entirely lost their spasms nor have they had further attacks although now up and about. The bronchopneumonia child had no spasms when in hospital, although he had been whooping and vomiting strongly before going. The whoops may have been missed in the general chest condition but the matron was inclined to think he had "not been suffering from whooping-cough at all" until I told her about the others.

Are these five cases merely coincidences or is there any known medical reason why an added measles should have apparently "cured" these distressing spasms so quickly? Mixed cases of this type must be rare and I do not remember one before in twenty-three years—I am, etc

Malmesbury Wilts

B L HODGE

### Acute Intussusception in Childhood

SIR—Drs Brenda Morrison and Donald Court are to be congratulated on their very interesting and instructive paper on this subject (April 24, p 776). They have given a very full, accurate, and detailed description of the common signs and symptoms of this disease.

They found that fever was more commonly associated with intussusception than was usually believed to be the case. I believe, however, that the temperature is of no diagnostic significance. Also they found that the passage of blood per rectum was absent in 24% of their cases, and that 30% passed some blood within the first twelve hours. In my experience the passage of blood per rectum has been absent in some cases where the intussusception commenced in the terminal ileum within six to ten inches of the ileo caecal valve, and these are the cases which soon become irreducible. With regard to the early diagnosis they stress the importance of a personal interview with the mother of the infant. Few cases would be missed if the doctor would listen carefully to the history of the child's illness as given by the mother, who is such an accurate and close observer where her infant's health is concerned. She notices the sudden onset of the illness, the pallor and sweating due to shock, the recurring spasms due to pain, and lastly, when it occurs, the passage of blood. With regard to the presence of a palpable abdominal tumour, this may be difficult to palpate, but there must be few if any cases where such a tumour cannot be palpated either with or without an anaesthetic.

With regard to treatment, the problem of reducing an intussusception is very similar to that where the reduction of a hernia is concerned, in that some reduce very readily and others soon become strangulated, and the duration of the trouble is not always the principal factor determining the possibility of reduction. Some will reduce easily after several days and others become irreducible within a few hours. It has been my experience after systematically attempting reduction of intussusceptions by hydrostatic pressure, using a column of saline or water from a height of three feet six inches that over 60% of all cases presenting themselves for treatment become reduced if the pressure is maintained for eight minutes. After using this method over the last 35 years in several hundred cases I am convinced that it should always be given a trial.

Mr Ralph H Gardiner (May 22, p 999) states that he regards the method of what he calls the "use of pressure enemata" as an extremely dangerous procedure, one of his reasons being the impossibility of telling whether the intussusception has been completely reduced. I know that this is also the opinion of many other surgeons. I feel sure, however, that both Mr Gardiner and these many others have never given this method a proper trial. The method is simple, safe, and effective in most cases, and in over 40% of all cases presenting themselves for treatment one can be quite sure that reduction has been effected, although in 18% of those reduced an operation to confirm this fact should be done. If all cases are operated upon then at least 40% will be operated upon unnecessarily.

The principal sign indicating complete reduction is distension of the abdomen when no such distension of the abdomen was present before the injection was used. The distension is due to some of the saline passing through the ileo caecal sphincter into the small bowel. It was after using thin barium enemata many years ago to bring about reduction, and then taking an x ray when I observed that in many cases the opaque solution had passed into the small bowel. As this brought about an even distension of the abdomen where before the injection was given the abdomen was soft and flaccid, I came to the conclusion that it was better to use hydrostatic pressure in a room adjoining the operating theatre and with the child prepared for an operation, so that no time would be wasted if one decided that an operation was necessary. I may state that in no case since using this method over the last 35 years have I made the mistake of sending the child back to the ward as having had the intussusception reduced when such was not the case—I am, etc.

Sydney Australia

P L HIPSLEY

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### Comprehensive Child Health Service

SIR—I was very interested to read the suggestions put forward by Dr P O Crossfield (July 24 p 227) for a comprehensive child health service. I agree with him completely in all he says, and Dr Crossfield may be interested to learn that I am attempting as an experiment and in a very modest way to provide such a combined preventive and curative child health service such as he describes.

It is obviously illogical to have one set of doctors concerned with child health and another with child disease. If one counts up the possible number of different doctors a child may see between birth and school leaving age it is small wonder that parents receive so much conflicting, or apparently conflicting, advice. The problem of combining the two sides of paediatrics will have to be faced soon and at the moment all that seems to have been done is a vague suggestion that general practitioners should conduct infant welfare clinics from health centres. Will each doctor see those children registered with him or will he see those of his less enthusiastic colleagues as well? If the latter, will the doctor with whom a child is registered have no objection to his patient being seen by another doctor?

I cannot see how the general practitioner working under modern conditions can possibly have time to conduct infant welfare clinics for his babies and carry out annual routine examinations of his children, and if he keeps his practice small enough to allow for this service I would then say that he was not seeing a sufficient number of children to keep experienced.

I am watching with interest to see the effect of the National Health Service on the care of children. School clinics and children's hospital out-patient departments are said to be expecting an unprecedented rush shortly as harassed GPs refer children for treatment they have not time to administer themselves. If this does in fact happen, then there would be sound reason for setting up a service such as that described by Dr Crossfield.

We shall no doubt be criticized for breaking up the concept of the family doctor and for attempting to cut out yet another section of general practice. If the paediatrician visits the children in their own homes when they are ill he will soon become aware of the child's social background just as much as though he were the mother's own medical attendant, and if he works in close co-operation with the mother's doctor, say from the same health centre, then the first criticism will no longer be valid.

Rather than this scheme should be regarded as the excision of the care of children from general practice, I prefer to regard it as an attempt to grab back to general practice the work that has been done by public health authorities, but with the difference that some general practitioners should devote themselves wholly or in considerable part to the care of children only. I thus prefer the term general practitioner paediatrician, because in my scheme he would not be a substitute for the consultant paediatrician who would still be needed for difficult cases but much of whose work could be done by the general practitioner paediatrician with his superior experience over the ordinary doctor.

The criticisms often levelled against semi-specialism in general practice are not so relevant against paediatrics because the narrowing influence that work with one organ or one system of the body may have on a man is not present. Paediatrics involves a wide field of medicine, preventive and curative applied to a certain age group, but it is a study nevertheless that makes specific demands upon its devotees justifying separation from the rest of medicine.

Children have already been a cause of an unforeseen difficulty in the National Health Service to judge from the reports of doctors who have refused to take them on. We may deplore this behaviour as unethical but there is no doubt that children require extra care and few in the younger age groups can go through a year without requiring several items of service. Therefore if a scheme such as Dr Crossfield and I have outlined is to attract adherents it is a necessary corollary that there should be a higher capitation fee for children not only to compensate for the extra susceptibility that children have to illness but also to pay for the purely preventive services—I am, etc.

Encl 4

NORMAN J COOK

SIR—May I support and extend Dr P O Crossfield's admirable suggestion (July 24 p 227) that every community should have its community paediatrician with all the children of the area 'from almost conception to 12 years on his panel? Why stop here? It is well known that the years of adolescence

have their special problems. I propose an extension of Dr Crossfield's plan on their twelfth birthdays let all the children be transferred to the panel of a specialist for adolescents. At 20 or earlier if events necessitate it they should of course transfer again to the list of a specialist in all that pertains to the reproductive period. Possibly for this phase there should be one specialist for each sex. The climacteriologist and the gynaecologist, assuming control in their turns would complete the scheme.

Dr Crossfield mentions the GP in passing. As my logical extension of his plan eliminates the need for GPs to do anything but allot patients to their age groups they may as well be abolished altogether—and with them their crazy notions about continuity of treatment and the family as the clinical unit. "The advantages are obvious, the opportunity unique"—I am, etc.

Cambridge

H R YOUNGMAN

### Globin Insulin

SIR—The warning expressed in the leading article entitled 'Modern Views on Diabetes' (July 24, p 209) against the danger of over-simplification in the treatment of diabetes is welcome. Dr G M Wauchope (p 191) seems to advocate a single, morning dose of globin insulin because of simplicity of administration. As you point out however the action of a single, morning injection of globin insulin is generally too short to control the fasting blood sugar. This is in fact well illustrated in Case 21 in Dr Wauchope's paper although one must grant that she has been surprisingly fortunate with her results in others.

When insulin is required it is certainly desirable to restrict its administration to a single dose in the day whenever possible. I have almost abandoned the use of globin insulin for this purpose in the average case as in my experience very much better control can be effected with a mixture of soluble and protamine zinc insulins. Two parts of soluble with one part of protamine zinc insulin mixed in the syringe is most generally useful, but the proportions have to be adjusted to individual requirements. Unlike Dr Wauchope, I do not find any difficulty with this method. A few cases are encountered who cannot be controlled with a single dose and would require three or four doses of soluble insulin per day. In view of my experience of the brief action of globin insulin I have tried this insulin in a number of such cases, giving morning and evening injections, and have found this gives satisfactory results. But these cases are exceptional.

Your other advice, that "the carbohydrate content of the diet, however large should be kept relatively constant" is also important if proper control is to be obtained. Yet Dr Wauchope describes her typical case as eating "mountains" (an uncertain measure) of bread and potatoes, and she 'supposes' the little child John is on a free diet. However, she seems to find some dietary instructions necessary, as serious results overtook her patient who omitted his "mid-morning lunch". A suitable insulin mixture in place of globin insulin might overcome the necessity for such additional meals—I am, etc.

Glasgow C 3

IAN MURRAY

### Confidential VD Treatment

SIR—For over 30 years treatment of VD in this country has been confidential by custom and by statute. The effect of this, together with the arrangements for free voluntary treatment and careful public education has been excellent as the figures of attendance at public clinics show. The certainty that confidence will be kept by all concerned in the treatment medically and administratively is one of the main factors in inducing the early and continued attendance of persons who have—or think they have—contracted VD. The personal troubles and family complications of such persons are in the majority of cases acute and the disease usually has social and moral implications which are fortunately not attached in the same degree to other diseases.

The Minister of Health has, in the course of necessary re-arrangements for the working of the National Health Service Act revoked the 1916 Public Health VD regulations one clause of which made this requirement of confidence statutory



to be noted is that the other guiding principles in the amendment—that it shall be free, and that it shall be voluntary—which were secured under the 1916 regulations are dropped in the new scheme. But the important and necessary element of confidence on which all British V.D. treatment has been built and on which all public propaganda is based is deliberately left out. No explanation has been given, nor have any satisfactory replies to Parliamentary and other questions been received.

The Minister has stated that he hopes confidence will be maintained as before, and no doubt doctors, nurses, administrators, etc., will do everything possible to observe this as in the past but his hopes cannot have the same power and efficacy as a legal requirement. The Amendments to the NHS Act which are now being drafted will presumably rectify the omissions and ambiguities of the Act. It is to be hoped that the medical profession, and all who are concerned with the treatment of patients and administration of clinics and hospitals, will urge the Minister to restore the requirement that (to quote the 1916 revoked regulation) "all information obtained in regard to any person treated under a scheme approved in pursuance of this article shall be regarded as confidential."

The public and the medical profession are already sufficiently troubled about the incidence of V.D. Why should the Minister remove, and apparently be unwilling to restore, this essential feature of our British system of V.D. treatment, which is an encouragement to sufferers to come for help and medical care, some protection to the medical profession and administrators in their difficult tasks in this field and is admirably suited to our British constitution and character?—I am, etc.,

KATHARINE B. HARDWICK  
General Secretary

Association for Moral and Social Hygiene

### Colonial Medical Service

SIR—Many correspondents from many Colonial territories have drawn attention in your columns to the shortcomings of the Colonial Medical Service. It is indeed true that the pay is meagre, the equipment and administration deplorable, and the supply of drugs and doctors pitifully inadequate. It is also true that the Service contains a number of first-class men who have made, and are making, fine contributions to scientific knowledge and that there is a wonderfully interesting job to be done in the Colonies.

After the war a number of men joined the Service who had gained considerable experience in medicine, surgery and administration. This transfusion of new blood should be capable of reviving the patient, but alas it seems more likely to be haemolysed into premature resignation in disgust. The Colonial Medical Service has only too often lost the services of its ablest young men, and urgent action is necessary if this process is not to be repeated on a larger scale. For this state of affairs the laziness and inefficiency of some of the senior officers in the Service must share the blame with the disregard of Colonial Governors for medical and health matters.

I therefore beg, Sir, that the B.M.A. will give a lead to those members of the Service who believe that it is better to fight for a better service from within rather than to shake the dust from their feet. I suggest that the Association should take urgent action upon the following lines:

- (1) Organize all B.M.A. members in the Colonial Medical Service into a strong and active branch of the Association.
- (2) Bring pressure on the British Government to set up a Royal Commission to investigate medical services in the Crown Colonies, and to recommend reforms.
- (3) Bring pressure on the Government to divert a proportion of national service doctors to the Colonies for their term of conscript service as an alternative to the armed Forces.
- (4) Failing effective action by the Government within six months the B.M.A. should set up its own committee of inquiry on the Service and decide whether Association members should be recommended to resign from the Service and be deterred from joining it.

I suggest, Sir, that with strong action on these lines we could rapidly build up a Colonial Medical Service second to none, in which it would be regarded as a privilege to serve. The matter is urgent, for even the inarticulate peoples of the Colonies are beginning to realize that they are not getting the medical services they need, and to say so in no uncertain terms—I am, etc.,

Moretonhampstead, Devon

IMPERIALIST

### Night Thoughts

SIR—I forward these notes in the belief that they may be of some assistance to fellow practitioners who are engaged in general practice in the present Utopian era. At 10.45 p.m. on the third day of Utopia I was called to a lady who was violent, manic and possessed of systematized delusions of persecution directed against her husband. She could not be brought under control by ordinary means and spent her time either rushing wildly round the house in search of lethal weapons with which to dispatch him or creeping stealthily round his room at keyholes.

The first telephone call I made was to a colleague, requesting him to come in order that we might certify her. The second was to the home of a local J.P., but there was no reply. The third was to the gentleman who had until July 5 acted in the capacity of the Relieving Officer, but again there was no reply. When my colleague had arrived and we had seen the patient and discussed the case, we put through the fourth telephone call, this time to the local police, requesting their co-operation in locating the late Relieving Officer. The police sent a car to his house and found no one at home.

Meanwhile Dr. C. rang up the Blantyre County Mental Hospital and was informed that though the patient resided in Blantyre she had no jurisdiction since July 5, and advised him to contact the Area Regional Board, the telephone number of which was not known to them. The sixth call was made to Directory Inquiries, who replied that they had a list of hospitals but no number for the Area Regional Board. The seventh call was made to the mental hospital to which the patient had been admitted previously, but they under the new scheme were not permitted to readmit her. The eighth was to the convalescent hospital to which she had previously been discharged but no information could be obtained from them.

A police sergeant and constable then arrived to inform us of the result of their attempts to find the Relieving Officer, and when suggested that they should assist while I tackled the patient, she gave her an injection the sergeant replied that it was more than a job was worth. He did agree, however, to send a message to the County Police Headquarters asking for information. That was the ninth telephone call. It was then 3.30 a.m. and I decided that it was time something definite was done. I therefore rang the Ministry of Health and had a very pleasant conversation with the night operator there. He knew of no medical man in the building, but put me in touch with the duty officer. The duty officer agreed, when I explained the position, that things were a bit difficult and promised to make inquiries. County Police Headquarters then rang up to say that they had located the late Relieving Officer, who had told them it was nothing to do with him.

I was then rung up by an unknown who said he was sorry to do with the Board of Control and had been approached by the Ministry of Health and told to communicate with me. He apologized profusely for his inability to quote chapter and verse, owing to the fact that he had not got his files in bed with him, but assured that it was not the Relieving Officer with whom I ought to get in touch but the Duty Authorized Officer, adding, "He is usually a man who used to be the Relieving Officer."

From him I did succeed in extracting the names of all the mental hospitals in the Region, so that my eleventh call was directed to one of these. The night porter was sympathetic but explained that it was impossible to rouse any of the doctors at that hour, and when I rang again in the morning. The twelfth was to Directory Inquiries to obtain the telephone number of another mental hospital, but I was unable to find in the directory. The operator was also unable to find it.

My friend the late Relieving Officer then rang up to ask why he kept sending the police to disturb him and didn't we know that he had retired last Friday? After specifying him I extracted the name of the Duty Authorized Officer for the area from him, and put through my thirteenth call. The Duty Authorized Officer thought that the best thing to do would be to ring up the County Police at Bungwell, the telephone number of which was Pingpong 2286, to see if they would help. The fourteenth call, to Pingpong 2286, produced no reply. My fifteenth call was to Directory Inquiries, who were unable to find any mention of the County Hospital at Bungwell.

My sixteenth call, to the Duty Authorized Officer, never got through, for the local operator interrupted to say that his Agatha once went nuts and was sent to the County Hospital at Bungwell, but they called it St. Bernard's. He had overheard, unintentionally, my chat with Directory Inquiries, and had the liberty of looking it up in the Directory. The number was Pingpong 2256. So my seventeenth call was to Pingpong 2256. The night porter was very kind. He explained the local arrangement of telephone lines, which was so organized that though he could not get to the doctor on duty should it be necessary to rouse him, I could not. I thanked him politely and requested him to rouse the doctor. This he did and the ensuing relayed conversation was incomprehensible.

My eighteenth call was to the Duty Authorized Officer who made the suggestion that if I failed to get any satisfaction from the Mental Hospital at Hungwell, Pongping 3392 he would willingly rise from his couch and come along in person. My nineteenth call to Pongping 3392 was most edifying. I was connected almost at once with the duty officer and poured out my tale of woe. But alas, the duty officer was deaf, and not merely deaf but had only a slight knowledge of the English language.

In disgust I put through my twentieth call to disturb the poor Duty Authorized Officer who, some forty minutes later, preceded by ten minutes by an ambulance with the necessary attendants, arrived in person. I looked out of the window and admired the effect of the long shadows cast by the rising sun while the Duty Authorized Officer refreshed himself with a strong whisky and soda, and I turned in dismay as I heard him explain to Dr C that he hadn't got the necessary forms. It appears that he had not yet received his supplies of these essential commodities. We therefore did what was necessary in manuscript, and saw the patient safely inside the ambulance.

And as I drove home to get a shave and a quick breakfast before starting my morning surgery I thought of the blessings bestowed upon the medical profession by Saint Aneurin Bevan, whose self confessed aim is an eight-hour day five-day week for doctors—I am etc

PRIVATE PRACTITIONER

## POINTS FROM LETTERS

### Pain in Childbirth

Dr J S LAURIE (Pontefract) writes. Certain remarks in recent correspondence on pain in childbirth prompt me to suggest one simple but effective method of dealing with one of the main aspects of the problem, namely the fear of the unknown. I am aware that my procedure is by no means unique, but equally it is not practised nearly as widely as might be. As medical officer to an ante natal clinic I hold a short talk at three monthly intervals and during a clinic session. It is illustrated by wall charts, black board diagrams, and home made plasticine models. Every woman should have at least two opportunities to attend, and although mainly intended for primiparae I find quite a large number of multiparae interested. I describe briefly and in basic English the process and meaning of menstruation, the process of gestation, with the formation of placenta, cord, membranes, and liquor, and their function. I stress the slow process of taking up and dilatation of the cervix in labour and the importance of relaxation and calm during this phase to avoid exhaustion when effort is finally required, and I warn against horrific old wives tales. A final word about immunization and vaccination and a warning against the use of purgatives in infants winds up a total of about twenty minutes, during which my small audience is obviously intensely interested. These talks have been going on for about two years now and the results have been most gratifying: the mothers appreciate the process of labour and really do try to co-operate with very good results.

### Vaccination

Dr J B GURNEY SMITH (Epsom) writes. I was interested in Mr W K Fitch's remarks on this subject (July 17, p 177). When I served in the Royal Navy in the recent war we sometimes arrived at ports where smallpox was then prevalent. Port orders were usually received on board on our arrival to state that no naval personnel were to be allowed ashore unless they had been successfully vaccinated. I gather by successful vaccination it was meant that the individual showed a vigorous cutaneous reaction. Surely successful vaccination should imply no reaction at all and therefore no susceptibility to the incidence of smallpox. I feel the phrase 'successful vaccination' is an unfortunate one and in the same category as Mr Fitch's remarks on 'take'.

### Herpes Zoster and Chicken pox

Dr A SCOTT SMITH (Haydon Bridge Northumberland) writes. I recently visited three children of a family who were found to be suffering from varicella. On the following day the grandfather of the children came to see me complaining of pain in the left leg which he said was 'rheumatism'. On examination I found that he had a leprostatic extending from the sciatic notch to the popliteal fossa. The grandpa had lived at an isolated place about two miles from his grandchild and is visited weekly by the father of the children. He had not seen his grandchildren during the past three months and had not been in contact with any cases of chicken pox. Presumably the father was the carrier. The initial pain in the leg was felt two weeks after the children developed chicken pox. The severe post-herpetic pain responded quickly to treatment with paracetamol over extended periods described by Dr Hugh Dickie in the *Journal* of June 15, 1946 (p 942) and by Dr James Kay (July 6 1946 p 259).

## Obituary

### DAME AGNES HUNT

Dame Agnes Hunt, founder of the Shropshire Orthopaedic Hospital which is now known as the Robert Jones and Agnes Hunt Orthopaedic Hospital Oswestry, and of the Derwen Cripples Training College died at her home at Baschurch, Shropshire on Saturday July 24 at the age of 81.

Agnes Gwendoline Hunt one of the younger members of the large family of a Shropshire squire Rowland Hunt of Boreatton, was born in 1867. Though a cripple herself she trained as a nurse in the Royal Alexandra Hospital Rhyl and in the Salop Infirmary. She was a district nurse for 11 years and then in 1900 she started an open air hospital in an old house in her native village of Baschurch. Starting with subscriptions and donations amounting to £132 she finally created not only a hospital dealing with hundreds of patients but a complete organization for the aftercare of cripples in Shropshire and the Midlands. During the 1914-18 war soldiers were taken as patients and Dame Agnes then became commandant of the Auxiliary Orthopaedic Hospital at Baschurch.

Mr G R Girdlestone writes. Dame Agnes Hunt has left this troubled world after many years of the most strenuous and beneficent activity carried through in spite of or perhaps because of, almost constant pain and severe disablement. About 65 years ago the family doctor had found her one morning in extreme distress after a sleepless night of pain and misery since it meant the loss of an eagerly anticipated picnic in the hills. With kindly insight he talked of his own experiences so that she began to share his sympathies, then wrote these lines in her birthday book.

'Reared in suffering thou shalt know  
How to solace others' woe  
The reward of pain doth lie  
In the gift of sympathy'

He had planted a seed which grew and bore fruit beyond all imagination, for from that day she knew her destiny. Already she had learnt to try her utmost to disregard pain, illness, or anything that might prevent her from taking part in whatever was going forward. Now she had determined to become a nurse and, a cripple herself to help to cure other cripples. Somehow she got herself accepted for training, and somehow in the end she succeeded in spite of recurring flares of hip disease. It was a triumph of resolution against all reason. In those days the training was very arduous with long hours and wretched living conditions. She suffered from them so much herself that she vowed "If ever I rose to be a matron no healthy girl should be the worse in health because of her work among the sick. This vow I kept with the result that when the Great War broke out in 1914 I was able to face it with a staff of young stalwart, eager girls, willing and able to give of their best."

After adventurous times as a district nurse with her friend Miss Goodford she started in her own village of Baschurch on Oct 1, 1900 what grew into the first open air orthopaedic hospital. In 1903 she consulted Robert Jones in Liverpool, and after experiencing his surgical skill herself persuaded him to see her difficult cases, and then, to her great pride and joy to act as surgeon to her primitive hospital. Thus were linked H O Thomas Robert Jones and Agnes Hunt the founders of a new school of orthopaedics and of a tradition of professional skill and personal service. The present writer was privileged to work at Baschurch and to spend many a Saturday night at her cottage nearby, an interlude between strenuous days in the wards and the theatre which was lit by her fascinating talk, which ranged the world but always returned to orthopaedics with insight and intimacy.

Miss Hunt had all the best qualities of individuality, charm, wisdom and resolution mellowed and warmed by an underlying and delightful sense of fun. She cared intensely for everything that mattered and her response to a suffering patient was immediate and exact. We would be having a most welcome meal at the end of a long day in the theatre of which she had borne the brunt then would come a call from a distant ward

*This is My Life* Agnes Hunt Blackie 1938

if she would go out into the dark with her crutches and pain showing with that half-smile the effort and victory her courage. Relief and reassurance went with her to the extent for she had mastered every detail and expedient of orthopaedic nursing, her eyes were quick to see what was wrong and her hands put it right with the sure touch and gentle strength of the craftsman.

Thus she was able to demand from her whole team the acquisition of skill and its generous expenditure in an untiring care of each individual—a devotion not to herself but to the common aim. She got all this from everyone worth their salt, the others could and did, go. The result was a hospital intensely alive and magnificently functional and a school of orthopaedic nursing with a superb tradition.

#### H B WILLOUGHBY SMITH, MB, BS, FRCS

Hugh Bernard Willoughby Smith, the eldest son of Mr E J Smith, of Bridlington, Yorkshire, and nephew of Dr F J Smith whose name will be familiar to generations of London Hospital men, died on July 11 in his surgery at Gainsborough, Lincolnshire, at the age of 69. He was educated at Pocklington School and at the old Yorkshire College, which later became the University of Leeds, and at the London Hospital, being a scholar in anatomy and biology. He graduated MB BS Lond and also took the MRCS, LRCP in 1902. He then served as house-surgeon at the London Hospital and at Poplar Hospital, where he obtained a grounding in ENT work. In the next three years he worked as senior medical officer at Pretoria Hospital, Transvaal, and gained considerable surgical experience. Returning to England, he took the FRCS in 1909 and shortly afterwards joined the partnership of Passmore and Lanyon in Gainsborough, both old London Hospital men, starting a career in general practice and surgery which continued to the day of his death. It was interrupted only during the first world war, when he served in the 4th Northern General Hospital at Lincoln and later in various units in France. In his first few years at Gainsborough there was no hospital, and the operations were performed on a portable table, and even on the domestic kitchen table, with the help of the district nurse, and an anaesthetist armed only with open chloroform or ether. There were no fatalities, and the results were so remarkably good that Willoughby Smith had built up a considerable local reputation for himself by the time the John Coupland Hospital was opened in 1913, where all his later work was done.

In addition to his surgery and general practice Smith was for many years medical officer for the Gainsborough Rural District and an active member of the BMA, which he joined in 1907. He was president of the Midland Branch in 1921, chairman of the Lincoln Division in 1931-2, president of the Lincolnshire Branch in 1933-4, and representative in the Representative Body from 1928 to 1939. Outside his professional work his main interests were in natural history, especially botany and gardening, in both of which he was expert.

It is, however, as a man that he will be best remembered by those privileged to be admitted to his friendship. Sincere and loyal to a fault to his colleagues and patients, he hid a warm heart under an unemotional exterior, and it is typical of him that he mentioned only very recently that the proudest moment of his life was when he received a handshake from Lord Lister during a prize-giving ceremony at the London Hospital many years ago. We shall not see his like again in private practice. Dr Smith leaves a widow and one daughter, to whom our sympathies are given.—G W J

Dr ALEXANDER ROBB FORREST, medical officer of health for the county borough of Barrow-in-Furness, died on June 22 at the early age of 44. He was a native of Aberdeen and was educated at Robert Gordon's Colleges. Having qualified M P S at Edinburgh in 1925, he studied medicine at Aberdeen University where he graduated MB, Ch B in 1930. After graduation he held various resident posts in hospitals in London and Aberdeen. In 1933 Dr Forrest took the DPH and became senior resident surgeon of Aberdeen Royal Infirmary, which post he held until the following year when he went into general practice in Peterhead, Aberdeenshire. His duties there included those of medical officer to H M Prison. Three years later he

gave up his practice to become assistant medical officer of health for Barrow-in-Furness, where he had clinical charge of the school medical service and children's clinics. In this particular sphere of public health work Dr Forrest was outstandingly successful, and this was in no small measure responsible for his appointment two years later as medical officer of health and school medical officer. He thus achieved the distinction of becoming head of a department without previous experience as a deputy.

During the next few years his responsibilities were heavy indeed, for in addition to the complete reorganization of the school and welfare clinics he was called upon to organize and operate the first-aid and emergency services required for civil defence. In 1944 his thesis, 'An investigation of the effect of diet and open air methods on the physical condition of children attending an open air school,' gained for him the M D of Aberdeen University. Although Dr Forrest had not enjoyed the best of health for some years, his devotion to duty was unflinching, and his enthusiasm gained the admiration and respect of all who came in contact with him. Shortly before his death he was appointed a member of the local hospital management committee and had accepted the interim post of acting secretary to that body. He was also an active member of the British Medical Association, and during the term 1946-7 was chairman of the Furness Division.

Dr Forrest's interests outside his profession were wide, and included membership of the Barrow Rotary Club, the St Andrew's Society, and the local branch of NALGO. Not only was he popular among his colleagues but he enjoyed the esteem of a wide circle of friends in all walks of life. The people of Barrow have lost a zealous and respected medical officer of health who was ever ready to foster their well-being. Dr Forrest leaves a widow and a son aged 13, to whom the deepest sympathy is extended.

Dr MARTIN ALFRED COOKE who died suddenly on June 28 at the age of 76, was educated at Weymouth College and at St Bartholomew's Hospital, qualifying in 1895. He served in the Gloucester Volunteers as a private, and at the formation of the Territorial Army had attained the rank of captain. He became a major commanding a field ambulance in the London Mounted Brigade in 1908. In the 1914-18 war he commanded the Grove Hospital, Tooting, with the rank of lieutenant-colonel. For these services he was awarded the OBE. His first appointment on qualifying was as a house-surgeon at Stroud Hospital, which had been founded largely through the efforts of his father, Dr A Square Cooke, whom he later joined in practice in Stroud. In 1906 he moved to Upper Norwood and entered into partnership with the late Dr William Gandy. From that time onwards one of his greatest interests was the Norwood Cottage Hospital, in the service of which he never spared himself. In his forty-two years of practice in Norwood Dr Cooke got through a vast amount of work. He was a competent surgeon and performed many operations at the hospital. He was a keen Rotarian, a past president, and an inexhaustible worker for Rotarian ideals. Dr Cooke was a man of great integrity. Many of his younger colleagues who were absent on service during the recent war have cause to remember his scrupulous care of their interests with gratitude and affection. He was beloved by his patients and respected by all who knew him. He is survived by a widow, a son and a daughter.

Dr HENRY SMITH of Kew, Melbourne, Australia, died there suddenly on June 8. He was 83, and was educated at the medical school in Newcastle-upon-Tyne and was a graduate of Durham University, where he obtained his MB in 1890 and his MD four years later. His earlier professional life was spent in the cathedral city of Durham, where he carried on a general practice combined with a surgeoncy at the Durham County Hospital. He was also part-time MOH to Brandon UDC. Smith always endeavoured to keep in touch with the best current work and to foster the best standards of the profession. He was regular in his attendance at the meetings of the old Northumberland and Durham Medical Society and a frequent visitor at operations in the Newcastle Royal Infirmary. He was also an active member of the British Medical Association and was chairman of the Durham Division from 1922 until shortly before he migrated to Australia some twenty years ago. He settled in Kew, and there he continued to practise until his death. Henry Smith was a tall, good-looking man who was always well dressed and an outstanding figure in any company. Always very courteous and attentive, with a quiet confident manner, he was very popular with his patients, to whose interests he was devoted. He was a staunch Churchman and was a vestryman of Holy Trinity, Kew when he died. He is survived by his widow and a daughter, who is also a member of the profession.—G G T

# Universities and Colleges

## UNIVERSITY OF DUBLIN

### SCHOOL OF PHYSIC TRINITY COLLEGE

The following candidates have been approved at the examinations indicated

**MD**—M L Abrahamson D H A Irwin B Kernoff Ethna M MacCarthy B M O'Sullivan R Resnick  
**MB BCh**—J E F Coolican 22J A Campbell 21A L Jones 2 D F V Lane 21H A Karrach 2A 1 Wiley 2M S O Grady 23Maureen A Byrne 2J A R Hanna 2Blanche Weekes D T Irwin 2Doris J Black 2Margaret K B Fox 2Elizabeth E Bird R B Dockrell Muriel T McKenna T B Madden Sheila S Hanbridge R F Doyle N P Browne Edith E Kyle P K Storah C J Davis 2G W Brown P A Johnston  
**MB**—F A Jackson Winifred D Ladie T M W Redman W H Leckovitch J K McCall T G Feeney Anna E Johnston J Diamond C Harris Olivia M Welch Sybil F K Oulton J J Krutinger R H Jackson S D Boland  
**BCh**—2D W Kyle 21A P Robinson 2H G Alton Dorothy C Oswald N McN Parkes M J P O'Brien G N Constable J S P Lane Dorothy I O'Brien J England M H Frunthof R B Flood N B Hool Hetty Hool Peckly Moore  
**BAO**—W A McGaw C J Davis Ivy P Robinson

The following diplomas have been awarded

**DIPLOMA IN GYNAECOLOGY AND OBSTETRICS**—G P Balouny A S Choudhuri M Ghanram S Haydari A J B Paez

The following prizes etc, have been awarded

**Welland L. e. Sheline M. Schwartzberg. Stewart Pre medical Year Scholarship** B F Kendall and Patricia A Throup (to be divided equally) **Stewart First Medical Year Scholarship** Louis R Davidson **Stewart Pre medical Year Prizes** R Semary E C Earl and Sylvia L M Tyler **Stewart First Medical Year Prizes** Colette A Barouch and Barbara W M Partridge **Andrew Francis Dixon Prize** R Indar **Aquilla Smith Prize** Helen P Manning **Walter G Smith Prize** C D Lewis **Lit. Patrick Scholarship** J A Campbell **Conolly Norman Medal in Mental Diseases** Blanche Weekes

1 First-class honours in medicine Second-class honours in medicine  
 2 Second-class honours in surgery

## UNIVERSITY OF LONDON

Edward Peter Sharpey-Schafer MB BChir, MRCP, has been appointed to the University Chair of Medicine tenable at St Thomas's Hospital Medical School, from October 1

The title of Professor Emeritus of Anatomy in the University has been conferred on Arthur Beeny Appleton, MD, on his retirement from the Chair of Anatomy at St Thomas's Hospital Medical School

The title of Professor Emeritus of Medicine in the University has been conferred on Owen Lambert Vaughan Simpkinson de Wesselow, DM FRCP, on his retirement from the Chair of Medicine at St Thomas's Hospital Medical School

The title of Professor Emeritus of Physiology in the University has been conferred on Daniel Thomas Harris DSc MD, on his retirement from the Chair of Physiology at the London Hospital Medical College

The title of Professor Emeritus of Anatomy in the University has been conferred on Thomas Baillie Johnston CBE MD, on his retirement from the Chair of Anatomy at Guy's Hospital Medical School

The degree of DSc has been conferred on J R Busvine (Imperial College of Science and Technology)

## NATIONAL UNIVERSITY OF IRELAND

### UNIVERSITY COLLEGE DUBLIN

The following medical degrees were conferred on July 10

**MD**—D C Connolly J J Doherty C K O'Doherty D J O'Kelly  
**MClin**—Mary Campbell  
**MAO**—G A Connolly M Soder  
**MB BChir BAO**—Mary P Phelan N V O'Donoghue L G O'Connell  
**MB**—J J Ambrose J M J Betts Mary M Books C Brady D M Brady R M Brennan Anne Buckley Isabella P Carey J F A Carey D M Cassidy J J Collins Ethne M Connolly T B Connors P J Conroy Mary F Conry J B Corbett Catherine B Corboy Mary J Corridan B J Daly P F Darcy J J Deehan Anne T M Delahunty L D Digby G P Donnelly D K Dunlea Paine A J Dunn E F Dunne S F Durcan D Dwan Mary B Finnecan B F Gale J P Flanagan Alice Forrestal Evelyn M Gallacher J F Gilvary B M Green M Harill T M J Haran Kathleen M A Harkins P Healy M J Horgan J J Keane D P Keenan A P Kellher E P Kelly Marion T Kinsella Catherine Lalor P H Macaulay J R T McCormack J F McCourt D McDermott Bndict M A McGittan P M J McGrath B K P McGovern T J McGuinness W P McGee C A C Madigan J Magner I K Malton P P Marras N F Meagher J Moloney T M Moviet P Mulahy R S C N Dho Bhattarich J H O'Brien P M P O'Connor J O'Hanlon D O'Heilly D O'Keefe J O'Mara Patricia O'Neill J A O'Reilly P O'Reilly D J Purcell P Purcell Kahanice P Quare R Quinn Nora M Keady P Rowland Rose H M Shielis J J Sikes Mary J Tempary J A Torda E A Maria Anna M Walsh K J Walsh

The following diplomas were awarded

**DPM**—J D Macas T O T Fenn M J G Hart B J Hand  
**DCh**—D J Mac Drew T J O'Brien Eileen J Owens Mary P Fenn P J O'Brien J J Sikes  
**DPh**—BAO and F.O.N. J P O'Riordan Mary A McGowan G W W J L L Nally M E Bery J J Perry J P Gannon A W Fenn F P Bery C Carey J P Gannon W J Cooney J P Doherty C Fenn J D Gannon J C Jany P Kery CW L Lundy CW E Mearns C A S Mearns C O'Donoghue K J Walsh Nally Thomas R M C Toner

1 Inaugural

## ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a quarterly meeting of the Council held on July 8 Lord Webb Johnson was re-elected President for the eighth year Mr L E C Norbury and Mr V Zachary Cope were elected Vice presidents

Professors and Lecturers were appointed as follows

**Hunterian Professors**—Mr Hamilton Bailey, one lecture on parotidectomy indications and technique Mr Shafik Shrivastava one lecture on amoebic liver abscess, Mr T F Crwthorne one lecture on some observations on the pathology and surgical treatment of labyrinthine vertigo of non infective origin Dr W S C Copeman one lecture on pathological anatomy of certain forms of lumbar fibrosis and the role of surgery in its treatment, Mr R W Riven, one lecture on the properties and surgical problems of malignant melanoma Mr M W C Oldfield, one lecture on advances in hare lip and cleft palate surgery following the treatment of 500 patients, Mr C H Gray one lecture on surgical treatment of the painful hip joint, Mr A C Kanner one lecture on pulmonary atelectasis Mr J G Bonnin, one lecture on distasis of the tibio fibular syndesmosis, Mr D F E Nash, one lecture on the development of micturition control Mr W S Lewin, one lecture on acute subdural and extradural haematomas in closed head injuries, Mr Robert Ross, one lecture on the treatment of residual disability following injuries of the peripheral nerves of the upper extremity, Mr John Loewenthal, one lecture on the treatment of intractable ulceration of the leg, with special reference to streptomycin Mr R A R Taylor, one lecture on the aetiology pathology, diagnosis, and treatment of acute pancreatitis a review of 110 cases

**Arms and Gale Lecturers**—Mr R K Bowes, one lecture on infra red photographic studies of the superficial veins in the female and their clinical application, Mr R H Goetz, two lectures on the diagnosis and treatment of vascular diseases, with special consideration of clinical plethysmography and the surgical physiology of the autonomic nervous system

**Erasmus Wilson Demonstrators**—Mr C E Shattock, two demonstrations, Mr L W Proger, two demonstrations Mr R M Haines, one demonstration on tumours of the ovary, Mr Guy Blackburn, one demonstration on diseases of the thyroid gland

**Arnott Demonstrators**—Mr P H Mitchiner, two demonstrations, Mr R J Last, two demonstrations, Dr F S Gorrill, two demonstrations

Diplomas of Fellowship were granted to the following successful candidates

T Levitt B E Blair R Solley R Chignell D W Lacey L P Lassman C G Scorer J E Talbot T Faulkner P E Rees Davies F M Flimurst, R R Klein P B Banaji A G Riddell D W Bain E Griffiths J Freeman H Salz E V Hope N N Jovetz Tereshchenko H H Nixon J H C Phillips C S Savage J P Turney J C F Cregan J P Stephens D J Tibbs T G E Loosemore A MacL Macarthur P H Schurr J N Wilson B A Ward I F K Muir Margaret M Myson B C H Luker C K P Menon V R Thayumanaswami F Parry L B Gotlieb N H Morgan J J Woodward R I Cohen C I Murphy W K Smiley J B Farquhar A R Johnson W D Sturrock C A Brown J B Kyle W J Pullen T B Smiley D H Jenkins J S Kaplan R Rowlandson, W S Wood K P Bhargava E F Chin V H Cumberland H P Dunn K G Jayasekera V T Pearce S S Rose M F Windsor, S M Boctor J A Carr H C Dales K R Pat R I R Stalley R E B Tagart K Turnbull E A Williams D V Evans A E Karl Z K Kazi R Smith J W Ardagh C R Berkin A R Makey D T H Paine, M Paneth P F Philip

A Diploma of Membership was granted to R H R Aston, of Birmingham

Diplomas in Psychological Medicine, in Laryngology and Otology, and in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following successful candidates

**DIPLOMA IN PSYCHOLOGICAL MEDICINE**—P A Adam G B Butler Catherine H S Begg S H Bochner D Cannon R O Cooke J Donnelly Audrey L Ferguson Margaret W Ferguson G S Gladstone R S Hodges D W K Kay M R Leahy J F McHarg R Natarajan D J Petit G S Prince A S L Rae A G Silver R H F Smith

**DIPLOMA IN LARYNGOLOGY AND OTOTOLOGY**—D J J Ackermann A C Cox N S Daw D A Driffin B I Eames I N Fulton H Hazra P H Hargill M S Khan R A Lindsay R L McFadden E A Mallin M Mohsin A T P Pitt D M Stevens J G Stotham

**DIPLOMA IN ANAESTHETICS**—R I W Ballantine M M Boyle A S Brown J R Espley J K Farquhar Violet Fra A H Granat D J Hadfield Marie F Hill D A B Hopkin M D C Hosford H Jackson P D Johnson R H N Lake H L Leaming W J Lewis L H Litherman P F M MacDonagh A Mackenzie G A Mandos T Marshall J G Millers J Moore V D Munro C J K Ott A Owen Flood H P L Ozorio C H Podesta E S Lone T R Steer M Svedlow D V Thomas Frances M Usatt C Umehara H Walser Abigail T Welsh H B Yeofg

The following hospitals were recognized Sainchiffe County Hospital Deesbury (resident surgical officer), Northampton General Hospital (resident surgical officer, surgical registrar and orthopaedic house-surgeon Additional recognition) St Andrew's Hospital Dollis Hill, London NW (senior and junior house surgeons), Central Middlesex County Hospital, London, NW (the three house-surgeons) County Hospital Whiston, Lanes (resident surgical officer, class III (rehabilitation) officer, and general house surgeon)

## FACULTY OF DENTAL SURGERY

The first election of Fellows to the Board of Faculty of Dental Surgeon was held on July 16, when it was reported that Professor

H F Humphreys had been re-elected and Professors M A Rushton and H H Stones elected to the Board

The Board welcomed members of the Orthodontic Society of Europe, who were shown the Odontological Museum by the Curator, Sir Frank Colyer, and inspected various College treasures

The first meeting of the Faculty was held, and some 160 Fellows and Licentiates in Dental Surgery of the College attended. The President, Lord Webb-Johnson, gave a historical survey of the College and its association with dental surgery. He pointed out the great opportunity the Faculty had in promoting the art and science of dental surgery, and hoped that in the future dental surgery would look upon the College as its academic and spiritual home. The Dean then gave a short review of the various steps which led up to the forming of the Faculty and the Fellowship in Dental Surgery. The annual report of the Board, which showed that a considerable amount of work had been completed in the first year, was presented by Dr E W Fish. At the conclusion of the meeting Mr Reginald R Course was elected to represent the Licentiates in Dental Surgery of the College on the Board.

The following dental surgeons from home and overseas were admitted by the President to the Fellowship in Dental Surgery of the College: Professor Andrew Francis Jackson, Professor Sheldon Friel, Professor J C Middleton Shaw, Miss K C Smyth, Mr L Russell Marsh, and Mr B Maxwell Stephens.

The Charles Tomes Lecture was given by Andrew Francis Jackson, D.D.S., professor of orthodontics, Temple University, Philadelphia, on "Growth and Development from the Clinical Aspect of Orthodontics."

In the evening the first anniversary dinner of the Faculty was held in the College, and was attended by some 150 dental surgeons and guests. The toast of 'The College' was proposed by Professor Bradlaw, and the President, Lord Webb-Johnson, replied. Professor F C Wilkinson, the Vice-Dean, proposed the health of the guests, and Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health, replied, and during the course of his speech referred to the important part which the Faculty would play in the future of dental surgery. The reply to the toast of the guests was also supported by Professor Jackson, who stressed the good relations which existed between this country and the United States from the academic as well as from the political point of view.

#### ROYAL COLLEGE OF PHYSICIANS OF IRELAND

T St V W Buss was admitted a Member of the College on July 9

#### ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council of the College, held on July 24, Sir William Gillratt was re-elected President of the College. The following officers were also re-elected: Vice Presidents Sir William Fletcher Shaw and Mr James M Wyatt; Honorary Treasurer Mr Arthur A Gemmell; Honorary Secretary Mr Humphrey G E Arthure; Honorary Librarian Mr Frederick W Roques; Honorary Curator of the Museum Mr Aleck W Bourne.

The following were admitted to the Fellowship of the College: F R W K Allen, J B Dewar, P J Kearns, H R MacLennan, G R Sparrow.

The following were admitted to the Membership of the College: S G Aitken, I C Barne, W Barr, F Benjamin, A B Higginson.

The following candidates were elected to the Membership of the College: T M Abbas, I S R Bain, Henrietta F Banting, T L S Brynes, S Behrman, D C A Bevis, C C Bowley, T St V W Buss, Ll W Cox, T E Elliot, P M Naidu, Mary E Egerton, Margaret Fitzherbert, G McI Forsyth, H D Freeth, G B Gibson, J H Gibson, A Graham, A H Grenz, Constance A Grey, H B Harram, C C Henneberg, E Hesselberg, D W Higson, J C Holman, K R Hudson, A G Jones, J B Joyce, R A Irani, W T Kenny, G G Kerster, R A H Kinch, S Lask, T L T Lewis, Ethna W Little, E L F McConnachie, W Macfarlane, J M McKiddie, S H Madden, Helen M Mayer, G W H Millington, F L E Musgrove, C G Nairn, J R Norris, J J F O'Sullivan, J H Patterson, A C Pearson, W H Peck, S D Perchard, D Pryor-Jones, M S Qureshi, E H Rees, S McR Reid, H A Ripman, D N S Robertson, Helen M Russell, B W Sanderson, H Sneyed, S A Siddiki, G A Silley, A A Smith, T Smith, G J Sophian, Christine M Stacey, P C Steptoe, C S N Swan, R A Thatcher, G S Thomas, R G Whitelaw, P de S Wijesekera, R M Williams, M S Williamson, H G Wolskel, P S Wright, R B Wright.

#### CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examination, were admitted: L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.S.Glas., on July 28: Freda M Addly, A K Bain, R G Blair, J A Brown, D Bull, E S Cohen, Ruby M Collister, Jessie McI L Duce, H Fishman, A Freedman, I K Freeman, D Giannini, P W Grant, J Hamilton, T Hannah, D P K Howie, N D Ker, A Kilpatrick, A Kwasnik, G H Lee, W Leggat, A J Levine, Audrey E Lewer, D McN McCurrach, A W D McIntyre, Jessie K M Main, H M

Marks, Catherine R S Mitchell, Margaret E Morgan, A Muir, W W Muir, B Nash, Rosalie A H Paul, W H Reid, W J Reilly, B Seltzer, A E M Sieger, Eirlys Speck, R K Steen, D F F Stephens, J McC H Steven, J Stewart, Gwyneth Watkins, Margaret L -Watt, Sheila M Wheeler, G A Whitefield, L Wilkie Sophia W Wright.

## Medical Notes in Parliament

### NATIONAL HEALTH SERVICE

#### Younger Specialists

On July 29 Sir ERNEST GRAHAM-LITTLE reported that a large class of younger specialists including holders of grants under the various grades of the Health Scheme, had not been offered even interim contracts under the Health Service Act and were receiving approximately half the salary which they might expect from the Spens Report recommendations. He added that many of them had been qualified 10 years, were married, had families, and suffered from financial strain. Sir Ernest asked for an assurance that the adjustments would be retrospective and made quickly.

Mr BEVAN replied that no interim contracts were necessary where, as was usual, holders of junior hospital appointments immediately before July 5 were whole-time officers, because they passed as transferred officers automatically into the employment of the appropriate hospital management committee or board of governors. Any adjustment of their present remuneration (which he knew to be often less than that recommended by the Spens Committee) must await the drawing up of agreed rates with the profession, as in the case of specialists. As soon as agreed rates were evolved he would do his best to see that retrospective adjustments from July 5 were carried out quickly.

#### Attendance at Confinement

Mr PETER THORNEYCROFT inquired on July 29 whether under the National Health Service Regulations a mother was entitled to the presence of a doctor at her confinement if she desired it, or whether a doctor was entitled to decide that it was not necessary for him to attend in spite of the wish of the mother that he should do so.

Mr BEVAN answered that a practitioner providing maternity medical services undertook to be present at the confinement if in his opinion it was required or if summoned by the midwife in attendance. In reaching his decision he would no doubt take account of the wishes of the mother.

On the same date Mr PETER THORNEYCROFT further asked the Minister of Health whether under his regulations a mother could engage the services of a doctor privately and pay his fees for her confinement without losing the nursing and other benefits made available under the National Health Service Act.

Mr BEVAN indicated that this was so but wished to make it clear that the woman could not pay any fees to a doctor on whose National Health Service list she was entered.

#### Prescribing

Sir THOMAS MOORE asked on July 29 what authority had been delegated to local medical committees to prevent a medical practitioner from prescribing any drug or medicine which he considered necessary for the treatment of an insured patient.

Mr BEVAN wished it to be quite clear that patients were entitled to all drugs necessary for their proper treatment. Local medical committees had power only to investigate excessive prescribing.

On the same date Mr RANDALL asked whether Mr Bevan knew that regulations issued in connexion with the National Health Service concerning the procedure to be adopted for the investigation of excessive prescribing had created considerable feeling among the medical profession. He asked for an assurance that, while such procedure might be necessary to prevent extravagance, it would not be used to restrict the doctors.

Mr BEVAN replied that this procedure was on similar lines to that which had been in operation for many years under the old National Health Insurance Scheme. He explained that it was aimed exclusively at extravagant prescribing and would certainly not be used to restrict any prescribing necessary for the treatment of the patient.

Mr BEVAN said in reply to a question by Mr HARDY that he realized how necessary it was that all the staffs concerned should understand the provisions of the National Health Service Superannuation Scheme. Officers of his Department were available to attend meetings of employees in order to explain the scheme in detail. In response to requests from employee organizations they had already attended a number of such meetings.



## Assistants in NHS

Sir ERNEST GRAHAM-LITTLE was assured by Mr BEVAN on July 27 that executive councils had been asked to consent without question to the continued employment in the National Health Service of assistants employed before the appointed day. Mr Bevan said the remuneration of such assistants was a matter for their principals, but arrangements for grants for trained assistants without previous experience were under discussion with the profession.

## T T Milk

Mr PIRATIN asked on July 26 to what extent T T milk not bottled by the farmer was subsequently kept separate and sold as T T, and what steps Mr Strachey took to ensure that such milk was not mixed with non-T T milk.

Dr SUMMERSKILL said that in May, 1948, approximately 27% of the T T milk sold by producer-wholesalers in England and Wales was retailed as such. Under the Milk (Special Designations) Regulations T T milk sold as such must be kept separate from all other milk and sold to the consumer in sealed containers specially labelled and fitted with overlapping caps. Failure to comply with these conditions could involve dairymen in the revocation or suspension of their licences to sell T T milk. She regretted that only 27% was sold as T T milk but said that the Ministry could not govern consumer preference.

## EPIDEMIOLOGICAL NOTES

## Paratyphoid Outbreak

There has been an outbreak of paratyphoid B infection in Eastbourne. The first patients were admitted to hospital on July 25, and 35 suspected cases had been notified to the medical officer of health up to and including Aug 2. On that date the source of the infection had not been traced, but investigations were being carried out with the assistance of the Public Health Laboratory Service. Since the illnesses began about the same time, it is thought that the patients, most of whom were children, may have been infected from a common source. There is no evidence at present that ice cream was to blame.

## Discussion of Table

In England and Wales infectious diseases were more prevalent during the week, and there were increases in the notifications of measles 622, whooping-cough 341, scarlet fever 45, acute pneumonia 37, diphtheria 33, acute poliomyelitis 13, dysentery 11.

A rise in the incidence of measles occurred in every area except in the west-midland and the south-western counties where decreases in notifications of 146 and 54, respectively, were reported. The largest rises in the incidence of measles were in Yorkshire West Riding 285 and Yorkshire East Riding 124. The fluctuations in the local trends of whooping-cough were in general quite small, and the only large rises in notifications were in Lancashire 64 and Cheshire 55. The only variations of any size in the returns of scarlet fever were an increase of 25 in London and a decrease of 25 in Surrey. The chief features of the returns for diphtheria were rises in Durham 11 and Lancashire 8. In Lancashire 18 of the 42 cases in the county were notified in Liverpool C B.

An increase in the notifications of dysentery from 5 to 24 was recorded in London (Hampstead 6, Kensington 6). The only other large return for dysentery was 11 in Lancashire. Acute poliomyelitis reverted to the level of a fortnight earlier. The largest numbers of notifications were Lancashire 6 (Manchester C B 5), London 5, Essex 4 (Saffron Walden R D 2), Middlesex 3, Durham 3, Wiltshire (Swindon M B) 2, Staffordshire 2, Yorkshire West Riding 2, Glamorganshire 2.

In Scotland an increase of 20 was recorded in the notifications of acute primary pneumonia. There was a decrease in the incidence of scarlet fever 41, measles 13, and dysentery 9. In contrast to the general trend a slight increase in the notifications of scarlet fever occurred in the eastern area.

In Eire increases were recorded with returns for whooping-cough 29 and measles 20, and decreases included diarrhoea and enteritis 16 and diphtheria 5. The largest outbreaks of whooping-cough were in Kerry (Kenmare R D) 25 and Donegal (Stranorlar R D) 15.

In Northern Ireland an increase of 25 occurred in the notifications of measles in Belfast C B.

## Week Ending July 24

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1,747, whooping-cough 3,359, diphtheria 139, measles 8,501, acute pneumonia 385, cerebrospinal fever 25, acute poliomyelitis 39, dysentery 108, paratyphoid 9, and typhoid 13.

No 29

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 17.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland.

Figures of Births and Deaths and of Deaths recorded under each infectious disease, are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	25	3	13	—	2	60	1	21	2	—
Diphtheria Deaths	183 4	18 2	40 1	14 —	1 —	202 1	21 —	27 —	16 —	5 —
Dysentery Deaths	67	24	25	—	—	56	3	12	—	—
Encephalitis lethargica acute Deaths	1	—	—	—	—	3	—	1	—	—
Erysipelas Deaths	—	—	21	9	—	—	—	26	5	2
Infective enteritis or diarrhoea under 2 years Deaths	27	—	5	24 1	2	60	5	21	32 9	3
Measles* Deaths†	9 459	602	70	91	78 1	8 400 7	455	50 1	222 1	8
Ophthalmia neonatorum Deaths	55	2	8	1	—	75	6	11	—	—
Paratyphoid fever Deaths	12	1	—	—	—	12	2 (B)	1 (B)	—	—
Pneumonia influenzal Deaths (from influenza)‡	377 3	19 1	—	2 1	4 —	306 3	19 —	2 1	—	3
Pneumonia, primary Deaths	122	17	128	32 10	6	—	22	102	11 3	5
Polio-encephalitis acute Deaths	2	—	—	—	—	16	2	—	—	—
Poliomyelitis acute Deaths§	36 3	5 1	5	1	—	177 2	19	19	—	3
Puerperal fever Deaths	—	—	2	—	—	—	5	9	—	—
Puerperal pyrexia   Deaths	96	4	9	3	—	136	6	10	—	—
Relapsing fever Deaths	—	—	—	—	—	1	—	—	—	—
Scarlet fever Deaths†	1 703	114	256	40	34	1 036 1	73	94	31	29
Smallpox Deaths	—	—	—	—	—	1	—	—	—	—
Typhoid fever Deaths	4 2	—	—	3	—	10	—	—	5	4 1
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	3 416 8	258 1	18 1	117	10 1	1 931 7	217 3	40 1	53 3	4
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	276	33	35	7	10	359	42	70	24	8
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4,090	630	507	140	104	4,149	681	581	148	111
Live births Annual rate per 1 000 persons living	8 363	1340	915	351	253	9,687	1574	1097	396	275
Stillbirths Rate per 1 000 total births (including stillborn)	197	28	29	—	—	216	15	26	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county) will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London (administrative county), are combined.

|| Includes puerperal fever for England and Wales and Eire.



## Medical News

### Central Health Services Council

The Minister of Health, Mr Aneurin Bevan, has announced the members of the Central Health Services Council. It consists of 41 members, six *ex officio*. Of the other 35, one appointment is still to be made. The secretary is Mr. E. J. S. Clarke, of the Ministry of Health. The council held its first meeting on Tuesday, July 27, when Mr. Fred Messer, M.P., was elected chairman and Professor Henry Cohen vice chairman. The full list will be published next week.

### Mr Bevan Meets Chairmen of Executive Councils

The Minister of Health met the chairmen of the 138 executive councils on July 28 for the first time to enable him to receive first hand reports on the working of the services. The meeting also provided an opportunity for an informal exchange of views. Mr. Bevan thanked the councils for the way in which they had carried out the enormous burden of work which had fallen on them during the past few months. Reviewing the progress achieved, he said that the vast majority of doctors throughout the country were co-operating in the effort to make the new Service a success. A number of authenticated cases had, however, been brought to his notice of doctors who were discriminating in selecting patients or in the standards of amenities provided for public and private patients. He believed it was only a very small minority of doctors who were behaving in that way. He hoped that any cases which came to light would at once be investigated by the local medical committees, representing the medical profession. It was far better that the profession itself should, if possible, deal with complaints of this kind, and he felt sure that this was what the profession would wish.

### New Viennese Journal of Physiotherapy

A new journal entitled *Physikalische Therapie Bader- und Klima heilkunde* has been started in Vienna by Springer. It is intended to discuss all aspects of physiotherapy, climatology, and balneology.

### New Research Fellowships in Diabetes

The Lund Research Fellowships of the Diabetic Association have been allotted to the following:

1947-48—Dr J. A. L. Gilbert (full time) in the Department of Therapeutics, the Clinical Laboratory, Royal Infirmary, Edinburgh. "Problems in Diabetic Pregnancies." Dr J. Hildes (part time) at Hammersmith Postgraduate School. "Studies in Liver Glycogen." Dr J. A. Robertson (part time) at King's College Hospital. "Renal Complications of Diabetes."

1948-49—Miss G. Audy (part time) in the Department of Biochemistry, University College, London. "In vitro Studies of Insulin Action." Mr. H. H. Fouracre Barns and Dr. M. E. Morgans (part time) at the Medical Unit, University College Hospital. "Animal Experiments in Diabetic Pregnancies." Dr. H. Harris (full time) at the Galton Laboratory, University College. "Diabetic Heredity."

### The British Rorschach Forum

At a recent meeting convened by Dr. C. J. C. Earl the original Forum, which had been an informal group, was dissolved and reconstituted. The objects of the new Forum are to facilitate the exchange of views among those using the Rorschach test, to safeguard professional standards in the use of the Rorschach Method, and to encourage research among Rorschach workers. The Forum will consist of honorary fellows and members. Qualifications for future membership have been agreed and will include satisfying a selection committee of ability to use the test as a diagnostic method, as well as recognized qualifications in psychology or psychiatry, with clinical experience and experience in using the test professionally for not less than one year. The officers are Dr. C. J. C. Earl (chairman), Miss Theodora Alcock (secretary), Dr. W. Mons (treasurer). The subscription for both fellows and members is one guinea a year. Further information may be obtained from the Secretary, c/o The Tavistock Clinic, 2, Beaumont Street, London, W.1.

### Register of Orthoptists

A new Register of Orthoptists has now been published by the Board of Registration of Medical Auxiliaries, and medical practitioners can obtain a copy free on application to the registrar of the board, Tavistock House North, Tavistock Square, London, W.C.1.

### Wills

Mr. Philip Edward Homer Adams, of Theberton, Leiston, Suffolk, left £52,073. Surgeon Rear-Admiral Robert Harry Mornement, late R.N., of London, W.1, left £919. Dr. Percival Henderson, of Whitley Bay, Northumberland, left £9,957.

## COMING EVENTS

### Community Education for Mental Health

In connexion with the International Congress on Mental Health, which will be held at Central Hall, Westminster, London S.W., from August 11 to 21, the National Association for Mental Health (39, Queen Anne Street, London, W.1) has arranged a specialist meeting on 'Community Education for Mental Health' to be held at Westminster School Hall, Little Dean's Yard, London, S.W., on Friday, August 20, at 2.30 p.m. The meeting will be presided over by Dr. George S. Stevenson, medical director, National Committee for Mental Hygiene (U.S.A.), and member of the executive committee of the International Committee for Mental Hygiene. Addresses will be given by the following speakers: Dr. Doris M. Odium (Vice President, National Association for Mental Health), 'The Future of Mental Health in England and Wales'; Dr. H. Bersot (Secretary General, European Committee for Mental Hygiene), 'Mental Health Education in Switzerland'; Miss Nina Ridenour, Ph.D. (Executive Officer, International Committee for Mental Hygiene), 'Mental Health Education through the Press and Theatre, etc.' The discussion following these addresses will be opened by Miss H. E. Howarth, M.A. (Tutor in Social Work, Institute of Psychiatry, London).

### Congress on Population

The International Congress on Population and World Resources in Relation to the Family will be held at Cheltenham on August 23-28. The Family Planning Association has organized the Congress, which will include sessions on the following topics: world resources; essential standards of living; migration as a factor in the adjustment of national populations; sociological implications of family limitation in various typical countries; birth control as a factor in the adjustment of national population; ethical and medical advantages of planned family limitation; current and future research in problems of fertility, infertility, sex, and marriage; agencies for the dissemination of knowledge and propaganda. Group sessions will also be held to discuss improvement of international liaison, education of more primitive peoples in matters of sex, the present situation in Germany, sex education, and marriage guidance. The fee for registration, which includes provision of printed *Proceedings* is £2, and applications should be addressed to the Cheltenham Congress Organizer, 37, Park Street, London, W.1.

## APPOINTMENTS

COOKE R. T. M.D. Pathologist to Hartlepool's Hospitals Management Committee.

MANCHESTER UNIVERSITY—The following appointments are announced: Lecturer in Medicine H. T. Howitt M.B. Ch.B. MRCP Honorary Clinical Lecturer in Medicine H. J. Wade M.D. MRCP Lecturer in Medical Neurology G. G. E. Smyth M.D. FRCP Lecturer in Otolaryngology H. P. Lawton FRCS Ed. D.L.O. LDS Lecturer in Child Health A. Holzel M.D. DCH Special Lecturer in Human Serology Fred Stratton M.D. Honorary Lecturer in 'Experimental and Radiation Therapeutics' Harold Jackson M.Sc. M.B. Ch.B. Ph.D. Assistant Clinical Director of Chronic Rheumatism Research Centre H. S. Barber M.D. FRCP Chief Assistant in Chronic Rheumatism Research Centre Oscar Janus M.B. Ch.B. Physician in Charge of Rheumatism Research Clinic J. S. Lawrence, M.D. Ed. MRCP Lecturer in Clinical Prosthetics A. J. Milne Gall L.R.C.P. and L.R.C.S. Ed. Clinical Lecturer in Surgery for Dental Students F. H. Scotson FRCS.

MIDDLESEX HOSPITAL London W.—Assistant Physician to Department of Psychological Medicine J. A. Hobson M.D. MRCP DPM Assistant Obstetric and Gynaecological Surgeon I. M. Jackson FRCS MRCOG Anaesthetist A. J. H. Hewer M.B. B.S. D.A.

SCUNTHORPE AND DISTRICT WAR MEMORIAL HOSPITAL—Physician J. H. Derek Millar M.D. MRCP Surgeon V. P. McAllister M.Ch. FRCS Ed. Anaesthetist W. N. Rolleston M.B. Ch.B. D.A. Assistant Ear, Nose and Throat Surgeon R. Morton FRCS Ed. Cardiologist, J. W. Brown M.D. FRCP.

## BIRTHS, MARRIAGES, AND DEATHS

### BIRTHS

Hall Smith—On July 21, 1948, at Whitehaven The Drive Hove to Dr. Angel Hall Smith and Dr. Patrick Hall Smith a second son.

McAnallen—On June 19, 1948, at St. Mary's Nursing Home to Patricia (Atkinson) and Dr. J. McAnallen of 53 Watcombe Circus, Nottingham a daughter.

Percy—On July 23, 1948, at Birmingham Maternity Hospital to Joyce (Glover) wife of Dr. H. Gordon Percy M.B.E. a daughter.

Tanner—On July 24, 1948, to Evelyn Winifred wife of Mr. Norman Tanner FRCS a son.

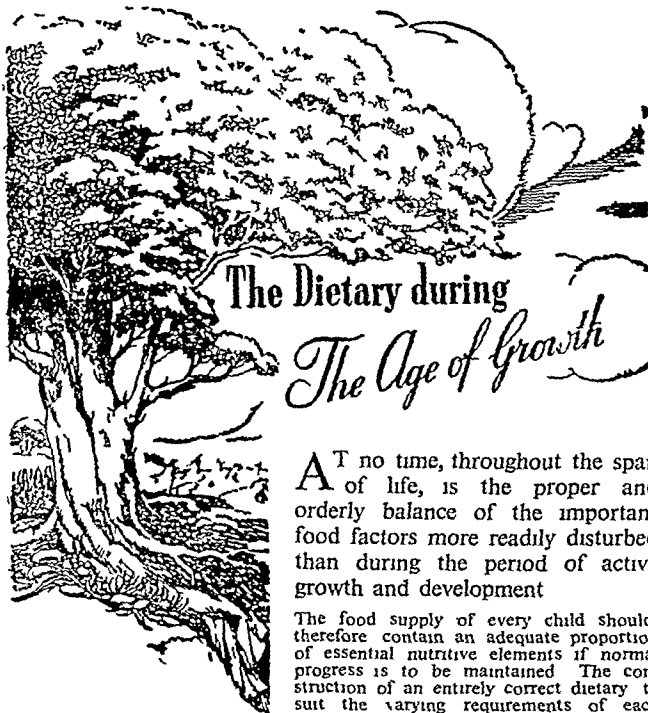
### DEATHS

Castellain—On July 23, 1948, after a long illness, Herménégild C. Pourtales Castellain M.D. of Moseley, Birmingham.

Dickson—On July 25, 1948, after a short illness while at 21 Newlands Avenue, Thames Ditton, Surrey, William Arnott Dickson M.D. FRCS Ed. MRCP DPH of Parkhill, Kirkcaldy, Fife.

James—On July 25, 1948, at Castle Hill Fishguard, Pembrokeshire, sudo Thomas Hitchens James M.R.C.S. L.R.C.P.

McIver—On July 24, 1948, at his home in Bexhill, Sussex, Colin McIver M.D. M.R.C.S. L.R.C.P. Lieutenant-Colonel I.M.S. retired.



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## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Repair of Inguinal Hernia

**Q**—What are the relative merits of whole-skin graft and the cutis graft in the repair of inguinal hernia? What is the exact technique of each and what are their disadvantages? Are implantation dermoids and sepsis a danger in the whole-skin graft method? Is it true that the late results of fascial grafts are disappointing? If a hernia repaired with fascia has not recurred after twelve months may one conclude that as in ordinary repairs the time of greatest danger is past?

**A**—It is not possible to give a short answer to this question. The following papers should be consulted on whole-skin graft (Mair, *Brit J Surg* 1945, 32, 381, and 1946, 34, 42), on the cutis graft (Vihlein, A., *Arch Surg* 1939, 38, 118, and Cannaday, *Amer J Surg* 1945, 57, 382). These references are sufficient to cover the greater part of surgical knowledge on this problem and on what is still regarded as an experimental method. The disadvantages which might be expected—sepsis and dermoid formation, for example—are not encountered in either the experimental preliminary animal operations or the clinical series in significant proportion. Later histological studies of buried skin grafts in man and animals rather tend to show a loss of epidermal elements. The late results of fascial repair are no more unsatisfactory than would be supposed in view of the unfavourable group of cases for which this method is employed. Most recurrences are within six to twelve months of operation (Edwards, H., *Brit J Surg*, 1943, 31, 172). This reference might be added as perhaps the one most generally useful and comprehensive on this point.

### Synthesis of Optically Active Substances

**Q**—Is it possible to synthesize an optically active product from purely non-living materials? What is the significance of the asymmetrical carbon atom in vital processes?

**A**—Yes. It is also possible to synthesize optically active substances in which the activity is due either to an asymmetric atom other than carbon (the first such example being phenyl-benzyl-allyl methyl-ammonium iodide in 1899) or to a form of molecular dissymmetry in which there is no single asymmetric atom. A survey covering a number of such cases has been given lately by F. G. Mann (*J R Soc Arts* in press). There is little evidence on the biological significance of asymmetric carbon atoms. The case of gramicidin-S lately investigated by J. I. Harris and T. S. Work (*Nature* 1948, 161, 804) is however, suggestive. Structurally, this appears to be a closed ring consisting either of five amino-acids or of the same sequence repeated before closure of the ring (Consden, Gordon, Martin, and Syngé, *Biochem J* 1947, 41, 596). Four of these amino-acids are in the *l*-configuration and the fifth is in the *d* or (so-called) unnatural configuration. It has been suggested that the presence of a *d*-configuration would promote cyclization and that it is to the latter that the antibacterial action of gramicidin-S is to be attributed. If confirmed, this would suggest further that the 'unnaturalness' is not in the *d*-configuration as such but in the possibility that a mixture of *d* and *l* forms can lead to "unwanted" structures including cyclization.

### Colour of the Tongue

**Q**—Some people have a pale pink tongue and most have a red one. Why is this? Is it of any significance?

**A**—The colour of the tongue depends on the thickness of its epithelial integument, its vascularity, and the haemoglobin content of the blood. Thus in anaemia it may appear pale pink and in polycythaemia rubra a deep purple. There is a considerable variation in normal persons in the first two properties which can account for differences in colour. Provided there is no evidence of a glossitis and there is no anaemia, differences in colour have no significance.

### Care and Treatment of Nails

**Q**—(a) What is the explanation for the presence of the half-moons at the nail bases? (b) What are the causes and treatment of recurrent hangnail? (c) What general advice should be given to women in order that they may keep their nails attractive—that is with the use of nail polish and nail polish remover, etc.—and yet healthy with special regard to brittle nails?

**A**—(a) The 'half-moons' deep to the proximal portions of nails correspond to the nail matrices, that specialized portion of epidermis from which the nails themselves grow. From this point they rest upon but are not in organic connexion with the nail-beds. (b and c) Hangnails are the result of trauma, rough usage, water maceration, or contact with irritants, particularly alkaline irritants. Biting and picking the nails, household chores and manual labour may provoke the trouble. Toilet care of the nails is important: the cuticle should be gently pressed back with a towel or orange stick after washing to prevent it being drawn along the length of the nail. Regular care in this fashion from early childhood is desirable. The application of a little emollient at night is a useful prophylactic measure. Nail polish is harmless except in rare cases of idiosyncrasy, but serves no useful purpose. Preparations used to remove nail polish are harmful and should be kept off the cuticle (nail-fold) and adjacent skin. Cuticle removers are also harmful, being alkaline, and should be used sparingly and with care. Brittleness and other dystrophies of nails are almost invariably a reflection of some disturbance of general, circulatory, nervous, or emotional health and call for general treatment.

### Arsenicals and Sulphonamides

**Q**—Is it safe to give an arsenical compound and a sulphonamide at the same time? In the bush, without laboratory facilities one has often to treat cases (I refer more particularly to ophthalmic cases) which may be due either to gonorrhoea or to syphilis or to both and as the clinical test is wasteful of time and may be so of drugs, I should be grateful for advice. If the risk is small it may be justified.

**A**—There is no reason why arsenicals and sulphonamides should not be given at the same time except that both are somewhat toxic drugs where convenient, therefore, it is just as well not to use them concurrently. The danger of giving substances containing sulphur during sulphonamide therapy has been exaggerated in the past and is little feared nowadays. When a lesion is considered to be due to syphilis or gonorrhoea or both and a definite diagnosis cannot be made, it is wise to prescribe treatment for both conditions in the interest of the patient, it is surely more economic in such circumstances to use a remedy unnecessarily than to allow the patient's possible syphilis to do irreparable damage. Penicillin, arsenic, and the sulphonamides are all comparatively cheap nowadays, and the cure of the patient is more important than the cost of remedies.

### Transplantation of Ureter into Appendix

**Q**—At a bush hospital in the Congo it was necessary to perform transplantation of the ureters on seven or eight occasions because of extensive destruction of the urethra through either disease or post-partum sloughing. On two occasions the right ureter was lying in close proximity to the appendix so it seemed natural to utilize the proximal 1/2 in (12.5 cm) for threading the ureter into the caecum the left ureter being transplanted into the pelvic colon in the usual way. Both patients made good recoveries, and though there is no follow-up system the cases being scattered over such a large area, one patient was known to be alive and leading a useful life three years after operation. Do the more fluid contents of the caecum constitute a strong contraindication for utilizing the appendix in this way?

**A**—The lower down the colon the ureter is implanted the less likelihood is there of getting reflux infection. Any surgeon who has succeeded in implanting the ureter into the appendix without ill effects, particularly while working in the Congo, is to be congratulated, but the risks are appreciable and are not to be taken if it is possible to implant the ureter at a lower level in the colon.

### Recurrent Corneal Ulcers

**Q**—How should one treat recurrent corneal ulcers? What is the usual cause?

**A**—Recurrent corneal ulceration is generally the result of some endogenous disturbance. It may be part of the picture of phlyctenular ophthalmia, of acne rosacea keratitis, keratoconjunctivitis sicca, and many other ill-defined entities. When the recurrent ulceration is confined to one eye a local factor may be responsible such as recurrent erosion after injury, recurrent marginal ulceration in an arcus senilis, and repeated breakdown of the cornea in a degenerate eye. The first step in the management of recurrent corneal ulcer is, therefore, an accurate diagnosis, as distinct from the mere anatomical designation of recurrent corneal ulcer. Treatment will then depend on the underlying condition. The usual local treatment for corneal ulcer producing irritation of the eye is the instillation of 2 drops of 1% atropine sulphate solution two or three times a day, and the eye should be kept bandaged. The dangers of bandaging an eye if there is a mucopurulent discharge and of instilling atropine drops in the elderly must be borne in mind.

### Metallic Taste

**Q**—Many patients complain of a metallic taste in the mouth—presumably a preservative. What is it and in what food is it present?

**A**—The only obvious causes for a metallic taste in the mouth are foods treated with artificial sweetening agents such as saccharin and dulcin. Dental fillings of different metals may set up an electrolytic action in the mouth, and a metallic taste is also experienced sometimes by patients with trigeminal neuralgia. It may also form part of a neurosis, or be due to a lesion of the olfactory nerve or an irritative lesion involving the uncinate gyrus.

### Early Rheumatoid Arthritis

**Q**—Can anything be done for early rheumatoid arthritis in the metacarpophalangeal joints? A woman aged 35 complains of pain and stiffness in these joints in each hand. Both her parents have marked rheumatoid changes in their hands. There is nothing to be made out by an examination of the patient's hands but a radiograph discloses peri-articular decalcification with possibly slight loss of joint space and haziness of the margins especially in the metacarpophalangeal joints of the index fingers. Her general health is good, she has had three children, is very active and is of slight build. There is no known focus of sepsis or evidence of endocrine disturbance. Sedimentation rate has not been taken.

**A**—This seems to be a case of early rheumatoid arthritis, but before coming to a definite conclusion as a basis for treatment it would be important to have the sedimentation rate taken, and other more detailed investigations may be necessary. In these days when women, especially housewives, are using their hands to a much greater degree than was the case before the war, peri-articular fibrosis of the knuckles is not uncommon and is easily taken for true rheumatoid arthritis. It would be safe to give cod-liver oil, which seems to exert a beneficial effect in raising resistance, and guaiacol carbonate with calcium aspirin, 5 gr (0.32 g) of each three times a day. More specific measures—gold, vaccines, etc.—should not be undertaken without further investigation. Simple contrast baths for the hands would also help by stimulating the circulation, which is often poor in such cases. The prospect of arrest in this case seems to be good with proper treatment, but it is essential that this should be undertaken without delay.

### Trophic Sores in Paraplegia

**Q**—What is the best method of treating a deep sinus of the hip region in a paraplegic patient? The sinus started as a pressure sore which developed into a deep trophic ulcer.

**A**—The problem of long-standing trophic sores with sinuses of this type in paraplegic patients is a baffling one. It is always extremely difficult, and often impossible, both to avoid the development of such a sore and to make it heal. The main principles of treatment are to avoid further pressure on the

affected area so far as possible, though this is by no means always practicable, and to maintain the area in as sterile a condition as possible by frequent attention to cleanliness and by the use of suitable local applications. The particular solution employed is not always a matter of importance, and it may be advantageous to change the nature of the local application from time to time. Solutions which are often useful include aqueous penicillin and sulphonamide preparations, acriflavine in spirit (2%), and phenoxetol, a solution of which is claimed to be effective against *Pseudomonas pyocyanea*. The flat trophic ulcer is a rather different problem—it responds very well to excision and split-skin grafting.

### Visual Screening in Industry

**Q**—Of what value is the 'sterosette' or 'sterometer' in industrial visual screening methods? Can these instruments take the place of routine refraction in workers who are being selected for very fine work?

**A**—The "sterosette" was first introduced some years before the war. It was considered by a subcommittee of the Council of British Ophthalmologists, who decided not to recommend the use of the instrument except by ophthalmologists, since the interpretation of the results could be very variable. It was discovered that the findings might be either too harsh or too lax. There is no sure and certain method of "visual screening" except by a complete ophthalmic examination by an oculist. For example, a man may have perfect central vision with good muscular balance and stereopsis and yet be a danger to himself and his fellow-workers by reason of a defect in the field of vision. Such instruments are safe in the hands of an ophthalmologist but not in those of a nurse or technician.

## NOTES AND COMMENTS

**Learning to Read**—Dr W NICCOL (Westgate Gloucester) writes: Among the many circumstances which may retard a child's progress in learning to read, your expert ("Any Questions?" July 3, p. 59) omits to mention congenital word blindness, a disability known to ophthalmologists which, though it may be rare, is probably more common than is expected. It seems important that school medical officers and educationists should be aware of it. The occurrence of word blindness as a result of cerebral disease is a long established fact. Its occurrence as a congenital anomaly has received little attention. The child with congenital word blindness is usually of normal intelligence, he may even excel in certain subjects—e.g., arithmetic—but he seems unable to recognize and to remember written (or printed) letters and words. He is like a child with no ear for music compelled to be a chorister. A vivid picture of congenital word blindness has been given by Ashdown Carr (*Trans. Oph. Soc.* 1937, 57, 579). The subject has also been dealt with by Professor Ronne (*Trans. Oph. Soc.* 1936, 56, 331), and a sufferer from congenital word blindness has described her personal experiences (*Brit. J. Oph.* 1936, 20, 73).

**Treatment of Polycythaemia**—Dr A. PINEY (London, W.) writes: The answer to the question about the treatment of polycythaemia (July 24, p. 235) is, I think, both misleading and incomplete. Thus it implies that P<sup>22</sup> is, in fact, the treatment of choice, whereas it is now known that the incidence of leukaemia in cases of polycythaemia treated in this way is higher than in those treated by older methods. Again, there is no mention of the extreme discomfort of nitrogen mustard. Finally, the admirable method of treatment by bleeding and small maintenance doses of phenylhydrazine hydrochloride by mouth is ignored. This method will keep most of the patients in good health for many years, but if the slight risks of the drug are not felt to be justifiable an equally good result is obtainable by bleeding at intervals varying from case to case.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology, Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Britmedads, Westcent, London*. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the ASSOCIATION, TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra, Westcent, London*. B.M.A. SCOTTISH OFFICE: 7 Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 7 1948

## "THE RIGHT PATIENT IN THE RIGHT BED"\*

### FIRST SUPPLEMENT TO THE REPORT (1947) OF THE COMMITTEE ON THE CARE AND TREATMENT OF THE ELDERLY AND INFIRM

1 The Report (1947) of the Committee on the Care and Treatment of the Elderly and Infirm recommended the establishment of a co-ordinated geriatric service for the better investigation and treatment of disease and disability in old people. It was proposed that this service should be based on geriatric departments in selected general hospitals. The main functions of these departments would be to investigate the condition of elderly patients with a view to the arrangement of suitable treatment, to co-operate with the other departments of the hospital in the treatment and rehabilitation of such patients, to assess the condition of such patients on the completion of treatment and arrange their discharge to their own homes, or to residential hostels providing domestic care or, in irremediable cases, to long-stay annexes for prolonged nursing care, to conduct research into disease in old age, and to take part in the teaching of medical students and student nurses.

#### The Hospital Bed Problem

2 The committee has again considered the problem of the elderly chronic sick in relation to the grave difficulties experienced by hospitals at the present time in meeting the demand for beds, staffed by skilled nurses, for patients suffering from acute conditions. It believes that these difficulties are not due solely to a national shortage of beds and of trained nursing staff. It considers that they could be greatly reduced by a more economical use of the skilled nursing force at present available and of the existing beds in the more highly equipped hospitals. In particular, it thinks that the adoption of its proposals for a geriatric service would go far to solve the problem by releasing both beds and nurses "wasted" at present through their use in the care of these old people who need neither active treatment nor highly skilled nursing. In short, the original recommendations of the committee, although put forward solely in the interests of the old people themselves, merit consideration also as a means of securing a much more extensive provision than is possible at present for cases in all age groups requiring the special treatment and nursing facilities available in the acute hospitals.

3 The plan recommended in the Report of the committee would relieve the shortage of hospital beds in two ways. First, the expert investigation of all elderly patients in the geriatric departments would prevent the occupation of beds by those old people who in present conditions are allowed to become bed-fast unnecessarily owing to lack of systematic arrangements for thorough diagnosis, treatment, and rehabilitation. Secondly, through the provision of sufficient long-stay annexes for irremediable cases, and residential homes or hostels for elderly people too infirm to conduct homes of their own but not in need of continuous nursing, it would be possible to make arrangements, under the control of the hospital geriatric departments, for discharge from hospital of the large numbers of infirm old people who at present, to their own disadvantage, remain indefinitely in hospital beds because more suitable and homely quarters for them cannot be found. It might almost be said that there is a more urgent need of long-stay annexes and nursing aides than of hospital beds and trained nurses.

#### Illustrative Examples

4 The importance of the redistribution of the elderly patients occupying hospital beds is illustrated by the case, reported to the

committee by one of its members, of a fully equipped general hospital where, over a period of two and a half years, eight old men not in need of active treatment had continuously occupied beds which otherwise could have been used during the same period for 360 acute surgical cases. In the experience of another member of the committee, the establishment of special annexes for elderly patients of three categories—ambulant, frail ambulant, and senile confusional—has resulted in a reduction in the average time spent by such patients in hospital wards from 260 to less than 100 days, and has thus very materially increased the capacity of the hospital to provide for acute cases. Yet another example described to the committee is that of a public assistance institution which, on being taken over for use as a general hospital, contained 714 elderly chronic sick, of whom all but 200 were bed-fast. Through the substitution of thorough diagnosis and active treatment for the comparative neglect which they had formerly endured, many of these bedridden patients were sufficiently rehabilitated to be discharged, and over a period of approximately 12 years the "turn-over" of elderly chronic sick patients has been increased to such an extent that the wards reserved for such cases now contain only 200 beds.

#### Short-Stay Hostels for Investigations

5 The committee now wishes to draw attention to certain other ways in which greater economy in the use of the beds and nursing staff of the acute hospitals might be effected. First, there is at present a wasteful use of both beds and staff in those cases in which elderly patients—indeed, patients of all ages—are accommodated in hospitals while undergoing investigation. The committee advocates the provision of special accommodation, adjoining the hospitals or at least easily accessible from them, in the form of hostels where such patients, when not requiring expert nursing, could spend the two or three days occupied by diagnostic procedures. These hostels could be staffed, for the most part, by nursing orderlies and attendants, with a minimum of skilled nursing supervision.

#### Convalescent Hospitals

6 A second way in which wastage could be reduced is through the provision of "half-way houses" in the form of convalescent hospitals to which patients could be transferred by ambulance when no longer acutely ill, although still unfit to be moved to ordinary residential accommodation or to the holiday homes commonly described as convalescent homes. The treatment of uncomplicated post-operative conditions, for example, could be completed satisfactorily in the convalescent hospital, where a considerably lower proportion of fully trained nurses would be required than is necessary in the acute hospital. It is essential that the specialist staff of the acute hospital should retain their responsibility in such cases until the conclusion of the treatment, but they might with advantage have the co-operation of a local general practitioner appointed as medical officer of the convalescent hospital. The committee thinks it important that the general practitioner acting in this capacity should be given a place also in the work of the acute hospital, in the out-patient department of which, for example, he could give invaluable assistance in the "screening" of elderly patients for admission as in-patients. Apart from its other advantages this association of the general practitioner with his colleagues in the specialist team at the acute hospital would be likely to result in harmonious personal relations which would obviate any difficulties that otherwise might tend to arise in regard to the allocation of professional responsibility for the care of the patients when convalescent.

\*Approved for publication by the Council of the British Medical Association



### The Out-Patient Geriatric Service

7 An important additional method of relieving the pressure on hospital beds is the extension of out-patient facilities for elderly patients. The committee considers that every large out-patient department should include a geriatric clinic under the care of a physician, whose colleagues on the hospital staff should be available to provide specialist opinions when necessary. The services of the dental surgeon and of the chiropodist should be provided and the advice of the hospital dietitian would often be of much benefit. Of great value also is the contribution that can be made by the almoner in assessing the home conditions of the patients.

8 The geriatric out-patient clinic should be conducted in close association with the department of physical medicine, since physiotherapy plays a vital part in the treatment and rehabilitation of elderly patients, maintaining in a relatively active condition many who otherwise would become bedridden and dependent on continuous nursing care. The facilities provided should include group exercises, in which old people benefit from the companionship of their fellows and from the stimulus of competition. An extended provision of these out-patient arrangements would not only make possible the earlier discharge from hospital of patients who otherwise would continue to occupy beds while undergoing rehabilitation, but would also prevent avoidable invalidism in cases which otherwise would remain untreated through failure to secure admission to the wards.

### Transport

9 It is important that transport should be readily available for conveyance of patients from the acute hospital to the convalescent hospital or the long-stay annexe and, when necessary, back to the acute hospital, and the out-patient arrangements outlined above are dependent on a supply of suitable vehicles for transporting elderly patients between the hospital and their homes. Usually the patients attending the out-patient department will be sitting cases, and for them the shooting brake, suitably adapted, is a convenient type of vehicle. There should be a shuttle service operating between home and hospital to bring patients in groups to the out-patient department for physiotherapy. The committee considers that it would be of advantage if the regional hospital boards maintained their own transport for these special purposes and were not wholly dependent on the ambulance services of the local authorities.

### Advisory Committees

10 The committee regards the problem of providing the necessary hospital and related services for old people as sufficiently important to warrant the appointment by the regional hospital boards of advisory committees on geriatrics. It is informed that one of the boards has already set up a committee of this kind to prepare a geriatric scheme for the region, and it commends this example to those regional boards which may not as yet have given the subject their attention.

### Administrative Liaison

11 The committee again emphasizes the need to establish, as recommended in paragraph 12 of its Report, standing liaison committees to co-ordinate the activities, in respect of the care and treatment of the elderly, of the administrative authorities concerned with different aspects of the problem. In particular, the geriatric service advocated by the committee cannot be operated successfully without the close collaboration of the regional hospital boards and the local authorities. For example, unless sufficient residential homes are provided for old people—a responsibility placed on the local authorities by the National Assistance Act—hospital beds will inevitably become "blocked" and the whole service will break down. Again, an adequate provision by the local authorities of home help, home nursing, and district nursing services is essential to prevent the occupation of hospital beds by old people who, given suitable assistance in their domestic problems, can be treated successfully in the out-patient department. In the opinion of the committee it is scarcely possible to exaggerate the importance of the closest liaison being maintained between the various bodies, public and voluntary, concerned with the problems of old age.

### Summary and Conclusion

12 The committee makes a number of recommendations supplementary to those contained in its Report, published in 1947, in which it outlined a co-ordinated service for the care and treatment of the elderly and infirm, based on hospital geriatric departments in association with long-stay annexes for irremediable cases and residential homes for old people needing domestic rather than nursing care. The committee now recommends

(1) the provision of short-stay hostels for patients undergoing investigation and not in need of expert nursing,

(2) the establishment of convalescent hospitals as "half way houses" for patients who are not sufficiently recovered to be discharged to their homes and who would remain under the supervision of the specialist staff of the acute hospital, assisted by a general practitioner co-operating in the work of the acute hospital and acting as medical officer of the convalescent hospital,

(3) the development of out-patient geriatric clinics in close association with hospital departments of physical medicine,

(4) the supply of readily available transport, preferably under the control of the regional hospital boards, for conveyance of elderly patients to and from hospital, including vehicles specially designed for the transport of sitting cases between the homes of the patients and the hospital out-patient departments.

In addition, the committee again emphasizes the importance, stressed in its earlier Report, of a close administrative liaison between the various bodies concerned with old people, and particularly between the regional hospital boards and the local authorities, and it suggests the desirability of advisory committees on geriatrics being appointed by the regional boards.

13 In the *Lancet* of October 8, 1947, there appeared a leading article entitled "Beds," which concluded with these words "We hope at least that the new regional hospital boards will recognize that there can be more than one approach to this crucial problem of beds. Provision of more hospital beds may be the obvious solution, but at a time when this is virtually impracticable we shall do well to concentrate on efficient use of those we have." The committee considers that much of the present inefficiency in the use of beds in acute hospitals is due to the necessity of retaining in these beds elderly patients, needing neither active treatment nor highly skilled nursing, for whom suitable provision is not available elsewhere. The committee believes that the adoption of the recommendations made in its Report, and those contained in the present Supplement, would not only bring great benefit to the elderly chronic sick but also, by facilitating the placing of "the right patient in the right bed," would go far to solve the problem of the wastage which is so largely responsible for the present shortage of beds and of skilled nurses for the treatment of acute conditions. With this latter consideration particularly in mind, the committee again urges the immediate adoption of all practicable measures to secure a greatly improved medical provision for the needs of old age.

### NATIONAL HEALTH SERVICE SUPERANNUATION REGULATIONS

Practitioners on executive council lists who had made provision for retirement by policies taken out with life assurance companies may, subject to certain conditions, opt out of the superannuation scheme. One of these conditions is that the policy must not be assigned to any other person. In cases where the policy has been assigned for the purpose of a loan on the purchase of a practice the Ministry has agreed to waive this condition provided the practitioner undertakes (1) to render the policy free from assignment as soon as possible, and in any case when he receives his compensation under the Act for the loss of the right to sell his practice, and (2) not to assign the policy again.

The special rights available under the NHS (Superannuation) Regulations to mental health officers are explained in a booklet "Superannuation Scheme for Those Engaged in the National Health Service—An Explanation," a copy of which has been supplied to all hospital employees transferred to the Service. Leaflet S.D.E. supplements the information and has been issued to regional hospital boards and boards of governors of teaching hospitals for distribution where appropriate.

## NATIONAL HEALTH SERVICE

## ACCOMMODATION FOR MENTAL PATIENTS

The Minister of Health has issued the following list of hospitals and institutions for the care and treatment of those suffering from mental illness

## Newcastle upon-Tyne Regional Hospital Board Area (Region 1)

(a) *Hospitals Designated as Mental Hospitals*—Cherry Knowle Hospital, Ryhope, Sunderland (Sunderland Mental Hospital), Cumberland, Westmorland, and Carlisle Mental Hospital, Carlisle, Durham County Mental Hospital, Winterton, Sedgfield, Stockton-on-Tees, Gateshead Mental Hospital, Stannington, Newcastle upon-Tyne, St Nicholas Hospital, Gosforth, Newcastle upon-Tyne, St George's Hospital, Coldingwood, Morpeth, Northumberland, St Luke's Hospital, Cleveland, Middlesbrough

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Dovenby Hall Colony, Cockermouth, Cumberland, Home of Industry ("Bow Villa"), Morpeth, Northumberland, St Andrew's Colony, Northgate, Morpeth, Northumberland, Rothbury Institution (Silverton House), Rothbury, Northumberland, Monkton Hall Home for Lads, Monkton, Jarrow-on-Tyne, Durham, School Aycliffe Colony, Heighington, near Darlington, Durham, Prudhoe Hall Colony, Prudhoe-on-Tyne, Northumberland, Bishop Auckland Institution (Oaklands), Bishop Auckland, Durham, Harton Institution, 169, Harton Lane, South Shields, Durham, West Hartlepool Institution (Howbeck Colony), West Hartlepool, Durham, St Nicholas Hospital, Gosforth, Newcastle upon-Tyne, Bensham General Hospital, Gateshead

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Durham Institution, 37, Crossgate, Durham, Lanchester Institution, 1, Newbiggin Road, Lanchester, Newcastle General Hospital, Westgate Road, Newcastle upon-Tyne, 4, Harton Institution, 169, Harton Lane, South Shields, Durham, West Hartlepool Institution (Howbeck Hospital), West Hartlepool, Durham, Preston Hospital, North Shields, Tynemouth, Bensham General Hospital, Gateshead

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Cherry Knowle Hospital, Ryhope, Sunderland (Sunderland Mental Hospital), Cumberland, Westmorland, and Carlisle Mental Hospital, Carlisle, Gateshead Mental Hospital, Stannington, Newcastle upon-Tyne, St Luke's Hospital, Cleveland, Middlesbrough, Bishop Auckland Institution (Oaklands), Bishop Auckland, Durham, Durham Institution, 37, Crossgate, Durham, Lanchester Institution, 1, Newbiggin Road, Lanchester, Newcastle General Hospital, Westgate Road, Newcastle upon-Tyne, 4, Harton Institution, 169, Harton Lane, South Shields, Durham, West Hartlepool Institution (Howbeck Hospital), West Hartlepool, Bensham General Hospital, Gateshead, Preston Hospital, North Shields, Tynemouth

## Leeds Regional Hospital Board Area (Region 2)

(a) *Hospitals Designated as Mental Hospitals*—York City Mental Hospital, Fulford, York, Bootham Park Registered Hospital, York, North Riding Mental Hospital, Clifton, York, De la Pole Hospital (Hull Mental Hospitals), De la Pole, Wetherby, East Yorks, East Riding Mental Hospital, Beverley, Yorks, West Riding of Yorks Mental Hospital, Wakefield, Yorks, West Riding of Yorks Mental Hospital, Storthes Hall, Kirkburton, Huddersfield, Yorks, West Riding of Yorks Mental Hospital, Menston, Leeds, West Riding of Yorks Mental Hospital, Scalebor Park, Burley-in-Wharfedale, Leeds

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Claypenney Colony, Easingwold, Yorks, Hatfield Hall, Stanley, near Wakefield, Yorks, The Mansion, Kirkburton, near Huddersfield, Yorks, Meanwood Park Colony, Meanwood, Leeds, Yorks, and ancillary premises at Crooked Acres, Spen Lane, Kirkstall, and Leeds, Mid-Yorkshire Institution, Whixley, near Knaresborough, Yorks, Oulton Hall, Oulton, near Leeds, Yorks, Rawcliffe Hall, near Goole, Yorks, Tilworth Grange, Sutton, near Hull, Yorks, with ancillary premises at 341, Anlaby Road, Hull, Winestead Colony, Winestead, Parlington, near Hull, Yorks, Brandesburton Hall, Brandesburton, Yorks, Stoneville 112, York Street, Wakefield, Holywell House, Holywell Green, Elland, Yorks, Westwood Institution, Clayton Heights, Clayton, near Bradford, Yorks, and ancillary premises at Ashfield, 269, Thornton Road, Thornton, near Bradford, Yorks, York City and District Infirmary (The Grange) 75, Huntington Road, York, County Welfare Institution, 1, Reins Road, Giggleswick, Settle, Yorks, County Welfare Institution, Linton Road, Wetherby, Yorks, County Hospital, 19, Bridlington Road, Driffield, Yorks, County Institution, Stansfield View, Todmorden, Yorks

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—York City and District Infirmary (The Grange), 75, Huntington Road, York, County Welfare Institution, 1, Reins Road, Giggleswick, Settle, Yorks, County Welfare Institution, Linton Road, Wetherby, Yorks, County Hospital, 19, Bridlington Road, Driffield, Yorks, County Institution, Stansfield View, Todmorden, Yorks

tion, 1, Reins Road, Giggleswick, Settle, Yorks, County Welfare Institution, Linton Road, Wetherby, Yorks, County Institution, Stansfield View, Todmorden, Yorks, St James's Hospital, Beckett Street, Leeds, 9

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—York City and District Infirmary (The Grange), 75, Huntington Road, York, Odsal Institution, Rooley Avenue, Rooley Lane, Bradford, Yorks, Daisy Hill Institution, Bradford, Yorks, Clayton Institution, near Bradford, Yorks, County Welfare Institution, Staincliffe, Batley, Yorks, Halifax Welfare Home, Gibbet Street, Halifax, Yorks, St Luke's Hospital, Crosland Moor, Huddersfield, Yorks, Beverley Road Hospital, Hull, Yorks, St James's Hospital, Beckett Street, Leeds, 9, County Welfare Institution, Park Lodge Lane, Wakefield, Anlaby Road Institution, 188, Anlaby Road, Hull

## Sheffield Regional Hospital Board Area (Region 3)

(a) *Hospitals Designated as Mental Hospitals*—Mickleover County Hospital (Derby County Mental Hospital), Mickleover, Derby, Kingsway Hospital, Rowditch, Derby, West Riding of Yorks Mental Hospital, Wadsley, Sheffield, 6, Carlton Hayes Hospital, Narborough, Leicester, The Towers Hospital, Humberstone, Leicester, Bracebridge Heath Hospital, Bracebridge, Lincoln, Rauceby Mental Hospital, Rauceby, Sleaford, Lincs, Notts County Mental Hospital, Radcliffe-on-Trent, Notts, Mapperley Hospital, Mapperley Hill, Nottingham, The Lawn, Lincoln, The Coppice, Nottingham

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Aston Hall, Aston on-Trent, Derbyshire, Makeney House, Milford, near Derby, Whittoning Hall, Chesterfield, Derbyshire, Leicester Frith Institution, Groby Road, Leicester, Stretton Hall, Oadby, Leicester, Harmston Hall Colony, Harmston, Lincoln, and ancillary premises at Bourne Institution, St Peters Road, Bourne, Caistor Institution, Kelsey Road, Caistor, Holbeach Institution, Fleet Road, Holbeach, and Cross o' Cliffe Court, Bracebridge Heath, Westdale Institution, Digby Avenue, Carlton, Nottingham, Hollow Meadows, Malin Bridge, near Sheffield, St Catherine's Institution, Tickhill Road, Doncaster, Girls' Hostel, 71-73, Scott Road, Sheffield, 4, Wales Court Institution, Kiveton, near Sheffield, Aston Hall, Aston, near Sheffield, Derby Institution (Boundary House), Uttoxeter Road, Derby, Mountsorrel Institution, near Loughborough, Leicester, Basford Institution, 121, Highbury Road, Bulwell Nottingham, Oakham Institution (The Ashes), Ashwell Road, Oakham Rutland, Sheffield Institution (Fir Vale House), Hernes Road, Pitsmoor, Sheffield, County Institution, Grenoside, Sheffield, Doncaster Institution (Springwell House), Balby, Doncaster, Mansfield Institution 105 Stockwell Gate, Mansfield, Notts, Grimsby Institution, 110a, Scartho Road, Grimsby, The Gables Institution, Hundleby, Spilsby, Lincs, Newark Institution, Bowbridge Road, Newark, Notts

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Vale Brook Lodge Institution, Nottingham, Basford Institution, 121 Highbury Road, Bulwell Nottingham, Newark Institution, Bowbridge Road, Newark, Notts, Mansfield Institution, 105, Stockwell Gate, Mansfield, Notts, Derby Institution (Boundary House), Uttoxeter Road, Derby, Babington House Derby Road, Belper, Derbyshire, Newbold Road Institution, Chesterfield, Sheffield Institution (Fir Vale House), Hernes Road, Pitsmoor, Sheffield, County Institution, Grenoside, Sheffield, Springwell House, Balby, Doncaster, Bosworth Park Infirmary, Bosworth Park, Leicester, Melton Mowbray Institution, Thorpe Road, Melton Mowbray, Leicester, Mountsorrel Institution, Loughborough, Leicester, Oakham Institution, Ashwell Road, Oakham, Rutland, Burton Road Institution, Lincoln, The Gables Institution, Hundleby, Spilsby, Lincs, Skirbeck Road Institution, Skirbeck Road, Boston, Lincs, Wyberton West Institution, Holland, Lincs, Holbeach Institution, Fleet Road, Holbeach, Lincs, Municipal General Hospital, Moorgate, Rotherham, Grimsby Institution, 110a, Scartho Road, Grimsby

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Vale Brook Lodge Institution, Nottingham, Basford Institution, 121, Highbury Road, Bulwell, Nottingham, Newark Institution, Bowbridge Road, Newark, Notts, Mansfield Institution 105, Stockwell Gate, Mansfield, Notts, Derby Institution (Boundary House), Uttoxeter Road, Derby, Babington House Derby Road, Belper, Derbyshire, Newbold Road Institution, Chesterfield, Sheffield Institution (Fir Vale House), Hernes Road, Pitsmoor, Sheffield, County Institution, Grenoside, Sheffield, Springwell House, Balby, Doncaster, Bosworth Park Infirmary, Bosworth Park, Leicester, Melton Mowbray Institution, Thorpe Road, Melton Mowbray, Leicester, Mountsorrel Institution, Loughborough, Leicester, Oakham Institution, Ashwell Road, Oakham, Rutland, Burton Road Institution, Lincoln, The Gables Institution, Hundleby, Spilsby, Lincolnshire, Skirbeck Road Institution, Skirbeck Road, Boston, Lincs, Wyberton West Institution, Holland, Lincs, Holbeach Institution, Fleet Road, Holbeach, Lincs, Municipal General Hospital, Moorgate, Rotherham, Grimsby Institution, 110a, Scartho Road, Grimsby, Mickleover

County Hospital (Derby County Mental Hospital), Mickleover, Derby, Kingsway Hospital, Rowditch, Derby, West Riding of Yorks Mental Hospital, Wadsley, Sheffield, 6, Carlton Hayes Hospital, Narborough, Leicester, The Town Hospital, Humberstone, Leicester, Bracebridge Heath Hospital, Bracebridge Heath, Lincoln, Rauceby Mental Hospital, Rauceby, Sleaford Lincs, Notts County, Mental Hospital, Radcliffe on-Trent, Notts Mapperley Hospital, Mapperley Hill, Nottingham, The Lawn, Lincoln, The Coppice, Nottingham

#### East Anglian (Cambridge) Regional Hospital Board Area (Region 4)

(a) *Hospitals Designated as Mental Hospitals*—St Andrew's Hospital, Thorpe, Norwich, Norwich City Mental Hospital, Hellesdon, Norwich, Bethel Hospital, Norwich, St Audry's Hospital, Melton, Woodbridge, Suffolk, Ipswich Mental Hospital, Ipswich, Suffolk, Cambridge Mental Hospital, Fulbourn, Cambridge

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Eaton Grange, Unthank Road, Norwich, Norfolk, Little Plumstead Hall, Little Plumstead, near Norwich, Norfolk, and ancillary premises at Heckingham Institution, Heckingham, Norfolk, Ely Institution (Tower House), Cambridge Road, Ely, St James's Hospital, Radwinter Road, Saffron Walden, Essex, Risbridge Institution, Kedington, Haverhill, Suffolk, Chesterton Institution, 29, Union Lane, Cambridge, Aylsham Institution, St Michael's Hospital, Aylsham, Norfolk, St Mary's Hospital (Bury St Edmunds Institution) Bury St Edmunds, Suffolk, Social Welfare Institution, Caister Road, Great Yarmouth, Norfolk, Eye Institution, Hartismere, Eye, East Suffolk, Lothingland House (Oulton Institution), Oulton, East Suffolk, Halesworth Institution (Red House), Halesworth, East Suffolk, King's Lynn Institution, St James', Exton's Road, King's Lynn, Norfolk, Tattingstone Institution (St Mary's Hospital), Tattingstone, Ipswich, Stowmarket Institution, Stow Lodge, Onehouse, Stowmarket, Suffolk, Swainsthorpe Institution, The Vale, Swainsthorpe, Norwich, Sudbury Institution, Walnut Tree House, Sudbury, Suffolk, Wicklewood Institution (Hill House Hospital), Wicklewood, Norfolk, Attleborough Institution (Wayland Hospital), Attleborough, Norfolk, Wisbech Institution, Lynn Road, Wisbech, Cambridgeshire; Woodlands Hospital, Bowthorpe Road, Norwich, Norfolk

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Aylsham Institution, St Michael's Hospital, Aylsham, Norfolk, St Mary's Hospital (Bury St Edmunds Institution), Bury St Edmunds, Suffolk, Sudbury Institution, Walnut Tree House, Sudbury, Suffolk, Risbridge Institution, Kedington, Haverhill, Suffolk, Social Welfare Institution, Caister Road, Great Yarmouth, Lothingland House (Oulton Institution), Oulton, East Suffolk, Swainsthorpe Institution, The Vale, Swainsthorpe, Norwich, Wicklewood Institution (Hill House Hospital), Wicklewood, Norfolk, Attleborough Institution (Wayland Hospital), Attleborough, Norfolk, Woodlands Hospital, Bowthorpe Road, Norwich, Eye Institution, Hartismere, Eye, East Suffolk, Halesworth Institution (Red House), Halesworth, East Suffolk, Tattingstone Institution (St Mary's Hospital), Tattingstone, Ipswich, Stowmarket Institution, Stow Lodge, Onehouse, Stowmarket, Suffolk, King's Lynn Institution, St James', Exton's Road, King's Lynn, Norfolk, St James's Hospital, Radwinter Road, Saffron Walden, Essex, Ely Institution (Tower House), Cambridge Road, Ely, Wisbech Institution, Lynn Road, Wisbech, Cambridgeshire

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Aylsham Institution, St Michael's Hospital, Aylsham, Norfolk, St Mary's Hospital (Bury St Edmunds Institution) Bury St Edmunds, Suffolk, Sudbury Institution, Walnut Tree House, Sudbury, Suffolk, Risbridge Institution, Kedington, Haverhill, Suffolk, Social Welfare Institution, Caister Road, Great Yarmouth, Lothingland House (Oulton Institution), Oulton, East Suffolk, Swainsthorpe Institution, The Vale, Swainsthorpe, Norwich, Wicklewood Institution (Hill House Hospital), Wicklewood, Norfolk, Attleborough Institution (Wayland Hospital), Attleborough, Norfolk, Woodlands Hospital, Bowthorpe Road, Norwich, Eye Institution, Hartismere, Eye, East Suffolk, Halesworth Institution (Red House), Halesworth, East Suffolk, Tattingstone Institution (St Mary's Hospital), Tattingstone, Ipswich, Stowmarket Institution, Stow Lodge, Onehouse, Stowmarket, Suffolk, King's Lynn Institution, St James', Exton's Road, King's Lynn, Norfolk, St James's Hospital, Radwinter Road, Saffron Walden, Essex, Ely Institution (Tower House), Cambridge Road, Ely, Cambridge Mental Hospital, Fulbourn, Cambridge, Wisbech Institution, Lynn Road, Wisbech, Cambridgeshire, St Andrew's Hospital, Thorpe, Norwich, Norwich City Mental Hospital, Hellesdon, Norwich, Bethel Hospital, Norwich, Norfolk, St Audry's Hospital, Melton, Woodbridge, Suffolk, Ipswich Mental Hospital, Ipswich

#### North-West Metropolitan Regional Hospital Board Area (Region 5)

(a) *Hospitals Designated as Mental Hospitals*—Friern Hospital, New Southgate, London, N11, St Bernard's Hospital, Southall, Middlesex, Shenley Mental Hospital, Shenley, St Albans, Herts,

Napsbury Hospital, Napsbury, St Albans, Herts, Hill End Hospital, Hill End, St Albans, Herts, Three Counties Hospital Arlesey, Beds

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Leavesden Hospital, Abbots Langley, near Watford, Herts, Middlesex Colony, Harper Lane, Shenley, near St Albans, Herts, Cell Barnes Colony, St Albans, Herts, and ancillary premises at Tenterden House, St Albans, Herts, Bromham House, Bromham, near Bedford, Church Hill House, East Hampstead, near Bracknell, Berks, St Charles's Hospital, Ladbroke Grove, W10, Shrodells Institution, 60, Vicarage Road, Watford, Herts

(c) *Former Public Assistance or Public Health Institution Designated as Mental Hospital*—Leavesden Hospital, Abbots Langley, Watford

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Central Middlesex County Hospital, Park Royal, NW10, Shrodells Institution, 60, Vicarage Road, Watford, West Middlesex County Hospital, Twickenham House, Isleworth, St Mary's Hospital, Luton, St Pancras Hospital, 4, St Pancras Way, NW1

#### North East Metropolitan Regional Hospital Board Area (Region 6)

(a) *Hospitals Designated as Mental Hospitals*—Claybury Mental Hospital, Woodford Bridge, Woodford Green, Essex, West Ham Mental Hospital, Goodmayes Ilford, Essex, Runwell Mental Hospital, Wickford, Essex, Brentwood Mental Hospital, Brentwood, Essex, Severalls Mental Hospital, Severalls, Mile End, Colchester

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—The Royal Eastern Counties Institution Colchester, Essex, and ancillary premises at Bridge Home, Witham, Crossley House, Clacton-on-Sea, East Hill House, Colchester, Greenwood Schools, Halstead, Hillsleigh, 10, East Hill, Colchester, Leaden House, Colchester, Turner Road, Colchester, Littleton House School, Grton, Cambridge, Handford Home, Ipswich, Suffolk, South Ockendon Colony, South Ockendon, Essex, Mutual Sanatoria, Billericay, Essex, and ancillary premises at Ramsay Lodge Holiday Home, Dovercourt, Leytonstone House, High Road, Leytonstone, Essex, Bethnal Green Hospital, Cambridge Heath Road, E2, Forest Gate Hospital, Forest Lane, Forest Gate, E7, Bramley House, Clay Hill, Enfield, Middlesex

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Central Homes Leytonstone, Forest Gate Hospital, Forest Lane, Forest Gate, E7

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—St Clement's Hospital, 2a, Bow Road, E3, Southend Municipal Hospital, Rochford, Essex, North Middlesex Hospital, Silver Street, Edmonton

#### South East Metropolitan Regional Hospital Board Area (Region 7)

(a) *Hospitals Designated as Mental Hospitals*—Bexley Mental Hospital, Bexley, Kent, City of London Mental Hospital, Stone, near Dartford, Kent, Chartham Mental Hospital, Chartham, Canterbury, Kent, City Mental Hospital, St Martin's Hill Canterbury, Kent, Barming Heath Mental Hospital, Barming Heath, Maidstone, Kent, East Sussex County Mental Hospital, Hellingly, Hailsham, Sussex, Brighton County Borough Mental Hospital, Haywards Heath, Sussex

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Leybourne Grange Colony, West Malling, near Maidstone, Kent, Princess Christian's Farm Colony, Hildenborough, Kent, and ancillary premises at Upper Hollenden Farm, Hildenborough, Darenth Park, Dartford, Kent, Laughton Lodge, Laughton, near Ringmar, Sussex, Easry Institution, 2, Mill Lane, Sandwich, Kent, Sundridge Institution (Birchfield House), Sundridge, Sevenoaks, Kent, West View Institution, Tenterden, Kent, Lewes Institution (Chailey), Pouchlands House South Common, near Lewes, Sussex, Hastings Municipal Hospital, 43, Frederick Road, Ore, Hastings, Canterbury Institution (The Home), Nunnery Fields, Canterbury, Kent, Cuckfield Institution (West Hylands), Cuckfield, Sussex

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Easry Institution, 2, Mill Lane, Easry, Sandwich, Kent, Sundridge Institution (Birchfield House), Sundridge Sevenoaks, Kent, Coxheath Institution, Linton, near Maidstone, Kent, County Hospital, Dartford, Kent, County Hospital, Farnborough, Kent, County Hospital, 42, Magpie Hill Road, Chatham, Lewes Institution (Chailey), Pouchlands House, South Common, near Lewes, Sussex, West Hylands Institution, Cuckfield, Sussex, Hastings Municipal Hospital, Ore, Hastings, Canterbury Institution, Nunnery Fields, Canterbury, Kent, Bleau Institution, Herne Common, near Herne Bay, Kent, Darenth Park, Dartford, Kent

(d) *Premises Designated for the Purpose of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act*

1946—St Francis Hospital, Constance Road East Dulwich, SE 22 Brighton General Hospital, Pankhurst Avenue, Brighton, St Mary's Hospital, Church Street, Eastbourne, Bexley Hospital, Bexley, Kent, City of London Mental Hospital, Stone, near Dartford, Kent, Chartham Mental Hospital, Chartham, Canterbury, Kent, City Mental Hospital, St Martin's Hill, Canterbury Kent, Birming, Heath Mental Hospital, Barming Heath, Maidstone, Kent, Barming Heath Mental Hospital, Barming Heath, Maidstone, Kent First Sussex County Mental Hospital, Hellingly, Hailsham, Sussex, Brighton County Borough Mental Hospital, Haywards Heath, Sussex, Easry Institution, 2, Mill Lane, Easry, Sandwich, Kent, Sundridge Institution (Birchfield House), Sundridge, Sevenoaks, Kent, Coxheath Institution, Linton, near Maidstone, Kent County Hospital, Dartford, Kent, County Hospital, Farnborough, Kent, County Hospital, 42, Magpie Hall Road, Chatham, Lewes Institution (Chailey), Pouchlands House, South Common, near Lewes, Sussex, West Hylands Institution, Cuckfield, Sussex, Hastings Municipal Hospital, Ore, Hastings Canterbury Institution, Nunery Fields, Canterbury, Kent, Blean Institution, Herne Common, near Herne Bay, Kent, Darent Park, Dartford, Kent

#### South West Metropolitan Regional Hospital Board Area (Region 8)

(a) *Hospitals Designated as Mental Hospitals*—Springfield Mental Hospital, Beechcroft Road, Tooting, SW 17, Banstead Mental Hospital, Banstead Downs, Sutton, Surrey Cane Hill Mental Hospital, Cane Hill Coulsdon, Surrey, Horton Hospital, Horton, Epsom Surrey Long Grove Mental Hospital, Long Grove, Epsom Surrey, St Ebba's Hospital, Ewell, Epsom, Surrey, West Park Hospital, West Park, Epsom, Surrey, Brookwood Hospital, Brookwood Woking, Surrey, Netherne Hospital, Netherne, Coulsdon, Surrey, including Clerk's Croft and Parkhurst, Warlingham Park Hospital, Warlingham, Whyteleafe, Surrey, Graylingwell Hospital, Chichester, West Sussex, Knowle Mental Hospital, Knowle, Fareham, Hants, Park Prewett Mental Hospital, Park Prewett, Basingstoke, Hants, St James' Hospital, Milton, Portsmouth, Herrison Hospital, Dorchester, Dorset Isle of Wight Mental Hospital Whitecroft Newport Isle of Wight, Holloway Sanatorium, St Ann's Heath, Virginia Water, Surrey

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Fountain Hospital, Tooting SW 17 The Ellen Terry Home for Blind and Defective Children, "Sandfield," Wray Park, Reigate, Surrey, St Lawrence's Hospital, Caterham, Surrey Botleys Park Colony, Chertsey, Surrey, and ancillary premises at Murray House, Ottershaw, near Chertsey, The Royal Hostel, Royal Common, Eashing, Godalming, Surrey, The Royal Earlswood Institution, Redhill, Surrey, and ancillary premises at Earlswood House, Walton-on-Naze Essex Farmfield Institution Horley, Surrey, Coldest Colony, Salisbury near Southampton and ancillary premises at Tatchbury Mount Colony, West Totton Hants The Manor, Epsom, Surrey, and ancillary premises at Hollywood Lodge and Sherwood, Epsom, Surrey St Mary's Hospital Milton, Portsmouth, Hants, Crondall Institution (Wimble Hill House), Crondall, Hants, Basingstoke (Cowderys Down House), Old Basing Basingstoke, Hants, Alresford Institution (Tichbourne Down House), Tichbourne Down, near Alresford, Hants, Isle of Wight Institution (Forest House), Parkhurst, Isle of Wight, Bridport Institution (Bedford House), 1, Bedford Place, Bridport, Dorset, Horsham Institution, Roffey, near Horsham, Sussex

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Tooting Bec Hospital, Tooting Bec Road SW 17, The Infirmary, Kingsclere, Hants, St Mary's Hospital, St Mary's Road Portsmouth, Isle of Wight Institution (Forest House), Parkhurst, Isle of Wight, Moorgreen Hospital, West End, Southampton, Crondall Institution (Wimble Hill House), Crondall, Hants, St Lawrence's Hospital, Caterham, Surrey

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—St Helier County Hospital, Wrythe Lane, Carshalton, Surrey Kingston Hospital, Kingston-upon-Thames, Surrey, St Mary's Hospital, St Mary's Road, Portsmouth, Isle of Wight Mental Hospital, Whitecroft, Newport, Isle of Wight Moorgreen Hospital, West End, Southampton Mavday Hospital, Thornton Heath, Croydon Fulham Hospital, St Dunstan's Road, Hammersmith, W 6 St John's Hospital St John's Hill, SW 11 Redhill County Hospital Earlswood Common, Surrey, St Luke's Hospital Guildford, Surrey Warlingham Park Hospital, Warlingham, Whyteleafe, Surrey Banstead Mental Hospital Banstead Downs, Sutton, Surrey, West Park Hospital Epsom, Surrey

#### Oxford Regional Hospital Board Area (Region 9)

(a) *Hospitals Designated as Mental Hospitals*—Littlemore Hospital Oxford City and County Mental Hospital Littlemore, Oxford, Bucks County Mental Hospital Stone Aylesbury, Bucks, Berks Mental Hospital Moulsoford Wallingford, Berks Northampton County Mental Hospital, Berrywood, Northants, The Warneford, Headington Hill Oxford

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Borocourt Institution, Peppard, Oxford, The Manor House, Berton Hill, Aylesbury, Bucks, Wayland House, Bradfield, near Reading, Berks, Cumnor Rise, Cumnor Hill, Berks, The Old House, Wheatley, Oxford Pewsey Colony, Wilcot Road, Pewsey, Wiltshire, and ancillary premises at Purton Institution Purton, near Swindon, Agricultural Workers Hostel, Potterne Wick, near Devizes, Aylesbury Institution, 100, Berton Hill, Aylesbury Bucks, Winslow Institution, 1, Buckingham Road, Winslow, Bucks, Chipping Norton Institution, 26, London Road, Chipping Norton, Oxfordshire, Kettering Institution, 77, London Road, Kettering, Northants, St Edmund's Hospital, 137a, Wellingborough Road, Northampton, Wellingborough Institution, 31, Castle Street, Wellingborough, Northants, Battle Hospital, Oxford Road, Reading, Berks, Wokingham Institution, 41, Barksham Road, Wokingham, Berks Wallingford Institution, Wantage Road, Wallingford, Berks, Newbury Institution, Newton Road Newbury, Berks, Northleach Institution, Burford Road House, Northleach, Cheltenham, Gloucester

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Hungerford Anneve, Park Street, Hungerford, Berks, Kettering Institution, 77, London Road, Kettering, Northants, Wellingborough Institution, 3a, Castle Street, Wellingborough, Northants, St Edmund's Hospital, 137a, Wellingborough Road, Northampton Battle Hospital, Oxford Road, Reading, Berks, Chipping Norton Institution, 26, London Road Chipping Norton, Oxfordshire, Aylesbury Institution, 100, Berton Hill, Aylesbury, Bucks, Winslow Institution, 1, Buckingham Road, Winslow, Bucks

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Littlemore Hospital (Oxford City and County Mental Hospital) Littlemore, Oxford, Bucks County Mental Hospital, Stone, Aylesbury, Bucks, Berks Mental Hospital, Moulsoford, Wallingford Berks, Northampton County Mental Hospital, Berrywood, Northampton, The Warneford, Headington Hill, Oxford

#### South-Western (Bristol) Regional Hospital Board Area (Region 10)

(a) *Hospitals Designated as Mental Hospitals*—County Mental Hospital, Bodmin Cornwall, Devon Mental Hospital, Exminster near Exeter, Devon, Exeter Mental Hospital, Digby, Exeter, Wexford House, Exeter, Devon, Moorhaven Hospital, Ivybridge, Plymouth Wells Mental Hospital, Wells, Somerset, Tone Vale Hospital, Cotford, Norton Fitzwarren, Taunton, Somerset, Wilts County Mental Hospital, Devizes, Wiltshire Gloucester County and City Mental Hospital, Gloucester, Bristol Mental Hospital, comprising the hospitals at Fishponds and Barrow Gurney, Bristol

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Stapleton Institution (Snowdon Buildings), 100, Manor Road, Fishponds, Bristol Stoke Park Colony, Bristol, Gloucester, and ancillary premises at Hanham Hall, Hanham, near Bristol, Leigh Court, Abbots Leigh, Somerset, and (Hostel) Anchor Lodge, 8 and 10, Iddlesleigh Road, Durham Down, Clifton, Bristol, 8 Northam Colony, Almondsbury near Bristol, Brenty Colony, Westbury-on-Trym, Bristol, Chasefield Laundry Home, 874, Fishponds Road, Fishponds, Bristol, The Royal Fort Home, 1 and 2, Hillside, Cotham, Bristol, St Mary's Home, Painswick, near Stroud, Gloucestershire House of Help, 112, Walcot Street, Bath, Somerset, The Old Rectory, Bathwick Hill, Bath, Somerset, Rock Hall House (Magdalen Hospital School), Coombe Down, Bath, Somerset, Sandhill Park, Bishops Lydeard, near Taunton, Somerset, and ancillary premises at Cambridge House, Long Ashton, West End House, Shepton Mallet, Yatton Hall, Yatton, near Bristol, The Fort, Milverton, and The Parsonage, Milverton, The Royal Western Counties Institution, Starcross, near Exeter, Devon, and ancillary premises at Devon and Exeter Home Holloway Street, Exeter, Steepway, 13, Southfield Road, Paignton, Dunesk, Teignmouth, Elm Court, Starcross near Exeter, Langdon Extensions, Dawlish, Langdon Farm Hostel Dawlish, and The Hostel, 13, Dix's Field, Exeter, The Retreat St Columb Major, Cornwall, and ancillary premises at The Boys Home, St Columb Major, Franklin Broadway, St Thomas, Exeter, Devon Stoke Lyne, Withycombe Exmouth, Devon, Western Lodge, Crediton Devon, Box House, Axminster, Devon; The Elizabeth Barclay Home of Industry Pound Lane, Bodmin, Cornwall, Falmouth Institution (Budock House) Falmouth Cornwall, Exeter City Hospital 77, Heavitree Road, Exeter, Devon, St Martin's Hospital, Odd Down, Bath, Somerset, Devizes Institution 7, Commercial Road, Devizes, Wilts, Trowbridge and Melksham Institution (Semington House), Semington, Trowbridge, Wilts

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Cheltenham Institution, Swindon Road Cheltenham Gloucestershire, Tewkesbury Institution Gloucester Road, Tewkesbury Gloucestershire, St Martin's Hospital, Odd Down, Bath, Somerset, Townsend House, Wilton, Taunton, Somerset Clements House, Keynsham, Bristol, Rowdens House,

Ghastonbury Road Wells Somerset, Ilex Lodge, Axbridge, Somerset Preston Close Yeovil Somerset, Falmouth Institution (Budock House), Falmouth, Cornwall, Redruth Institution, Illogan, Redruth, Cornwall, Helston Institution, Menage Street, Helston, Cornwall, Launceston Institution, Launceston, Cornwall, Devizes Institution, 7, Commercial Road, Devizes Wilts, Trowbridge and Melksham Institution (Semington House), Semington, Trowbridge, Wilts Stapleton Institution, 100, Manor Road, Fishponds, Bristol

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Gloucester County and City Mental Hospital, Gloucester, Frome Institution (Weymouth House), Weymouth Road, Frome, Wilts County Mental Hospital, Devizes, Wilts, St Martin's Hospital, Odd Down, Bath, Stapleton Institution, 100 Manor Road, Fishponds, Bristol, Exeter City Mental Hospital, Digby, Exeter, Devon County Mental Hospital, Exminster, near Exeter, Devon, Moorhaven Hospital, Ivybridge, Plymouth, County Mental Hospital, Bodmin, Cornwall

#### Welsh Regional Hospital Board Area (Region 11)

(a) *Hospitals Designated as Mental Hospitals*—Cardiff City Mental Hospital, Whitchurch, Glamorgan, St Cadoc's Hospital (Newport City Mental Hospital), Caerleon, Monmouthshire Monmouth County Mental Hospital, Abergavenny, Glamorgan County Mental Hospital, Bridgend, Swansea Mental Hospital, Cefn Coed, Swansea, Joint Counties Mental Hospital, Carmarthen, Mid-Wales Counties Mental Hospital, Talgarth, Breconshire, North Wales Counties Mental Hospital, Denbigh

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Pantglas Hall, Llanfynydd Road, Carmarthen, Hensol Castle, near Pontyclun, Glamorgan, Dryma Hall, Skewen, near Neath, Glamorgan, Llwyn Eryr Training Home, Morriston, Swansea, Glamorgan, Coed-Du-Hall, Rhydymwyn, near Mold, Flintshire, Fronfrith, Boughton Avenue, Russell Road Rhyl, Flintshire, Caernarvon Institution (Bodfan Mental Home), The Park, Caernarvon St Asaph Institution, Denbigh Road, St Asaph, Flintshire Cardiff Institution (Ely Lodge), Cowbridge Road, Ely, Cardiff, Glamorgan, Monmouth County Hospital, Panteg, Griffithstown, Pontypool, Monmouth Forden Institution, Forden, near Welshpool Montgomeryshire, Newtown and Llanidloes Institution (The Lodge), Caersws, Montgomeryshire, Llwyn View, Dolgelly, Merionethshire Central Homes Pontypidd, Glamorgan, Ty Bryn, Tredegar, Monmouth, Priory Mount, Haverfordwest, Pembrokeshire, Tawe Lodge, 15, Mount Pleasant, Swansea, Glamorgan

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Bronglais Institution, Pengylus Road, Aberystwyth Ceredigion Central Homes, Pontypidd, Glamorgan Cardiff Institution (Ely Lodge), Cowbridge Road, Ely, Cardiff, Glamorgan Cardiff Institution (City Lodge) Cowbridge Road, Cardiff, Glamorgan Woolston House, Stow Hill Newport, Monmouthshire, Tawe Lodge, 15, Mount Pleasant, Swansea, Glamorgan Tydfil Lodge, Merthyr Tydfil, Glamorgan

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Cardiff Institution (City Lodge), Cowbridge Road, Cardiff, Glamorgan, Woolston House, Stow Hill, Newport, Monmouthshire

#### Birmingham Regional Hospital Board Area (Region 12)

(a) *Hospitals Designated as Mental Hospitals*—Winson Green Mental Hospital, Winson Green, Birmingham, including the annexes at Uffculme and Glenlithorne, Rubery Hill Mental Hospital, near Birmingham, and the annexe at Hollymoor, near Birmingham Hereford Mental Hospital, Burghill Hereford, and the annexe at Holme Lacey, Hereford, Barnsley Hill Mental Hospital, Barnsley Hall, near Bromsgrove, Worcs, Powick Mental Hospital, Powick, Worcester The Central Hospital, Hatton, Warwick, Salop Mental Hospital, Bicton, Shrewsbury, St George's Hospital, Stafford Coton Hill, Hospital, Stafford St Matthew's Hospital, Burntwood Lichfield, Staffs, Cheddleton Mental Hospital, Cheddleton, Leek, Staffs

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Monyhull Colony, Monyhull Hall Road, King's Heath, Birmingham, and ancillary premises at "The Laurels," 233, Monyhull Hall Road, King's Norton, Birmingham, and "The Haunch," Hunch Lane, Birmingham, 14, Midland Counties Institutions, Knowle, near Birmingham, and ancillary premises at Highfield, Knowle, near Birmingham, Agatha Stacey Home, Rednal, near Birmingham Colehill Hall, near Birmingham, and ancillary premises at Marston Green Division, Marston Green, near Birmingham Warwickshire Weston Colony, Weston under-Wetherley, near Leamington Spa, Warwick, Ross Institution (The Infirmary), 3, Alton Street, Ross, Hereford, Stallington Hall, Blyth Bridge, Stoke on-Trent Staffs, Great Barr Park Colony, Great Barr, Birmingham, 22a, Warwick Institution, Union Road, Warwick, New Cross Institution, 376, Wolverhampton Road, Heath Town, Wolverhampton, Madely Institution (The Beeches), Iron Bridge, Madeley Salop, Sedgely Institution (Burton House), 10, Burton Road Sedgely, Staffs,

Burton on Trent Institution (Belvedere House), 145, Belvedere Road Burton on-Trent, Staffs, Evesham Institution (Avonside Hospital), Avonside, Hampton, Evesham Worcester Highcroft Hall, 18, Union Road, Erdington, Birmingham, Bromyard Institution, Buryard, Hereford, Bromsgrove Institution, Bromsgrove, Worcester, Kidderminster Institution, Kidderminster, Worcester, The Municipal Homes (Shrub Hill Infirmary), 1a, Tallow Hill, Worcester

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Highcroft Hall, 18, Union Road, Erdington, Birmingham, Burton on Trent Institution (Belvedere House), 145, Belvedere Road, Burton on-Trent, New Cross Hospitals, 376, Wolverhampton Road, Heath Town, Wolverhampton, City General Hospital, Stoke on Trent, Sedgely Institution 10, Burton Road, Sedgely, Staffordshire

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Winson Green Mental Hospital, Winson Green, Birmingham, including the annexes at Uffculme and Glenlithorne, Rubery Hill Mental Hospital, Rubery Hill, near Birmingham, and the annexe at Hollymoor, near Birmingham, Highcroft Hall, 18, Union Road, Erdington, Birmingham, Hereford Mental Hospital, Burghill, Hereford, and the annexe at Holme Lacey, Hereford, Burton on Trent Institution (Belvedere House), 145, Belvedere Road, Burton on Trent, St Matthew's Hospital, Burntwood, Lichfield, Staffs, Barnsley Hill Mental Hospital, Barnsley Hall, near Bromsgrove, Worcs Powick Mental Hospital, Powick, Worcester, The Central Hospital, Hatton, Warwick, New Cross Hospital, 376, Wolverhampton Road, Heath Town, Wolverhampton, City General Hospital, Stoke on Trent, Salop Mental Hospital, Bicton, Shrewsbury, St George's Hospital, Stafford, Coton Hill Hospital, Stafford, Cheddleton Mental Hospital, Cheddleton Leek, Staffs Sedgely Institution, 10, Burton Road Sedgely, Staffs

#### Manchester Regional Hospital Board Area (Region 13)

(a) *Hospitals Designated as Mental Hospitals*—County Mental Hospital, Lancaster Moor, Lancs, County Mental Hospital, Whittingham, Preston, Lancs, County Mental Hospital, Prestwich, Manchester, Parkside Mental Hospital Parkside, Macclesfield, Cheshire

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Brockhall Institution, Langho, near Blackburn, Lancs, Calderstones Institution, Whalley, near Blackburn, Lancs, The Royal Albert Institution, Lancaster, Lancs, The Mary Dendy Home, Sandlebridge, Alderley Edge, Cheshire Crinage Hall, near Holmes Chapel, Cheshire, Swinton Home, 196, Partington Lane Swinton, Lancs, Milnthorpe Institution (Ackenthaite End), Milnthorpe, Westmorland, Ulverston Institution, 27, Stanley Street Ulverston, Lancs Chorley Institution, 152, Erves Lane, Chorley Lancs Clitheroe Institution (Coplow View), Chatburn Road Clitheroe, Lancs Congleton Institution (Arclid), Sandbach Cheshire

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Ribchester Institution Ribchester, near Preston, Lancs Roose Institution, Roose, Barrow in Furness Lancs, Fylde Institution Kirkham, Lancs Queens Park Hospital Haslingden Road, Blackburn Lancs, Primrose Bank Institution Briercliffe Road, Burnley, Lancs Billinge Hospital Upholland Road Billinge, Wigan, Lancs, Leigh Institution, Leigh, Lancs, Fishpool Institution, Farnworth, Bolton, Lancs, Moorlands, Rawtenstall Rossendale, Lancs Jericho Institution, Bury, Lancs, Birch Hill Institution, Darnley, Littleborough, Rochdale, Lancs Westwood Park Institution, Rochdale Road, Oldham, Lancs Green Lane Institution, Patricroft, Manchester, Drapton House Ashton-under-Lyne, Lancs, New Mills Institution, New Mills, Cheshire Shaw Heath, Stockport, Cheshire The Briony Institution, Nantwich, Cheshire, Park House, Crumpsall, Cheetham Manchester

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Ribchester Institution, near Preston, Lancs, Roose Institution, Roose, Barrow in-Furness, Lancs, Fylde Institution, Kirkham, Lancs, Fulwood Institution, Watling Street Road, Fulwood, Lancs, Queens Park Hospital, Haslingden Road, Blackburn, Lancs, Primrose Bank Institution, Briercliffe Road, Burnley, Lancs, Billinge Hospital, Upholland Road, Billinge, Wigan, Lancs, Leigh Institution, Leigh, Lancs Fishpool Institution, Farnworth, Bolton, Lancs Moorlands, Rawtenstall, Rossendale, Lancs, Jericho Institution, Bury, Lancs, Birch Hill Institution, Darnley, Littleborough, Rochdale, Lancs, Westwood Park Institution, Rochdale Road, Oldham, Lancs Green Lane Institution, Patricroft, Manchester, Drapton House Ashton-under-Lyne, Lancs New Mills Institution, New Mills, Cheshire, Shaw Heath, Stockport, Cheshire, The Briony Institution, Nantwich, Cheshire, Kendal Institution, Windermere Road, Kendal Westmorland, Park House, Crumpsall, Cheetham Hill, Manchester County Mental Hospital, Lancaster Moor, Lancs, County Mental Hospital, Whittingham, Preston, Lancs, County



Hospital, Prestwich, Manchester, Parkside Mental Hospital, Parkside, Macclesfield, Cheshire

#### Liverpool Regional Hospital Board Area (Region 14)

(a) *Hospitals Designated as Mental Hospitals*—County Mental Hospital, Rainhill, near Liverpool, Upton Mental Hospital, Upton, Chester, County Mental Hospital, Winwick, Warrington, Lancs

(b) *Hospitals and Institutions Directed to be used as Mental Deficiency Institutions*—Ashton House, 26, Village Road, Oxtown, Birkenhead, Cheshire, Greaves Hall, Banks, near Southport, Lancs, Newchurch Homes, Culcheth, near Warrington, Lancs, The Home, 4, Everton Terrace, Liverpool, Lancashire, and ancillary premises at 828, Chester Road, Great Sutton, Cheshire, Birkenhead Institution, 56, Church Road, Higher Tranmere, Birkenhead, Cheshire, Ormskirk County Hospital, Wigan Road, Ormskirk, Lancs, Whiston County Institution, Warrington Road, Whiston, Prescot, Lancs

(c) *Former Public Assistance or Public Health Institutions Designated as Mental Hospitals*—Smithdown Road Hospital, Smithdown Road, Liverpool, Ormskirk County Hospital, Wigan Road, Ormskirk, Lancs, Birkenhead Institution, 56, Church Road, Higher Tranmere, Birkenhead, Cheshire, Whiston County Institution, Warrington Road, Whiston, Prescot, Lancs

(d) *Premises Designated for the Purposes of Section 20 of the Lunacy Act 1890 as Amended by the National Health Service Act 1946*—Ormskirk County Hospital, Wigan Road, Ormskirk, Lancs, Smithdown Road Hospital, Smithdown Road, Liverpool, Birkenhead Institution, 56, Church Road, Higher Tranmere, Birkenhead, Cheshire, Whiston County Institution, Warrington Road, Whiston, Prescot, Lancs, Whitecross Home, Wakefield Street, Warrington, Lancs

### BRITISH PHARMACOPOEIA APPROVED NAMES OF DRUGS

The General Medical Council has issued the following statement and list of Approved Names

New names of drugs have been made official by their use as the titles of monographs in the *British Pharmacopoeia*. Names for certain other drugs, for which no official monographs are provided, have been published as Approved Names, the intention being that if any of the drugs is eventually described in the *British Pharmacopoeia* the Approved Name shall become its official title. The recognition of an Approved Name does not imply that the substance will necessarily be included in the *Pharmacopoeia*. These names are now brought together for reference together with other names under which the drugs have been known. For some drugs numerous other names have been introduced, the lists that follow include, in most instances under Other Names, only the names under which the substances were originally introduced, some of these names are registered trade marks.

Since the intention is to give recognition to non-proprietary names which may be used freely by manufacturers and thus to avoid the difficulties which arise from the multiplication of names for the same substance, it is hoped that the Approved Names will be generally adopted and used in prescribing. The introduction of new names for substances for which Pharmacopoeial names or Approved Names are available is especially deprecated but if a manufacturer should desire to issue under a proprietary name a drug for which an Approved Name has been provided it is strongly recommended that the label shall bear the Approved Name of the substance in letters no less conspicuous than those in which the proprietary name is printed or written.

TABLE I—Names made Official by means of Addenda to the *British Pharmacopoeia* 1932, and by means of the *British Pharmacopoeia* 1948

Pharmacopoeial Names	Other Names
Acetarsol	Stovarsol
Acetaminophthone	Kapilon Oral Prokavon
Amethocaine Hydrochloride	Decicaine
Aminacrine Hydrochloride	Acramine Yellow
Amphetamine	Benzedrine
Amphetamine Sulphate	Benzedrine Sulphate
Bromethol	Avertin
Butacaine Sulphate	Butyn
Butyl Aminobenzoate	Butesin
Carbachol	Dorol

TABLE I—cont

Pharmacopoeial Names	Other Names
Chinifon	Yatren
Cinchocaine Hydrochloride	Nupercaine
Deoxycortone Acetate	D O C A
Diodone, Injection of	Perabrodil
Diphenan	Butolan
Dithranol	Cignolin
Emulsifying Wax	Lynette Wax SA
Ergotamine Tartrate	Femergin
Hexobarbitone	Evipan
Hexobarbitone Sodium	Evipan Sodium
Hydrous Ointment	Eucerin (Hydrous)
Iodized Oil	Lipiodol
Iodoxyl	Uroselectan-B
Leptazol	Cardiazol
Menaphthone	Kapilon
Mepacrine Hydrochloride	Atebrin Quinacrine Hydrochloride USP XIII
Mepacrine Methanesulphonate	Atebrin Musonate
Mersalyl, Injection of	Salrgan
Methylphenobarbitone (Phemitone)	Prominal
Neostigmine Bromide	Prostigmin
Neostigmine Methylsulphate	Prostigmin
Nikethamide	Coramine
Oxytocin, Injection of	Pitocin
Pamaquin	Plasmoquine
Pentobarbitone Sodium	Nembutal
Pethidine Hydrochloride	Dolantin, Demerol
Phenytion Sodium	Epanutin
Progesterone, Injection of	Proluton
Silver Protein	Protargol
Sodium Aurothiomalate	Myocrisin
Stibophen	Fouadin
Sulphacetamide	Albucid
Sulphacetamide Sodium	Albucid Soluble
Sulphanilamide	Prontosil Album
*Sulphapyridine	Dagenan, M & B 693
Suramin	Germanin, Bayer 205, Antry pol
Theophylline with Ethylenediamine	Euphyllin, Cardophyllin
Thiopentone Sodium	Pentothal Sodium
Vasopressin, Injection of	Pitressin
Vinyl Ether	Vinethene
Wool Alcohols	Hartolan Wax
Wool Alcohols Ointment of	Eucerin (Anhydrous)

\*Official in the Seventh Addendum to the *British Pharmacopoeia* 1932 but not included in the *British Pharmacopoeia* 1948

TABLE II—Approved Names

Approved Names	Other Names
Cetrimide	Cetyltrimethylammonium bromide, Cetavlon
Cyclobarbitone	5- $\Delta^1$ -Cyclohexenyl-5 ethylbarbituric acid, Phanodorm
Dimercaprol	2 3-dimercaptopropanol, British Anti-lewisite, B A L
Dimethylstilbamidine	4 4-Diamidino $\alpha$ - $\beta$ dimethylstilbene
Hexazole	4 Cyclohexenyl-3-ethyl-1 2 4-triazole, Azoman Triazole
Maphenide	p-Aminomethylbenzenesulphonamide, Marfanil
Meprochol	Trimethylmethoxypropenylammonium bromide, Esmodil is a 0.3% isotonic solution
Mesulphen	2 6-Dimethylthianthrene, Dimethyldiphenylene disulphide, Mitgal
Pentamidine	$\alpha$ $\omega$ -(4 4'Diamidinophenoxy) pentane
Phenodol	$\alpha$ Phenyl $\beta$ (4-hydroxy-3 5-diiodophenyl)propionic acid, Biluselectan
Pholedrine	$\beta$ -Methylamino-4 hydroxypropylbenzene, Veritol
Proguanil	N-p Chlorophenyl N-isopropylbiguanide, Paludrine
Propamidine	$\alpha$ $\omega$ -(4 4'Diamidinophenoxy) propane
Sodium Stibogluconate	Sodium antimonyl gluconate, Pentostam
Sulbamidine	4 4'Diamidinostilbene
Sulphadimidine	2 (p-Aminobenzenesulphonamide) 4 6 dimethylpyrimidine, Sulphameza
Thialbarbitone	thine, Sulphadimethylpyrimidine
Thiomersalate	5- $\Delta^1$ -Cyclohexenyl-5-allyl-2-thiobarbituric acid, Kemthal
	Sodium ethylmercurithiosalicylate, Merthiolate

#### Whitley Councils Nurses and Midwives

An emergency meeting of the Nurses' and Midwives Functional Council will be held on Aug 20 to consider the salaries of student nurses



## NATIONAL (WAR) FORMULARY

THIRD EDITION, 1947 AMENDMENT NO 2 (1948)

The following amendments to the Formulary take place on Aug 1.

## Page 19

<b>Auristillae Hydrogeni Peroxidi</b>			
Amend formula to read			
Solution of Hydrogen Peroxide (20 Vol)	60 min	25	Approximate Percentage
Water	to 1/2 fl oz	to 100	

## Pages 21 to 22

Collutoria Delete whole section Replace by

**COLLUTORIA MOUTH WASHES**

4 fl oz to be dispensed unless otherwise directed

Glycerin of Tannic Acid	240 min	12.5	Approximate Percentage
Chloroform Water	to 4 fl oz	to 100	
Dilute with an equal quantity of warm water			
<b>Collutorium Formaldehydi (Collut Formaldehyd)</b>			
Solution of Formaldehyde	60 min	3	Approximate Percentage
Peppermint Water	to 4 fl oz	to 100	
One teaspoonful in 1/4 pint of warm water			

**Collutorium Phenolis Alkalinum (Collut Phenol Alk.)**

Solution of Potassium Hydroxide	240 min	12.5
Liquefied Phenol	120 min	6
Solution of Bordeaux B, B P C	20 min	1
Water	to 4 fl oz	to 100
Two teaspoonfuls in 1/4 pint of warm water		

**Collutorium Sodii Chloridi Compositum (Collut Sod Chlorid Co)**

Sodium Chloride	32 gr	2	Approximate Percentage
Sodium Bicarbonate	16 gr	1	
Peppermint Water	to 4 fl oz	to 100	Approximate Percentage
Dilute with an equal quantity of warm water			

**Collutorium Thymolis Compositum (Collut Thymol Co)**

Synonym Collutorium Alkalinum			
Liquefied Phenol	10 min	0.5	Approximate Percentage
Thymol	1/2 gr	0.03	
Solution of Sodium Hydroxide B P	10 min	0.5	Approximate Percentage
Methyl Salicylate	1/4 min	0.01	
Oil of Peppermint	1/4 min	0.01	Approximate Percentage
Solution of Bordeaux B, B P C	20 min	1	
Water	to 4 fl oz	to 100	Approximate Percentage
Dilute one part with three parts of warm water			

Note—A similar but not identical mouth wash can conveniently be prepared from Solvella Thymolis Composita N W F

**Collutorium Zinci Sulphatis et Zinci Chloridi Compositum**

Zinc Sulphate	40 gr	2.3
Zinc Chloride	20 gr	1.15
Dilute Hydrochloric Acid	20 min	1
Compound Solution of Tartrazine B P C	20 min	1
Emulsion of Chloroform	40 min	2
Water	to 4 fl oz	to 100
One teaspoonful in 1/2 tumbler of warm water		

## Page 27

**Gargarisma Acidi Tannici B P C**

Delete entry

## Page 34

**Linctus Diamorphini N W F**

Amend formula to read

Diamorphine Hydrochloride	1/20 gr	Approximate Percentage
Compound Solution of Tartrazine B P C	1/2 min	
Emulsion of Chloroform	5 min	Approximate Percentage
Syrup	to 60 min	

## Page 52

**Nebula Adrenalinae et Atropinae Composita**

Amend formula to read

Atropine Methylnitrate B P C	1/2 gr	0.1
Papaverine Hydrochloride B P C	3½ gr	0.8
Adrenaline	2 gr	0.5
Chlorbutol	2 gr	0.5
Tartaric Acid	1½ gr	0.4
Sodium Metabisulphite	1/2 gr	0.1
Distilled Water, recently boiled and cooled	to 1 fl oz	to 100

## Page 53

**Nebula Penicillini**

Delete entry

## Page 55

Add entry

Pigmentum Arseni et Ipecacuanhae (Pig Arsen et Ipecac)		Percentage
Arsenical Solution	30 min	50
Tincture of Ipecacuanha	30 min	50
60 min to be dispensed unless otherwise directed		

## Page 60

**Solvella Penicillini N W F**

Amend the first sentence of the entry to read

Each Solution-Tablet contains 10,000 units of Penicillin (Calcium Salt)

## Page 63

Add entry

**Tabella Acidi Acetylsalicylici et Quininae Composita (Tab Acid Acetylsalicyl et Quinin Co)**

Acetylsalicylic Acid	3 gr
Phenacetin	3 gr
Caffeine	1/4 gr
Quinine Sulphate	1/4 gr
6 to be dispensed unless otherwise directed	

## Correspondence

## Planning of New Dermatological Departments

SIR—The nature of the clinical material presenting itself at a dermatological clinic varies enormously from one part of the country to another. But the worst feature of the plan illustrated in the *Supplement* of July 17 (p 43) is undoubtedly the lack of any provision for patients to undress for examination. Most patients take a much longer time to undress than is required for their examination, and not only do they like a little privacy for it but the doctor can be better employed than in waiting for them. Each consulting-room should therefore have not less than three undressing-rooms in which the patients can don some sort of dressing-gown in privacy before they emerge in turn for examination by the doctor. Patients cannot even be "screened" without examining them.

The photographic studio has an effective length of 13 ft. A full-length portrait could not easily be secured in this space without a special wide angle lens. The Kodak clinical camera requires 24 ft including space for manoeuvring. The department clerk will hardly have room for all the documents yielded by 200 patients on a 6-ft desk, even if her room is not used as a passage—I am, etc.,

Manchester

J H TWISTON DAVIES

## Rural Practice

SIR—As a rural practitioner in an extremely remote area 20 miles from a hospital, I wish to endorse the many letters that have been written about our difficulties. I feel that they must be considered under the following headings.

**Capitation Fee**—In these vastly scattered areas the time-distance factor makes it impossible to look after the requisite 4,000 patients. In fact, I find that the care of 3,000 is beyond the capacity of a single man in this area, involving a daily mileage of from 60 to 100 miles and the probability of having to walk at least 5 miles to remote farms. It is impossible, therefore, to look after the number required by the State in order to qualify for (a) the maximum salary, and (b), what is more important, for a reasonable pension, which appears to be based on the number of patients on the capitation list on retirement. This precludes the possibility of a country doctor achieving the maximum pay rates, although in many cases, especially in bad weather, his work is arduous to a degree that no town doctor has ever experienced. I have yet to hear of a town doctor who has to use horses or caterpillar tractors to get to cases in deep snow, though this is our common lot in winter, not to mention the endless miles we trudge up to the knees in mud and snow. We are, as a class, isolated in every sense of the word. It is impossible to obtain specialist help, and no medical service yet devised can provide it for us. Often we are forced into performing surgical procedures with portable equipment—that is, equipment that can be carried by hand—

in cottages by oil lamp light etc., yet, despite all this extra work, worry, and physical strain, the country doctor is regarded financially as an inferior being

**Mileage Rates**—So far, these have not been defined. It should be borne in mind that those of us who average 40,000–50,000 miles a year must use large fast cars. Small cars simply come to pieces, the average life of the average English 8 h.p. car being under six months in these rural conditions.

**Drugs**—For the drugs we dispense we get a comparatively low dispensing rate, yet we have to carry vast stocks of materials. My own stock value is usually £250 to £300. I presume that no attempt to carry this capital responsibility will be taken by the State unless this point is adequately aired.

**Telephones**—Another factor which causes us great trouble in the country is the large telephone accounts for which we are responsible. There are virtually no 2d calls in this area (because of distance), and the average cost of a call to the hospital is 1s 9d, because it is seldom that one can get the house-surgeon under 10 minutes, at 7d for three minutes. Many appointments also have to be made by telephone. An ambulance call is 4d. My telephone bill is £65 per year.

**Night Duty**—As country doctors we cannot possibly divide our work to the same extent as town doctors should be able to do in the future. It will therefore be our lot to continue to do a full duty of night work, and from the point of view of humanity it is impossible to refuse to do night duty in these areas. It is quite understandable that people in remote isolated farms and cottages get frightened in the night, and, although in many cases our night work involves reassurance only, I cannot see how assistance can be devised by which these points can be avoided.

**Midwifery**—Much song and dance is being made about mobile specialist services, especially for midwifery. The systems I have been able to examine are Gilbertian, they are classical, preconceived notions of the townsman's idea of country life, envisaging well sign-posted roads, farms with little names carefully nailed on the gates, and cottages in well lighted highways and by-ways. Also the idea of carrying a mobile hospital to some of these remote dwellings has its humorous side. And yet these people, whom we as a body serve, produce enough food for well over half the population of these islands.

There is little question that the medical services will remain much as they are. These practices have been hammered out in the process of hundreds of years by an excellent system of trial and error, and therefore they cannot, and will not, be changed by an Act of Parliament—I am, etc.,

Ruskington Lines

T SMALLHORN

\*.\* The Secretary of the B.M.A. states: The pension of a general practitioner will be based on a percentage of his remuneration over all his years of service (as distinct from the remuneration at the date of retirement).

### The Public Not Informed

SIR—Thank you for publishing my letter under the above heading in the *Supplement* of July 17 (p. 49) and for appending the Secretary's reply. Doctors are probably more used to working 'flat out' than any other community, so I am glad to hear that the staff they employ at Headquarters is doing the same thing. However, I had not implied in my letter that they were not working hard, but that they discriminated between which of the profession's wishes should be carried out with dispatch and which should be allowed to drift. I cannot say that I am reassured either by Dr. Charles Hill's remarks or by those in the letter of Dr. Walter Woolley (p. 50).

The last plebiscite did not show the prescribed figures for further active resistance, but 64% of those voting did not approve of the Act. These thousands of doctors were virtually forced to accept service but they were assured through recommendation C that their case was going to be put "adequately" before the public. To them the word "adequately" covered 'with the necessary speed'—i.e. before July 5. I can well believe the physical difficulties of which Dr. Hill speaks, that are involved in the production of a large quantity of leaflet material. It is all the more extraordinary, therefore, that the leaflet 'The National Health Service and You' did not go to the printers till June 17. Council passed recommendation C' early in May. It was a thousand to one that the R.B. would sanction it (with only minor alterations if any) on May 28. Surely it could not have needed much intelligent anticipation to have had the leaflet passed and the printing put in hand in the middle of May so as to be able to send it out as soon as

possible after the S.R.M. It is just conceivable—only just—that it would have been a wasted effort but things took their expected course and as nothing was done the whole of the precious weeks of June were wasted.

Just the same lack of anticipation was shown over the Minister's speech about the sign on muddle. Dr. Hill proudly states that a rejoinder was issued to the Press within two hours. This was two weeks too late. If the public had been properly saturated with the facts during June, the Minister could not have made such remarks without appearing ridiculous—so much so that even he might not have made them.

There are many who hope that in the future the hard work of the secretariat will be productive of more obvious results and that the Public Relations Department will not be content with providing a "supply of background information for the Press." Nearly every day the profession is blamed in some way for things over which it has no control. This tendency will increase until our propaganda takes its proper place, which is the foreground—I am, etc.,

London N.W.1

R. HALE-WHITE

### Reflections on Superannuation

SIR—I have read with great interest the article on the above subject by Mr. A. N. Dixon of the Medical Insurance Agency (*Supplement* July 3, p. 23) and offer for the consideration of your members the following comments.

(a) Surely the scheme is more beneficial to widows than any existing scheme. There is no reduction of the pension while the pensioner lives and, subject to certain provisions, if he dies before his wife his widow gets a pension of one-third of his retiring pension. We must bear in mind that every superannuation scheme must satisfy the actuaries that the receipts and outgoings will balance.

(b) There is another point not mentioned by him of interest and that is that under the present proposals the general practitioner is treated more favourably than local government medical officers to the extent of  $\frac{1}{4}\%$  per annum.

(c) Provision for sickness. Surely once the regional boards get to work and have time to tackle the major issues first then provision for sickness and accident occurring among general practitioners working within the Service must come high on the list for priority of attention, also for their holidays—I am, etc.,

Worthing Sussex

HAROLD LEFSON

### BIBLIOGRAPHY

Leeson H. (1945) *Your Doctor of the Future*. Freer and Hayter. High Wycombe.  
— (1947) *Lancet* 1, 380.

\*.\* The Secretary of the B.M.A. states: There is an apparent difference, but not a real difference, between the  $1\frac{1}{2}\%$  of each year's general practitioner remuneration and the  $1/80$  (or  $1\frac{1}{4}\%$ ) applicable to local government medical officers. In the first place, the local government M.O. receives in respect of each year of contributing service  $1/80$  of his average remuneration for the last three years' service. The general practitioner receives the aggregate of  $1\frac{1}{2}\%$  of his net remuneration for each year of contributing service. While normally the salaried officer attains his maximum income at the end of his career, the remuneration curve of the general practitioner is of a different order, rising through early years to a fairly stable amount after which time it falls away considerably. It is claimed that the  $1\frac{1}{2}\%$  proposal spread over the whole period of service would have the effect of securing for the general practitioner a pension equivalent to half his peak remuneration. This would correspond with the local government medical officer's pension assessed on the average remuneration for the last three years of service, which are invariably the years when his remuneration is at its highest.

### A Protest

SIR—As a profession we have recently been exposed to threats and menaces, cajolment, more threats, more cajolment and finally a message of encouragement now that the Health Service has started and many of us are in it. The Association has promised to do its best to make the scheme a success even though financial blackmail was used to coerce many into coming in. It is therefore with peculiar revulsion that I read of a speech in Manchester in which the Minister

of Health states that he considers Tories to be worse than vermin. Many of us happen to be Tories and consider our beliefs to be as honestly and fairly held as those of other men who oppose them.

If the Minister is right, then by inference a good half of the doctors now entering the Service are men of a low moral type, somewhat akin to spivs, to use his own words. If this is so, then in the public interest every entrant should be interrogated as to his political opinions. Those who admit, perhaps under pressure, that they are Tories should then be excluded. It should be possible to do this fairly quickly and they could then take the advice given to Mr Bevan in his youth and to some of us more recently they could emigrate. It would then be interesting to see what kind of health service we possessed, and the courtesy and wisdom of Ministerial pronouncements could be assessed. It is surely most deplorable that these provocative and vulgar terms should be used by the chief of what, we may hope, may be one day a great service—I am, etc.,

Barnet Herts

G C PETHER

### Mr Bevan and the Tories

SIR—I am sure I am one of many doctors who feel outraged by the recent remarks of the Minister of Health in his reference to members of the Tory Party. Many of us without strong political convictions feel that having accepted the National Health Service it is our duty to the nation to work for its success, but how can we cultivate that essential spirit of co-operation when the Minister of Health castigates in such vile terms the majority of the doctors and a large proportion of the citizens of the land? It is rather a sad reflection on the medical profession that we have reached a compromise with a man holding such views, and I think it is necessary for the British Medical Association to make some public sign of its disapproval of such unprecedented behaviour by a responsible Minister of the Crown.

I hope this letter together with many others will help you to take some definite action in the immediate future, and perhaps if you think fit you will also find space for its publication as representative of the feelings of many doctors—I am, etc.,

Anstey Leics

K F C BROWN

### Remuneration of General Practitioners

SIR—In your annotation of July 17 (p 143) reference is made to the letter from me which you kindly published in the *Journal* of July 10 (p 110) concerning the remuneration of general practitioners. The annotation states that my estimate of a 50% loss is based on a capitation fee of about 15s. This is not quite accurate, as I quoted figures for a fee of either 15s or 18s. We seem to agree that the higher figure may be taken to represent estimated gross receipts from capitation fees plus mileage allowance, the latter being presumably applicable only to patients residing two miles or more from the surgery.

A fee of 18s for the whole of a 10,000 population represents £9,000 per annum and one of 17s 5d produces £8,713. The actual receipts in the area mentioned would probably be between these figures, since no mileage allowance would be payable in respect of some two-thirds of the population. The total receipts for an 18s capitation fee are actually less than the combined private and panel fees (excluding appointments and vaccinations) earned in the last complete year by only half the doctors in that area, so my estimate of a 50% loss is not far wrong.

One can appreciate your reference to payments in addition to capitation fees, but against this must be set the loss of income due to the termination of contracts as district medical officers and public vaccinators, together with fees for vaccinations actually performed, which account for some of the income of a great many rural practitioners. It is doubtful if the capitations for former "parish" patients will equal these sums in many cases.

Last week we were asked to inform the local executive council if we wished to accept the basic payment of £300 per annum. I wrote to the clerk to inquire if he would state what capitation fee would be payable with or without this salary. In his reply he said that he did not know the actual amount of the capitation fee, the amount of mileage allowance or the payment to be made in respect of drugs supplied by practitioners. The clerk

realized "that this is a deplorable state of affairs," and said he has had several similar inquiries, "to all of which I have had to confess my complete ignorance." One naturally assumes that the B M J has good grounds for the figures quoted in the annotation, but it is amazing that the local executive council should have received no such information from the Ministry to pass on officially to the doctors in its area.

This week's *Radio Times* contains an official advertisement of the Ministry of Health which points out that under the Health Service no fees are payable by patients to their family doctor, who is now "properly paid out of public funds to which all contribute as taxpayers." Is it not true that the Minister and his supporters were given proof that, with the fees hitherto published, a great many doctors are not "properly paid"? In the past there seems to have been too much concentration on various principles, particularly the retention of goodwill, with which a Socialist cannot be expected to have much sympathy. If greater attention had been given to the question of remuneration the Minister might have been more understanding and we might have secured better terms. As things are, politicians are liable to ask why this matter was not raised and discussed sooner.

Unless considerable changes are made it seems certain that in the future it will be difficult to get men to go into practice in country districts. Such diminished numbers as may still take up medicine may well feel that the only way to earn a satisfactory professional income will be to go into crowded districts where it is possible to hold lists of three or four thousand patients, but where the numbers will be such as to make careful and adequate treatment impossible. The Health Service and the patients must then inevitably suffer, and the standard of medicine, so far as the general practitioner is concerned, must fall—I am, etc.,

RALPH GREEN

### Post Office Medical Officers and NHS

SIR—Dr Clifford T Roberts (*Journal* July 17, p 177) appears to be under some misapprehension about free choice of doctor by Post Office personnel. Although they were on the lists of P O M O s they could if they wished call in their private doctor when sick at home or they could become voluntary subscribers under the NHI and choose a panel doctor. The P O M O countersigned the certificates, and if the patient was off sick over a certain time he was asked to attend the P O M O's surgery if fit to travel for examination. If the patient was unfit to travel, a local P O M O was requested to visit him, but he still remained under his private or panel doctor. If he elected to be attended by the P O M O and lived outside the area of his own P O M O the local P O M O attended him and issued pink certificates, being remunerated at special rates per visit.

I have never, as P O M O had any unpleasantness with the private or panel doctors of the P O employees on my list. The system has worked well and might be compared to that of the R M O s under the NHI. We P O M O s do indeed feel a sense of great injustice in being deprived of our appointment with loss of income and capital—that, too, at a few weeks' notice of an appointment which we understood was secure until the age of 65 years.

I understand that police surgeons feel as we do, and I believe a majority of members of the force would prefer to remain on the old basis with the police surgeon as their medical attendant. Surely the question could and should be dealt with in the amending Act—I am, etc.,

London NW 1

RUSSELL V STEELE

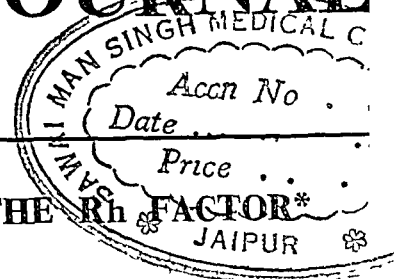
### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton-le Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Tyldesley



## RECENT ADVANCES IN OUR KNOWLEDGE OF THE Rh FACTOR\*

BY

**D F CAPPELL, MD, FRSEd**

*Professor of Pathology University of Glasgow*

It seems appropriate to begin with a general survey of the problems which knowledge of the Rh factor has helped to clarify. As usual in scientific work, the problems become more complex as further insight is obtained, but without doubt the present state of knowledge is an immense advance over the conditions prevailing ten years ago, when Darrow (1938) so fully reviewed what was then known about the aetiology of haemolytic disease of the newborn. First, I should like to say that the term "Rh factor" as originally used seems unsuitable for the designation of all the antigens now known to exist in association with it in man, and I think it better, to use the term "Rh blood group" to cover this field. The term "Rh factor" might then be used to distinguish the original component common to man and the rhesus monkey. It seems rather inappropriate to designate as Rh factors red cell antigens which have not been demonstrated in the cells of rhesus monkeys.

### Discovery of the Rh Blood Group and its Clinical Significance

We owe our fundamental knowledge of the original Rh factor to the brilliant work of Landsteiner and Wiener (1941), who sought to extend knowledge of the complexities of agglutinin M in man and other primates by studying the reactions of human and animal bloods with anti-rhesus sera prepared by the immunization of rabbits or guinea-pigs by the washed red cells of rhesus monkeys. The sera thus prepared were found to cause agglutination of the red cells of 85% of white persons, who were therefore designated rhesus-positive or Rh-positive for short, the remaining 15% being called Rh-negative. This startling discovery was soon followed by the significant announcement that the newly discovered antigenic properties of human red cells were the basis of intragroup transfusion reactions as the result of iso-immunization of Rh-negative recipients by previous transfusion of Rh-positive blood (Wiener and Peters, 1940).

Within a remarkably short space of time a further pronouncement of major clinical importance was made. Levine announced that the dreaded intragroup transfusion reactions of women in the puerperium were also the result of iso-immunization of Rh-negative women, and drew attention to the almost invariable association of such reactions to a first transfusion with death of the foetus or the occurrence of icterus gravis neonatorum. Levine and his co-workers (1941) brought forward irrefutable evidence that not only the liability of the mother to intragroup transfusion reactions but also the disease and death of the foetus

were attributable to the iso-immunization of the mother by Rh antigens inherited by the foetus from an Rh-positive father. Somehow the antigen which the mother lacked had gained entrance to her circulation and had brought about iso-immunization with all its attendant troubles. These are the fundamental clinical facts about Rh incompatibility. Whatever advances have since been made or may be made in future, nothing can dim the brilliance of the achievements of our American colleagues, especially Wiener and Levine, in making these fundamental and fruitful observations.

Opportunities for iso-immunization of the pregnant woman by a foetal red cell antigen which she herself lacks is present in very many pregnancies—nearly 40% within the Rh group alone, according to Stancu, Clark, and Snyder (1947), but fortunately iso-immunization takes place only rarely. Clearly some red cell antigens are more effective immunizing agents than others, and also some women appear to be more readily immunized than others. Although the foetus has an A or B antigen which the mother lacks in about one-third of all pregnancies in this country, the ABO antigens only very rarely give rise to haemolytic disease of the foetus. None of the explanations of this freedom from ill effects in heterospecific pregnancy is wholly satisfactory, but clearly some potent protective mechanism must exist. There is also evidence that this protection is partially effective in preventing haemolytic disease due to coincident Rh incompatibility, for the incidence in heterospecific pregnancy is only about one-half of that found where the ABO groups of mother and foetus are compatible (Levine, 1943; Race, 1944; Wiener, 1945; Cappel, 1946). Transfusion of Rh-positive blood to an Rh-negative female before the first pregnancy has a very adverse effect and greatly increases the probability of haemolytic disease in the offspring, even if the transfusion has been given many years previously.

During the past year the Glasgow and West of Scotland Blood Transfusion Service under Dr J. Wallace and Mr Milne, to whom I am indebted for these figures, has examined the blood of approximately 25,000 women from the antenatal clinics of the area, among these were 4,540 Rh-negative women, 56 of whom were proved to have Rh antibodies, and in addition two Rh-positive women were found to be immunized and to have anti-E agglutinins of low titre. No fewer than 28 of the 56 Rh-negative mothers belonged to Group A and only 18 to Group O, a striking reversal of the A/O ratio for Scotland (Cappel, 1947b). Twenty-five of the fathers were examined and an equally striking disproportion in the opposite direction was found: only five out of 25 being of Group A and 15 out of 25 of Group O. These figures are consistent with previous findings that heterospecific pregnancy appears to confer some degree of protection against Rh sensitization.

\*Read in opening a discussion in the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association, Cambridge, 1948.

### Varieties of Haemolytic Disease

In the absence of previous transfusion with Rh-positive blood iso-immunization of the Rh-negative mother rarely occurs during the first pregnancy to an extent sufficient to produce haemolytic disease in the first-born, but the second or subsequent Rh-positive offspring may be affected. Contrary to expectation statistical analysis shows that in affected families the first recorded manifestation of the disease is usually one of the severer forms. When the haemolytic disease occurs in the second pregnancy it is more likely to take the form of icterus gravis or hydrops than congenital haemolytic anaemia, which is seen more often when the first affected child comes later in the family—e.g. the fifth or sixth. If icterus gravis appears first, it is likely to be more severe in the next affected child or it may be followed by hydrops. Only rarely, however, do the harmful effects begin with mild congenital anaemia and progress with increasing severity in successive pregnancies through icterus gravis to hydrops foetalis. This early occurrence of the severer forms of the disease seems to indicate a notably greater susceptibility to immunization on the part of some women, thus cases with an early history of hydrops rarely show strong agglutinating antibodies but have usually developed blocking antibodies instead. Others may show strong agglutinating antibodies for some years, but in subsequent pregnancies blocking antibodies may appear (Cappell, 1947a, Case 4). Although we cannot predict with certainty the type of foetal disease from the type of antibody present, there is no doubt that the presence of blocking antibodies in high titre is a bad prognostic sign and is likely to be associated with premature death of the foetus or hydrops. In my own series of frank haemolytic disease cases with incomplete antibodies were about twice as numerous as cases with only agglutinins if we discount those in which agglutination occurred only in the first or second tube, where the protein concentration was high enough to lead to agglutinative effects with blocking antibodies (Wiener's conglutination reaction). Many of these earlier cases were studied before blocking antibodies were known, and their exact nature cannot now be ascertained. Sacks, Kuhns, and Jahn (1947) found among 12,140 unselected antenatal cases 96 Rh-negative sensitized mothers, of whom 65 had blocking antibodies alone, 23 had agglutinins alone, and eight had both types of antibody.

In Glasgow, however, among the above 56 Rh-negative sensitized women encountered in routine antenatal studies 33 showed anti-Rh agglutinins in a titre of 1 in 4 or more, while 23 showed blocking antibodies or a mixture of both types. The number of Rh-negative women showing sensitization is small, only about 1 in 80, but the antenatal clinics have an excess of primigravidae, who would be expected to produce infants free from haemolytic disease. Dr Sandison, director of the East of Scotland Blood Transfusion Service, Dundee, has kindly supplied me with her recent figures showing that among 35 cases 23 had agglutinins of a titre greater than 1 in 4 and 12 had only blocking antibodies.

### The Antigenic Structure of the Rh Group

The Rh group consists of eight principal Rh types, but there is evidence that variants of these types occur. Four of the principal Rh types are Rh-positive and four are Rh-negative. These types have been recognized by the reactions of the red cells with four different antisera, from which it is clear that each Rh type consists of three elementary antigens selected from three allelomorphous pairs. The true complexity of Rh antigenic structure was first recognized by the brilliant analysis and synthesis of R. A. Fisher, who recognized that the reactions of red cells with two of the four antisera were antithetical and supposed

that they distinguished allelomorphous antigens, which called C and c. Since the reactions of the other two sera were not antithetical he supposed that they too reacted with elementary antigens and that each had an allele, these he named D or d, and E or e. Each Rh type was seen to be composed of three elementary antigens determined by three closely linked genes on the Rh chromosomes. The Rh types may thus be represented either by Wiener's shorthand notation such as R<sub>1</sub>, R<sub>2</sub>, R<sub>0</sub>, R<sub>z</sub>, r', r'', r<sub>z</sub>, and r or by Fisher's more precise terminology using the CDE notation. As a result of the gradual advance in knowledge Wiener has had to admit that the Rh types consist of three elementary antigens, but he prefers to use a somewhat cumbersome terminology in which the c d e antigens are designated hr', Hr', hr'', Wiener thus distinguishes four Rh types, four rh types, and three Hr types, but the relationships of these are not self-evident. I do not think we need concern ourselves here with controversies about nomenclature, but it is important to emphasize that whatever they may be called all writers recognize that each Rh type is made up of this antigenically complex pattern.

Comparison of Rh Nomenclature

Wiener's Short Notation	Wiener's Full Notation	Fisher's Notation	
R <sub>0</sub> R <sub>1</sub> or R <sub>0</sub> <sup>01</sup> R <sub>2</sub> or R <sub>0</sub> <sup>02</sup> R <sub>z</sub> or R <sub>0</sub> <sup>01</sup>	hr Rh <sub>0</sub> hr' rh' Rh <sub>0</sub> hr' hr Rh <sub>0</sub> rh' rh Rh <sub>0</sub> rh'	cDe CDe cDE CDE	Rh positive
r' r'' r <sub>z</sub> or r''	rh Hr <sub>0</sub> hr' hr' Hr <sub>0</sub> rh' rh Hr <sub>0</sub> rh' hr' Hr <sub>0</sub> hr'	Cde cdE CdE cde	

### Criteria of Rh-positive or Rh-negative

In the assessment of the Rh group of the mother and family all individuals who lack the Rh antigen detected by the original anti-rhesus immune sera (Fisher's antigen D) should be reckoned as Rh-negative (Cappell, 1944, 1945), because such persons are liable to become immunized on suitable exposure to antigen D irrespective of whether they exhibit one or other of the associated antigens which were revealed later in man—i.e., Fisher's antigens C and E. The C and E antigens occasionally give rise to iso-immunization, especially when associated with D, but only very rarely give rise to trouble by themselves. Their presence in the mother's genotype, however, does not in any way protect her against immunization by the common Rh antigen D, and several such instances have been reported as examples of haemolytic disease in the offspring of Rh-positive mothers. It must be strongly emphasized that persons of such genotype as Cde/cde (r'r) or cdE/cde (r'r) are Rh-negative, and most of the more experienced workers have since agreed with me on this mode of classification (Cappell, 1944, 1945).

The Rh antigens C, D, and E are quite distinct immunologically from their alleles c, d, and e and also from one another. Each is capable of absorbing the homologous antibody from naturally occurring or artificial mixtures of Rh antibodies. It has, however, recently been found that the elementary antigens designated C, c, D, and E are not identical in all persons, and that the antisera to which they give rise are not of uniform reactivity. This lack of homogeneity was first clearly defined by Callender and Race (1946) in their recognition of the variant of C known as C<sup>W</sup> by means of an iso-immune serum derived from a transfusion reaction, and more recently C<sup>W</sup> has been found also to give rise to iso-immunization in pregnancy (Lawler and Van Loghem, 1947). Race, Sanger, and Lawler (1948) have reported a series of alleles at the C locus of which two are variants of C—namely, C<sup>W</sup> and C<sup>U</sup>—and one is a

variant of c—namely,  $c^v$ . The state of affairs at the D locus is similar. Stratton (1946) first recognized a different type of D antigen— $D^u$ —by the observation that the cells in question failed to react with certain anti-D sera which were powerful against most D-containing cells. Race and his co-workers (1948b) have extended these observations and have shown that there are more than two types of D. By titration methods they have found that anti-D sera can be arranged in a certain order of reactivity, some sera agglutinating nearly all D cells while others fail to react with certain samples which are nevertheless readily sensitized by blocking anti-D sera, and are thus presumed to contain an antigen of the D class. Dr Butler and I have observed at least two variants of D, one of which we detected in the cells of three out of 15 West African negroes. Such variants of D are probably attributable to the so-called intermediate genes which Wiener has reported among American negroes.

### The Inheritance of the Rh Group

The Rh, like other blood groups, is inherited on Mendelian principles, the genes being carried by a chromosome pair different from those carrying all the other known blood groups. There are therefore three classes of persons, the homozygous Rh-positives (RhRh), the heterozygous Rh-positives (Rhrh), and the homozygous Rh-negatives (rhrh). The prognosis in any family in which haemolytic disease has appeared depends largely on whether the father is homozygous, when all his subsequent children are likely to be affected, or heterozygous, when one-half of the offspring are likely to be Rh-negative and thus escape harm. There are a few recorded instances of the Rh-positive child of an immunized Rh-negative mother remaining unaffected by haemolytic disease, but in some of the published cases the genotyping of the child is insufficiently detailed to prove that antigen D was present, and some such children have been  $r'$  (Cde) or  $r''$  (cdE) and thus wrongly reckoned as Rh-positive. The use of Rh antisera containing two agglutinins—anti-C+D and anti-D+E (Wiener's anti-Rh, and anti-Rh)—for testing the baby's cells can easily lead to the wrong classification of infants as Rh-positives when in fact the positive reaction is due merely to the presence of antigen C or E. In some families Rh antibodies may appear in the mother and may even cause the infant's cells to give a positive direct reaction with Coombs's test, yet the child may remain clinically well or show only a trace of jaundice or anaemia. It is thus difficult to say on serological grounds that a child is unaffected if in fact its cells are sensitized, but no doubt the clinicians would be disinclined to accept such mild effects as examples of haemolytic disease. A discrepancy between laboratory and clinical findings may thus appear, but it will often be found in such families that subsequent Rh-positive children are affected beyond any clinical doubt, and this phenomenon may be merely evidence of commencing sensitization.

*Example 1*—The difference in the prognosis with a homozygous father as compared with a heterozygous father is shown in the following family history.

Two Rh-negative sisters (rhrh) married Rh-positive men related as uncle and nephew. Both became immunized by three Rh-positive pregnancies and haemolytic disease appeared in the third Rh-positive child. One man was homozygous RhRh, with the result that the fourth, fifth, and sixth pregnancies resulted in stillbirths, whereas the other man was heterozygous Rhrh and his family of seven consisted of two Rh-negative children, a normal Rh-positive child, a second healthy Rh-positive child, two Rh-negative children, but the seventh pregnancy was again Rh-positive and resulted in haemolytic disease.

*Example 2*—The late development of iso-immunization is shown in the following case for details of which I am indebted to Dr Sandison.

Mrs D, group A, Rh-negative, had a family of 17 children 15 of whom are alive and well—four are known to be Rh-negative and eight are Rh-positive. Recently an 18th child was apparently normal at birth, but its cells were strongly sensitized to Coombs's direct test, jaundice did not develop, and the child remained well, but by the 20th day its haemoglobin had fallen to 73%. The mother's serum contained only blocking antibodies.

*Example 3*—Late sensitization, perhaps induced by transfusion.

Mrs P, group O, Rh-negative, had seven normal children but received a blood transfusion in 1940 on account of haemorrhage after the birth of the seventh child. Four years later an eighth pregnancy terminated in a full-term male child who developed icterus gravis but recovered after transfusion of Rh-negative blood. The mother's serum contained blocking antibodies.

*Example 4*—This family was important in our early work, as it was our first indication that there were different kinds of anti-Rh sera and that the Rh factor was more complex than had been realized, it also illustrates that Rh-negative women of genotype Cde/cde may become immunized against D.

Mrs H, after losing her second and third children from icterus gravis, gave birth to a normal male child whose cells were agglutinated by some anti-Rh sera but not by others. Her serum contained a moderate amount of agglutinating anti-D, which reacted with the cells of her husband and first child but not with the cells of the fourth child. Later, the fifth and sixth children were also unaffected and proved to be Rh-negative cde/cde. The mother herself and the fourth child are of type Cde/cde ( $r'$ ) and thus might have been called Rh-positive by some observers.

The better understanding of the pathogenesis of haemolytic disease has not as yet yielded any notable advance in prophylaxis, and no effective means has been found either to prevent iso-immunization of Rh-negative women by Rh-positive foetuses or to render the effects of Rh antibodies less harmful. Kariher (1947) has reported that three sensitized women who had previously lost children from haemolytic disease were treated with repeated intramuscular injections of ethylene disulphonate in homoeopathic doses during a subsequent pregnancy. Their antibody titres fell markedly and each gave birth to a living Rh-positive child, two were unaffected and the third recovered under treatment. Confirmation of such interesting results is highly desirable.

### Cerebral Damage

Hydrops foetalis is usually regarded as universally fatal, but I understand that Diamond has obtained a few survivors from the mild form after treatment by replacement transfusion. Icterus gravis neonatorum has a high mortality if untreated, but the use of Rh-negative blood for transfusion of the newborn infant has greatly improved the prognosis. Some very experienced workers, however, have expressed doubts about the value of treatment on account of the risk of cerebral damage (nuclear jaundice) and the chances of prolonging the lives of infants who are hopelessly crippled mentally or physically. I have thought it worth while therefore to report the late results of cases treated by Dr McFarlane and me before 1945 and of others subsequently treated by Dr Sandison, to whom I am indebted also for the results of the follow-up.

We have been able to re-examine 30 infants treated by transfusion of Rh-negative blood immediately after birth or mainly within the first 12 hours, all are normally developed physically and mentally, and not a single child shows evidence of backwardness. In comparison I am indebted to my colleagues of the Royal Hospital for Sick



Children, Glasgow, and particularly to Dr R R Gordon, for the information that in a follow-up of a larger series of cases of icterus gravis admitted to that institution between 1934 and 1944 and treated mainly at a later stage by transfusion of blood not selected for Rh factor about 12% showed some residual nervous sequelae, such as general backwardness, a figure in close agreement with those given by Parsons (1947). Dr G L Montgomery, pathologist to the Royal Hospital for Sick Children, Glasgow, informs me that during the same period the incidence of nuclear jaundice in fatal cases of icterus gravis was about 30%, a frequency notably higher than that of clinical signs of nervous involvement.

There is no doubt that nuclear jaundice may be unsuspected clinically in cases dying within the first few days. I am not convinced that the cerebral damage which results in nuclear jaundice occurs before birth, its incidence is so irregular and so poorly correlated with the amount or type of antibodies or the intensity of jaundice or anaemia that one is driven to speculate about other possible factors. In some cases observed personally I have been impressed with the difficulty in establishing respiration after birth, and perhaps anoxaemia in the immediately post-natal period may be a determining factor. While one must agree with Parsons (1946, 1947) that it is useless to prolong the life of the child known to be afflicted with nuclear jaundice, I am more optimistic than he, and I am hopeful that it may be possible at least to reduce the incidence of nervous sequelae by prompt and efficient treatment. Whether immediate replacement transfusion is the method of choice for this purpose, as Wallerstein (1946) and Wiener, Wexler, and Grundfast (1947) claim, can be decided only when a large series of cases has been treated by this technique.

In my opinion there is no evidence to suggest that Rh incompatibility between mother and child will itself lead to mental deficiency. General mental backwardness may result from damage to the cerebral cortex in those who have suffered from icterus gravis in the neonatal period, and if the basal nuclei have been severely damaged motor disturbances are very likely to follow in the survivors. The view of Yannet and Lieberman (1946) that mental deficiency occurs as the sole clinical manifestation of Rh incompatibility has not been borne out by subsequent studies (Scholl, Wheeler, and Snyder, 1947; Cappell, 1947a).

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## PRELIMINARY NOTE ON INFLUENCE OF HETEROSPECIFIC IMMUNIZATION ON PRODUCTION OF Rh ANTIBODIES

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In a previous paper (van Loghem, 1947) we reported the results of artificial immunization of male volunteer donors by frequent injections of small quantities of R' (Cde) and R" (cdE) cells given intravenously in order to produce Rh agglutinins anti-C and anti-E. In two of the six volunteers the results were satisfactory. Rh agglutinins were formed in sufficient quantity to obtain useful Rh test sera. After the first experiments we were able gradually to extend the group of six male donors to 17. In general it takes a long time before the donors react with the formation of antibodies after repeated injections, and many of them do not react at all on the intravenous administration of these weak antigens (C, D, and E). Therefore we tried the influence of heterospecific immunization on the production of Rh antibodies.

It is a well-known fact that immunization with variola vaccine, typhoid vaccine, and many other vaccines may increase the titre of iso-agglutinins  $\alpha$  or  $\beta$ \*. We tried this time to stimulate the production of Rh antibodies by simultaneous injections of two or three other antigens as well as the Rh antigens, where Rh antigens alone failed to act after prolonged administration. The vaccines used for this purpose were tripiovaccine (1,000 million typhoid bacteria, 500 million paratyphoid A bacteria, and 500 million paratyphoid B bacteria per ml) and tetravaccine (5,000 million cholera bacteria, 500 million typhoid bacteria, 500 million paratyphoid A bacteria, and 500 million paratyphoid B bacteria per ml).

The donors selected for this purpose had already received many injections, varying from 15 to 42 in number, without producing Rh antibodies. Their sera were investigated at regular intervals by the saline and albumin methods.

## Donor H B

H B, aged 40, blood group A rr (cde/cde), had already received 42 injections, each of 1 ml of a 25% red cell suspension. The cells used for this purpose were type A R' (Cde/cde), always derived from the same donor (see Table I). The injections were given intravenously mostly twice a week during a period of seven months, with three periods of rest varying from one month to eleven days.

When we started the administration of typhoid vaccine no Rh antibodies (early-immune or hyperimmune) were demonstrable in his serum. Tripiovaccine was given three times intramuscularly at seven day intervals in quantities of 0.5 ml, 1 ml, and 1 ml, but without results. After another nine injections with

\*Other arguments for the influence on the production of heterospecific antibodies by injection of heterospecific antigens were communicated (1) by Hoet (1947), who suggested that in cases of erythroblastosis foetalis, in which the mother received previous to Rh immunization by pregnancy injections of diphtheria, tetanus, other vaccine, the mortality rate of the newborn increased, (2) by Pondman (1947), who reported that the production of antidiarrhoeal serum in horses was stimulated by injections of a heterospecific antigen—tapioct, and (3) by our personal investigations (Loghem and Spooander, 1948) which proved that ABO incompatibility in cases of Rh antagonism has an unfavourable influence on the clinical aspect of erythroblastosis foetalis.

TABLE I—Donor H B (Blood Group A rr)

Date	No of Inj	Quantity of A R Cells given I V (ml)	Rh Antibodies		Quantity of Triplo vaccine given I M (ml)	Quantity of Tetra vaccine given I M (ml)	
			Early-immune	Hyper-immune			
			D	D			
20/11/47	43	1			0.5		Temp
27/11/47	45	1			1.0		
4/12/47	47	1			1.0		
15/1/48	52	1				0.5	
19/1/48	53	1			0.5		
22/1/48	54	1				0.5	
26/1/48	55	1			0.5		
30/1/48	57	1	1 2	1 4		1.0	
2/2/48	58	1			1.0		
5/2/48	59	1	1 2	1 4			
9/2/48	60	1	1 2	1 2			
19/2/48	62	1	1 2	1 2			

1 ml of 25% R<sub>0</sub> cells, tetravaccine was given. Following the second injection of 0.5 ml of tetravaccine, given one week after the first, clinical symptoms of sickness and rise of temperature resulted and lasted for two days.

Five days after the latest injection with tetravaccine the serum for the first time contained Rh antibodies type anti-D in low titre (1/4). Another injection with 1 ml of tetravaccine seven days later did not further increase the titre of Rh antibodies, although frequent injections of R<sub>0</sub> cells were also given.

### Donor W E

Approximately the same procedure was followed with the male donor W E, aged 19, blood group A rr (see Table II).

TABLE II—Donor W E (Blood Group A rr)

Date	No of Inj	Quantity of R <sub>1</sub> Cells given I V (ml )	Rh Antibodies				Quantity of Triplo vaccine given I M (ml )	Quantity of Tetra vaccine given I M (ml )	Temp
			Early immune		Hyper-immune				
			C	D	C	D			
21/11/47	16	1					0.5		
27/11/47	18	1					1.0		
4/12/47	20	1					1.0		
15/12/47	23	1	1 1	—	1 2	—			
18/12/47	24	1	1 4	—	1 4	—			
23/12/47	25	1	1 8	—	1 8	—			
15/1/48	29	1						0.5	
19/1/48	30	1	1 8	—	1 8	—			
22/1/48	31	1						1.0	
29/1/48	33	1						1.0	
1/2/48	34	1	1 32	—	1 32	—			
19/2/48	37	1	1 4	—	1 4	—			
8/3/48	40	1	1 4	—	1 16	—			

Before the heterospecific immunization he had received only 15 injections of R' cells of two different donors. Dam O R<sub>1</sub> (Cde/cde) and Mor A R<sub>1</sub> (Cde/cde). Up to this time no Rh antibodies had been formed. The cells of Dam should more properly be called CD<sup>u</sup>e/cde. This was elucidated by Dr Race. The finding of some anti-D besides anti-C in the serum of other Rh-negative donors injected with these cells was explained by Dr Race by the presence of the D<sup>u</sup> antigen in the cells of Dam.

The first injection of 0.5 ml of triplovaccine gave no results. The second injection of 1 ml was followed by a rise of temperature and a feeling of sickness. After another week the administration was repeated. Ten days later the serum was investigated, and Rh antibodies, type anti-C, were present in a low titre (1/2). After repeated injections with R' cells the titre increased, but only to 1/8, happily no anti-D (early-immune and hyperimmune) was formed, which could have been the result of the presence of the D<sup>u</sup> antigen in the red cells of donor Dam.

In an attempt to raise the titre further by injections of stronger antigens, tetravaccine was given on the same day as the 29th injection of R' cells. After three injections of tetravaccine at weekly intervals the titre increased to 1/32—pure anti-C agglutinins without anti-D (early-immune or hyperimmune). A few days later 1 litre of the donor's blood was replaced by 1 litre of Rh-negative blood. After absorption with B rr blood the titre fell to only 1/16. The serum is very useful as Rh test

serum. After further injections with R' cells the titre of anti-C agglutinin decreased and only some hyperimmune anti-C was formed.

### Donor G de J

This case is probably still more interesting. Male donor G de J, aged 33, blood group A rr, from March 11 to Sept 22 1947, received 32 injections of 0.25 ml of R' cells of the two donors Dam and Sch. The cells of Dam are O CD<sup>u</sup>e/cde and of Sch O Cde/Cde. After 17 injections at regular intervals anti-C agglutinins, titre 1/8, and hyperimmune anti-D, due to the presence of D<sup>u</sup> antigen, were formed.

It is remarkable that early-immune antibodies (agglutinins), type anti-D, could never be demonstrated in his serum. The generally accepted and proved theory of Diamond that hyperimmune antibodies are formed only after the production of early-immune antibodies by prolonged immunization seems not always to be true. After 14 other injections the titre of anti-C agglutinins decreased to 1/4, but that of the hyperimmune form increased to 1/32.

After four months' rest agglutinins type anti-C were no longer present in the serum of this donor, and the hyperimmune antibodies anti-C and anti-D reappeared only in a very poor titre of 1/2 and 1/1 after one injection with R' cells. We then tried the influence of heterospecific immunization. 0.5 ml of tetravaccine was given intramuscularly. The donor reacted with a feeling of sickness and a rise of temperature (38.6° C) lasting nearly two days. In the same week he received two injections with R' cells. The anti-C agglutinins reappeared in his serum, especially the hyperimmune form anti-C, which increased rapidly. As will be seen from Table III a second injection of

TABLE III—Donor G de J (Blood Group A rr)

Date	No of Inj	Quantity of O R <sub>1</sub> Cells given I V (ml)	Rh Antibodies				Quantity of Tetra vaccine given I M (ml)	
			Early immune		Hyper immune			
			C	D	C	D		
5/6/47	13	0.25	1 2					
19/6/47	17	0.25	1 8		—	1 8		
29/8/47	28	0.25	1 4		1 16			
22/9/47	32	0.25	1 4		1 32	1 8		
30/3/48	33	0.25	—		1 2	1 1		
5/4/48	34	0.25					0.5	Temp Temp
8/4/48	35	0.25						
11/4/48	36	0.25	1 8		1 64	1 8	1.0	
15/4/48	37	0.25	1 16		1 256	1 16		
			1 32		1 512	1 32		

tetravaccine and two additional injections with R' cells increased the titre of anti-C agglutinins to 1/32, the hyperimmune anti-body anti-C to 1/512, and the hyperimmune anti-D to 1/32.

### Discussion

From these three cases we may conclude that it is possible to stimulate, even to provoke, the production of Rh antibodies by heterospecific antigens after a shorter or longer course with the specific Rh antigens. This procedure is not successful in all cases. One of our first donors produced pure anti-E agglutinins (titre 1/64) after repeated injections with R' cells. Later on the titre fell in spite of many injections with the same cells and a few short periods of rest. Neither could we observe any success after repeated injections with tetravaccine. It seems that after too many injections a certain insensibility appears. It is therefore necessary to prevent overdosage.

In Table IV the final results of immunization of the 17 donors are collected—14 received tetravaccine after a longer or shorter period of Rh immunization. We have already stated that only three of them produced Rh antibodies. They all showed clinical signs of sickness and a rise of temperature. In all the other cases the clinical manifestations were absent or very slight. In two other donors Rh

TABLE IV—Final Results of Immunization

No	Donor	Total No of Inj	Cells	Total No Triplo Inj	Total No Tetra Inj	Inj of Forc s Serum	Rh Antibodies							
							Early immune				Hyperimmune			
							C	D	E	c	C	D	E	c
1	F J A	31	R	3	3	—	—	—	—	—	—	—	—	—
2	W E	34	R	3	3	—	1 8	—	—	—	1 16	—	—	—
3	G de J	17	R	—	2	—	1 32	—	—	—	1 32	—	—	—
4	P F	36	R	3	3	1	—	—	—	—	—	—	—	—
5	B R	21	R	—	1	—	—	—	—	—	—	—	—	—
6	A V S	35	R	—	—	—	—	—	—	—	—	—	—	—
7	W W	22	R	—	3	—	—	—	—	—	—	—	—	—
8	J H W	27	R	—	3	—	—	—	—	—	—	—	—	—
9	J Th W	25	R	—	3	—	—	—	—	—	—	—	—	—
10	A P W	21	R	—	3	—	—	—	—	—	—	—	—	—
11	H B	59	R	3	3	—	—	1 2	—	—	—	1 4	—	—
12	P E	33	R*	3	3	—	—	—	—	—	—	—	—	—
13	F K	18	R*	—	—	—	—	—	1 64	—	—	—	—	—
14	P A M	34	R*	3	3	—	—	—	—	—	—	—	—	—
15	G J R	50	R*	3	3	1	—	—	—	—	—	—	—	—
16	H V	31	R*	—	3	—	—	—	—	—	—	—	—	—
17	H S	15	IT	—	—	—	—	—	—	—	—	—	—	—

The blood of all these donors was type rr except H S (No 17) which was R R<sub>1</sub>

antibodies were formed after immunization with Rh cells only, but in one of these a strong increase of titre was obtained only after administration of tetravaccine

In all, four (23%) of the 17 donors produced Rh antibodies—1 anti-E, 2 anti-C, and 1 anti-D. The sera derived from the first three persons were very useful as Rh test sera anti-C and anti-E.

As is shown by the above-mentioned findings it is especially those individuals who show clinical reactions to the application of triplovaccine and tetravaccine who are apt to form Rh antibodies. This was also confirmed by the serological results concerning the formation of agglutinins against typhoid and paratyphoid A and B antigens O and H.

As will be seen from Table V only those donors who produced antibodies against nearly all the injected typhoid antigens showed clinical symptoms of sickness and pro-

### Summary

About 23% of Rh-negative male donors produced type specific Rh agglutinins, some of them with titres high enough for useful Rh test serum after heterospecific immunization.

It is necessary to exclude the presence of weak antigens (D<sup>o</sup> and others) in order to prevent the formation of unwanted antibodies (anti-D).

It was proved in most cases that the occurrence of decrease in titre of early-immune antibodies anti C or anti-E was followed by increasing titre of the hyperimmune form. In one case an exception was found: hyperimmune antibodies were formed without preceding formation of early-immune antibodies.

The production of Rh antibodies is stimulated or even provoked by the administration of bacterial antigens.

In general only those persons who reacted clinically and serologically to the administration of triplovaccine and tetravaccine produced Rh antibodies.

We are very grateful to Professor Dr A. Charlotte Ruys, who kindly investigated the sera of the donors for typhoid agglutinins.

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TABLE V—Serological Reactions after Triplovaccine and Tetravaccine Injections

Nos referring to Table IV	Donor	Ty H	Ty O	PA H	PA O	PB H	PB O	Cholera
12	P E	1 250	—	—	—	—	—	—
7	W W	—	—	—	—	1 500	—	—
10	A P W	—	—	—	—	1 1000	—	—
4	P F	1 100	—	—	1 250	—	—	—
13	F K	—	—	—	—	1 1000	—	—
1	F J A	—	—	—	—	1 250	—	—
9	J Th W	1 50	1 100	—	—	1 500	1 100	—
16	H V	—	—	1 50	—	1 1000	—	—
11	H B	1 250	1 100	1 100	—	1 100	1 50	—
2	W E	—	1 100	—	1 250	1 250	1 100	—
3	G de J*	1 50	1 50	—	—	1 100	1 50	—

\* Before vaccination only Ty O was present 1 50

duced Rh antibodies. None of the donors reacted to the administration of cholera vaccine. This may be explained by the fact that this cholera vaccine must be a very poor antigen.

From these results it may be concluded that it is possible to change the procedure in a simple way—that is, to choose donors by injecting them with triplovaccine or tetravaccine. Only those who react clinically as well as serologically to the administration of vaccines will be selected for the immunization procedure.

Recently we started investigations with another group of volunteers (from a convent). Three nuns were injected with C<sup>w</sup> antigen, and one of them formed a pure C<sup>w</sup> antibody of the hyperimmune form after 20 injections administered over a period of three and a half months with a titre of 1 8.

Unesco has announced the formation of an international agency to aid children's villages, which are now operating in over twelve European countries for the care of war orphans. The agency has been named the International Federation of Children's Communities. This organization will co-ordinate community activities, sponsor psychological research, train personnel, raise funds, and maintain contact with Unesco, the International Children's Emergency Fund, and international voluntary agencies interested in child welfare. The federation will be served by an international co-ordinating committee and secretariat, with headquarters at Trogen. Committee members include Dr. Préaut, director of the Hameau Ecole, Ile de France; Professor Ernesto Codignola, director of the Scuola Città Pestalozzi, Florence, Italy; Mr. Arthur Bill, educational director of the Pestalozzi Village, Trogen, Switzerland; Mr. René de Cooman, president of the Marcelline Children's Village, Charleroi, Belgium; and M. Henri Julien, director of the République d'Enfants, Moulin Vieux, France. Two places have been left open for village directors from Eastern European countries. Dr. Préaut has appealed for world wide support for the villages so that the many thousands of war orphans may be restored to physical and mental health. The agency is setting up centres in Europe and America to receive funds and much needed equipment. This includes books and other school supplies, sports gear, model toys, cinema cameras and projectors, laboratory supplies, and equipment for raising food on the village farms. Information about the receiving centres may be obtained from Unesco's Reconstruction Department, 19, Avenue Kléber, Paris 16, or from the Commission for International Educational Reconstruction, 744, Jackson Place, N.W., Washington, 6.

# HOW IMPORTANT IS TRANSFUSION AS A CAUSE OF HAEMOLYTIC DISEASE OF THE NEWBORN?

BY

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AND

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When transfusion reactions caused by the Rh factor were first recognized (Wiener and Peters, 1940) it was thought that sensitization by transfusion was rare, though once it had developed following repeated pregnancy small transfusions would increase the antibody titre. Attention was therefore directed to the peculiarities of those patients who formed antibodies, and it was thought that subjects suffering from certain diseases (Drummond *et al.* 1945, Calendar and Paykoc, 1946) were especially apt to produce antibodies to antigens which they lacked. Studies on soldiers transfused during the invasion of Europe led to a change of opinion, Moloney (1945), Hattersley (1947), and Diamond (personal communication, 1947) showing that at least 55% of Rh-negative\* males were sensitized by a single transfusion of Rh-positive\* blood, while Wiener and Gordon (1947) sensitized five out of nine volunteers, obtaining high titres in two.

Since Levine and others (1941a, 1941b) had shown that haemolytic disease of the newborn is caused by a reaction between a foetal antigen and the corresponding antibody formed by the mother, and that in about nine-tenths of all cases the antigen concerned is the Rh antigen, it becomes important to decide what part transfusion plays in the pathogenesis of haemolytic disease of the newborn. Various authors have noted that transfusion occasionally preceded and apparently caused fatal cases of disease in a first-born child, but Hellmann (1947) studied 27 Rh-negative mothers who had given birth to affected infants and found that seven had been transfused with blood of unknown Rh type before the birth of the first affected infant, whereas only 2% of the generality of mothers had been transfused.

## Present Investigation

To compare with these results, the notes of Rh-negative mothers of affected infants born or treated in this hospital were reviewed. The mild cases not clinically distinguishable from "physiological jaundice" were rejected, as were those due apparently to ABO compatibility, but two cases without serological data were retained—these mothers had never received a transfusion. Mothers who had received only Rh-negative blood were classed as "not transfused." Those patients whose hospital notes were not explicit were written to, and all replied. The results are given in Table I together with the replies of 200 consecutive mothers attending the antenatal clinic, who are described as "unselected." In Table II is shown the mortality of the infants in the two groups into which the mothers of affected infants are placed.

The frequency of transfusion with blood which had not been Rh grouped is therefore 36% among the mothers of infants affected by haemolytic disease of the newborn, compared with 2% among the general population of the clinic. These results could be explained by either of two hypotheses: first, that mothers who gave birth to infants

TABLE I—Comparison of Results

	Mothers of Affected Infants	Mothers Unselected	Total
Transfused	9	4	13
Not transfused	16	196	212
Total	25	200	225

$$\chi^2 = 41.15$$

$$P = < 0.001$$

TABLE II—Mortality of Infants Affected

Mothers	Infants		
	Died	Survived	Total
Transfused	5	4	9
Not transfused	9	9	18
Total	14	13	27

affected by haemolytic disease are particularly liable to illness which requires transfusion—a hypothesis for which there is no evidence whatsoever, or secondly that transfusion sensitizes the recipient and thus prepares the way for the development of haemolytic disease—a view for which there is plenty of support.

This risk has been recognized for over a year at this hospital, and the Gunz (1946) transfusion form was modified to eliminate it (see accompanying Form). It is

## CENTRAL MIDDLESEX COUNTY HOSPITAL

### REQUEST FOR BLOOD FOR TRANSFUSION

Patient's Name	Sex	Age	Ward
Has patient had any previous transfusion?	Yes	No	
If so, was it followed by a rigor or by jaundice?	Yes	No	
Don't know			
If the patient is female			
any pregnancies?	Yes	1, 2, 3, 4, more	No
any stillbirths?	Yes	No	
any babies jaundiced at birth?	Yes	No	
If previously determined in this Hospital, Group	O	A	B
Rhesus	Positive	Negative	
Transfusion will be	Immediate	Urgent*	When convenient
No. of pint bottles required	1	2	3
	4		
Ring the correct answer			

Transfusion request form. On the reverse side are instructions for transfusion and space for the laboratory to note the ABO and Rh group and the serial number of bottles supplied.

a rule that no female below the age of 40 years may be transfused unless she has been Rh tested, and if found to be negative she must receive Rh-negative blood. In the rare extreme emergency, when there is no time to test, or in emergency transfusions in domiciliary work, Rh-negative blood is used until the recipient has been tested and shown to be positive. This procedure has been made possible only by the adoption of Chown's (1944) capillary technique, which usually gives a clear-cut result within 10 minutes of setting up or 15 minutes of seeing the patient (Discombe and Meyer, 1948), and by the co-operation of the newspapers which serve the locality in advertising our need for donors.

It is well known that sensitization can be induced by a single injection of quite small quantities of an antigen. There is no reason why the Rh antigen should behave differently, so it must be assumed that injection of any volume of blood, from 0.1 ml. to 1,000 ml., should suffice to establish sensitization. The titre of antibody produced by a single injection will be low, but will rise rapidly if the antigen is again injected after a lapse even of years.

\*Throughout this paper Rh positive refers to blood possessing the antigen D, and Rh-negative, in the case of recipients, refers to those lacking this antigen, in the case of donors, Rh-negative implies lack of the three major antigens, C, D, and E.

Since for many years the intramuscular injection of parental blood has been recommended for the treatment of haemorrhagic disease of the newborn, it appears useful to calculate the frequency with which this procedure might sensitize the infant to the Rh factor. Of the whole population, about 17% are Rh-negative (rr) and 45% heterozygous Rh-positive (Rr). Rh-negative infants can be born to Rh-positive parents in the matings  $Rr \times rr$ , constituting 15.2%, and  $Rr \times Rr$ , forming 19.8% of all matings. Therefore, in the first group three out of four and in the second group one out of four of all children will be Rh-negative, so that one or both parents are Rh-positive when the infant is Rh-negative in about 12.5% of all births. It seems that over 6% of all infants could be sensitized by the injection of parental blood.

If all infants were treated thus, about one in three of all Rh-negative females would be sensitized. Fortunately, haemorrhagic disease of the newborn is not common, but, even if it is rare, treatment by injection of parental blood will sometimes result in the appearance of haemolytic disease in the first-born of an Rh-negative mother. Such possible tragedies can be avoided by the use of a vitamin-K analogue, and the use of parental blood in its place will no doubt in future be regarded as a barbarous and unethical procedure.

### Conclusion

A history of having received a blood transfusion without special precautions for Rh matching is 18 times more common among mothers of infants suffering from haemolytic disease of the newborn than among unselected patients at the antenatal clinic.

Such transfusion probably causes the disease.

Injection of paternal or maternal blood into an infant without Rh matching would sensitize about one in three of the Rh-negative females at risk.

It is wrong to inject any female with blood from another individual unless either the recipient is known to be Rh-positive, both recipient and donor to be Rh-negative, or the recipient to be too old to bear children.

This rule must be broken only if the patient is expected to die before Rh-compatible blood can be obtained.

We wish to acknowledge our debt to the staff of the department of obstetrics for much valuable help and advice, and for permission to review large numbers of their case records.

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As the result of negotiations between the Northern Ireland Ministry of Health and the Northern Ireland Pharmaceutical Negotiating Committee, the Committee has decided to recommend all chemists in Northern Ireland to enter the Health Service provisionally, pending the outcome of further negotiations. The Minister of Health (said an agreed joint statement) "undertook to appoint a practising accountant to carry out an investigation into dispensing costs in Northern Ireland and, after receiving the Accountant's report, to enter into further negotiations on the basis of this report and that made by the accountants appointed by the chemists, full account to be taken of pharmaceutical practice in Northern Ireland."

## THE EVOLUTION OF GASTRIC AND DUODENAL ULCERATION

BY

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Medical School

Acquired disease being the product of disharmony between constitutional and environmental factors, it is inevitable that alterations in mode of life should be accompanied by change in the pattern and distribution of certain diseases. As a preliminary to the present investigation the early literature dealing with peptic ulcer was reviewed and the observations thereon summarized in a previous communication (Craig, 1947). Space will not permit of further detailed discussion of the nature and incidence of peptic ulceration before the present century, but certain broad conclusions may be outlined.

Although gastric ulcer was mentioned by Celsus and was well recognized in the eighteenth century, the disease does not appear to have been at all common until the middle of the nineteenth century, when William Brinton (1857) concluded that about 5% of the population were subject to gastric ulcer at some time or other in their lives. At that time gastric ulcer was predominantly a disease of young women, many of whom suffered from perforation. Haematemesis occurred more commonly in men, generally in the fifth decade, but by the end of the century this complication, too, was one more often affecting young women (Hale White, 1901). Thus, although the overall incidence of gastric ulcer has remained fairly uniform during the past century, the age and sex distribution and its clinical pattern have changed very considerably in that time.

George Hamberger (1746) first described a case of duodenal ulcer, and Abercrombie (1828) gave the first account of the clinical features of the disease, but until the end of the century the amount of interest taken in the condition was out of all proportion to the number of cases encountered. The Fenwicks (1900), for example, were able to quote over 200 references, yet for all their extensive experience and keen interest they could gather together only 68 cases, 25 of them acute ulcers. It is generally believed that the apparent rarity of duodenal ulcer until the present century was the consequence of failure to recognize the condition. Undoubtedly many cases were missed, but when the situation is viewed against the broader background of earlier writings it is difficult to escape the conclusion that improvement in diagnosis was concomitant with an increase in the frequency of the disease. Review of more recent years provides strong evidence of further increase, and this suspicion becomes stronger. Although there is every reason to believe that duodenal ulcer has become very much more common there is no evidence that its clinical features have altered in any way.

Pringle (1753) and MacGregor (1804) in their treatises on military medicine made no mention of dyspepsia in the Army. In the war of 1914-18, digestive diseases of all types were no great problem, but in the recent war, by the end of 1941 no fewer than 23,754 serving personnel had to be invalided from the Army alone on account of peptic ulcer, duodenal ulcer preponderating over gastric ulcer in the ratio of approximately 7:2.

The changing nature and frequency of gastric and duodenal ulceration thus becomes apparent. The evolution of acute gastric ulcer, of chronic gastric ulcer, and duodenal ulcer has been so different as to raise the strong suspicion that they may be distinct diseases, albeit, to one another. In an attempt to evaluate causal factors

it should not therefore be too readily assumed that gastric ulcer differs from duodenal ulcer only in its situation

### Statistics of the Registrar-General

Tidy, by analysis of the statistics of the Registrar-General for the years 1911-37, has shown that the increase in the crude death rate from peptic ulcer during this period is accounted for largely by the increase in deaths from gastric ulcer in men over 40. He has also pointed out the rapid diminution in the number of deaths from gastric ulcer in women under the age of 40. Jennings (1940), in a comprehensive historical survey of perforated peptic ulceration, has stressed the changing age and sex distribution of this condition, with particular reference to the period 1901-35.

In this present review death rates in the civil population have been analysed in selected years, up to and including 1945. The difficulties inherent in the interpretation of these figures are manifold, and in the past have perhaps been insufficiently stressed. Acceptance of these statistics as accurate implies an assumption that the great majority of death certificates correctly assign the cause of death, and this is a bold surmise when dealing with two diseases—gastric and duodenal ulceration—which are so readily confused with one another and the latter of which was widely recognized only recently. Secondly, such statistics refer to only a small proportion of ulcer sufferers—some 5% or so—who die from the direct effects of their ulcers. Finally, in trying to assess disease trends, it is almost impossible to evaluate the effect of therapeutic changes.

From the year 1940 a change was made in the manner of selecting the assigned cause of death where more than one cause was mentioned in the death certificate, the choice then being "that in the main inferred from the statement of the certifier instead of being determined by arbitrary rules of precedence." This change had the effect of producing an apparent increase of about 4% in the mortality rate of peptic ulcer. If the crude death rate for all forms of peptic ulcer be plotted graphically for the years 1910-45 it will be noted that no very significant fluctuation occurred between the years 1911 and 1921, after which there was a very sharp and uninterrupted rise till 1927. From then

until 1939 this rise was less marked and was interrupted by minor falls, but the year 1940 saw the sharpest rise hitherto recorded, the rate remaining at the same high level in 1941, falling back to its original level in 1942, and then rising steadily and fairly steeply till the year 1945. Only about one-fifth of the increase in 1940 could be accounted for by the new method of selecting the cause of death.

In Fig 1 the death rates from gastric ulcer and duodenal ulcer are plotted separately for the two sexes. From 1940 onwards the figures are based on the new method of assessment; before 1935 they are based on the old method. For the years 1935-9 inclusive two sets of figures are plotted—those based on the old method and those based on the new method. It will be seen that the change in the method of assigning the cause of death

makes no significant alteration to the general trend. The increased mortality rate is accounted for largely by the increased death rate from gastric ulcer in males and to a smaller extent from duodenal ulcer in males. Although duodenal ulcer in females has been a steadily increasing cause of death the mortality rate from gastric ulcer in women has fallen fairly steadily and uninterruptedly, with the exception of the year 1940, when there was a significant rise in the death rate from both forms of ulcer in both sexes. At all times, in both sexes, gastric ulcer has been a commoner assigned cause of death than has duodenal ulcer.

### Population Trends

It is pertinent to determine how far these fluctuations in crude mortality rates represent a response to alterations in the age distribution of the population. It is common experience that the mortality from perforation, haemorrhage, and operation increases with age. Analysis of the figures for the year 1945 shows that the death rate from all forms of ulcer increased steadily with age (Fig 2). By plotting graphically the proportion of the population (a) over the age of 45, and (b) over 65, one can demonstrate that these older sections of the community are increasing steadily. Similarly, it may be shown that an increasing proportion of ulcer deaths occur in these two older groups, and in the following table the population distribution during the years 1911 and 1942 is compared.

	1911	1942
Proportion of population over 45 all peptic ulcer deaths over 45	21% 37%	35% 90%
Proportion of population over 65 all peptic ulcer deaths over 65	5% 10%	10% 31%

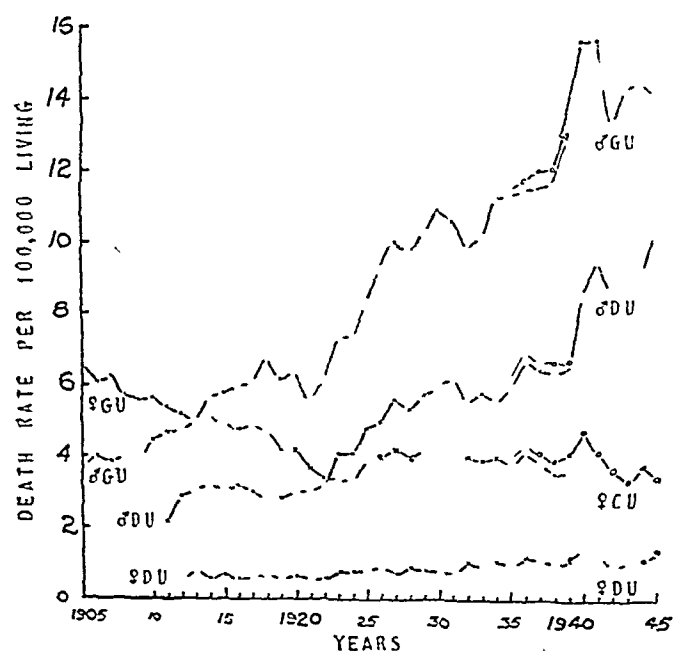


FIG 1—Crude death rates per 100,000 living for gastric ulcer and duodenal ulcer from 1905 to 1945. During the periods of the two world wars non-civilian figures are excluded. For the years 1935-9 inclusive the graphs show rates (a) based on the revised method of assignment (o-o-o) and (b) based on the old method of assignment (x-x-x).

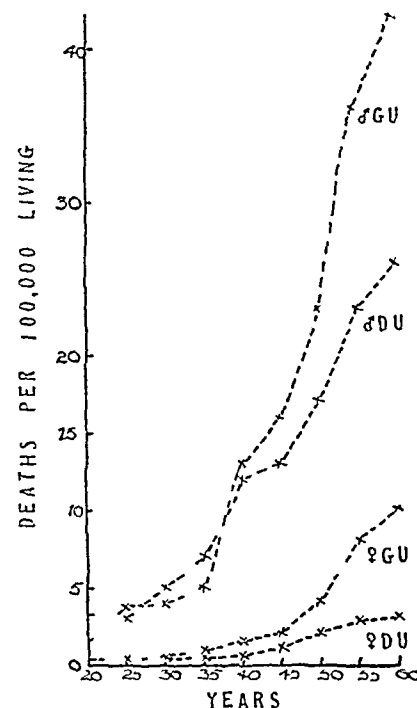


FIG 2—Civilian death rates per 100,000 living from gastric and duodenal ulcers in both sexes at various ages, for the year 1945. In male Service personnel at all ages in this year the corresponding rates were DU 12, GU 15, per 100,000 living.



It is therefore apparent that the increase in the death rate in the older groups is out of proportion to their greater numbers and that the brunt of the overall increased death rate is being borne by these older people, but these figures alone give no indication of changing death rates in the other sections of the community

Accordingly, death rates for gastric ulcer and for duodenal ulcer per 100,000 living were plotted in various age and sex groups for selected years from 1911 to 1945, inclusive. Limitations of space will not permit publication of all these graphs, but their trends will be briefly summarized

**General**—In both sexes and all age groups gastric ulcer has proved a more common assigned cause of death than has duodenal ulcer, despite the fact that in all carefully investigated modern series duodenal ulcer is much commoner than ulcer in the stomach. This may argue a higher mortality rate from gastric than from duodenal ulcer, but it may be only a reflection of the tendency of many practitioners to refer generically to a 'gastric ulcer' whether the lesion be in the stomach or the duodenum. None the less, the view that gastric ulcer is more commonly fatal than duodenal ulcer is in accord with the military figures for 1940-2 and gastric ulcer deaths in the Services during the year 1945 again preponderated over duodenal ulcer deaths in the proportion of 5 to 4. These rates are lower than those in the corresponding civilian group owing to the medical selection before enlistment and the early invaliding of sufferers

**Death Rates in Males Under 45**—These curves show the fluctuations which inevitably occur when fairly small numbers are being considered. Although the death rate from both gastric and duodenal ulcer did not vary greatly between the years 1915 and 1939, it is perhaps significant that the therapeutic advances made during this period did not result in any appreciable lowering in mortality in this group. No weight can be attached to the rise during the war years, for these figures refer only to the civilian population, which then contained an abnormally high proportion of unfit men rejected for military service

**Death Rates in Older Men**—Some of these are charted in Fig 3, which demonstrates the increasing incidence over the period reviewed, the increasing mortality with age, and the greater mortality from gastric ulcer than from duodenal ulcer

**Death Rates in Women**—The outstanding feature of these curves is the remarkable fall in gastric ulcer mortality in all except the very oldest (Fig 4). The death rate from duodenal ulcer has always been small, and it has remained fairly constant in particular age groups, the overall increase in such mortality (Fig 1) resulting very largely from the ageing nature of the population

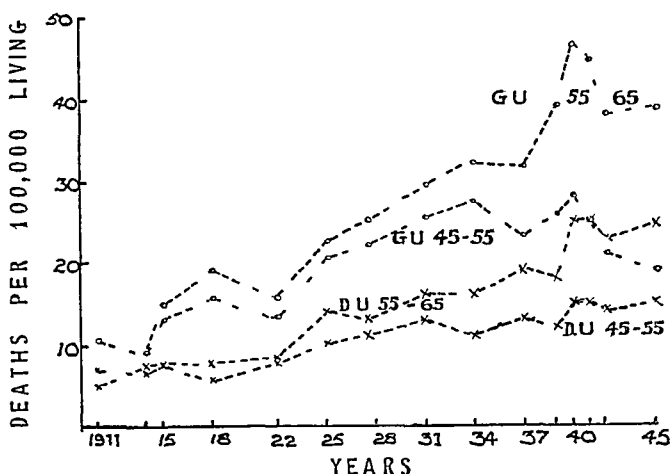


Fig 3—Male death rates per 100,000 living from gastric and duodenal ulcer in selected years from 1911 to 1945, in the age groups 45-55 and 55-65, non-civilian males are excluded in the years of the two World Wars

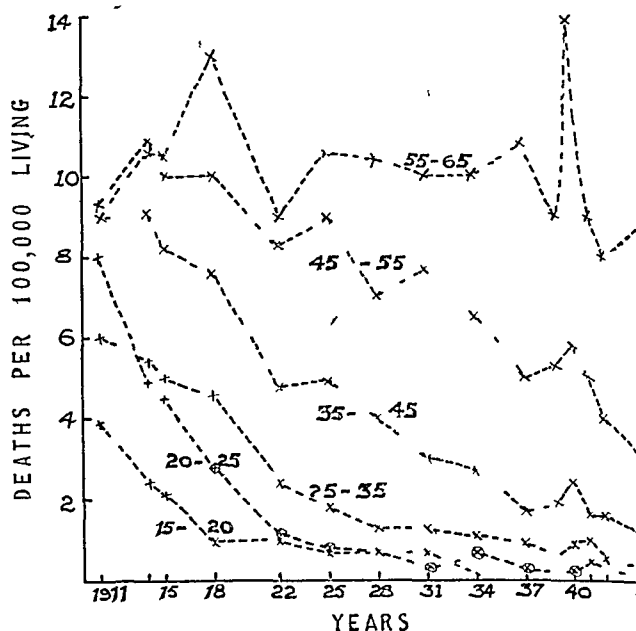


Fig 4—Female death rates per 100,000 living from gastric ulcer in various age groups for selected years from 1911 to 1945, non-civilian females being excluded in 1942 and 1945

### The Changing Incidence of Perforation

Although in the year 1945 the mortality from both duodenal and gastric ulceration in both sexes increased with age, corresponding analysis of deaths for the year 1919 (Fig 5) showed a high peak of mortality from gastric ulcer in young women. The lowering of the death rate in the young women is the result of the virtual disappearance of gastric perforation in this group. In 1907 Hawkins and Nitch, reviewing 556 cases of gastric ulcer treated at Thomas's Hospital, gave details of 92 cases of perforation, only 30 of which occurred in men. In this series perforation in men occurred most often over the age of 40, in women the great majority of cases occurred between the ages of 15 and 25. The curve obtained by plotting these cases in age groups is substantially the same as that derived from charting the details of Brinton's (18 cases of 199 perforations, only 60 of which occurred in men). From the details accompanying this communication of Hawkins and Nitch it appears that at least half the ulcers which perforated in young women were chronic in character, the perforations being preceded by a long history of dyspepsia and the ulcer bed being scarred. The age-and-sex incidence of peptic perforation is in striking contrast to the experience of Illingworth, Scott, and Jamieson (1946), who reviewed 880 cases of perforation occurring between 1938 and 1943, 95% of them in men, the perforation being in the duodenum in 87% of cases. In their series the commonest age at perforation was between 35 and 50

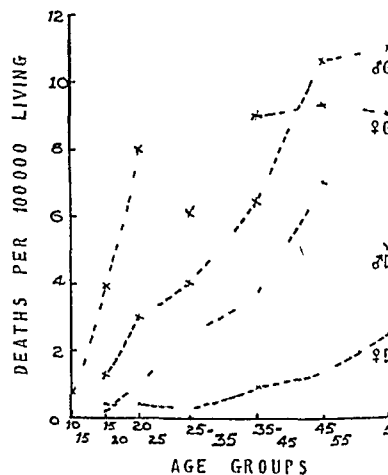


Fig 5—Death rates per 100,000 living from gastric ulcer and duodenal ulcer in various age groups for the year 1911

These findings tally closely with figures collected by Boggon, by Forty (1946), and in a series at St Mary's Hospital over the past ten years. That Illingworth's series consisted almost entirely of chronic ulcers is indicated by the fact that in the absence of medical treatment a great majority of cases relapsed within five years, some 20% of them suffering further major complications.

All earlier works consulted agree on the age-and-sex incidence of gastric perforation, but the only series of perforated duodenal ulcer found after prolonged search is the small one collected from the literature by Moynihan and published by him in 1905. The relative rarity in females is apparent, and it seems that on the whole these perforations occurred at an earlier age than those in the series of Illingworth *et al*. The difference, however, is not sufficient to be significant.

Apart from the evidences of the changing nature of gastric ulcer in women, the most striking features of these analyses are

- 1 The striking proof of the ageing nature of our population
- 2 The evidence of increased mortality in the older age groups
- 3 The steady rise in total peptic ulcer deaths between the years 1921 and 1939, with a well-marked sudden increase in 1940 and 1941, this increase affecting the mortality from both gastric and duodenal ulcer in both sexes and all age groups. It has been pointed out by Illingworth that there was a marked increase in the incidence of perforation in the autumn of 1940 and the spring of 1941—that is, at the time when the real seriousness of the late war was first brought home by the defeat of the French armies and the bombing of this country. As Illingworth has further pointed out, this prevalence of perforation was not confined to areas subject to aerial bombardment. It is, however, legitimate to infer that the nervous strain and anxiety engendered by circumstances was nation-wide. The 1942 fall in death rate is the most pronounced during the period of observation. The explanation is perhaps that the circumstances which produced the rise in 1940 and 1941 advanced the death of some who might otherwise have survived till 1942 or 1943, and the population during these latter years therefore contained relatively fewer of the less hardy elements.
- 4 The maintenance or actual increase in death rate from duodenal ulceration in all age groups despite therapeutic advances, particularly in the treatment of perforation and haemorrhage—a circumstance which suggests that the actual incidence of the disease in the population at large has undergone a considerable increase.
- 5 Only in gastric ulceration in young women has there been any striking decrease in mortality. This has been the result not of corresponding increase in medical knowledge but of some unknown evolutionary process. It is perhaps significant that chlorosis, once a frequently associated disease, has now virtually disappeared.

### Conclusions

Certain difficulties inevitably arise in the course of any attempt to trace the history of a disease. Earlier accounts are based on very imperfect knowledge, the growth of understanding having paralleled the evolution of the disease. Yet certain writings stand out, and one feels that the observations contained therein are reliable even though it may be difficult to communicate this confidence to others. The inadequacies of death-rate statistics has already been stressed, but a review of these figures affords an idea of the trend which a disease is taking. Military surveys and series of cases of perforation published at different periods strongly suggest that the pattern and distribution of gastro-duodenal ulceration have materially changed. When all the evidence from these independent sources is entirely consistent certain conclusions may be drawn.

It would appear that gastric ulceration, at least in its present form and prevalence, is a disease of comparatively recent evolution, and there is good reason to believe that

ulceration of the duodenum is a disease of even later development.

While, so far as can be ascertained, duodenal ulceration has simply increased in frequency during the period under survey, it is clear that in the case of gastric ulcer not only the age and sex distribution but even the actual nature and clinical pattern have altered considerably during the last hundred years or so, although it is probable that the total incidence has not undergone any very striking increase. In the time of William Brinton gastric ulcer principally affected women, and the ulcer seems to have been very similar to that which we encounter to-day, although a small proportion of chlorotic young women developed perforation of an acute ulcer. Haematemesis in young women was relatively uncommon, most women so affected being in their fifth decade. At the beginning of the present century chronic gastric ulcer was becoming relatively more frequent in males, but a larger number of women of child-bearing age suffered from haematemesis due to acute superficial ulceration. Gastric perforation was predominantly a disease of young women. It is difficult to determine exactly when this state of affairs altered, but it is probable that the change occurred during the period of the first world war.

In the course of the preceding investigation the changes in the incidence, distribution, and pattern of the various forms of peptic ulceration have been traced in some detail. It will be seen that these changes are complex, and that if we are to accept the proposition that peptic ulcer is one single clinical entity, the result of the operation of one set of aetiological factors, then it is difficult if not impossible to see how these changes could have taken place. On this historical evidence alone, even if on no other, a clear-cut distinction may be made between gastric ulcer and duodenal ulcer as separate diseases with different mortality trends. A similar distinction must be made between the chronic type of ulcer, whether sited in the stomach or the duodenum, and the acute variety. In the past the many features which these conditions possess in common have tended to obscure their essential differences and therefore led to some confusion of thought in the study of their causation. It cannot be gainsaid that all these diseases are probably related to one another, but that is not to say that they are different manifestations of the same disease process. It is suggested that such confusion and difficulty will inevitably arise in the study of these diseases unless they be considered individually until further knowledge permits of evaluation of the features they have in common. For the present it must be stressed that the history and evolution of gastric ulceration in its various forms are so very different from those of duodenal ulceration as to stamp the two conditions as separate entities.

While it cannot be denied that constitutional factors may play an important part in the pathogenesis of peptic ulceration in its various forms it is difficult to believe that fluctuations in such factors alone could be responsible for the many changes which have occurred, and these must therefore be attributed to changing environmental influences. In view of the convincing evidence of gross increase in the prevalence of gastric and duodenal ulceration the view that they are concomitants of life under modern conditions is to a large extent substantiated.

### Summary

Alterations in the incidence, age-and-sex distribution, and clinical features of gastric and duodenal ulcer are surveyed over a period of years.

In particular the changes which have occurred during the present century are examined on the basis of clinical surveys, the Registrar-General's returns, and post-mortem statistics.

It seems probable that gastric ulceration was uncommon until the beginning of the nineteenth century, and there is little evidence to suggest that duodenal ulceration was other than a rare disease until about the beginning of the present century.

Since that time there is evidence of a considerable increase in the incidence of duodenal and gastric ulcer in males. Although gastric ulcer in females has become very much rarer, investigations point to an increase in the frequency of duodenal ulcer.

The increased mortality from gastric and duodenal ulcer in males and from duodenal ulcer in females affects principally those in the later age groups, and the ageing nature of the population therefore results in an increase in total mortality which is thus more apparent than real. But even in the younger age groups mortality has either risen or remained steady, except that the mortality from gastric ulcer in young females has shrunk to negligible proportions.

Peptic ulceration is a disease which causes considerable morbidity in relation to its mortality rate. The mortality from gastric ulcer apparently exceeds that from duodenal ulcer quite apart from any deaths which may result from neoplastic change in a gastric ulcer.

Although little change can be detected in the nature of duodenal ulceration it is clear that the pattern of gastric ulceration has altered profoundly during the last 100 years.

The various forms of peptic ulceration, gastric and duodenal, acute and chronic, can from the aetiological point of view be regarded as quite separate, although they are almost certainly related conditions.

The cause of these changes, and accordingly the causation of the diseases themselves, are to be sought in environmental circumstances rather than in constitutional factors.

There is considerable support for the view that the evolution of gastric and more particularly, duodenal ulceration has paralleled the development of the highly developed civilized state of to-day.

I am indebted to Dr J F Ackroyd, Dr T C Hunt, and Professor G W Pickering for invaluable criticism and advice in the preparation of this paper.

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## SOME PROBLEMS OF CAUSALGIC PAIN A CLINICAL AND EXPERIMENTAL STUDY\*

BY

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Ever since Weir Mitchell and his colleagues at the time of the American Civil War drew attention to the occasional occurrence of persistent pain and tenderness following nerve injuries and amputations (Mitchell, Morehouse, and Keen, 1864, Mitchell, 1872) these conditions have presented many intriguing problems. There have, however, during recent years been some advances in our knowledge of these distressing cases.

Lewis (1937) found that in some subjects cutaneous tenderness could be produced through nervous channels—for example, by stimulating a cutaneous nerve with a weak faradic current. As a result of his investigations he concluded that such hyperalgesia was due to nerve impulse leading to the liberation of a pain-producing chemical substance from cellular elements in the skin, and that the nerves concerned were not sympathetic nerves or ordinary sensory nerves, but special nerves belonging to the posterior root system. These nerves he named nocifensor nerves and the hyperalgesia they produced nocifensor hyperalgesia. It seemed to Lewis, and has seemed to many others since that this experimental hyperalgesia must in some way be related to hyperalgesia following nerve injuries, though apparently at variance were Lewis's finding that experimental nocifensor hyperalgesia could be produced after the degeneration of sympathetic nerves to the skin following sympathetic ganglionectomy and the relief of causalgic pain and hyperalgesia that is often achieved by sympathectomy.

Homans (1940), among others, has drawn attention to cases of nerve injuries in which hyperalgesia develops without spontaneous pain or at least without burning pain. He suggested that the difference between these cases and case of classical causalgia with burning pain was only one of degree, and to describe them he used the term "minor

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causalgia." It might, however, be preferable for some such term as "traumatic neuralgia" to be used to describe the whole group of cases, whatever the degree of severity, and for the term "causalgia" to be confined to those severe cases of which burning pain is a feature, or to be used, as it was originally by Weir Mitchell (1872), to describe only the symptom of burning pain.

Riddoch (1941) remarked on the similarity between phantom pain following amputation and causalgic pain following peripheral nerve injuries. As after peripheral nerve injuries, so after amputations all gradations of pain occur. The hyperalgesia that develops in the stumps of many patients with post-amputation pain is, moreover, similar in character to hyperalgesia in cases of causalgia. And further, as pointed out by Leriche (1939), Livingston (1943), and White (1944), some cases of post-amputation pain may, like some cases of causalgic pain after nerve injuries, be relieved by sympathectomy. My personal experience has been that sympathectomy produces satisfactory relief of pain in both conditions in about 60% of cases. Pain after amputation therefore might well be called amputation causalgia.

Between October, 1944, and April, 1946, there came under my care at No. 7 Indian Base General Hospital 25 patients with amputations who had persistent pain and tenderness of some severity—in 18 of these phantom pain was the chief complaint—and 14 patients with causalgic pain following peripheral nerve injuries. A number of clinical experiments were carried out with the object of throwing further light on some of the problems connected with these cases.

### 1 Mechanism of Production of Cutaneous Hyperalgesia

In order to determine whether there was any relation between the experimental hyperalgesia described by Lewis and the hyperalgesia that develops in some cases of amputation and peripheral nerve injury, attempts were made in a number of patients to produce experimental hyperalgesia by stimulating a cutaneous nerve, most often the lateral cutaneous nerve of the forearm or the internal saphenous nerve below the knee. In 11 patients with moderate or severe pain following amputation or peripheral nerve injury hyperalgesia was readily produced in this way, whereas in eight patients with amputations or nerve injuries who did not have pain or tenderness and in four who had mild causalgic states with only slight pain or tenderness similar attempts to produce hyperalgesia failed. This finding strongly supports the view that hyperalgesia in these conditions is produced through the same nervous channels as hyperalgesia obtained by faradic stimulation.

### 2 Reasons for the Relief of Pain and Tenderness by Sympathectomy

Among the many views that have been advanced in an effort to explain how sympathectomy relieves causalgic pain and tenderness one which has occasionally been put forward, but which has usually been dismissed immediately by those who have considered it, is that sympathectomy relieves pain in some of these cases by interrupting a pain pathway from the site of nerve injury and from hyperalgesic skin.

The possibility that this view was correct first occurred to me on observing the rapidity of the relief obtained by blocking the sympathetic chain with procaine in many of these cases. I noticed that when a sympathetic procaine block relieved pain and tenderness it almost invariably did so immediately, taking no longer than the few seconds required for the procaine to produce a nerve block, and often occurring before there was any noticeable vascular

change in the limb. Lewis (1937) found that hyperalgesia produced by faradic stimulation of a cutaneous nerve persisted for many hours after nerve stimulation had ceased, but that if the nerve was first blocked with procaine and then stimulated proximal to the block hyperalgesia did not develop later when the effect of the procaine had worn off. He thus demonstrated that the nerve impulses producing hyperalgesia were transmitted only during the period of nerve stimulation and not subsequently, and that the persistence of hyperalgesia for many hours was due to the persistence of a relatively stable state in the skin, which for its maintenance "does not require a continuous flow of nerve impulses from the original source of disturbance" (Lewis, 1942). Therefore, if the effect of sympathetic denervation was merely to cause a cessation of nerve impulses to the skin, hyperalgesia would be expected to persist for several hours. The most likely explanation for the extremely rapid relief of tenderness would seem to be that when interruption of the sympathetic chain relieves pain and tenderness it does so by interrupting the sensory pathway.

In support of this view, I have elsewhere (Bingham, 1947) recorded an observation I made when excising the superior cervical sympathetic ganglion under local analgesia in a case of causalgia involving the trigeminal nerve. A number of experimental observations have been made which provide further evidence in its support.

In nine patients with causalgic pain and tenderness following peripheral nerve injury or amputation an area of experimental hyperalgesia was produced in a part of the affected limb not previously tender and a sympathetic procaine block was then carried out. For the upper limb the procaine injection was most often made beneath the second rib, and for the lower limb at the level of the second lumbar vertebra. At these levels it is unlikely that the procaine could affect the roots of the brachial plexus or of the sciatic nerve. Certainly in no case was there any evidence that these nerve roots had been affected, and in cases in which an operative sympathectomy was subsequently performed the effect of the operation on the patients' pain and tenderness was similar to that achieved by the procaine injection. In three of these nine patients sympathetic block—seen to be effective by the development of hyperaemia and increased warmth in the limb and by the cessation of sweating—did not relieve the pain and tenderness from which they had been suffering, and in these patients the experimental hyperalgesia was also not relieved. In the remaining six patients sympathetic block relieved the pain and tenderness from which they had been suffering, and also relieved simultaneously, usually within a minute of the injection, the cutaneous hyperalgesia produced experimentally. For the reason given above this rapid relief suggests that the sensory pathway had been interrupted.

A much more conclusive observation, however, was made in these six cases. After a few hours, when the effect of the procaine had worn off and the patients' original pain and tenderness had returned, the experimentally produced hyperalgesia was also found to have returned. The return of the original pain and tenderness is of no particular significance, for the conditions responsible for the original nerve irritation and therefore for the transmission to skin of the nerve impulses producing the original hyperalgesia were still present. But the return of the hyperalgesia produced by faradic stimulation cannot be explained in this way. From Lewis's demonstration that such hyperalgesia is brought about by nerve impulses transmitted to skin only during the period of nerve stimulation it follows that its return after the effect of the sympathetic block had worn off cannot have been due to further impulses then reaching the skin. The hyperalgesic state produced at the time

the nerve was stimulated must have remained unchanged, and the temporary relief of tenderness can have been due only to temporary interruption of the sensory pathway. Thus the view that in some cases, but not in all, sympathetic block or sympathetic ganglionectomy interrupts the sensory pathway from hyperalgesic skin is seen to receive definite experimental confirmation.

As already noted, Lewis found that hyperalgesia could be produced in some subjects after sympathectomy, and he naturally concluded that neither the efferent nor the afferent pathway was by way of the sympathetic chain. This finding of Lewis's has, however, been brought into accord with those described above by demonstrating that while hyperalgesia may be produced after sympathectomy in some individuals, as was found by Lewis, this cannot be done in all those individuals in whom experimental hyperalgesia may be produced before sympathectomy. I have found in two patients whose causalgic pain and tenderness had been relieved by sympathectomy that it was no longer possible, as it had been before operation, to produce an area of hyperalgesia on the affected limb.\* On the other hand, in one case of post-amputation pain and tenderness in which sympathectomy had been performed without relieving the condition it was still possible after operation to produce readily an area of hyperalgesia on the stump.

Whilst these experiments indicate that sympathectomy in some cases interrupts the pathway for causalgic pain it does not necessarily follow that there are not occasional cases in which sympathectomy is of benefit for other reasons. I have had one case of causalgia—a case following a vascular injury—in which sympathetic block relieved pain and tenderness, not immediately, but after several hours. In this particular case sympathetic block clearly did not interrupt the pain pathway, and benefit was probably due to relief of vasospasm and improvement in blood supply to ischaemic nerves.

### 3 Reason for Failure of Sympathectomy in some Cases

The experience of most observers has been that in some cases of undoubted causalgia sympathectomy fails. My personal experience has been that in about 40% of cases interrupting the sympathetic chain, though it causes such associated symptoms as cyanosis and increased sweating to clear up, produces little or no relief of pain or tenderness. There would appear to be two possible reasons for the failure of sympathectomy in these cases.

1 Pain may arise centrally, in the spinal cord or in higher centres. But this would fail to explain the persistence of skin tenderness, and it is almost always found that when sympathectomy or sympathetic block fails to relieve spontaneous pain it fails also to relieve cutaneous tenderness.

2 Pain may still arise in the periphery but may follow some other pathway. To investigate this possibility attempts were made in 10 patients with causalgic pain and tenderness, on whom sympathectomy or sympathetic blocks had proved ineffective and on whom no operations, except in some cases operations on peripheral nerves or amputation stumps, had been performed, to relieve their pain and tenderness by procaine block of individual peripheral nerve trunks, by brachial plexus block, or by low spinal analgesia. In all cases pain was relieved, and therefore, as suggested, in these cases pain must have arisen in the periphery, but must have followed some pathway other than the sympathetic chain. The only alternative pathway that seems at all likely is by the posterior roots of the nerves that had been injured.

\*At the time these patients were tested after operation an area of hyperalgesia was easily produced at a corresponding point on the opposite limb, thus showing that, except for the part affected by the sympathectomy, the proneness of the patients to develop hyperalgesia had remained unaltered.

### 4 Reason for the Frequent Failure of Posterior Root Section and Chordotomy

There is no difficulty in explaining why posterior root section should fail to relieve pain and tenderness when the pain pathway is by the sympathetic chain. But apparently, even in those cases in which interruption of the sympathetic chain is without effect, posterior root section, though it may relieve tenderness, does not often succeed in relieving pain. And while section of the contralateral spino-thalamic tract is sometimes successful (Taylor, 1938, White, 1944), this operation also may fail (Ministry of Pensions, 1939, Bailey and Moersch, 1941). The difficulty of reconciling the failure of these operations with the view that in these cases pain from the periphery was reaching the cord by way of the posterior roots of the injured nerve would, however, seem to be overcome by observations I made on two cases.

The first of these cases was that of a patient with phantom pain and tenderness following an upper-limb amputation who was treated by contralateral-tract section at the level of the second cervical segment after an operation on the stump and sympathectomy had proved unsuccessful. There was complete freedom from pain and tenderness for several days. Pain then gradually returned, and in a few weeks was very much as it had been before the operation. Tenderness, however, remained very considerably relieved.

In the other case that of a patient with severe phantom pain and tenderness following a lower-limb amputation, chordotomy at the level of the sixth thoracic segment was performed after lumbar sympathetic blocks had been found to give no relief. Pain and tenderness were completely relieved for a day or two. Some pain then returned, though this remained less severe than before. Tenderness was completely relieved.

The satisfactory relief of stump tenderness by chordotomy in both these cases would seem to indicate that the failure to relieve pain was not the result of failure to interrupt the sensory pathway from the periphery. Moreover, careful examination of sensation in both cases some time after operation showed that the return of pain could scarcely have been due to the levels of cord section not being high enough, for it was found in both that pain sense began to diminish one dermatome below the level of section and appeared to be completely absent a few dermatomes below that level. Therefore tract section at C2 level in the first case should have been at a level high enough to produce marked relief of pain in the phantom hand, and certainly in the second case section at T6 level should have been sufficiently high.

It is necessary, therefore, to look for some other explanation. Some months after operation attempts were made to relieve pain in the first case by means of brachial plexus blocks on three occasions and in the second case by means of spinal analgesia to T11 segment. In neither case was any relief of pain produced.

Two possible reasons for these findings require to be considered. (1) In these two cases spontaneous pain might have arisen centrally before the performance of any operations. This must be regarded as extremely unlikely, for it would have been an extraordinary coincidence for chordotomy to have been carried out on the only two such patients I encountered. (2) Following these operations a new focus of pain production might have developed in the cord or in higher centres. The relief of pain that occurred in these cases for a few days after chordotomy lends support to this view, for it seems likely that this temporary relief was due to interruption of the pain pathway from the periphery and the return of pain to the development of a new central focus. If the effect of spinal analgesia or brachial plexus block had been observed in these cases before the perform-

ance of chordotomy more conclusive evidence might have been obtained, but this unfortunately had not been done

However, in the case of the patient with the upper-limb amputation who was treated by chordotomy in the upper cervical region the possibility that the cord section had given rise to a new focus of pain production receives support from a further observation. From a few weeks after the operation this patient complained of painful sensations in the leg on the side of the amputation as well as in the phantom arm, even though the leg was completely analgesic. Sometimes there was only an itching or pricking sensation in the leg, but at other times there was burning pain and a pulling pain deep in the foot. The patient mentioned these pains without being questioned, and there would seem to be no doubt about their having been genuine. Pain in both the arm and the leg is what would be expected if pain resulted from section of the spino-thalamic tract in the upper cervical region, and no reason can be thought of for pain in the leg to have arisen as a functional condition. Riddoch (1941), moreover, has drawn attention to the painful phantom-limb sensations that occasionally develop in paraplegic patients who have suffered complete division of the spinal cord. These painful sensations would appear to be exactly similar in origin to the pain experienced by this patient after chordotomy.

It is possible to see how posterior root section also might lead to a central focus of pain production, for pain fibres in posterior roots, cut off by the root section from their cells of origin in posterior root ganglia, would undergo degeneration, and this might well cause changes around posterior horn cells that would in some individuals give rise to pain.

Thus when either chordotomy or posterior root section fails to relieve causalgic pain it is not necessary to conclude that pain was functional or that it had, before the performance of these operations, arisen centrally.

### 5 Conclusions concerning the Pain Pathway and the Nature of the Nerve Fibres

It is unlikely that the nerve fibres that convey pain from the site of nerve injury and from hyperalgesic skin sometimes reach the cord entirely by way of the posterior roots of the affected peripheral nerve and in other cases entirely by way of the sympathetic chain, thus passing to cord segments in the thoracic region. The most acceptable explanation of the findings that have been described is probably that in all cases these nerve fibres follow to some extent both pathways, the actual proportion following each pathway varying in different individuals. This double pathway (shown diagrammatically in the accompanying illustration) may exist even when complete relief follows blocking of one pathway alone, for any considerable reduction in the

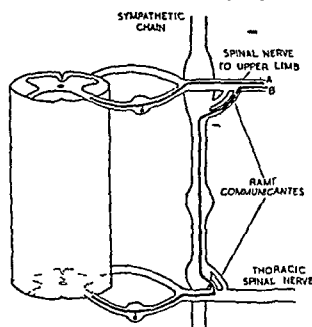


Diagram illustrating the double pathway followed by the nerve fibres that convey causalgic pain between an injured peripheral nerve and the spinal cord. A = Nerve fibre that conveys causalgic pain by way of the posterior root of the injured nerve. B = Nerve fibre that conveys causalgic pain by way of the sympathetic chain and by the posterior root of a thoracic spinal nerve.

number of pain impulses may reduce the number reaching consciousness below that necessary to give rise to a sensation of pain.

These nerves cannot be regarded as belonging to the physiological sympathetic system, if only for the reason

that they do not always follow this pathway. Presumably, like other sensory nerves, including visceral afferents running in the sympathetic chain, they have their cell station in posterior root ganglia. However, most recent investigations have failed to show any alteration in sensory acuity after sympathectomy (Lewis, 1942, White and Smithwick, 1942), and in a few patients whose sensation I examined after their causalgic pain had been relieved by sympathectomy it was not possible to detect any diminution as compared with the opposite normal limb in either the intensity or the duration of pain sensation. Threadgill (1947) has, it is true, obtained evidence from animal experiments which indicates that painful stimuli may be appreciated by impulses transmitted centrally over the sympathetic chain. Nevertheless, if the nerves that form the sensory pathway for causalgic pain and tenderness play any part in normal sensory appreciation it can be only a very subsidiary and unimportant part, and it would seem desirable to distinguish them from other nerves belonging to the posterior root system. This may be done by using the term nocifensor nerves, already suggested by Lewis for the nerves concerned with the production of hyperalgesia.

We have seen that pain may result from cord section when this is carried out in patients with causalgic pain. Chordotomy for other conditions apparently yields better results, and it would therefore appear that it is those individuals who develop pain after injury to peripheral nerves who are liable to develop pain following injury to the spino-thalamic tract. Thus the nocifensor nerves responsible for the development of causalgic pain appear to be associated with neurones in the cord that also cause persistent pain when injured, and it seems a reasonable assumption that these neurones are special central connexions of the peripheral nocifensor nerves.

### 6 Reason for Causalgic States Developing in Certain Patients

It is necessary to explain why, of two patients with an apparently equally mild or equally severe nerve lesion, one may have causalgia and the other not, and why, of two patients with an apparently equally perfect or equally imperfect amputation stump, one may have a painful phantom and a painful hyperalgesic stump and the other not. It is also necessary to explain how pain may persist after division of nerves well above the site of the original injury. The conclusion would seem to be inevitable that these conditions are not due to any peculiarity in the nature of the lesion but to an abnormality in the nerves of individual patients that may be said to render them "causalgia-prone". That individual variation in nocifensor nerves is related to the development of causalgic pain is shown by hyperalgesia from faradic stimulation being readily produced only in those patients with amputations or nerve injuries who have a marked degree of pain.

This does not mean that such factors as the type of trauma or the development of infection are never of any importance. But there would not seem to be any doubt that a more important factor than the nature of the lesion is an abnormality in the nerves of the patient concerned, and that this takes the form of an unusually well developed nocifensor system.

### Summary and Conclusions

From clinical observations and from the findings in a number of clinical experiments the following conclusions have been arrived at concerning the development of causalgic pain and tenderness.

1 The nerve fibres concerned in the production of hyperalgesia in causalgic states and the nerve fibres conveying pain



from the site of nerve injury and from hyperalgesic skin are special nerves—the nocifensor nerves first described by Lewis

2 These nerves travel in varying degree by two alternative pathways between an injured peripheral nerve and the spinal cord. One pathway is by way of the sympathetic chain to thoracic cord segments, the other by way of the posterior roots of the injured nerve

3 The site of origin of causalgic pain following peripheral nerve injury or amputation is before the performance of such operations as chordotomy or posterior root section, in the periphery

4 The reason for pain persisting or returning after chordotomy, or after section of the posterior roots of an injured nerve, when these form the principal pain pathway, is the development of a central focus of pain production

5 The chief factor in determining whether or not pain develops after injuries to peripheral nerves or after amputations is individual variation in nocifensor nerves rather than the nature of the nerve lesion

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## A FATAL CASE OF MYELITIS AFTER ANTIRABIC VACCINE

BY

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This case is recorded because of the rarity of the accident occurring with antirabic vaccine, and because of the renewed interest in its pathogenesis following work by Kabat *et al* (1947) in the artificial production of similar lesions in monkeys

### Case Record

The patient, a white soldier aged 26 serving in India, was in perfect health and physical development a few days before his admission to hospital on July 9 1946, when he first complained of fever and pains in his limbs. He had been bitten by a healthy puppy 14 days previously, and had received 12 antirabic injections, starting two days after the incident. The dog was said to be still healthy and the course was thereupon stopped

On examination his temperature was 101° F (38.3° C), pulse 88, and respirations 18. He was inclined to be drowsy, his tongue was furred, and there were several red areas on the front of his abdomen at the sites where the injections had been given. With the exception of a few rhonchi audible in the chest and slight enlargement of the axillary and inguinal lymph glands, nothing abnormal was observed. Routine blood slides

examined four-hourly were negative for malaria parasites. He was treated symptomatically with a mixture containing acetylsalicylic acid, 3½ gr (0.23 g), phenacetin, 2½ gr (0.16 g), and caffeine, ½ gr (32 mg), six-hourly

On 10 July he appeared to be more toxic. His eyes were congested and his face flushed, his temperature was 104.6° F (40.3° C). There were still no physical signs beyond those of mild bronchitis and slight glandular enlargement. Repeated blood slides were still negative for malaria parasites, and a white cell count was 12,800 per c mm (polymorphs 79%, lymphocytes 18%, monocytes 2%, and eosinophils 1%). Routine blood cultures and agglutinations were taken, the results being later reported as typhoid and paratyphoid A—O, 1/40, *Proteus OX 2* and *OX 19*, 1/25, *Proteus OX K*, 1/50, blood culture sterile. In view of the local endemicity of malaria, a course of quinine sulphate, 10 gr (0.65 g) thrice daily, was started. Later that evening it was noticed that he had not passed urine, and it was necessary to catheterize him. At this time he began to experience bouts of hiccuping and vomiting.

On July 11 the bronchitic signs had increased. Urinary retention persisted and failed to respond to 1 ml of acetylcholine intramuscularly, so that catheterization was necessary. Next day he started to complain of inability to move his legs. The hiccup had become more distressing, but he was still quite clear mentally, and his temperature had fallen to 99° F (37.2° C). Clinical examination at this stage revealed no abnormality of the cranial nerves, there being no laryngeal spasm or dysphagia. The upper limbs were normal, but there was a flaccid paralysis of the lower limbs, with absent knee-jerks, depressed ankle jerks, and flexor plantar responses. There were no sensory changes. The differential diagnoses now considered included paralytic rabies, the neuromuscular effects of antirabic vaccine, and poliomyelitis. The first diagnosis was unlikely, as the dog was still healthy, leaving the effects of the vaccine and poliomyelitis as possibilities. When seen later that morning the patient was cyanosed, dyspnoeic, and troubled by ceaseless hiccup. The paralysis was now ascending, involving his lower abdominal musculature and threatening to involve his respiratory muscles. In view of this possibility he was transferred to our hospital at Barrackpore, where there was an iron lung. During the journey by ambulance his respiration became distressed, so that he required oxygen and artificial respiration from time to time.

When seen on arrival he was still conscious, but was very distressed. A rapid examination showed the cranial nerves to be normal, there being neither laryngeal spasm nor dysphagia, and no neck rigidity. The upper limbs appeared to be normal. The lower intercostal and abdominal muscles were paralysed and the superficial reflexes were absent, but the diaphragm was still functioning. There was a flaccid paralysis of the lower limbs with absent knee- and ankle-jerks, the plantar responses being indeterminate. No gross sensory disturbances could be demonstrated. Examination of the chest revealed diffuse rhonchi with moist sounds audible chiefly at the bases. There were angry red indurated areas on the abdomen at the sites of the previous inoculations. Neither the liver nor the spleen was enlarged, but the bladder was distended. It was decided to catheterize him and leave him with an indwelling catheter. A course of penicillin was begun (50,000 units four-hourly, intramuscularly) to combat the secondary respiratory infection. The patient was then put into an electrically driven iron lung of the Nuffield pattern. Intermittent oxygen was administered as he appeared to be having difficulty in accommodating himself to the iron lung. At times he lapsed into delirium, shouting out orders to imaginary persons as though involved in a fight. He was then given phenobarbitone, 1 gr (65 mg), and a bismuth mixture, which quieted him and relieved his hiccup. Later in the evening the paralysis spread to his shoulder and upper-limb musculature, but he could still move his fingers. During the night his condition continued to deteriorate, and by morning the paralysis had involved the muscles of deglutition, necessitating nasal feeding. Later in the morning (July 13) he became unconscious, his general condition became much weaker, and he died five hours later without recovering consciousness. A lumbar puncture performed within an hour after death yielded a clear cerebrospinal fluid with a protein of 100 mg per 100 ml and 110 cells per c mm (lymphocytes 64%, large mononuclears 36%).

**Necropsy Report** (Capt I P V Leggett, I A M C)—The brain appeared congested on its outer surface, but on section there was no gross macroscopic abnormality. The coverings of the cord were congested, the pial blood vessels being very prominent. On section the cord was oedematous, with mushrooming of its edges, but there were no visible haemorrhages in its substance. With the exception of slight prominence of the mesenteric lymph glands and terminal hypostatic pneumonia, no other abnormality was found. The brain and cord were removed and fixed in formalin before dispatch to Major L. Krainer, at the C M P L, Poona. His report was as follows: "Spinal-cord sections stained by H and E show numerous perivascular foci of demyelination situated in the white matter without any systematic arrangement, all the foci are new and show cellular proliferation in addition to destruction of axis cylinders and myelin sheaths. There is extensive perivascular round-cell infiltration in the substance of the cord, and there are a few round cells in the meninges. Sections of the brain-stem show the same process with lesser intensity extending up to the pons. No pathological changes were detected in the cortex cerebri and cerebelli. Diagnosis: acute disseminated myelitis extending into the brain-stem."

### Discussion

This case illustrates several interesting features. On the history a diagnosis of rabies is unlikely. The probable diagnosis is a polyneuritis or myelitis due to the antirabic vaccine, the former being less likely in view of the absence of sensory changes. This paralytic accident being very rare, an alternative cause for the ascending myelitis could be acute anterior poliomyelitis, particularly as the latter is endemic in this part of India and is usually very virulent in British troops. Clinically these two conditions are indistinguishable.

The incidence of neuromparalytic accidents following antirabic vaccine has been given by Greenwood (1945-6) as being 1 in 8,517 cases (0.012%) treated with killed phenol vaccine, and 1 in 5,814 cases (0.017%) for all types of antirabic vaccine, including killed phenol type, the mortality in the two groups being 25%. The onset usually occurs 13 to 15 days (maximum period 35 days) after the first injection of the vaccine, and may take one of four forms (Van Rooyen and Rhodes, 1940): (1) An acute ascending paralysis of the Landry type. The mortality from this is in the region of 30%, the remainder recovering completely. (2) A dorso-lumbar transverse myelitis, which is usually localized, affecting the lower limbs, bladder, and rectum. This complication is more common than the Landry type and has a mortality of less than 5%. A non-fatal case of this type was described by Imrie (1944). (3) A mononeuritis or multiple neuritis involving the cranial or peripheral nerves, and rarely the optic nerve, causing papilloedema as in the case described by Koenigsfeld (1945). (4) A meningo-encephalomyelitis syndrome described by Gordon and cited by Remlinger (1937). A case conforming to this type was described by Bussell (1946).

The various theories advanced to explain these accidents include causation by a virus, toxins, or allergy.

**The Virus Theory**—These accidents were attributed to the "street" virus modified by antirabic vaccine until cases occurred in persons not bitten by rabid animals, when the virus *fixe* was suspected of pathogenicity. Bassoe and Grinker (1930) were impressed by the similarity of their cases of encephalomyelitis after antirabic vaccine to those due to vaccinia and infectious fevers, and considered that an attenuated virus was transmitted by the vaccine. This view was held by Remlinger (1937) when vaccines containing the live virus were used. The neuritic group of accidents resemble the neurological complications following serum and other types of vaccine therapy described by Hughes (1944), in the aetiology of which a virus is suspected.

**The Toxin Theory**—There is no convincing evidence that the vaccine contains rabies toxin, nor has the existence of this

endotoxin ever been proved. Stuart and Krikorian (1928) produced paralytic lesions in rabbits by repeated inoculations of normal heterologous nerve tissue. They believed that the basic nerve substance of all antirabic vaccines contained a cytotoxin modified by physical and chemical agencies which could produce neuromparalytic accidents in susceptible persons.

**The Allergic Theory**—Inoculating normal heterologous nerve substance into monkeys, Ferraro and Jervis (1940) produced disseminated neurological lesions with a pathological picture of perivascular infiltration and demyelination. They postulated that the lipid of the white matter functioned as a haptene, being actuated by the presence of protein. Similar effects, accelerated by the addition of adjuvants to brain-tissue inoculations, were produced by Kabat *et al* (1947), who believed the antigen to be bound up with the myelin portion of the tissue. In a series of 16 patients developing neuromparalytic accidents, Horack (1939) reported a family or personal history of allergy in 87.5%, compared with 33.3% in controls. He suggested that those with a history of allergy should be tested for sensitivity to the vaccine. It was also suggested that the appearance of severe local reactions during treatment might indicate the simultaneous development of sensitivity in the central nervous system of some patients. For each of these types of sensitivity Horack described a method of desensitization.

In the above case killed carbolized vaccine was given, and skin sensitivity in the form of prominent reactions at the sites of inoculation was manifested. According to his friends the patient had never been ill before, but unfortunately the family history with regard to allergy could not be ascertained. The pathological findings of well-marked perivascular infiltration and demyelination in this case are similar to those seen in Kabat's experimental lesions, although the latter were chiefly distributed in the brain. These findings differ from those of Stuart and Krikorian, in which mesodermal reactions were absent, but are similar to those of Bassoe and Grinker and to those of Bussell, with the exception of the intense meningeal reaction and haemorrhages in the latter's case. The balance of evidence would seem to be in favour of acquired anaphylaxis as the causation in the above case. It is probable, however, as suggested by Remlinger, that there is no single cause which will account for all types of neuromparalytic accidents.

### Conclusions

Antirabic treatment should be given only when the correct indications are present. A healthy dog should be kept under observation for the usual ten days before treatment is begun, except, possibly, in cases of severe bites on the face.

A family or personal history of allergy indicates the need for preliminary skin tests for sensitivity, and if excessive local reactions occur during treatment the desirability of desensitization should be considered. If the neuromparalytic complications have already made their appearance, then in view of the serious prognosis, especially in the Landry type, it would be worth while to try out the effect of antihistamine drugs on the basis of the allergic theory. At the same time the effect of these drugs on the skin reactions should be observed.

It is essential that an iron lung should be available in case of respiratory failure, preferably in an air-conditioned room if in the Tropics. For the purpose of minimizing respiratory complications a good suction apparatus is a great asset in clearing the secretions that accumulate in the pharynx of these patients.

The usual precautions during antirabic treatment—avoidance of unnecessary exertion and of alcohol, and provision of adequate rest—should be strictly enforced.

Post-mortem examination, with removal of the cord and brain, should be carried out in all obscure cases of myelitis as soon as possible after death so that further information may be obtained and an exact diagnosis made. A portion of

the brain and cord should be preserved in glycerol-saline or, better still, by refrigeration for virus studies

Methods by which the amount of myelin tissue in these vaccines could be reduced to a minimum should be sought and perfected

### Summary

A fatal case of acute disseminated myelitis following anti-rabic treatment is described, together with the post-mortem findings

The differential diagnosis and the aetiology are discussed

Suggestions are made to reduce the incidence of these accidents in the future

I wish to thank the DGMS, War Office, for permission to publish this article, Captain R D Eagland, R A M C, for his assistance in treating this case, and Dr A R D Adams, of the Liverpool School of Tropical Medicine, for valuable criticism

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## Medical Memoranda

### Convulsions under Trilene Anaesthesia

Convulsions under trilene anaesthesia have been reported by Culbert (1942) and by Garland (1942), but in view of the rarity of the condition and because of the increasing use of this drug publication of the following case report is warranted

#### CASE REPORT

A soldier aged 20 was transferred from the V D wing to the minor surgical ward with chronic balanitis and was brought to the operating theatre on Aug 11, 1947, for circumcision. His general condition was good, and 75 minutes before the operation he was given 1/3 gr (22 mg) of 'omnopon' and 1/150 gr (0.43 mg) of scopalamine. Anaesthesia was induced, using the standard Army Boyle machine, with nitrous oxide and oxygen. Trilene was added to the mixture and the patient maintained in stage 3, plane II anaesthesia.

Midway through the operation convulsive movements of the arms began, the legs became similarly involved, and this developed into generalized convulsions. The operation was stopped, no further inhalational anaesthetic was given, and oxygen was administered. With some difficulty an intravenous injection of thiopentone was made, and the convulsions were controlled after the patient had received 0.2 g. Apnoea resulted, but no treatment was required for this, since respiration restarted almost at once.

As the patient's general condition was fair, the blood pressure being 110/70 and the pulse rate within normal limits, the operation was completed under nitrous-oxide-oxygen anaesthesia. The patient's pre-operative temperature was normal, and during the operation the theatre temperature was 24° C. Atropine was not given. The Trendelenburg position was not used. Except for some slight anoxia during the induction stage, oxygenation appeared adequate throughout. Respiration showed no evidence of carbon dioxide imbalance.

Post-operative recovery was normal, and investigations showed blood urea, 20 mg per 100 ml, blood sugar, 90 mg per 100 ml, serum calcium, 11.5 mg per 100 ml, Kahn test negative. Facilities for an electro-encephalogram were not available.

#### COMMENT

This was not a case of tremor or spasm but of quite definite convulsions. These started in the limbs and not in the muscles of the eye and face as with deep ether convulsions.

Circumcision in the young adult requires moderately deep anaesthesia, and that produced in this case was adequate, although trilene was not pushed to the extent of producing tachypnoea.

The only factors mentioned by Minnitt and Gillies (1944) in the production of deep ether convulsions present in this case were a young adult patient and a septic condition—i.e., balanitis—but this was not in the least severe.

H A CONDON, M R C S, L R C P,  
Lieutenant R A M C Graded Anaesthetist

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### A Case of Strangulated Epigastric Hernia

Strangulated epigastric hernia is an unusual emergency. The literature from 1927 to 1946 contains only three cases of this condition (Chevereaux, 1929, Delannoy, 1933, Ballati, 1934) and two cases of incarcerated epigastric hernia (Zhman, 1934, Popper, 1936). The case reported below is of interest because of its rarity and the added difficulty in diagnosis owing to associated bilateral irreducible inguinal herniae.

#### CASE REPORT

A man aged 65 was admitted to hospital with a history of severe vomiting for one day. He was of very low general intelligence. Associated with this vomiting there was marked epigastric pain with severe prostration. "Swellings" had been present in both groins and in the epigastrium for as long as he could remember. While in the admission room he vomited about 1 pint (570 ml) of dark brown fluid.

Examination revealed considerable dehydration and a furred and dry tongue. The temperature was subnormal and the pulse just perceptible. Bilateral irreducible inguinal herniae were present. Neither of these herniae was tender, and they had not lost an impulse on coughing. In the epigastrium, midway between the umbilicus and xiphisternum, was a tense and tender swelling about the size of an orange. The rapid onset of a high intestinal obstruction with severe pain and collapse associated with these physical signs pointed to the epigastric swelling as the cause of the present crisis.

The stomach contents were aspirated and a Ryle's tube left in position. Two pints (1.14 litres) of glucose saline were given intravenously. The general condition improved enough for operation to be performed. Procaine infiltration analgesia was used. A transverse incision was employed and the hernial sac exposed. This proved to contain a quantity of foul blood stained fluid and a gangrenous loop of bowel in "W" formation. A rapid resection of some 12 in (30 cm) of bowel was performed and an end to end anastomosis carried out. Repair was effected with overlap using catgut sutures. A small corrugated drain was left in the subcutaneous tissues.

Gastric aspiration was continued for two days with intravenous drip. At the end of this period the general condition was good and feeding was started. The patient had an uneventful convalescence.

#### COMMENT

Epigastric hernia is probably a congenital abnormality. Difficulty in diagnosis occurs in that severe epigastric pain with tenderness and muscular rigidity may well be mistaken for an upper abdominal inflammatory lesion or for a perforated peptic ulcer. Pancreatitis may also be suspected, particularly when the hernia is small (Maingot, 1940). Richter's hernia may occur, causing a further confusion in diagnosis. A case has been reported in which the round ligament of the liver was involved in the hernial sac (Ballati, 1934). As might be expected, incarceration of the stomach has also been reported (Zhman, 1934).

A C BREWER, F R C S  
R MARCUS, F R C S

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## Reviews

### CALCIFIED AORTIC VALVES

*Calcific Disease of the Aortic Valve* By Howard T Karsner, M.D., and Simon Koletsky, M.D. (Pp 111, illustrated 30s) Philadelphia and London J B Lippincott Company

Calcifying disease of the aortic valve is such an arresting discovery at necropsy that its origin has been a matter of debate for centuries. In this monograph Karsner and Koletsky set out to determine the aetiology of the lesion. As a preliminary they have reviewed past researches and opinion. Up to the time of Monckeberg's classic paper in 1904 most writers had subscribed to the theory of degeneration, but subsequently his view that many of these lesions were consequences of inflammation became prevalent. Analysing the data from their 200 hearts with aortic lesions the authors broadly divided them into a group showing gross rheumatic lesions in addition to the disease of the aortic valve (91 cases) and a group in which the gross lesions were confined to the aortic valve (109 cases). Of the second group 80 showed clear-cut microscopical evidence of rheumatic disease. A further study of the 29 outstanding cases left only 4 in which the evidence of past rheumatism was inconclusive. Careful analysis of their extensive pathological material failed to support the view of Monckeberg and others that the nature of the disease can be distinguished according to the site of the calcification.

The clinical data emerging from this painstaking survey are interesting and sometimes remarkable. While most clinicians might guess that calcific aortic valve disease is three times as common over the age of 50 as under that age, many would be surprised to know that diastolic murmurs were recorded in fewer than 20% of cases and absence of aortic second sound in fewer than 5%. However, this monograph is essentially based on pathology and the chapter on specific clinical considerations and the clinical data in general are less impressive than the sections on morbid anatomy and histology. Concluding with the generalization that "with only rare exceptions, calcific disease of the aortic valve is the result of rheumatic cardiac disease" the authors assign to this lesion, which has hitherto been of doubtful origin and meaning, a definite place in pathology and an undoubted significance in clinical medicine.

K. SHIRLEY SMITH

### ESSAYS IN MEDICAL HISTORY

*No Retreat from Reason and other Essays* By Alfred E. Cohn (Pp 279 \$3.50) New York: Harcourt, Brace and Company (383, Madison Avenue)

The author of these essays is a veteran cardiologist, and although only four are on primarily medical or physiological topics all are informed with that knowledge of human strength and weakness which an experienced physician who has travelled widely is sure to possess. In the reviewer's opinion Dr Cohn's lecture on the development of the Harveyan circulation is from the literary point of view his best essay. His appreciation of Harvey's greatness, which he puts in the clearest light, never leads him to depreciate the genius of Harvey's remote predecessors. "One must read Galen to appreciate the excellence of the system he instituted, its internal coherence, its consideration of all these and other matters including the change from fetal to the post-embryonic circulation." He praises Harvey as that great man might have wished to be praised.

Dr Cohn includes three biographical papers—one autobiographical, the others on Simon Flexner and the cardiologist John Wyckoff. These will appeal more to American than foreign readers, because naturally they assume knowledge a foreign reader does not possess. The most ambitious essay—on the difference between art and science in their relation to nature—contains much interesting and acute discussion of the points of view of artists and men of science, but might have been improved by condensation. On p 140 we read "No one doubts that science is concerned with the outside, with the physical world, with what is called 'objective reality'." I should think most pure mathematicians doubt it, and by

p 191 Dr Cohn seems to doubt it, for he allows that elegance, technical proficiency, and the rules of the craft do have a place of honour in science, and his general conclusions seem to be that it is very hard to draw a line between art and science, that one can hardly go further than to say that, "whereas it was in the nature of science to be general, it was in the nature of art to be individual."

Dr Cohn is a picturesque writer, sometimes perhaps too picturesque. In speaking of the famous lecture in 1616 at which, according to tradition, Harvey first announced his discovery, Dr Cohn writes "A company of great distinction was present. Although they may not have numbered above forty in all from the college, many, of the curious of the town, like Evelyn, Digby, Browne, and Pepys, may have been present." Here the word "like" is significant of much. Pepys and Evelyn were not born in 1616, Kenelm Digby was 13, and Browne (if the great Sir Thomas is intended) was 11. But these are trifles. Those who care for medical and social history will enjoy Dr Cohn's essays.

MAJOR GREENWOOD

### GYNAECOLOGICAL OPERATIONS

*Die Gynakologischen Operationen* By Heinrich Martius. Fifth edition (Pp 424, illustrated Mk. 58) Stuttgart: Verlag Georg Thieme 1947.

Martius's textbook of gynaecological operations has now reached its fifth edition since its first appearance in 1936. Though short, it is of excellent quality, and it is interesting that so good a book can be published in Germany at the present time. It has been translated into English and is well known in America and in India. The style is concise and anyone who has an elementary knowledge of German can read the book. Martius has based his descriptions on topographical anatomy. References to the work of gynaecologists outside Germany and Austria are scanty; this is particularly noticeable in the sections on the formation of an artificial vagina and operations for stress incontinence. The illustrations are exceptional, for they show great originality, and although many have been modified from well-known drawings almost every one reveals Martius's personality. Most are coloured, and the book compares favourably with even the best of the American publications.

The author adequately describes and illustrates the routine operations, and considers fully the anatomy of the musculature round the base of the bladder and the urethra. He describes an operation for interposing the bulbo cavernosus muscle between the urethra and the anterior vaginal wall for the treatment of stress incontinence and after the repair of a vesico-vaginal fistula. The accounts of vaginal operations are excellent, and again many of these illustrations show great originality. Very useful practical operative details can be found on almost every page. We can strongly recommend the book, and it is strange that the English translation is not widely known in this country.

WILFRED SHAW

### PHARMACOLOGY

*A Manual of Pharmacology and its Applications to Therapeutics and Toxicology* By Torald Sollmann M.D. Seventh edition (Pp 1,132 £2 17s 6d) Philadelphia and London: W B Saunders Company 1948.

This standard work, which appears at intervals of about six years, has now reached its 7th edition. It remains one of the most useful reference books on the action of drugs that we have, for the author still follows the literature with great care and assiduity and manages to fit the new information into the book. It now has a larger page and an improved lay-out. It is said that when Prof Sollmann had the Chair at Cleveland he expected the students to be closely familiar with most of the book. If that is so they must have suffered indeed, for it is essentially a work of reference rather than a textbook. There is little discussion of modern developments of the theory of drug action and it is evident that the author has in general paid more attention to work in the USA than to British work. However this complaint can usually be made against all medical books, for the vastness of the literature obliges the author to select, and it is perhaps natural that he selects the work of his countrymen.

The book nevertheless deserves high praise, and the medical world is greatly indebted to the author for its excellence. It contains in addition to pharmacological information much on the toxic effects of substances used in industry. To provide in one volume well chosen details about the multitude of substances on which experimental work has now been done is all that is possible to-day.

J H BURN

### BILATERAL RENAL CALCULUS

*Die Beiderseitige Nierensteinkrankheit* By Dr Bertrand Bibus (Pp 170 40 illustrations OS 60) Vienna Verlag Wilhelm Maudrich

This is the book of a surgeon whose real interest and skill are in the management of those difficult cases of bilateral renal calculus—the indications for operation, the timing of operative intervention, and the choice of which side to tackle first. In all these matters the author obviously speaks with the knowledge and wisdom of experience. He has included sections on the causation of renal calculus and the non-surgical methods of treatment, including the various so-called cures by balneo- and hydrotherapy. Although he himself has little faith in such methods he is often uncritical and unscientific in this part of the book.

Altogether there is little that can be called new or original here, and the reader finds with disappointment that he is still no nearer to learning the cause of renal calculus. This is a book which the expert urologist may like to read but which does not open up any new territory.

ROBERT PLATT

### VENEREAL DISEASES

*The Venereal Diseases. A Manual for Practitioners and Students* By James Marshall, M.D., B.S., M.R.C.S. L.R.C.P. Second edition. With additional information on the use of penicillin (Pp 369 illustrated 21s) London Macmillan and Co 1948

The second edition of this book differs from the first mainly in the addition of two chapters and further details on the use of penicillin, and by a note on Reiter's syndrome. In the introduction it is stated that two years have elapsed since the publication of the first edition yet the two editions are dated 1944 and 1948 respectively presumably a considerable period elapsed between the preparation of this edition and its publication. It can be said without hesitation that the book is practical and objective and should be of great value to the general practitioner who treats cases of V.D. and also to the venereologist starting training. The illustrations are excellent and the coloured plates beautifully reproduced. The author's views are sound and for the most part accord with modern British ideas. He is enthusiastic about the effect of penicillin in cases of gonorrhoea, but, very properly, cautious about its curative effect on syphilis. He seems to be rather sceptical whether the antibiotic is as effectual when given at longish intervals in a delaying base as when given every three hours in a watery solution, most people think there is little to choose between the therapeutic effects but the former method is much more convenient in the V.D. clinic and in private practice.

The author is hardly a literary stylist, but he generally succeeds in making his meaning clear, though the sentence (p 296) "Infectious relapse occurs in 95% of cases by the end of the third year" might be taken to mean that relapse occurred in 95% of all cases. Future editions would be improved if they included more detailed information about B.A.L. and a somewhat fuller discussion of false positive serum tests for syphilis, a subject much in the limelight to-day. Such solecisms as *magna therapia sterilisans* and *flagellae* confirm one in the belief that a study of the classics is still a necessary part of a liberal education.

T E OSMOND

Fully half of Mr J H Doggart's *Children's Eye Nursing* (Henry Kimpton 8s 6d) is devoted to a clinical exposition of the common diseases of the eye in children. This is followed by chapters on non-operative treatment, instruments and dressings, minor operations and major operations. The concluding chapter is on the care of school children. The writing is clear and the teaching orthodox. The text is profusely illustrated.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Insects of Medical Importance* By J Smart, M.A., D.Sc. and others 2nd ed (Pp 295 20s) London Trustees of the British Museum 1948

Notes and diagrams for the identification of insects

*Physikalische Therapie* By J Kowarschnik (Pp 502 39 Swiss francs) Vienna Springer-Verlag 1948

A textbook of physiotherapy

*Submicroscopic Morphology of Protoplasm and its Derivatives* By A Frey Wyssling 2nd ed (Pp 255 32s 6d) London Cleaver-Hume 1948

An account of the chemistry, molecular structure and morphology of cytoplasm

*Sterility and Impaired Fertility* By C Lane Roberts C.V.O., M.S., F.R.C.S., F.R.C.O.G. et al 2nd ed (Pp 400 24s) London Hamilton 1948

Much new material has been included in this edition

*Snail's Progress. The English Local Prison* By C F Carter (Pp 28 1s) London Penal Reform Committee of the Society of Friends 1948

An account of English prisons based on the experiences of Quakers imprisoned during the recent war and since

*Proceedings of the Seth Gordhandas Sunderdas Medical College Staff Society* Meetings 45 to 55 and 56 to 66 (Pp 247 No price) Bombay Seth Gordhandas Sunderdas Medical College 1948

Articles on a variety of medical and surgical topics

*Blood Derivatives and Substitutes* By C S White M.D., Sc.D., and J J Weinstein, M.D., B.S. (Pp 484 \$7.50) Baltimore Williams and Wilkins 1947

An account of their preparation, storage, and therapeutic use, with a discussion of shock

*L'Exploitation Clinique en Oto-Rhino-Laryngologie* By G Portmann (Pp 933 2 500 francs) Paris Masson 1948

A general account of the examination of the ear nose and throat

*Therapeutic and Industrial Uses of Music* By D Seibelman (Pp 274 16s) London Geoffrey Cumberlege 1948

A review of the literature with discussion and bibliography

*Science in Progress* Edited by G A Batsell 5th series (Pp 353 27s 6d) London Geoffrey Cumberlege 1947

Includes articles by well known authorities on respiration, cytology and genetics

*The Issue of Compulsory Health Insurance* By G W Bachman and L Meriam (Pp 271 No price) Washington Brookings Institution 1948

A study of relevant conditions in the U.S.A.

*Cosmetic Materials* By R G Harry F.R.I.C. (Pp 479 35s) London Hill 1948

An account of the physical and chemical properties and dermatological action of cosmetic materials

*Nursing Pathology* By R H Goodale B.S. M.D. (Pp 416 15s) London Saunders 1948

An illustrated textbook for nurses

*Neuropsychiatry for Nurses* By I J Sands M.D. 5th ed (Pp 397 15s) London Saunders 1948

A textbook of neurology, and psychiatry for nurses

*Oxford Science* General Editor F A Holland Vol 2 No 1 (Pp 53 2s) London Mowbray 1948

Intended to inform the scientist of recent progress in fields other than his own

*British Hospitals* By A G L Ives (Pp 50 5s) London Collins 1948

A short profusely illustrated account of British hospitals

## BRITISH MEDICAL JOURNAL

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ORGANIZATION OF CONSULTANTS AND  
SPECIALISTS

During the past weeks there has been much discussion on how to represent the interests of consultants and specialists in the National Health Service<sup>1</sup>. The need for an official machinery through which such representation can be made is not, of course, disputed. For the first time consultants and specialists have been faced with a problem familiar to general practitioners working under the National Health Insurance scheme for over thirty years. During this time much of the medico-political work of the B.M.A. has been concerned with the terms and conditions of service under the National Health Insurance Acts. For this reason these matters have loomed large in the debates of the Council and the Representative Body. And for this reason, too, general practitioners have been far more active in the work of the Association than have consultants and specialists. To meet the new need of specialists for representation of their interests as the result of the coming into force of the National Health Service Act, the B.M.A. quickly evolved a new mechanism by setting up regional and central committees through which consultants and specialists could organize effective representation and action on all those matters which will affect them in the Service. Some specialists have feared that their freedom of action in this field of work might be interfered with by a Council or Representative Body in which the interests of general practitioners are thought to be predominant. Those who express this fear fail to take into account the evolution of organized medical services in this country, or to allow for the continued development of the B.M.A.'s organization now that the whole of the medical services of Britain have undergone radical transformation. The Royal Colleges and the Royal Scottish Corporations have in the past functioned as academic and examining bodies. Since 1942 they have been inevitably drawn into the more controversial field of medical politics. Those in control of the Colleges and Corporations have been faced with a difficult decision—whether to continue to restrict their interests to academic work, or whether to enlarge them by taking an active part in medical politics. Those who are properly jealous of the traditions of these ancient pillars of Medicine have been anxious lest they should, by taking on functions that may involve them in medico-political controversy, lose the essence of the tradition which has made them what they are. Those with a more material concern in the economy of effort in a profession insufficiently manned for the

National Health Service deplored the possible emergence of a new medico-political organization for consultants in the presence of an experienced organization to which some 80% of the profession already belong.

Here then was a situation in which conflict of opinion might become acute. It is a tradition of doctors to disagree, but rarely to fratricidal lengths. An important step to solve tension and provide solution of the problem consultants and specialists are faced with was made on July 28 in a conference, presided over by Sir Lionel Whitby, President of the B.M.A., between representatives of the Royal Colleges, two of the Royal Scottish Corporations, and the British Medical Association. An agreed statement on the outcome of this conference is printed on page 351 of this issue. This highly important move is to be welcomed as a rational approach to finding an answer to the question of how best the interests of consultants and specialists shall be upheld in the National Health Service. An exploratory committee under the chairmanship of Sir Lionel has been set up to reach agreement on the three propositions submitted to the bodies represented at the conference. The first proposal is that a joint committee of the Colleges, the Corporations, and the B.M.A. shall be established to advise the Minister of Health on all matters affecting consultants and specialists. The second proposal is that the two existing committees—of the Colleges and the Corporations, and the Central Consultants and Specialists Committee of the B.M.A.—should continue as such to brief the Joint Committee. It will be essential to determine exactly to what extent these different committees shall take independent action, to define those matters in which they shall be autonomous. The third proposal of the conference, therefore, is that the Joint Committee shall clear this ground. It is desirable that the range of autonomy for the different organizations should be made unambiguous as soon as possible. Only by a clear definition will future misunderstanding be avoided and the interests of consultants and specialists be represented in a way that will facilitate prompt and effective action. The size of a problem, whether academic or medico-political, may determine the agency through which it should be tackled. For example, any big issue which may face consultants and specialists might be most appropriately dealt with by the Joint Committee representing the combined forces of the Colleges, the Corporations, and the B.M.A. But on the basis of its experiences in the National Health Insurance the B.M.A. would seem to be the most appropriate organization for dealing with the greater part of those matters coming under the heading of "terms and conditions of service." The supremacy of the Colleges and Corporations in academic medicine is undisputed.

The proposals put forward by the conference point a clear way out of a tangle of interests and of conflicting opinions. Given good will, and the evident desire on the part of everyone to reach a reasonable and friendly agreement, it should be possible through combined administrative experience and trained scientific thinking to isolate those facts in the situation which are important, to reject considerations which are irrelevant, and to put this matter of representation of the interests of consultants and specialists on a sound professional foundation.

<sup>1</sup> See *British Medical Journal* 1948 1 985 1140 1189 1948 2 31



## RECENT WORK ON THE Rh FACTOR

Theoretical aspects of the Rh factor and continued controversy on the nomenclature tend to obscure the steady advances which are taking place in the clinical application of knowledge already possessed. It should, moreover, be realized that these practical applications only very rarely require a knowledge of the finer theoretical points, important as these are to specialist laboratories and to the professional geneticist. Indeed, there is still much scope for clinical research on the Rh factor conceived in the original terms of simple Rh-positive and negative.

For some years clinicians and pathologists have been aware of the danger of giving transfusions, incompatible with regard to the Rh factor, to persons whose history suggests that they have been immunized to Rh either by transfusion or by pregnancy. Even in the absence of a history of immunization transfusion of blood of unknown Rh type into a woman of unknown Rh type may lead to grave results. This has not been so widely realized because the ill-effects may be long delayed. It is now known that in most, if not all, cases in which the first child is affected by haemolytic disease of the newborn the mother will be found to have had a previous transfusion. Many cases have come to light in which as a result of immunization by transfusion the mother has become unable to bear even one live child to her Rh-positive husband. It has indeed been suggested that the present increasingly frequent diagnosis of haemolytic disease of the newborn is not solely the result of improved facilities for investigation but is to a considerable extent due to the great increase in the use of transfusion which has taken place since 1939. Unfortunately, during most of this period the importance of Rh incompatibility was imperfectly appreciated.

Drs G Discombe and H O Hughes, in a paper appearing elsewhere in this issue (p 329), have thus performed a valuable service by drawing attention to reports which show how readily transfusion can produce Rh immunization and by supporting with statistics their opinion that the previous transfusion of mothers probably causes haemolytic disease of the newborn. They found that, whereas only 2% of unselected mothers at an antenatal clinic had had a transfusion, 36% of mothers of babies with haemolytic disease had been transfused. It can hardly be doubted that in most of the transfused mothers it was the transfusion which was the main cause of the disease in the child.

If further statistics should support these very striking figures it will be possible to state that about one-third of all the cases of haemolytic disease of the newborn at present occurring in this country are due to indiscriminate transfusion of mothers. Such transfusion must have a significant effect on the total infantile mortality of the country. It therefore ought to be a rigid rule that every female requiring transfusion, who has been or who may become pregnant, should be Rh tested. Hetero-haemotherapy of little girls, a procedure known to produce lasting immunization, ought probably never to be performed. Ideally, indeed, every recipient of a transfusion, whether male or female, should be tested and receive Rh-compatible blood. The National

Transfusion Service deserves every credit for its persistent encouragement of the Rh testing of all expectant mothers and transfusion recipients, but the responsibility for demanding Rh tests and seeing that only compatible blood is transfused lies primarily with the clinician in co-operation with the hospital pathologist. Limitations of supply preclude the easy way out of giving Rh-negative blood to untested patients.

It is not, however, sufficient that a clinician or hospital pathologist should be aware of the necessity for Rh testing or for the giving of Rh-negative blood, it is also necessary that the testing serum, or the blood, should be available. While it is only with the greatest of difficulty that sufficient Rh-negative blood can be made available for those cases known to need it, it is probable that few, if any, fail to receive Rh-negative blood if their need is known. On the other hand, the lack of Rh-testing serum is undoubtedly preventing much Rh testing which ought to be carried out. This state of affairs would be largely, if not wholly, remedied if every patient having a serum suitable for testing purposes and being in a fit state to give blood were given the opportunity of offering to make a contribution. Only by full co-operation between patients, clinicians, pathologists, and the transfusion service can this be brought about. At present a small though increasing number of enthusiastic medical officers are doing their best to maintain a supply for the whole country.

While it is probable that adequate arrangements for the collection of blood would produce a sufficient quantity of the relatively common types of serum needed for routine testing, there will probably always be a lack of the rarer types of serum required for special tests and for research. It may be necessary to look to the immunization of volunteers for this purpose. As more and more women known to have weak antibodies in their serum pass the menopause it will become justifiable to ask them to submit to further artificial immunization and to act as donors of serum, but it may be necessary meanwhile to look to male volunteers who have not previously been immunized. The investigations into the mechanism of Rh immunization reported by Dr J J van Loghem on another page are therefore of great practical value quite apart from the light which they may throw upon the mechanism of pregnancy immunization. Fourteen volunteers who had failed to respond to simple Rh immunization (by injection of appropriate red blood cells) received in addition injections of killed typhoid and paratyphoid bacteria. Three of them showed clinical signs of sickness and a rise in temperature. These, and these only, then produced Rh antibodies. Since van Loghem was using the relatively weak C and E antigens the proportion of responses must not be compared with the response in the same or other conditions to the powerful D antigen. Van Loghem has thus discovered a very useful technique for those who are attempting to prepare Rh antibodies in volunteers.

While successive theoretical advances in Rh research do not directly concern the clinician, their effect is in many cases to render transfusion potentially safer by eliminating rare but nevertheless dangerous types of incompatibility.

It thus becomes more and more important that when an anti-Rh serum has been obtained from an immunized mother or from some other source its constituent antibodies should be determined before it is used for routine testing. These necessary preliminary tests are beyond the scope of most laboratories, and the serum should be submitted to a specialist laboratory such as a regional transfusion laboratory or the Blood Group Reference Laboratory.

Professor D F Cappell's wide experience of both the clinical and pathological aspects of haemolytic disease gives special value to his survey of the Rh factor which appears on page 323 of this issue. It has been widely held that the first one or two affected children in a family show only mild symptoms, but Cappell has found that the first recorded manifestation of the disease is usually one of the severer forms. Bessis<sup>1</sup> has published details of a large number of families, and, while in many of them the first affected child suffered from icterus gravis, in others there was a progressive development of symptoms from one child to the next. Again, in the case of the incidence of cerebral damage and its response to transfusion, Cappell disagrees somewhat with previous workers and is of the opinion that such damage can in most cases be prevented by early transfusion.

In such matters as these the truth can be reached only by combining the observations of experienced workers, all who have access to large numbers of cases and are able to study them fully are under an obligation to publish their results. In many other matters connected with the Rh factor our clinical knowledge is inadequate, in particular more information is needed on the relation between parity of mothers and the time at which they first become immunized. This is a matter which can only be settled by combining the results obtained in large numbers of antenatal clinics.

## MENTAL HEALTH

In a world full of unrest, anxiety, and the mutterings of aggression the imaginative boldness of some outstanding medical men and organizations comes as a refreshing contrast to the futile bickerings of power-hungry politicians. It is, for example, a medical man, Sir John Boyd Orr, who has been the driving force behind the Food and Agriculture Organization (FAO). Faced with one discouraging situation after another,<sup>1</sup> he yet retains his optimism that the nations of the world may yet show as much concern about the feeding of the 2,500 million people in the world as about feeding the 2½ million people in Berlin. As a result of Sir John's persistence a World Food Council has been set up. The conjoined attempt of medical men to promote world health through WHO is another example of inspired effort. And now comes the attempt to see what mental science can do for *Homo* optimistically called *sapiens*. A year and a half ago Dr G Brock Chisholm, talking of the obligations of WHO in the sphere of mental and social health, said that WHO must derive its technical authority from the International Congress on Mental Health, the Congress which began its ten-day discussions

on Wednesday of this week. Those responsible for organizing this did not shirk the challenge, and in a statement of objects made shortly after Dr Chisholm's speech asserted roundly that "the general theme of the Congress will, therefore, be the psychological tasks involved in preparing the way for individuals to become citizens of the world." There is, perhaps, something naïve in this sentence, shorn of all qualifications and conveying to the reader the suggestion that those who framed it could scarcely have glanced over their shoulders at the past history of mankind. There is in these ambitious programmes a certain fine impatience with the impotence of the politician to deal with first things first, and as doctors we may be proud that through the specialized agencies of the United Nations medical men are trying to break down the customs barriers set up against health and knowledge.

The ground for the International Congress on Mental Health has been most carefully prepared by a series of commissions on the topics to be discussed. These commissions have been at work in Great Britain and in other countries so that the discussions now taking place can be of the fullest value to those attending and participating in them. This technique might well be adopted by the organizers of other international medical congresses. The present one is, in fact, a triad of three conferences—namely, on child psychiatry, medical psychotherapy, and mental hygiene. The first is focused on aggression, the second on guilt, and the third on psychological problems of the group. This sequence follows the aim of the organizers to apply to group, national, and international problems knowledge gained in the understanding and management of individual psychology. When he spoke about the conference in May of last year Dr Chisholm, seeing the significance of such an event, nevertheless asked this question: "Are psychologists and psychiatrists themselves individually and as a body able to do what I have just suggested? Can they, in fact, agree on anything?" And he went on to observe that it would be disastrous if the Congress were to "turn out to be a discussion of obscure psychological dogmata, or a conflict between various schools."

Speaking at the recent meeting in Edinburgh, reported elsewhere in this issue, Professor E D Adrian observed that neurologists, neurosurgeons, and physiologists are working on one side of a high wall and psychologists on the other. But he added that efforts were being made to break this down. Some demolition is needed on the psychological side too. Nevertheless, there is now a body of observed facts and some agreement among the schools on some of the hypotheses holding the facts together. To wait until knowledge of psychology is on a firmer ground of fact and theory before attempting to apply what is known on the ambitious scale the Congress has given itself might be to move in the direction of strict scientific caution, but to attempt what to some may seem to be the impossible brings with it at least a note of optimism in a world drenched with pessimism, and, so long as too much is not expected, much may be gained as the result of the discussions going on this week and next.

<sup>1</sup> See *The Listener*, Aug 5, 1948

## PROTECTING CHILDREN FROM TUBERCULOSIS

A recent question<sup>1</sup> in Parliament was aimed at finding out if the Ministry of Education now held any views about the employment of tuberculous teachers in schools different from the advice given in a joint memorandum<sup>2</sup> issued in 1927 by the Ministry of Health and the Board of Education. The Minister of Education informed the questioner that education authorities had again been reminded of the instructions in the memorandum. Since the document referred to was published over twenty years ago, long before mass radiography was practicable, and is now out of print, the present position can hardly be considered satisfactory, and the recent publication of a report<sup>3</sup> by the Children's Committee of the Joint Tuberculosis Council is timely.

The report is concerned with the means of protecting organized groups of children from the risk of infection by adults suffering from tuberculosis. These are its most important recommendations: (1) No person with pulmonary tuberculosis should be allowed to accept employment involving close contact with children until the disease has been certified as arrested. (2) All persons whose employment brings them into contact with groups of children should be medically examined at the time of their engagement, including x-ray examination of the chest, which should be repeated annually. (3) An employee found to be suffering from pulmonary tuberculosis should cease work immediately, and not be allowed to return to work until two medical certificates have been submitted, the first stating that the disease is no longer active and the second, after a further six months, stating that the improvement has been maintained. On returning to work the employee should be examined at three-monthly intervals for the first year and at six-monthly intervals for the next two years. (4) An unusually high incidence of tuberculous infection in a group of children should lead at once to a full investigation of the staff employed.

These recommendations are not of course intended to apply only to school teachers, but it is probable that local education authorities will be more interested in them than other public bodies. The problem of the school teacher who develops pulmonary tuberculosis and wishes to return to his or her previous employment is no easy one, and the strict enforcement of the Board of Education's old rule (which is similar to the first part of recommendation 3 above) has led to the disappointment and resignation of many good teachers who, even though successfully treated with artificial pneumothorax, may find it impracticable to remain unemployed while waiting for the required certificates. No doubt some of these have found work in private schools and it is to be hoped that those responsible for such schools will have a chance of studying the recommendations of the Children's Committee, which in any case are certain to receive the support of the school medical officers of local education authorities.

The report draws attention to the fact that in the past it has not been the practice to seek the source of tuberculosis in an infected child in the school which he attends, nor to investigate the school contacts of any teachers who may be discovered to have developed the disease. Hyge<sup>4</sup> has shown the dangers of this omission. In a State school for girls near Copenhagen in 1943 an influenza-like epidemic broke out almost explosively. A full investigation showed that 47 of the girls had developed pulmonary tuberculosis. The source of infection in all probability

was a teacher in whom the presence of pulmonary tuberculosis had not been recognized. An epidemic of tuberculosis in the Faroe Islands has also been reported recently, in this 22 patients were infected by a single girl. It is possible that the carrying out of the final recommendation of the Children's Committee of the Joint Tuberculosis Council might bring to light similar outbreaks in this country.

## NEW FACTORS IN SHOCK AND HYPERTENSION

In a series of papers a group of workers from Cornell University Medical College report the results of their investigations into certain of the problems of shock and hypertension. They have demonstrated the existence of two hitherto unrecognized blood-borne vasotropic substances which they have named vaso-depressor material (VDM) and vaso-excitor material (VEM). These substances are assayed by the following technique.<sup>1</sup> A rat meso-appendix is prepared for observation of its vessels; increasing concentrations of adrenaline are applied locally, and the response of arterioles of a certain size is noted. The concentration of adrenaline needed to induce certain alterations in the circulation is taken as an end-point. The material to be tested—e.g., plasma—is now injected into the tail vein of the rat, and the adrenaline sensitivity is re-assayed. They find that this indirect technique based on the response to adrenaline is more reliable than directly observing the alterations in circulation in the meso-appendix that accompany the alterations in sensitivity to adrenaline.

VDM depresses the responsiveness to adrenaline, causes diminished frequency of vasomotion (contraction and relaxation) of the metarterioles and precapillaries, slows capillary circulation, and may cause a fall in blood pressure. VEM has the converse action and stops the circulation in some capillaries.<sup>2</sup>

The blood of animals (rats, rabbits, and dogs) in which shock was induced by tourniquet, leg pounding, Noble Collip drum, and by haemorrhage showed alterations which could be repeated, in the blood content of VEM and VDM as shock developed. When the animal was in mild or early shock its blood caused a 10- to 20 fold increase in adrenaline sensitivity on test preparations (VEM activity). Later the adrenaline sensitivity fell to well below that found with control animals, and this rise in VDM activity was associated with the development of irreversible shock which no longer responded permanently to fluid replacement therapy. By assaying extracts of organs of animals killed during various stages of shock<sup>3</sup> it was shown that VEM is produced only by the renal cortex, while VDM is produced by the liver and to a less extent by the spleen and muscle. The same workers also isolated the substances from these organs when they were incubated under anaerobic conditions. When incubated aerobically kidney destroyed VEM and liver destroyed VDM and to a less extent VEM.

Mazur and Shorr<sup>4</sup> have prepared VDM in a partially purified state such that 0.1 gamma can be easily assayed. It is apparently a protein of molecular weight 10,000 to 15,000, and iron appears to be an essential part of the active molecule. Less is known about VEM, but it appears to be distinct from renin or angiotonin.<sup>5</sup> Because of the circulatory change that VDM causes, it seems likely that it plays a part in the development of shock, but, as Chambers and Zweifach<sup>1</sup> themselves point out, so do other factors.

<sup>1</sup> *British Medical Journal* 1948 2 232.

<sup>2</sup> *Closure of and Exclusion from School* 1927. London: HMSO.

<sup>3</sup> *Report of the Children's Committee* 1948. Joint Tuberculosis Council, London.

<sup>4</sup> *Acta tuberc scand* 1947 31, 1.

<sup>5</sup> Poulgen A. *ibid* 1947 31 58.

<sup>1</sup> Chambers R. and Zweifach B. W. *Amer J Physiol* 1947 150, 239.

<sup>2</sup> Shorr E. *Amer J Med*, 1948 4 120.

<sup>3</sup> Shorr, Zweifach, Furchgott, and Biez. *Factors Regulating Blood*. 1947 p 32. Josiah Macy Jr. Foundation, New York.

<sup>4</sup> Mazur and Shorr *ibid* p 53.

<sup>5</sup> Furchgott and Shorr *ibid* p 60.

In an extension of this work Shorr *et al*<sup>3</sup> have shown that the kidneys produce VEM under the same circumstances as they produce renin in experimental Goldblatt hypertension, but there is an important difference in that VEM can be demonstrated in chronic experimental hypertension whereas renin cannot, for it apparently disappears with the acute phase. A curious and as yet unexplained finding is that VDM is also produced in chronic experimental hypertension and masks the VEM activity. To demonstrate the VEM it is necessary to incubate the plasma aerobically with liver to destroy the VDM. Of great interest is the finding by this technique that 12 patients with essential hypertension had raised amounts of VEM and VDM in the blood. What part, if any, these substances play in the genesis of essential hypertension remains to be seen, and this work raises the hope that the actions of VEM may explain much that those of renin have failed to do.

### GENETIC COMPONENT OF LANGUAGE

In a recent paper C D Darlington<sup>1</sup> has made an original and thought-provoking contribution to the study of human genetics. He starts by emphasizing the importance of differences in language in maintaining mating barriers among human beings. Though a new language may be imposed upon subject peoples, and the stems of words and to a lesser extent grammar may remain relatively fixed, the phonetic complement—the sound equipment of a people—may reassert itself. There is evidence to show that this sound complement may well depend, at least in part, upon genetic constitution. The new speakers change the language in order to fit their preferences in sound production. There is no need to postulate any great difficulty—simply this measure of inborn preference “the tongue which prefers and adopts and the ear which later approves, the easy course”.

The simplest European variation which can be traced over the centuries with considerable accuracy is the presence or absence of the Th sound. This sound was present in the common ancestral Indo-European language, it expanded westwards, where it met a Th-speaking Basque one, and in the East it met non-Th-speaking peoples. Later there were successive movements into Europe from the East of peoples who did not have Th. In eastern Europe this sound was lost in prehistoric times. From 300 B.C. to 1400 A.D. the loss spread from Italy through France and Germany to Sweden. To-day in Europe Th persists only along the fringe—Iceland, Great Britain, Spain and Greece, being retained to a variable extent in western Norway, Denmark, and a few smaller outlying areas. The remarkable point that Darlington brings out is that maps showing the distribution of Th and of the ABO blood groups correspond with a faithfulness that is startling. It should be explained in passing that Darlington relies on the distribution of blood-group gene O. Previous writers have almost invariably prepared maps showing variations in gene A and gene B, gene O being left as the unmapped difference. Apparently this has served to obscure the kind of relationship now brought out. It is true that Haldane<sup>2</sup> used triangular co-ordinates for plotting the three gene frequencies simultaneously, but this is a device which is not readily understood by the non-mathematical. Darlington's maps show that with little exception the peripheral European one from Iceland to Greece has 65% to 75% of gene O and also possesses Th. The intermediate zone with O ranging from 61.5% to 64.5% stretches from Sweden to France and corresponds to the area where Th was once

present but has now been lost. The main eastern zone and the Portuguese sector of the Iberian peninsula have less than 61.5% of O and never had Th. The only exception to complete correspondence in the maps is that Italy and Holland have not retained Th.

The contrast between Portugal and Spain in both maps is particularly striking. On the one side we see 61% gene O and complete absence of Th, on the other 65–69% gene O and a determined reintroduction of Th after a period of conquest by a non-Th people. The gradient between Greece and her neighbours is also sharp—56% gene O and no Th on one side of the mountain barrier, 68% gene O and Th on the other. The finer differences in the British Isles are in conformity with the association. The maxima of both variables occur in Ireland, falling through Scotland and Wales to northern England and finally to minima in the south-east, where Th tends to be replaced by D in Kent and by V or F in London. Apparently the oldest non-Th speakers remain as the outermost fringe of all—i.e. in Portugal. There is also a region of variable Th in western Ireland. The Th speakers in turn have been pushed outwards by the non-Th speakers from the east. Phonetics, blood groups, and history are all in harmony and point to the same conclusions. It is clear that Dr Darlington has produced weighty evidence for a genetic component in language and has called attention to methods of study in human and population genetics that should yield very valuable results in the future.

### INDEPENDENT DOCTORS

Lord Horder, in a recent letter,<sup>1</sup> criticized the Council for its handling of the situation which developed after April 7. He said “There are many doctors asking for guidance, not only for themselves but for their sons and daughters thinking of medicine as a vocation.” And to these he added many members of the public and “men who will leave the Service they have too hastily joined out of fear and not conviction.” Lord Horder went on to invite readers to send him their views privately. According to a long report in the *Observer* of Aug 8 consultants and general practitioners have begun discussions in London this week “to create an organization for doctors who have chosen to remain outside the National Health Service.” According to the *Sunday Times* this is the outcome of the letter Lord Horder, who is to take part in the discussions, wrote to the *Journal* on June 19. Lord Horder is reported to have said to the *Sunday Times* correspondent that as he was a member of the Council of the B.M.A. he would “hesitate before setting up another body outside that organization.” The *Observer* states “Those who will take part in this week's discussions consider that the independent doctors must be organized for mutual protection and assistance, and must be ready to assist the B.M.A. in any future opposition it may give to further State encroachments on the traditional practices of the profession and essential rights of its patients.” According to this newspaper many of the independent practitioners believe that increasing numbers of patients will seek medical attention outside the scheme, and believe, too, that the Government will welcome their assistance.

It would seem improbable that Lord Horder would signalize his first year in office as a member of the Council of the B.M.A. by helping to create an organization outside it. If those taking part in this week's talks feel that some kind of “watch committee” is necessary to represent the interests of those staying outside the National Health Service there would appear to be no reason why such a committee should not be set up for this purpose in the B.M.A.

<sup>1</sup> *Heredity* 19:7 1 269

<sup>2</sup> *Hum Biol* 1940 12, 457

## PERITONEOSCOPY

BY

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My object in writing this brief article is to make a plea for the wider use of the peritoneoscope. Although the possibility of peritoneoscopy as a method of examination of the abdomen has been known for many years it has been used surprisingly little in this country. Indeed, it is remarkable that it has not become one of the standard endoscopic methods used in every hospital where general medical and surgical work is done. I have most frequently gained help from the peritoneoscope in the diagnosis of disease of the liver and in recognizing metastases in the abdomen. Clinically it is often difficult to distinguish between a malignant liver and cirrhosis, but by the comparatively simple procedure of peritoneoscopy the diagnosis is easily settled. By the same means metastases can readily be recognized in the omentum, intestines, parietal peritoneum, etc.

It is an everyday experience for the abdomen to be opened for exploration of a carcinoma and to find metastases in the liver or elsewhere. The surgeon has carried out an unnecessary operation and is as deserving of blame as if he had explored a bladder without first cystoscoping the patient. It is not so many years since I witnessed a surgeon (inexperienced in the use of the cystoscope) opening a bladder to remove what he from the radiographs thought was a stone, when really the case was a beautiful example of calcification in a uterine fibroid. The crime of opening the abdomen and finding the case inoperable owing to the presence of metastases is committed daily in this country by surgeons inexperienced in the use of the peritoneoscope.

I would urge most strongly, therefore, that surgeons should become as familiar with the use of the peritoneoscope as they are with the cystoscope. It is undoubtedly easier to interpret the view seen in a peritoneoscope than that seen in a cystoscope or gastroscope, yet it remains a most singular fact that extraordinarily little attention has been paid to peritoneoscopy.

## History

Kelling in Germany in 1910, using a cystoscope, was the first to report an attempt at peritoneoscopy, the instrument carrying its own light—although Ott, a Russian, in 1901 was the first to look into the peritoneal cavity through a small opening, but he used a speculum and head-mirror. Various further makeshift peritoneoscopes were done, using cystoscopes, sigmoidoscopes etc., but it was not until Ruddock, of Los Angeles, published his papers in 1934 and 1937 describing his peritoneoscope that a wider interest in the subject was aroused. Since then many papers have appeared in the American medical literature, but very little has been written on the subject in this country. The first to make an important communication were Prof. Milnes Walker, of Bristol, and Mr. Playfair in 1942. Peritoneoscopy was the main subject of the evening at a meeting of the Royal Society of Medicine in 1943, the opening speakers being Prof. Milnes Walker and Dr. Cooke, of Oxford, who clings to the name laparoscopy. I can find no article on peritoneoscopy in the *British Medical Journal*, except a brief note on the subject in 1925 by Rendle Short, who used the word "coeloscopy" and employed a cystoscope.

## Technique

The procedure consists in distending the abdominal cavity with air, which is introduced through a cannula inserted with the help of a trocar a little distance above the pubes in the midline. The abdomen is fairly tightly distended so that the abdominal wall is firm. An incision about 1/4 in (0.6 cm) in length is then made a little distance below the umbilicus in the midline, and the peritoneoscope, held very firmly, is slowly pushed through into the peritoneal cavity. The air has lifted the abdominal wall away from the intestines and omentum so that these are not injured if reasonable care is taken. The introducing trocar of the peritoneoscope is then withdrawn from the sheath, and the telescope, which carries a light on its

end, is passed down the sheath, into which it fits with an airtight washer. The examination of the cavity then proceeds.

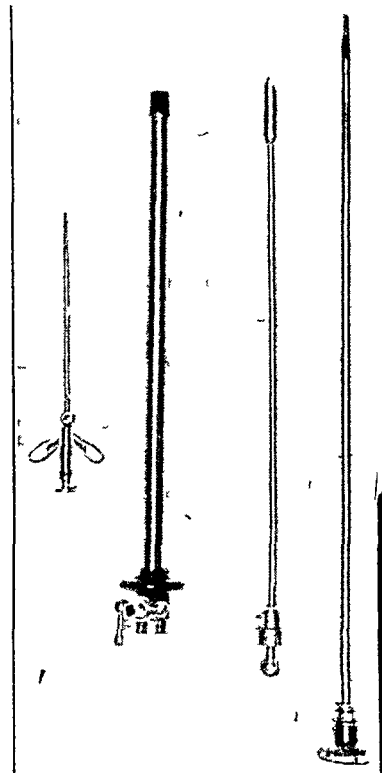
I have used a Ruddock peritoneoscope since 1938 on numerous occasions, about an equal number of examinations being done under local analgesia and general anaesthesia. Intravenous thiopentone is quite satisfactory as a general anaesthetic. Under procaine local analgesia many patients do not complain at all, though others resent the abdominal distension with air, and a few experience some pain when the instrument rubs against the parietal peritoneum as it is moved about inside the abdomen. When the examination is finished as much air as possible is let out through the sheath, which is then withdrawn, and the tiny opening is closed with one stitch. There is no need for the patient to remain in hospital.

The procedure is carried out in an operating theatre with full aseptic ritual, and it is of much convenience to have a table which tilts into the Trendelenburg and reverse Trendelenburg positions. The instrument is inserted below the umbilicus because this makes it easy to see both sides of the upper abdomen by passing it first on one side of the falciform ligament and then on the other. Adhesions may cause trouble in moving the peritoneoscope about. It is dangerous to insert the instrument into the abdomen close to a previous incision as intestine may be adherent to the abdominal wall at this point and so be injured.

The information that can be derived from the view obtained is of course not by a considerable measure so great as that which can be got from a laparotomy. Only the anterior surface of the structures in the anterior part of the abdomen can be seen, though by inserting a slim straight metal rod through a separate puncture in the abdominal wall the edge of various structures can be raised and a view obtained under them. Information of the greatest value can, however, be obtained. It is possible to see nearly the whole of the liver, the fundus of the gall-bladder, the anterior wall of the stomach and most of the colon, the omentum, much of the small intestine, and the parietal peritoneum. The spleen is difficult to see unless it is enlarged, and only very seldom can the appendix be seen. In a steep Trendelenburg position one can often inspect the depths of the pelvis, though sometimes the small intestine will not come up out of the way.

Complications of peritoneoscopy are insignificant. The majority of patients have no after-effects whatever. A small area of surgical emphysema appears around the puncture site in an occasional case. In only one case was it at all extensive, spreading to most of the abdominal wall, in a few days subsided without any untoward result.

When introducing the preliminary trocar and cannula for the pneumoperitoneum care has to be taken to make sure it has gone through the parietal peritoneum as well as the *linea alba*. Sometimes the peritoneum is very loosely attached to the abdominal wall and gets pushed forward, with the result that when air is pumped in it strips the peritoneum up over



1, Trocar and cannula for pneumoperitoneum 2, Outside sheath of the peritoneoscope 3, Trocar for introducing the sheath 4, Telescope

very wide area and causes an internal surgical emphysema this makes further examination most difficult. No instance of injury to gut or viscera has occurred in any of my cases and in none has there been haemorrhage or sepsis.

### Summary

A strong plea is made for more frequent use of the peritoneoscope. The technique and the application of peritoneoscopy are briefly outlined.

## INTERNATIONAL CONGRESS OF PSYCHOLOGY

### MEETING IN EDINBURGH

The Twelfth International Congress of Psychology, originally planned for 1940, was held in Edinburgh from July 23 to 29, and was attended by over 600 members from most European countries, the United States, Canada, China, India, Chile and elsewhere. The programme covered a wide range of subjects, with the main emphasis on cerebral function, social and industrial psychology, and child psychology. One of the striking features of the discussions was the high proportion of time devoted to the borderlands between physiology, neurology, and psychology. As Professor Adrian said, the neurologists, neurosurgeons, and physiologists were working on one side of a high wall and the psychologists on the other. It was clear, however, that determined efforts were being made in several countries to break this wall down and to link psychological concepts to neurologic findings.

Professor SYDNEY SMITH, acting Vice-Chancellor of the University of Edinburgh, welcomed the members of the Congress on July 23 and expressed great regret that Professor Emeritus James Drever, president of the Congress, was unable to be present owing to illness. In his absence the inaugural address was read by his son, Professor JAMES DREVER, and took the form of an interesting historical survey of the development of philosophy or introspective psychology, in Scotland during the past two centuries from David Hume's treatise on *Human Nature* in 1739 to the present time.

### Cerebral Function

Professor E. D. ADRIAN spoke on the physiological mechanisms of the brain. He said that though neurologists and neurosurgeons had most to say about recent developments in the physiology of the nervous system, a description of some of the general reactions of nerve cells and the activity taking place in them was of interest to psychologists. Most important was the great amount of activity in the nerve cells that made up the higher levels of the nervous system. There was a constant cycle of physical changes, and the mechanism of rhythmic discharge was highly developed with a wide range of frequency. The stimulus of the sensory endings caused instability sufficient to give a continuous discharge of low frequency. In the brain constant activity was the rule. Although greatly reduced by an anaesthetic or sleep it could be brought back by a single stimulus. (This was demonstrated by amplified recordings from the olfactory bulb of a fully anaesthetized rabbit.) There was some evidence to show that consciousness (behaviour) depended on the cells of the brain having some degree of instability, which made them of constantly changing receptivity. The cells of the cortex had a spontaneous constant changing activity. At a lower level in the spinal cord there was less evidence of changing activity—reflex centres must behave with complete obedience to orders. The cells of the brain were not so obedient; conscious activity being less predictable.

Professor O. L. ZANGWILL (Oxford) dealt with the subject of visual orientation in relation to cerebral dominance. It had long been known that lesions involving the parieto-occipital region of the cerebral cortex were liable to provoke marked and characteristic disturbances of visual space perception. The principal types of disability hitherto described were (a) visual disorientation, which might be complete or incomplete according to whether the responsible lesion was bilateral or unilateral, (b) disturbances in visuo-spatial articulation and in the appre-

ciation of high-grade spatial relations in the visual field, and (c) distortion of the main co-ordinates of visual space. Disorders of the second and third type were particularly common in cases with right-sided parieto-occipital lesions, and he tentatively suggested that some mechanism of special significance for visual space perception was located in the minor hemisphere. Preliminary evidence in support of this view based on the comparative psychological study of cases with right-sided and those with left-sided parieto-occipital lesions, was discussed in some detail. The relation of visual object-agnosia to lesions of the dominant hemisphere, and of topographical memory loss to lesions of the minor hemisphere was also briefly considered. In the light of the available evidence Professor Zangwill concluded that object and colour recognition, and the simultaneous grasp of a complex perceptual field, appeared closely bound up with the activity of the dominant hemisphere, whereas the general framework of spatial relationships seemed to depend to a much greater extent on the contribution of the minor hemisphere. It appeared, therefore, that the principle of cerebral dominance applied to some at least of the processes subserving visual cognition in general.

### Electroencephalography

Dr T. C. BARNES (Philadelphia) described the physiological and psychological factors in electroencephalography. There were many physical, chemical and psychological conditions that affected brain-waves. It was probable that the electrical activity of the brain was produced by phase-boundary potentials generated by acetylcholine at the interface between brain lipid and tissue fluid. This cholinergic theory suggested that parasympathetic activity might be associated with increased electrical activity of the brain, and, conversely, that signs of sympathetic activity might accompany decreased activity. Also, the vasodilatation of cerebral vessels produced by acetylcholine might promote bio-electrical potential. Evidence for this theory was found in the following investigations. In a group of normal persons whose EEG became abnormal on hyperventilation the skin temperature of the hand fell an average of 1.6°C and pulse rate rose 35 beats, compared with an average fall in skin temperature of only 0.6°C and pulse rise of 23 beats in normal persons whose EEG was unaltered by hyperventilation. These results supported the theory of parasympathetic control of the encephalogram. In addition to physiological studies it had been found that psychological tests also aided in the interpretation of the EEG, and it was useless to record brain-waves without careful study of all possible cholinergic and psychogenic elements. (Throughout the reading of this paper many of the points were strikingly illustrated by a volunteer who was connected to an electroencephalograph, the resulting record being circulated as a continuous tape among the audience.)

### Prefrontal Leucotomy

In a symposium on this subject a paper by Professor G. JEFFERSON (Manchester) was read by a deputy. After a review of the beneficial effects of lobectomy in lesions of the frontal lobe, and a discussion of frontal lobe function, the effects of leucotomy were considered. Bilateral frontal lobe damage, whether caused by tumours, injury, or lobectomy, gave rise to certain faults such as lack of initiative, lack of normal inhibition in emotional behaviour, and inability to learn new tasks. These faults were also liable to occur after leucotomy, but fortunately the changes were not so apparent in the majority of cases as to make a deep impression on either the patient or his relatives, who in favourable cases are so much impressed by his greater tractability that faults are minimized or overlooked. It was impossible to give a clear-cut account of what happened after leucotomy, owing to the fact that each patient was an individual behaving according to his own personality and his own environmental and genetic history, but observations on a series of 70 cases had shown that those patients did best who, before they became mentally deranged to a point requiring active treatment, had had time to acquire distinct personalities. Thus, patients suffering from depressive states, and those developing delusions or paranoia late in life, would be more likely to improve after leucotomy than the schizophrenics. One tiresome sequel to leucotomy (commonly



presented in pure frontal lesions) was incontinence during consciousness, this might persist for six months or more

Dr E STENGEL (Chichester) suggested that prefrontal leucotomy would be of only historical interest in years to come when more refined techniques were available. Its effects in terms of physiology or psychology could not be defined but only in terms of personality change. The effects were reduction of spontaneity, lowering of emotional tensions and less ability to maintain emotional tensions, decrease of social responsibility, and a general lowering of the level of behaviour. Sometimes restlessness was produced. Leucotomy acted in two ways—by causing changes in certain mechanisms involving the prefrontal lobes, and as a powerful shock treatment. Good effects were produced in chronic depressive states. The chronic stress of schizophrenia could be turned to contentment, without however enabling the patient to be discharged. Changes of personality were dependent not so much on the extent or site of the lesion as on the patient's previous personality.

Dr W MAYER GROSS (Dumfries) maintained that prefrontal leucotomy not merely balanced but extinguished psychotic symptoms, and the problem for the future was to produce as much reduction of psychotic symptoms as possible with the minimum of prefrontal lobe deficiency. He described one patient who had recurrent attacks of catatonia, which were temporarily stopped by insulin, shortened by shock therapy (which also increased their frequency), and permanently (so far) removed by leucotomy.

Dr A A W PETRIE (London) gave a preliminary report on the results of the psychological investigation of patients following prefrontal leucotomy. Tests were given prior to operation and two and six months post-operatively and in a preliminary analysis at the first retest after leucotomy changes were noted in tests of persistence, muscular control, self-blame, speed and suggestibility.

Dr A MEYER (London) described the results of examining 97 brains of leucotomized patients who had died, and discussed the effects of the operation according to the relation of the cut to the fibres connecting with the thalamus and hypothalamus. He concluded that patients who do badly and die soon after operation usually have an unduly posterior cut. The degree of personality change seemed to be associated with the number of fibres cut. The less desirable changes appeared with unduly posterior cuts. Cutting the central orbital fibres was of importance in producing an effective result.

Dr M A PARTRIDGE (London), describing the effects of leucotomy, said that in the early weeks urgency and frequency of micturition or dribbling of urine were often noted. The early picture was of increased fatigability and reduced activity, but patients could be energetic when interested. With time normal activity returned more than did normal restraint. Patients were thus less keyed up, more placid, and less restrained. They developed a "selective carelessness," not doing things they were not keen to do, and avoiding effort and discomfort. Hypochondriacal symptoms disappeared. The effects of leucotomy were dependent on the previous personality.

Dr K GOLDSTEIN (New York) said that in measuring the performance of patients who had had prefrontal leucotomy psychologists must not rely on the total scores for tests, but should study the way in which these were achieved. Many patients succeeded in more difficult but failed in easier tests. The key to the intellectual changes following leucotomy lay in the loss of the power of abstraction. Concrete performance was not so much impaired. Good social adjustment was due not so much to increased social co-operation as to reduced self-criticism. Such patients seemed restricted in personality and abnormally dependent on the outside world and there was a need to reconstruct the patient's life. The question was whether an operation of this kind was justified when it deprived the patient of his essential nature.

#### Problems of Ageing

Dr A T WELFORD (Cambridge) surveyed the work of the Nuffield Foundation research unit established at Cambridge in 1946 under the direction of Sir Frederic Bartlett. From a preliminary interpretation of the findings of investigations into differences of skilled performance associated with different age groups it appeared that the principal locus of change lay within the central mechanisms. On the receptor side there was an

increasing difficulty among older subjects to comprehend or organize a visual field or set of presented data. On the effector side there were differences of method of building or organizing a response. These changes of method appeared to compensate fairly effectively for deficiencies in many cases so that measurements of total achievement did not give at all an adequate picture of the changes of performance.

In addition to the very full daily programmes, special evening lectures were delivered by Dr H S LANGFELD (Princeton) on "American Psychology To-day," by Dr A MICHOTTE (Louvain), and by Sir FREDERIC BARTLETT (Cambridge) on the "Challenge to Experimental Psychology."

### CENTRAL HEALTH SERVICES COUNCIL

As we stated last week, the Minister of Health, Mr Aneurin Bevan, has announced the members of the Central Health Services Council, of which we give a list below. One appointment has still to be made. Mr Fred Messer, M.P., has been elected chairman, and Professor Henry Cohen vice-chairman. The secretary is Mr E J S Clarke, of the Ministry of Health.

*Ex-officio*—Lord Moran, President of the Royal College of Physicians of London; Lord Webb-Johnson, President of the Royal College of Surgeons of England; Sir William Giliatt, President of the Royal College of Obstetricians and Gynaecologists; Dr Harry Guy Dain, Chairman of Council of the British Medical Association; Sir Herbert Lightfoot Eason, President of the General Medical Council; Dr George Frederick Buchan, Chairman of the Council of the Society of Medical Officers of Health.

*Medical Practitioners*—Dr Janet Aitken, physician (London); Professor William George Barnard, pathologist (London); Mr Aleck W Bourne, obstetrician and gynaecologist (London); Dr James Alexander Brown, general practitioner, member of Birmingham Regional Hospital Board (Birmingham); Sir Ernest Rock Carling, surgeon (London); Professor Henry Cohen, physician, member of Liverpool Regional Hospital Board and Board of Governors (Liverpool); Dr Edward Andrew Gregg, general practitioner, member of County of London Executive Council (London); Dr Wilfred Vivian Howells, general practitioner, member of Swansea Executive Council (Swansea); Dr Horace Jules, physician and medical director, member of NW Metropolitan Regional Hospital Board and of Hammersmith, etc., Board of Governors (Middlesex); Professor Aubrey Julian Lewis, psychiatrist, member of Bethlem and Maudsley Hospital Board of Governors (London); Dr William Gordon Maisefield, psychiatrist, member of SE Metropolitan Regional Hospital Board and of Bethlem and Maudsley Board of Governors (Sussex); Dr William Norman Pickles, general practitioner, member of Yorkshire North Riding Executive Council (Aysgarth, N York-shire); Professor Sir Harry Platt, orthopaedic surgeon, member of Manchester Regional Hospital Board and Board of Governors (Manchester); Professor James Calvert Spence, paediatrician, member of Newcastle Board of Governors (Newcastle upon Tyne); Dr Clement Willoughby Walker, general practitioner, member of Cambridge Executive Council (Cambridge).

*Persons with Experience in Hospital Management*—Mr Frank John Cable, superintendent, Manchester Royal Infirmary (Manchester); Mr Sydney Clayton Fryers, house governor and secretary General Infirmary at Leeds, member of Leeds Regional Hospital Board (Leeds); Hon Arthur Jared Palmer Howard, Chairman of St Thomas's Hospital Board of Governors (London); Sir Owen Frederick Morshead, member of NW Metropolitan Regional Hospital Board (Windsor); Major General Sir Harold Augustus Wernher, Honorary Secretary of King Edward VII Hospital Fund and Chairman of University College Hospital Board of Governors (London).

*Persons with Experience in Local Government*—Alderman Albert Frederick Bradbeer, member of Birmingham Regional Hospital Board, Board of Governors, City Council, and Executive Council (Birmingham); Sir Wynne Cemlyn Jones, member of Anglesey County Council and Executive Council (Anglesey); Mr F Messer, chairman of NW Metropolitan Regional Hospital Board and Middlesex County Council, member of Middlesex Hospital Board of Governors and Middlesex Executive Council (Middlesex); Mrs Dorothy Thurtle, member of London County Council and Shore-ditch Borough Council (London); Alderman William E York, Lord Mayor of Sheffield, member of Sheffield Regional Hospital Board (Sheffield).

*Dental Practitioners*—Mr Frederick J Ballard, member of NW Metropolitan Regional Hospital Board, University College Hospital Board of Governors, and Eastman Dental Clinic Board of Governors.

(London) Mr J Lauer, member of Dental Estimates Board  
(London) Dr Harry Thomas Roper-Hall (Birmingham)

*Persons with Experience in Mental Health Services*—Sir Cecil Oakes, member of East Anglian Regional Hospital Board (Suffolk)

*Registered Nurses*—Miss Eleanor Jeannette Merry, education officer, Queen's Institute (London) Miss Mary Elizabeth Gordon Milne, matron, St Mary's Hospital (London)

*Certified Midwife*—Miss Nora Bryan Deane, matron, Bristol Maternity Hospital (Bristol)

*Registered Pharmacists*—Mr Richard Henry Henriksen, chief pharmacist, Dulwich Hospital (London) Alderman William John Tristram, member of Liverpool City Council and Executive Council (Liverpool)

## INTERNATIONAL CONGRESS ON INDUSTRIAL MEDICINE

### PROGRAMME OF LONDON MEETING

The ninth International Congress of Industrial Medicine will be held in London from Sept 13–17, and a preliminary programme has been issued. The opening of the congress will take place in the Central Hall, Prince's Street, Westminster, on Sept 13, at 11.30 a.m., when the chairman will be Lord Moran, and the Rt Hon G A Isaacs, M.P., Minister of Labour and National Service, will give the inaugural address. The chairman at the closing of the congress on Sept 17 will be Lord Webb Johnson, and an address will be given by the Rt Hon G R Strauss, M.P., Minister of Supply. Further information about the congress can be obtained from the organizing secretary, Room 501, B.M.A. House, Tavistock Square, London, W.C.1. The meetings will be either in the Caxton Hall, Caxton Street, Victoria, S.W., or the Alliance Hall, Palmer Street, Westminster, as shown in the summary of the programme given below.

*Monday Sept 13 2.30 p.m.* at Caxton Hall, Studies in Atmospheric Pollution, Industrial Nursing, Organization of Industrial Medical Services, Industrial Medical Content of the Law at Alliance Hall, Diseases of the Lungs other than Pneumoconiosis

*Tuesday Sept 14 10 a.m.* at Caxton Hall, Work and Skill, Environment—Lighting, Aetiology and Treatment of Surgical Conditions found in Industry, Training of the Industrial Medical Officer, at Alliance Hall, Industrial Nursing 2.30 p.m., at Caxton Hall, Environment—Architecture, Aetiology and Treatment of Surgical Conditions found in Industry, Radiant Energy—Hazards and Prevention, Toxicology, at Alliance Hall, Hazards and Aspects of Specific Industries

*Wednesday Sept 15 10 a.m.* at Caxton Hall, Medical Supervision in Industry, Pneumoconiosis (1), Ophthalmology Toxicology, at Alliance Hall, Organization of Industrial Medical Services 2.30 p.m., at Caxton Hall, Environment—Thermal Comfort, The Newer Metals, Organization of the Industrial Medical Service, Pneumoconiosis (2)

*Thursday Sept 16 10 a.m.* at Caxton Hall, Integration of Occupational Health with National and Community Services, Dermatology Preventive Methods in Mining, Aetiology and Treatment of Surgical Conditions found in Industry, at Alliance Hall Environment—Applied Physiology 2.30 p.m., at Caxton Hall Occupational Tumours of the Bladder Pneumoconiosis (3), Hazards and Aspects of Specific Industries Industrial Electricity

*Friday Sept 17 10 a.m.* at Caxton Hall, Incentives, Job Adjustment and Absenteeism, Pneumoconiosis (4) Hazards and Aspects of Specific Industries, Symposium on Colour Vision, at Alliance Hall, Toxicology

The Mackenzie Industrial Health Lecture on "The Surgeon in Industry" will be delivered by Mr H E Griffiths at B.M.A. House, Tavistock Square, London, W.C., on Friday Sept 17 at 5.15 p.m.

The programme also includes a list of places of technical interest to which visits will be paid during the week of the congress and the following week. Those wishing to be included in any of these visits should obtain Form IC/6 from the secretary of Section V of the congress at the address of the organizing secretary.

## ORGANIZATION OF CONSULTANTS

### FORMATION OF JOINT COMMITTEE

A conference of representatives of the Royal Colleges, two of the Royal Scottish Corporations, and the British Medical Association was held at the Royal College of Surgeons on Wednesday, July 28, to discuss the general question of the organization to represent consultants in the future. Sir Lionel Whitby, President of the B.M.A. presided. After discussion it was decided to submit to the bodies invited to the Conference the following propositions:

(i) That a Joint Committee of the Royal Colleges, the Royal Scottish Corporations and the British Medical Association be established to advise the Minister of Health on all matters concerning consultants and specialists

(ii) That the existing Committee of the Colleges and Corporations and the Central Consultants and Specialists Committee established by the British Medical Association continue in existence to brief the Joint Committee

(iii) That the Joint Committee be requested to allocate, as soon as practicable, fields in which their constituent bodies are free to take independent action and to deal with Governmental bodies direct

It was agreed to establish an Exploratory Committee of nine members with Sir Lionel Whitby as Chairman

[The above is the subject of a leading article at page 343]

## BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH

The following elections for 1948–9 are announced

*Senior Fellowship (£900 a year)* F Sanger, B.Sc., to study the structure of proteins, with special reference to insulin (at the Department of Biochemistry, University of Cambridge)

*Junior Fellowships (normal value £600 a year)* D A Darcy, B.Sc., to study the role of the lymphocyte and plasma cell in homograft breakdown (at the Department of Zoology and Comparative Anatomy, Oxford), R M C Dawson, B.Sc., to study biochemical changes in the brain associated with different forms of functional activity (at the Biochemical Laboratories, Cardiff City Mental Hospital), F N Fastier, M.Sc., to study the nature of the musculo-tropic action of basic amine derivatives (at the Department of Pharmacology, University of Oxford), L J Haynes, Ph.D., to study the synthesis of the coenzyme cozymase (at University Chemical Laboratory, Cambridge) A T James, Ph.D., to study the relationship between structure and biological activity in naturally occurring substances (at the Lister Institute of Preventive Medicine, London), A McCoubrey, B.Sc., to study analgesic and addictive tendencies from a chemical standpoint (at the Departments of Organic Chemistry and Pharmacology, University of Leeds), S W Stanbury, M.B. Ch.B. to study the effect of changes in nervous activity induced by narcosis and sleep on the renal circulation and blood pressure in normal and hypertensive individuals (at the Department of Medicine, University of Manchester), D Verel, M.B., B.Ch., to study the postural hypotension which may follow prolonged rest in bed (at the Clinical Research Unit, Guy's Hospital, London)

Regulations issued by the Secretary of State for Scotland empower local authorities under the National Health Service to provide services which go beyond the ordinary measures of health care. These include the supply of layettes and clothing for babies and mothers, meals at day nurseries, cots, beds, and bedding for people needing them on health grounds, and invalid chairs or invalid carriages. Because authorities might sometimes hesitate to provide items of this kind to people able to pay for them, the Health Service (Scotland) Act empowers the Secretary of State to allow authorities to make charges in this connexion. These regulations—the National Health Service (Local Authority Charges) (Scotland) Regulations, 1948—specify the items for which charges may be made if particular authorities wish to do so. Even where an authority decides to charge it can make a reduction where a person is unable to pay the authority's standard charge. Charges under the regulations may be either for outright supply or for supply on loan. In the latter case, and where they supply on loan other items such as ordinary nursing appliances for which no charge is allowed, authorities can make it a condition that loss or damage due to carelessness shall be paid for by the person responsible.

## Preparations and Appliances

### THE CURATOR HEEL

Mr KENNETH H PRIDIE, Bristol, writes In these days there is considerable delay in getting corrective alterations even of the simplest type done to shoes It seemed to me that it was obvious that there must be a mass-produced heel which could be quickly applied to a shoe by any competent repairer A new heel which embodies a simple corrective device for use in cases of unbalanced and pronated feet—the condition generally known as "valgus feet" (Fig 1)—is now being made by Messrs

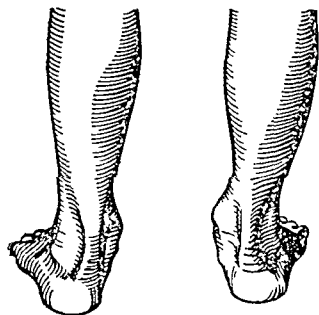


FIG 1

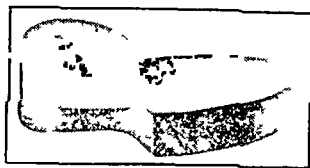


FIG 2

C and J Clark, Ltd, of Street This heel, which is made of moulded rubber, has the advantage of a half-elongated heel with a one eighth inch inside wedge, (Fig 2) The moulding has an improved support on the waist of the shoe which reinforces the upper so that it is not deformed by the pressure of a flat foot The increased support has been found very effective in difficult cases, in fact a patient with a severe valgus deformity due to muscle imbalance was able to dispense with the outside irons and inside T straps previously needed to maintain correction

The advantage of this appliance is that if elongation and wedging of the heel is necessary the elasticity of the heel is unaltered, in fact it is improved Most shoes in which the heel has been elongated and wedged become so rigid that the foot is splinted and the natural movements impeded However, with this moulded rubber heel the foot is supported, "in-rolling" corrected, and excessive rigidity of the shoe avoided (Fig 3)

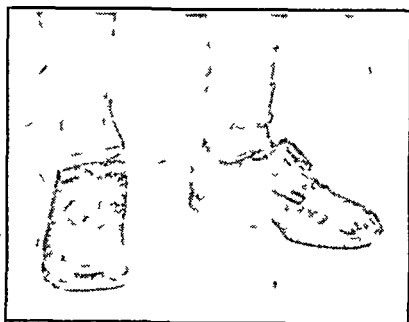


FIG 3

After consultation with the surgeon or doctor, the parent should take the child to be correctly fitted by the nearest retailer stocking Clark's shoes in the full range of sizes and widths These retailers are equipped with a special device for measuring the feet to ensure that a shoe is selected that gives the fullest amount of support combined with room for toes to grow When the correct shoe has been selected the retailer will arrange immediately to have the normal leather heels removed and the "curator heel" fitted The retailer will arrange this either in his own repair department or by sending the shoes to the factory to have the work carried out In either case the time taken should only be a matter of days

## Correspondence

### Diabetic Coma

SIR—In the *Journal* of July 24 your wise editorial comment (p 209) on the papers on diabetes appearing in the same issue will be welcomed by all those experienced in the treatment of the condition It is doubtful, however, whether the very mild though telling criticism which it contained on certain of the views expressed in the respective papers of Dr G M Wauchope (p 191) and Professor R H Micks (p 200) will be universally appreciated Perhaps our experience, which is fairly extensive may help to underline some of the observations made in your leading article and may also sound a warning note to those who may be tempted to follow implicitly the regimen suggested by your contributors

We have given globin insulin a thorough trial since it was first introduced, and though we have found it a most useful preparation in many patients suffering from mild or moderate diabetes it has proved entirely unsuitable when used alone in a great many cases of greater severity To suggest as Dr Wauchope does, that it is the insulin of choice in almost all ambulant cases of diabetes is an exaggeration which would only lead to the misuse of the preparation and to the consequent inadequate control of diabetes in a high proportion of patients It seems to us essential for clinicians to be fully aware of the limitations of globin insulin if the incidence of complications is not to increase

There is much in the article by Professor Micks on the treatment of diabetic coma which is valuable and worthy of the closest attention the necessity of aspirating the stomach contents and of giving adequate amounts of saline solution rapidly by the parenteral route needed to be stressed We find ourselves, however, quite unable to agree with the dosage of insulin which he recommends We fully appreciate that for too long there has been a general tendency to use quite inadequate amounts of insulin in this emergency and undoubtedly many lives are lost on this account but to go to the other extreme and to advocate such doses as 500 units initially, followed by 100 units as often as every ten minutes if improvement is not manifest within an hour, is in our opinion highly dangerous advice

It is certainly true that an initial large dose is needed in order to overcome the resistance to insulin which is so marked a feature of diabetic coma It is equally true that if the initial dose be inadequate insulin resistance will persist and may actually be increased As was first pointed out by Joslin, insulin given within the first three hours is considerably more effective than a similar dose spread over a longer period In the majority of cases, however, 100 units given initially followed by 100 units one hour and two hours later is sufficient to cause a rapid increase in sensitivity to insulin and to bring about a sharp fall in the blood sugar level When excessive loading doses are given, hypoglycaemia results, which in an unconscious dehydrated patient is not always as easy to recognize as Dr Micks would suggest Using the doses suggested by him such hypoglycaemia is bound to be a common occurrence, especially in the hands of inexperienced physicians in circumstances which do not permit of careful blood sugar control While the author acknowledges that such cases may be expected he dismisses hypoglycaemia as a minor complication which is easily remedied In doing so we believe him to be minimizing a very real danger, and that to precipitate a patient already severely shocked into hypoglycaemia may prove fatal in certain cases

In our experience the insulin dosage recommended by Professor Micks as a routine procedure is seldom necessary and should never be used by those inexperienced in the treatment of diabetic coma That he is able to advocate it with such confidence would seem to indicate that his patients are more insulin-resistant than most of ours According to his previous papers the patients under his care are taught to control their diabetes by insulin alone, without much dietetic restriction In our clinic the great majority of patients are treated not only by insulin but by fairly meticulous control of their carbohydrate and calorie intake It is possible, though by no means certain, that

this difference in dietetic control may account for the altered insulin-sensitivity exhibited in coma by the two groups of patients—We are, etc,

D M DUNLOP  
J B DONALD

Edinburgh

SIR—Professor R H Micks (July 24, p 200) stated, "As far as I know there is no record of a patient ever having passed from diabetic coma into a fatal hypoglycaemic attack." The implication is that this does not happen, but such a conclusion is hazardous. I would suggest that hypoglycaemia in the energetic treatment of diabetic coma, without facilities for frequent blood sugar estimations or utilization of such or without the concomitant use of glucose, is common and is occasionally fatal. I have certainly met with it when emergency treatment, particularly over week-ends, was in the hands of relatively inexperienced hospital residents. Publications of such cases may be advisable, but too much significance should not be attached to their absence.

At a 1947 endocrine conference, when I spoke of the dangers of overdosage with desoxycortone three doctors informed me of their experience of acute adrenal insufficiency being transferred into fatal hypopotassemia, and expressed their appreciation that the danger had been aired. Existing publications hardly reflected such experiences. Hormones are indeed powerful agents and overdosage no less a danger than timid inadequate therapy—I am, etc

London W 1

S L SIMPSON

SIR—The following case illustrates two points in Professor R H Micks's article (July 24, p 200)

The patient, a girl of 21 years, was admitted to hospital with a 7 months' history of great lassitude and amenorrhoea, she had had a boil on her buttock for 10 days. Retrosternal oppression and increased laboured respiration had been present for 12 hours. Temperature was 101.5° F (38.6° C), pulse 144, respirations 28. Her face was flushed, mouth parched, tongue red and dry, there were no chest signs, the heart was normal, the abdomen resistant. The patient was not comatose, and diagnosis of hyperglycaemia was only made after the urine had been examined and was found to be loaded with albumin, sugar, and acetone. Further questioning disclosed thirst and polyuria for seven months, blurring of vision for some weeks, and pruritus vulvae for two days. Blood sugar was 400 mg per 100 ml, and the BSR was 62.

The orthodox treatment of insulin and glucose was commenced with 50 units of soluble insulin and 50 g of glucose by mouth at 9 a.m. and repeated at half these doses two-hourly. The patient grew worse throughout the day, vomited 18 oz of dark-coloured fluid at 9.30 p.m., and became comatose. An intravenous dextrose saline was then given. Her rapidly worsening condition gave rise to anxiety, and the dose of insulin and glucose was stepped up to 25 units and 20 g hourly, and then half-hourly, until a total of 750 units of insulin had been given. Meanwhile catheter specimens of urine were examined with each dose for fear of hypoglycaemia. The large doses of insulin were administered as a desperate and final measure and were considered a gamble.

With a total of 750 units by 7 a.m. the following morning the patient showed marked improvement. Blood sugar had fallen to 85 mg per 100 ml, though the urine still showed sugar +++ (3%). Three days later she had a fasting blood sugar of 296 mg per 100 ml, which rose to 405 mg one hour after glucose and was 367 mg after 4 hours. Sugar +++ and acetone ++ were found in each specimen of urine during sugar-tolerance test. Further progress was uneventful.

This case is of interest as demonstrating Professor Micks's points of the dangers of too conservative an administration of insulin and of gastric dilatation. Large insulin dosage at an early stage would have been safer. Glucose was given both by mouth and intravenously in liberal amounts in accordance with current usage. The withholding of glucose in diabetic coma is a modern departure and an interesting one—I am, etc,

Starchley Birmingham

ROBERT J D BROWNE

SIR—To me it appears that Professor R H Micks (July 24, p 200) implies that injection of insulin into the tissues of an 'inaccessible' diabetic patient is devoid of danger. What else can he mean by advocating that "the doctor called to a case of coma should always give at least 100 units before even ordering the ambulance"? Perhaps the context makes it sufficiently

clear that his advice to general practitioners supposes competence to differentiate between diabetic coma and insulin reaction. Without presuming to give an opinion on the reasonableness of this supposition, I venture to record the impression gained as a hospital resident that many doctors are unwilling to attempt clinical diagnosis of the unconscious diabetic patient, and to suggest that the advice quoted above is not devoid of danger.

I have in mind an instance which may be without parallel but not without moral. A doctor summoned to the patient of a colleague (who was away) found a diabetic man unconscious. The doctor gave insulin and reassurance. Some four hours later the doctor prescribed more insulin and a hot-water bottle. Four hours after that the patient arrived in hospital, where consciousness was shortly restored with intravenous glucose. The patient recovered from his hot-water bottle burns in a fortnight and from the empyema which complicated his pneumonia in a further six months. When the doctor who had prescribed the insulin was told the history of the case, the only comment was, "At least my insulin did him no harm."

May I submit that Professor Micks's counsel to the general practitioner should be reworded: "The doctor called to a case of coma should always order the ambulance before giving any insulin"?—I am, etc,

Droitwich Spa

BRIAN WEBBER

### Pain in Phantom Limbs

SIR—In their letter (July 31, p 267) Dr R E M Bowden and Dr J R Napier put forward a point of view that I think should not be allowed to pass unchallenged. They state that cases of phantom limb pain should be divided into two separate and distinct types according to whether pain is (1) burning in character or (2) stabbing, shooting, or tingling. (They do not mention that in addition to these various degrees of cutaneous pain patients with phantom pain also experience deep muscle and joint pain.) Their view is, I realize, a commonly held one, but several reasons can be given for disagreeing with it.

1 *Experimental Observations*—Among the many interesting observations on pain sensation made by Sir Thomas Lewis and still not sufficiently well known, one was that exactly the same type of cutaneous stimulus could produce either burning pain or a stabbing, pricking sensation, the result depending entirely on the intensity and duration of the stimulus. A brief stimulus gives rise to "pricking" pain, a more prolonged stimulus to "burning" pain, and this is always so in whatever way cutaneous pain is provoked. In other words, the difference between burning pain and a stabbing, pricking, or tingling sensation is merely a difference in intensity and does not necessarily involve any difference in the nature of the causative lesion.

2 *Clinical Features*—In addition to patients who have constant burning pain in a phantom limb and those who have constant stabbing, pricking, or tingling sensation, there are many who, while they usually have a pricking or tingling sensation, experience burning pain during periods of exacerbation of pain such as commonly occur in these cases. There are also patients who generally do not suffer from any type of phantom pain but at intervals have attacks of pricking pain or of burning pain. And in many patients who have severe burning pain for some weeks or months after amputation the severity of the pain gradually lessens, so that later they have a stabbing, pricking type of pain, and later again experience even this type of pain only at intervals. It seems impossible to regard these different types of phantom pain as indicating different conditions, for that would imply that one condition could change for a period into another. The more reasonable view would seem to be that the nature of the condition remains the same, the only change being variation in intensity of pain. Moreover tender neuromata may be present in patients with burning pain as well as in patients with less severe pain, and in both groups pressure on tender neuromata causes exacerbation of pain. Such associated features as cutaneous tenderness, cyanosis, and hyperidrosis are as a rule prominent only in severe examples of the condition with burning cutaneous pain and usually also severe muscle and joint pain.

3 *Response to Sympathectomy*—Dr Bowden and Dr Napier state that patients with the less severe type of pain are unlikely to respond to sympathectomy. I carried out sympathetic procaine blocks in several patients of this group and found that in them, just as in patients with severe burning pain, this produced immediate relief in some and not in others. Subsequent operative sympathectomy was, however, practically never carried out in patients without burning pain, as in these patients the phantom sensation was seldom unpleasant enough to make them anxious to undergo a major operation for its relief.

For these reasons, then, I regard all cases of phantom pain as being similar in origin and mechanism of production, whether they have burning pain or not. It is, however, possibly not altogether desirable for the word "causalgia" to be used to describe all these cases with their varying painful sensations, or even for the term "minor causalgia" to be used for the less severe examples. As pointed out by Dr Bowden and Dr Napier, Weir Mitchell originally coined the word "causalgia," meaning literally "fire pain," to describe only the single symptom of burning pain, and it might still be desirable to use it only in this sense, or at least only for cases with this type of pain, without of course implying that there is any difference in pathogenesis between this "causalgic" pain and lesser degrees of pain following nerve trauma—I am, etc

Belfast

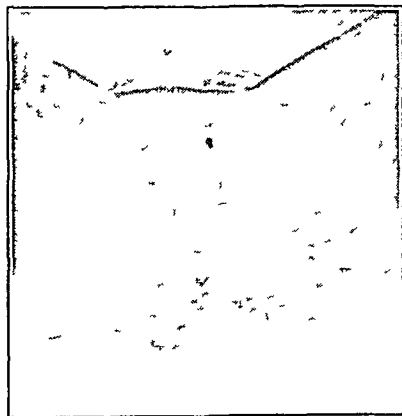
J A W BINGHAM

### Fibroma of the Labium Majus Complicating Pregnancy

SIR—It must be very rare for tumours of the vulva to reach such a size during pregnancy that they constitute a possible difficulty in labour. The following report describes the occurrence of such a tumour.

#### CASE REPORT

A Muganda woman came to the hospital in October, 1947, to await her confinement. She had had two previous normal deliveries and was then about eight months pregnant. It was a vertex presentation, and there was no disproportion. From the vulva hung an elephantoid mass the size of which can be gauged from the accompanying photograph.



This mass had first appeared in January, 1947, and the patient must have become pregnant very shortly afterwards. As the tumour was likely to cause obstruction to delivery it was decided to perform caesarean section at term, and then remove the mass later. Accordingly on Nov 19, 1947, when labour had just begun, a classical caesarean section was carried out.

Three weeks later, on Dec 12, 1947, the tumour was removed. It was found to be arising from the right labium majus, with a broad pedicle extending up to the right of the symphysis pubis. The mass weighed approximately 5½ lb (2.4 kg). Recovery was uneventful but the patient insisted on leaving hospital before the perineal wound had completely healed.

Dr R B Baird, of the Medical Laboratory Kampala reported on the tumour as follows: "Consists of a mass of fibro-fatty tissue in which there are fairly numerous dilated lymph vessels. I can find no evidence of lymphogranuloma or of filariasis, but cannot definitely exclude the latter. Probably a fibroma."

My thanks are due to Dr R B Baird for his pathological report and to Dr Hebe Welbourn for the photograph.

—I am, etc,

Kampala Uganda

W R BILLINGTON

### Acute Intussusception in Childhood

SIR—The interesting and thorough paper by Drs Brenda Morrison and Donald Court (April 24, p 776) brought to my mind an experimental and clinical study on the subject made by my former chief, Dr W Obadalek, which appeared in 1929 in *Bruns Beiträge zur klinischen Chirurgie* (146, 668). Its clinical part is based on 53 cases of intussusceptions in infants and children ranging in age from 3 months to 13 years, 28 of them under 2 years old. They were treated in the surgical wards of the Children's Hospital in Brno (Czechoslovakia) between 1910 and 1928. Since 1921 the number of infants among the material increased steadily, apparently because the condition was more frequently diagnosed by the general practitioner.

Obadalek's diagnostic observations concur with those of Morrison and Court and so do the results of treatment, which in 50 cases was surgical. A diagnostic "pointer" which Obadalek stresses is dullness on lumbar percussion of the supine patient which disappears after he has been turned on the opposite flank, thus indicating free fluid in the abdominal cavity. He found it in all cases of his material, and its great value in his opinion lies in the fact that it helps to differentiate non-surgical diseases—e.g., dysentery, purpura, constipation, alimentary intoxication—from abdominal conditions requiring surgical attention. In doubtful cases a diagnostic enema (without x-ray) often produced blood where none had been observed before.

The high proportion of intussusceptions in childhood—53 out of a series of 101 cases of ileus treated altogether in that period—Obadalek explains by (1) stronger intestinal peristalsis and more irritable intestinal mucosa in children, (2) the unequal growth of ileum and colon, resulting in a difference in diameter between ileum and colon, which is most marked in infants of 4–6 months, and (3) a mobile caecum frequently found in infancy and early childhood. The intussusception, he believes, is initiated by a localized intestinal spasm. In 15 out of his 50 operated cases congenital or inflammatory changes were found in the intestine concerned, or in its vicinity: 4 polypi, 3 Meckel's diverticula, 1 tuberculous ulcer and 7 cases of inflammation of the appendix ranging from chronic disease involving the regional lymphatics to gangrene.—I am, etc,

Derna Cyrenaica

F BARBER

### Filariasis

SIR—The initial clinical manifestation of *Loa loa* may only appear several years after infestation with the parasite, and infected individuals may not develop symptoms until after taking up residence in this country. Furthermore, as these symptoms are thought to be due to an allergic reaction to toxic products of the worm resulting in urticarial eruptions and painless swellings in the subcutaneous tissues, either localized (Calabar swellings) or diffuse, the condition may be diagnosed as angioneurotic oedema, and the underlying cause passed unrecognized. The following case report may be of interest.

A male, aged 26, was referred to hospital on April 7, 1948, because of a painless swelling of the left arm of 5 days' duration, and itching of the left shoulder. There was no history of relevant illness in childhood or adolescence, and the family history showed no proneness to allergic disorders. He had served in Southern Nigeria from 1943 to 1946, with only a few months' interval in 1944, and had had eight attacks of malaria. Repatriated in November, 1946, he had been fit and had worked up to the present illness.

On general examination he was well nourished, all the internal organs were normal. Slight conjunctival injection and palpebral swelling in the left eye was noticed. There was uniform swelling with no tenderness and with only slight pitting on pressure of the left axilla, arm forearm, and hand. A mild papular eruption could be felt over the pruriginous area. There were no nodules. He was recommended to take "anthisan," 200 mg 3 times a day, and to report in one week's time. The swelling did not subside with this treatment, and he was therefore admitted on April 15.

The history of prolonged residence in Southern Nigeria led us to suspect African filariasis, more commonly known as *Loa loa*, but no microfilariae were seen in the blood films taken on numerous occasions over a period of several days. A concentration test was also negative. Blood counts, however, showed on repeated occasions a high total leucocyte count, 21,000–32,000, with a marked eosinophilia of 51.5%–65%. The laboratory of the London School of Hygiene and Tropical Medicine kindly performed a complement fixation test with dirofilarial extract, and this was found to be positive.

The swelling slowly subsided and had practically disappeared by April 24, there remaining only a palpable gland in the left axilla. The patient was discharged on April 26. On April 30 the painless, diffuse swelling reappeared in the left supraclavicular region and shoulder. It disappeared on May 4. The patient was later transferred to another hospital for chemotherapy.

The diagnosis of *Loa loa* was based in this case upon the following significant points: (1) the occurrence of angioneurotic symptoms in an individual who had returned from a filarial region in West Africa, (2) the finding of leucocytosis with very high eosinophilia, and (3) the finding of a positive complement fixation reaction with dirofilarial extract. A skin test with the extract, often positive in the disease, was not carried out in this patient, under the mistaken impression that it might not be

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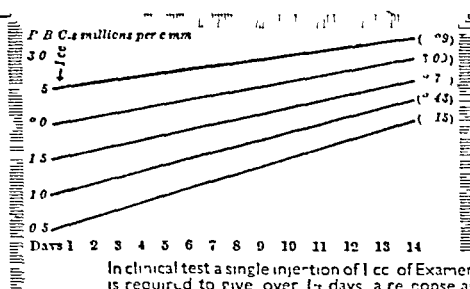
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advisable in the presence of acute allergic manifestations. Failure to find microfilariae in the blood does not exclude the diagnosis, as they may be very difficult to demonstrate in Loa loa. An annotation in the *Journal* (July 3, p. 32) has recently drawn attention to the possibility of the successful treatment of filariasis by chemotherapy.—We are, etc.,

G MELTON  
E MONTUSCHI

London N 21

### Compensation for Industrial Injuries

SIR—I would like to draw attention to a point in the National Insurance (Industrial Injuries) Act which will cause much dissatisfaction among employees. A man is adjudged to be recovered from a disability when he is able to enjoy the normal amenities of life and to return to work. It does not state that he is able to return to his *original* work. Thus a skilled worker, say for instance a french polisher, would not be entitled to any disability pension once his dermatitis has disappeared, even though he could never return to his highly paid job, because he is now fit to undertake labouring work. I believe there may be some small payment up to one pound in special cases, but nothing comparable with that under the Workmen's Compensation Act.

The only method open to the workman is to bring an action against the employer based on negligence, a very unsatisfactory and hazardous procedure. Even under the old Act the employee is often very dissatisfied, and one feels that he will be much more so unless some new arrangements can be introduced.—I am, etc.,

Leeds

F F HELLIER

### Standardization of Stretchers

SIR—I was much interested in the article by Lieutenant-Colonel R T Wells (June 26 p. 1246) on this subject, and I heartily agree that steps should be taken to standardize both the stretchers and the tracks in the ambulances themselves. As one who has taken an interest in ambulance work for over thirty-five years and who has had considerable experience with the fitting and maintenance of ambulances in peacetime and during the late war in civil defence, I feel, like your correspondent, that a common policy should be adopted, especially just now when the various health authorities under the Health Act, either directly or, as in some counties through their agents the St John Ambulance Brigade and the British Red Cross Society, are acquiring new vehicles.

I feel, too, that not enough use is made of the telescopic-handle type of stretcher, so useful not only in hospital lifts but also on awkward stairways where a carrying sheet is not practicable but this should not lead to ambulances being built with a shorter inside body measurement than 7 ft 10 in., otherwise interchangeability may be impracticable.

My view also is that the tracks for the stretchers to run in should be of the following type: on the side nearest the body of the vehicle both near and off L-shaped and that on the inner side near the gangway should be simply L-shaped. The vertical arm in each case should be towards the other track, unless of course the L-shaped tracks are made wide enough to allow for the difference of the width in the runners themselves or the actual width of the stretcher, so also giving a margin for the possible splaying of the stretcher in wear.—I am, etc.

Weston-super-Mare

HUGH POWELL

### Needles for Varicose Veins

SIR—The needles here illustrated have been used by me continuously since October, 1946. Their purpose is to abrade the interior of the internal or external saphenous vein at the operation of ligation of varicose veins. The larger extending needle is passed down the saphena magna from the groin and will occasionally travel to its full length—i.e. to well below the knee. The skin is pressed down over the rough end of the needle with the fingers and by short up and down movements

the venous endothelium is mechanically scarified thus ensuring rapid thrombosis, which will be followed by resolution and permanent obliteration of the internal saphenous trunk where it has been so treated. The smaller needle is inserted at the internal malleolus and usually passes up to the knee. This section is similarly lacerated internally.

These needles fit a Record syringe so that sclerosing fluids can also be introduced. Both sections of the extending needle are made to fit a Record syringe. The roughened ends have been arrived at by repeated experiments with Messrs. Down Bros., to whom I am indebted for their courtesy and assistance. I was introduced to this endothelial destruction by Dr. Field who had seen it used by Mr. Riddoch, of Birmingham, who kindly presented me with his needle. By their use only a small volume of sclerosing fluid is required and permanent destruction of the internal or external saphenous veins is certain.—I am, etc.

London W 1

HAROLD DODD

### Twin Pregnancy and Hydramnios

SIR—We should be grateful to Dr. R. W. Danziger (July 24, p. 205) for his note on twin pregnancy with acute hydramnios, for, as Browne points out, acute hydramnios is very rare. How rare I do not know, but in this hospital, where we see 1,400 deliveries annually, I have seen only one such case in five years. This would explain why textbooks of obstetrics hardly mention the treatment of puncture of the uterus.

Dr. Danziger says that there is no objection to repeating the process. I would go further than this and say that the puncture of the uterus should be repeated again and again provided it can be shown by the tape measure that the girth of the abdomen is constantly increasing. If it is not repeatedly aspirated, then there is a very great danger that the membranes may rupture spontaneously and the woman may die of the shock produced by the sudden liberation of gallons of fluid, to which may be added a post-partum haemorrhage.

The late Mr. Carnac Rivett's observation that the fluid is not under pressure is not borne out by my experience either. It is under great pressure and will continue to pour out of the cannula for as long as required. In my case first 7 and then 8 pints were aspirated.—I am, etc.,

British Hospital for Mothers and Babies  
London S E 18

KEITH VARTAN

### Control of Treatment

SIR—The recent controversy upon the importation of BCG for use in this country either by those who are convinced of its value, or alternatively for use only by some who would conduct a controlled five- to ten-year trial, raises a point of great pertinence.

BCG has been used over many years and detailed results have been published by men of high repute in many countries. On the basis of these reports many in this country have already concluded in its favour. They would say that the proposed trial would be an unjustifiable deprivation to many who would otherwise receive BCG and a restrictive control applied in the field of preventive medicine. The other group finds reason to doubt the validity of the published statistics and wishes trials to be repeated on lines more acceptable to our statisticians. A compromise might be reached by providing clinical material through certain institutions for a long-term trial and at the same time allowing physicians of standing in the tuberculosis field to use BCG as they thought fit. By either of the last two schemes a black market would probably be created.

Be that as it may, and admitting the existence of two opinions on the subject, there is still an even more basic principle involved. The Ministry of Health would appear at present to be considering restriction of the use of a new treatment in this case prophylactic, by means of restriction of import. This raises the question as to whether new drugs and treatments should be tried out by whoever wishes, or in some cases be at first restricted to special research trials. This is a matter which is of great importance to clinical medicine and of no concern in the first instance to administrators. It should therefore be settled by a body representing the profession and not by a Ministry. Indeed the administrative mind is likely to introduce cross currents into a discussion which ought to lead



to a decision based solely upon scientific considerations. When that basic decision has been taken, then we are still faced with the question as to whether this or that new drug should be the subject of restricted trial or not. Again I say that only a purely professional body should take these decisions and not the Ministry of Health. It is a short step from restriction of import from abroad by the Ministry to control of the distribution of home-produced drugs.

The Ministry can in this instance apply control because we do not produce BCG ourselves, but it would be wrong to allow this particular case to develop further without realizing what is involved: control in the clinical field by the Ministry, advised by professional men of its own choice, or control of such therapeutic trials by a wholly professional body for whose decisions the Minister and his administrative department do not have to be responsible—I am, etc.,

Stanmore Middlesex

HARWOOD STEVENSON

### Use of Ring Pessaries

SIR—The provocative condemnation of the ring pessary by Mr Mortimer Reddington (July 24, p 227) was doubtless intended to stimulate interest and discussion about this admirable appliance, and I need no further apology for my remarks, dogmatic though they be.

The stink and dangers of pessary treatment may be entirely eliminated if no ring is fitted which cannot easily be withdrawn and if rubber instruments are abandoned. The only indication for the watch-spring pessary is in the treatment of occasional cases of incarcerated retroverted gravid uterus, when it may be used for a short period of time. A light vulcanite or plastic ring may be used with advantage in those cases of puerperal prolapse in which exercises and physiotherapy fail to prevent descent of cystocele or cervix outside the vulva, decreasing sizes of ring may be fitted at short intervals to ensure that support is effected by pressure on the levatores ani without interference with the involution of the vaginal fascia. Similarly an early menopausal prolapse may sometimes be controlled so well with a ring for a few years that subsequent vaginal contraction may make further treatment unnecessary. The temporary value of the ring for patients awaiting operation, and for those who desire to postpone surgery for domestic or social reasons is common knowledge, while a not inconsiderable number of patients may express great satisfaction and decline operation.

There are uses too for pessaries other than the hard ring. An acquired post-partum retroversion may on occasion be responsible for symptoms, and it would appear rational to correct such malposition as a routine, fixing the uterus with a Hodge-type pessary until involution of the pelvic fascia has made such support unnecessary. This pessary may also be used as a diagnostic measure, to determine which symptoms in any given case of retroversion may be expected to be relieved by an operation for anteversion. Then there will always be a few cases of utero-vaginal prolapse in old women who are barely fit for operation, which may be well controlled by the Simpson shelf pessary. Finally, despite Mr Mortimer Reddington's gloomy emphasis, it may be possible greatly to relieve stress incontinence of micturition by fitting a Hodge pessary turned upside down and back to front, as demonstrated by Professor Chassar Moir—I am, etc.,

Birmingham

W G MILLS

### Osmoreceptors

SIR—Professor E B Verney (July 17, p 119) infers from his findings that "osmoreceptors" exist in the brain, and suggests experimentation on their precise localization and histological identification. It is generally accepted that physiological and pathological swelling of the brain may be reduced by hypertonic saline or sucrose injections, and that the shrinkage is balanced by an influx of blood to the brain. The increase of cerebral blood flow under such conditions lessens synaptic resistance (*British Medical Journal*, 1938, 1 265), and therefore more neuronic stimuli per unit time reach the supraoptic nuclei to activate the posterior pituitary and give an antidiuresis—I am etc.

Birmingham

F A PICKWORTH

### Chemists' Working Hours

SIR,—I am obliged to Mr H W Tomski (July 17, p 177) for his assurances and the figures he adduces in support of his arguments, both all too familiar and fallacious. If few people took advantage of the experimental late opening it was because few people or doctors knew about it. Even now it is hard to find a chemist who exhibits in his window the rota list after closing hours, except in Paddington, where an excellent rota is carried on. It is for the doctors to bestir themselves in their own areas to ensure an efficient pharmaceutical service.

There can be no doubt that the public are suffering unnecessary hardship as a result of the 6 p.m. closing of chemists. The pharmacists must clarify their status. Either they are shopkeepers pure and simple or members of a profession with dignity and concomitant responsibility. If the latter, they should not shelter behind the Shop Hours Act, which in any case does not apply to dispensing. Let the rota be efficiently run and publicized, and the chemists will not need to complain that they are wasting their time by late opening—I am, etc.

London W 2

M MUNDY

### Hearing-aids

SIR—May I through your columns make the position clear regarding hearing aid supplies? We are, at our acoustic branches, receiving a considerable number of callers with EC 10 prescriptions, some of which are specifying that the patient be supplied with a "National hearing aid", others prescribe that the patient's existing hearing-aid shall be repaired under the health scheme, and still others call for supplies of hearing-aid batteries.

The Government has chosen to leave hearing aid manufacturers such as ourselves outside the scheme, and therefore we are not in a position to accept prescriptions for any hearing aid supplies other than those for which the patient is prepared to make payment. It seems unfair that existing users of hearing aids are not to get assistance under this new comprehensive service towards maintaining their instruments, but it remains for the deafened public to make representation in the proper quarter if they wish to get this apparent anomaly rectified—I am etc.,

O C LEADBITTER  
Controller Hearing aid Division  
John Bell & Croyden

Oxford

### POINTS FROM LETTERS

#### Treatment of Pneumonia

Dr MALCOLM TATE (Mansfield, Notts) writes. The *Journal* of July 17 (p 157) contains an interesting summary of the discussion on the treatment of pneumonia at the annual meeting of the B.M.A. There is no mention in it, however, of what many of us feel to be an important part of this treatment. We consider that all patients who have been successfully treated for pneumonia must have a final chest x-ray examination before we can say that they are cured. Only in this way can we discover any underlying pulmonary disease, such as bronchial carcinoma or atelectasis, and such sequelae as a small pleural effusion or incomplete resolution. We may by a timely x-ray hope to increase the operability of bronchial carcinoma, which is so deplorably low at present. It is for this reason above all others that I advocate the accessibility of the x-ray departments to the general practitioner now, not when health centres are built.

#### Analgesia in Midwifery

Dr ALEX WATT (Dulry, Ayrshire) writes. It was with much interest and some amusement that I read the proceedings at the combined meeting of the Sections of Anaesthetics and Obstetrics dealing with the position of analgesia in midwifery (*Journal* July 17, p 155). I consider it amusing that a specialist anaesthetist should be required to conduct analgesia. Such a qualification alone is insufficient for the purpose, but would require to be combined with a thorough knowledge of women in labour, and that of many hundreds of cases, and in general practice. It is not at all likely that all women will be admitted to hospital for confinement, therefore the conduct of labour and the exhibition of analgesics must necessarily fall on the general practitioner. Analgesia can be perfectly satisfactory in every case provided the obstetrician or general practitioner has a knowledge of all the agents and can concoct a suitable cocktail for the individual case.

## Obituary

### C M KENNEDY, MBE, FRCS

Mr Charles Matheson Kennedy, who died at his home in North Bovey, Devon, on July 26, was one of the best known and respected of Plymouth surgeons. He was born at Moville, Co Donegal, in 1884 and educated in England at Saint Edward's School Oxford and the London Hospital. He qualified in 1906, and held resident appointments at the London Hospital, at one time being house surgeon to James Sherren, until obtaining the FRCS in 1911. He was then appointed a surgical registrar, a post he held until the outbreak of the 1914-18 war when he at once joined the Army. Most of his service was spent in France, where he was employed as a surgical specialist. At the close of the war he was commanding the limb-fitting hospital at Roehampton with the rank of lieutenant-colonel. He was awarded the MBE for his services.

After the war he settled in Plymouth, being appointed assistant surgeon to the hospitals now combined as the Prince of Wales's Hospital. He commanded for a time the Wessex Field Ambulance, T.A. In due course he became full honorary surgeon to his hospital and was elected to the staffs of a large number of associated cottage hospitals in the Plymouth and East Cornwall area. He was also orthopaedic surgeon to the Plymouth Orthopaedic Hospital under the Plymouth City Council and to the Dame Hannah Rogers Children's Orthopaedic Hospital at Ivybridge. It can be judged from the number of these appointments that he was a very much employed man. He was an able and bold surgeon, his technical ability being reinforced by sound judgment in diagnosis and procedure. During the last war he did an immense amount of work among the air raid casualties in Plymouth and travelled hundreds of miles, often in conditions of considerable danger.

Charles Kennedy's services to the B.M.A. were manifold and given without thought of his own affairs. He was a past president of the South Western Branch and past chairman of the Plymouth Division in which capacity he served throughout the war. His advice was constantly sought and always valuable, accentuated by that particular brand of humour which made his points so emphatic. He was also a great Mason. He held the office of Senior Grand Warden of Devonshire, was a member of three Lodges, of two of which he was a Past Master and of one a Founder. He was in much demand as an after-dinner speaker and will long be remembered for his fluent and witty speeches, one of which was the highlight of the Annual Dinner of the Association in 1938. His untimely death at the age of 64 found him still in harness and full of interests outside his professional work. He was a talented gardener and a keen fisherman and shot. His loss will be felt widely, not only his professional colleagues but a host of friends deplore his passing and a multitude of grateful patients will miss his cheery presence and his universal kindness. To his widow and four sons, two of whom follow in his footsteps, goes out the sincere sympathy of all who knew him.

### W ARNOTT DICKSON, MD FRCS Ed

Dr William Arnott Dickson for many years a well-known figure in the life of Gloucestershire died at Thames Ditton Surrey after a short illness, on July 25. Though he had retired and had been living in Scotland since 1944, the announcement of his death has come as a shock to the many who enjoyed his friendship and relied on his wise counsel. Arnott Dickson graduated M.B. Ch.B. at St Andrews University in 1904. The range of the higher qualifications with which he soon afterwards equipped himself is significant of the high standards he set for himself and of the breadth of his outlook on medicine. He obtained his FRCS Ed in 1907, his MD in 1908, his DPH in 1910 and his MRCP Ed in 1923.

After gaining experience as a house-surgeon and practising in partnership with his brother the late Dr David Dickson of Leamington. He became Tuberculosis Officer to the Fife County Council. In 1913 he settled in Gloucestershire as County Tuberculosis Officer with which post there was combined a few years later that of Medical Superintendent of the

Standish House Sanatorium. It was Arnott Dickson who organized and developed the whole county tuberculosis service from its small beginnings. His relationship with the Joint Board for Tuberculosis, which administered that service, was a very happy one; he enjoyed the confidence and esteem of the members in quite exceptional measure. Yet there was in him nothing of the public official. He was essentially a physician and one with whom the individual and his personal problems counted most. His colleagues throughout the county placed great reliance upon his opinion both as a consultant and as a friend. Throughout his career he also took a prominent part in medical affairs in the county. A member of the B.M.A. since 1905, he was honorary secretary of the Gloucestershire Branch from 1922-30, president of the Branch in 1930-1 and a Representative from 1937-43.

Arnott Dickson had a vigorous, efficient and well stored mind. He combined a genial disposition and a buoyant wit, which was never long concealed. With all his popularity he was entirely without self-seeking or affectation and he found his greatest happiness in his home life, where he was ever the kindest of hosts. But it is also true of him to say that underneath his attractive social qualities there lay something in reserve depths of feeling and of reverence from which he drew inspiration for his sane and healthy attitude to life.

On his retirement in 1944 he was presented with a silver bowl subscribed for by members of the profession in all parts of the area—a tribute to the respect and affection in which he was held. He is survived by his wife and two daughters, both members of the medical profession, to whom great sympathy will be extended.

### WILLIAM ROBERTSON LOGAN, MD FRCP Ed

Dr William Robertson Logan died at Edinburgh on July 22 after a very brief illness. He was 60 years of age. He was a native of Kelso and was educated there and later at George Watson's College, Edinburgh. He studied medicine at the University of Edinburgh, and graduated M.B. Ch.B. in 1909. His interests lay in the laboratory side of medicine, especially in pathology and bacteriology, and he was for a time assistant in pathology with Professor J. Lorrain Smith. In 1913 he gained his MD (with high commendation) and about this period studied for a time in Paris. During the first world war he served in the R.A.M.C., acting as bacteriologist in East Mudros with the M.E.F., and later being in charge of the laboratory of the 42nd General Hospital at Salonika.

After the war he became bacteriologist to the Royal Infirmary at Edinburgh, a post he held until his death. In 1919 he was elected FRCP Ed, and in 1925 he obtained his DPH. During his long tenure of the position of bacteriologist to the Edinburgh Royal Infirmary, Dr Logan produced a number of useful papers on bacteriological subjects. For many years he was a member of the laboratory committee of the Royal College of Physicians and gave useful advice in his own quiet way. He was a member of the Pathological Society of Great Britain and Ireland, of the Edinburgh Pathological Club and of the British Medical Association. In 1927 he was Vice-President of the Section of Pathology and Bacteriology at the Annual Meeting in Edinburgh of the B.M.A.

Logan was of a quiet retiring nature, never seeking the limelight and shy of voicing his opinion, but always ready to help his colleagues in bacteriological problems. His other interests were gardening and golf which he played well. For a number of years he lived in Colinton where he had a beautiful garden tended largely by himself. It was one of his great regrets that owing to the state of his health in the last year or so he had to give up both his gardening and his golf. Dr Logan leaves a widow to whom deep sympathy will be extended.

Dr HAROLD ERNEST KITCHEN died suddenly on July 4 at the age of 71. A student at Cambridge and St Mary's Hospital, he qualified in 1906.

Dr Kitchen went to the Isle of Man in 1912 settling first in Douglas and later moving to Ramsey, where he remained in practice up to the time of his death. He was elected a member of the Isle of Man Medical Society in 1913 and at once took an active part in its affairs, reading a paper on "Strange Remedies" in that year. During the five years from 1919-24 he was secretary of the society and played a prominent part in

the negotiations over the implementing of the health insurance scheme the introduction of which into the island had been delayed by the war. So much were his efforts appreciated that the society elected him as a director of the Manx Health Society, a post he continued to fill up to the time of his death on July 4, the day before the National Health Service began to operate. Thus, throughout the whole of this long period he upheld the prestige of the profession as the society's representative. He attended the annual representative meeting in the centenary year of the British Medical Association while president of the society, which had in that year amalgamated with the recently created Isle of Man branch of the British Medical Association. Dr Kitchen always took great interest in the work of the branch. Dying as he did in the middle of a urbu ent meeting of the society, shortly after he had expressed himself in forthright terms, his colleagues have been left with a characteristic picture of Dr Kitchen, ever ready to take up the fight where the honour and well-being of the profession were concerned.

Dr LEIGH RICHMOND HERBERT PETER MARSHALL, who died on July 10, was the only son of the late Dr Henry Marshall, of Clifton Bristol. Before studying medicine at Edinburgh University he spent some years abroad tea planting. He graduated M.B., Ch.B. in 1907 and took his M.D. two years later, being highly commended for his thesis. After graduation he held appointments at the Deaconess Hospital, the Royal Infirmary, Edinburgh, and the Edinburgh City Fever Hospital. Thereafter he settled down in general practice in Peebles and district. At the beginning of the National Health Insurance scheme Dr Marshall, on principle, declined to enter the service. He retained, however, an extensive practice in the surrounding district. For a number of years he was medical officer of the local child-welfare clinic. During the war of 1914-18 he served for three years in East Africa being twice mentioned in despatches and awarded the O.B.E. for his services. Dr Marshall was a member of the B.M.A. for forty years, and was chairman of the South-Eastern Counties Division in 1931-2. He retired from practice some 12 years ago and resided in Edinburgh to within a few months of his death. During the last war however, he was active in recruitment medical board work and at an A.R.P. first-aid post. He was a keen churchman, and was in particular associated with the executive committee, the Theological College, and the Overseas Mission Board of the Scottish Episcopal Church. The sympathy of all who know her is extended to his widow in her loss.

Dr G. A. Auden writes. In the obituary notice of Dr A. L. S. Tuke (June 19, p. 1212) no mention is made of his services in Gallipoli. At the time of the great blizzard and floods of Nov. 26-7, 1915, the Fife and Forfar Yeomanry were in the trenches. The official history of the campaign gives the number of casualties as 189 men drowned or dead from exposure and some 8,000 evacuated for frost-bite. There was necessarily much confusion, but Tuke worked all night and the following day in collecting the casualties and passing them on to the field ambulances. I have vivid recollections of seeing him on the 27th, cheerful and imperturbable, and quite indifferent to his own physical hardships. This notable service should be placed on record.

## Medico-Legal

### DAMAGES FOR LOSS OF SENSE OF SMELL

[FROM OUR MEDICO LEGAL CORRESPONDENT]

The chief clerk of the Cambridge regional petroleum office was thrown from an Eastern Counties bus (in the days when buses were run by companies) through the negligence of one of the company's servants, and his skull was fractured. When he recovered his sense of smell was gone for ever. Mr Justice Croom-Johnson awarded him £750 damages, remarking that for a gardener of 58 to be unable to enjoy the perfume of the flowers he grows is a serious affliction. Some readers may be more impressed by the handicap the patient himself mentioned in evidence, that he could not now distinguish between the smoke of a cigar and that of a cigarette. Few of us nowadays get the chance to do anything of the sort, but to be deprived of the joy of smoking even cigarettes may for some be more grievous than to be unable to smell a rose.

## Universities and Colleges

### UNIVERSITY OF OXFORD

Arthur Duncan Gardner, D.M., F.R.C.S., has been appointed Regius Professor of Medicine in succession to Arthur William Mickle Ellis O.B.E., D.M., F.R.C.P., who has retired.

### UNIVERSITY OF CAMBRIDGE

On July 26 the honorary degree of D.L. was conferred on Thomas Benjamin Davie, M.D., F.R.C.P., Principal and Vice Chancellor of the University of Capetown.

### QUEEN'S UNIVERSITY, BELFAST

The following medical degrees were conferred at the summer graduation on July 9.

M.D.—W. M. Brown, M. W. Johnstone, M. Maureen E. McNeill, M. W. J. Boyd, W. L. Burrowes, H. Donnelly, Elisabeth Elliott, Linde E. U. Ewald, W. A. Kennedy, B. E. McConnell, J. McConnell, T. R. Malloy, J. H. McK. Pinkerton, D. Rooney, C. D. Ross, J. Schragr, R. G. Vine, E. L. Wilson. M.Ch.—J. T. Shepherd (awarded gold medal). M.B. B.Ch. B.A.O.—J. W. Barr, T. M. Carey, J. A. Cornett, D. Davies, D. F. Donaghy, D. D. Ellis, F. W. M. Emery, W. E. Flewett, J. Gallagher, M. P. Gilmore, T. L. Gracey, J. Henry, Anna F. S. Johnston, G. A. Kernohan, G. Lynch, P. C. McCrea, S. C. Cullough, W. M. M. McGimpsey, B. W. McKinley, F. V. Macaulay, Esmée D. Martin, Phyllis A. E. Meeke, J. D. Montgomery, W. F. K. Morrow, P. O'Connell, W. T. Orton, Eileen D. M. H. Poots, T. P. Sharp, Esther R. Shrage, W. E. Stafford, J. B. Taylor, J. B. Thompson. <sup>1</sup>With commendation. <sup>2</sup>In absentia.

### ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a quarterly comitia of the College, held on July 29, with the President, Lord Moran, in the chair, the following Fellows were elected officers for the ensuing year. *Censors*: Donald Hunter, J. Crighton Bramwell, J. F. Smith, R. V. Christie, *Treasurer*: W. G. Barnard, *Registrar*: H. E. A. Boldero, *Harveian Librarian*: Archibald Gilpin, *Assistant Registrar*: W. D. W. Brooks.

Dr Geoffrey Marshall was appointed Harveian Orator and Dr J. G. Scadding Bradshaw Lecturer, both for 1949. The following lecturers were also appointed: Lumleian (1949), Dr A. P. Thomson, Goulstonian (1949), Dr C. Gavey, Oliver-Sharpey (1949), Professor H. P. Himsforth, Charles West (1949), Dr N. B. Capon, F. E. Williams (1949), Dr J. H. Sheldon, Ernestine Henry (1949), Dr Donald Hunter, Croonian (1950), Dr A. E. Clark-Kennedy.

The Registrar announced that the Murchison Scholarship had been awarded to Mary C. Holt, M.B., the Moxon Medal to Dr N. Hamilton Fairley for his contribution to the understanding of the blood pigments and for his work on malaria, and the Weber Parkes Prize to Dr Stephen Roodhouse Gloyne, for his work on the morbid anatomy of pulmonary tuberculosis and its differentiation from diseases due to dust.

Lord Moran was elected the College representative on the governing body of the British Postgraduate Medical Federation and Dr A. E. Naish the College representative on the Court of the University of Sheffield.

The following, having satisfied the Censors' Board, were elected Members of the College.

Z. H. Abdeen, M.B., J. C. L. Adams, M.B., A. K. S. Ahmed, M.B., A. Allison, M.B., R. P. Aronson, M.B., D. V. Bates, M.B., J. M. Beare, M.D., T. P. Blanshard, M.D., A. W. Branwood, M.D., F. S. W. Brumblcombe, M.B., K. P. Brown, M.B.E., M.B. Major R.A.M.C., G. N. Chandler, B.M., M. V. Chari, M.B., E. K. Cruickshank, M.B., Davis, M.B. F/Lt, R.A.F. G. K. Dhariwal, M.B. J. H. Ebbs, M.D. (in absentia), M. M., B. C. D. Garratt, M.B. D. H. Garrow, B., M.B. Helen C. Grant, M.B., G. S. Gray, M.B., T. Hanley, M.B., Audrey Hanson, M.B., J. F. J. Hickey, M.B., C. K. Hurson, L.R.C.P., G. E. Honey, B.M., D. A. Howell, L.R.C.P., P. Jacobs, M.B., L. Jacobson, M.B., B. A. G. Jenkins, M.B., J. H. P. Johnson, M.B., J. G. P. Jones, M.B., R. M. Kamel Refai, D.M., J. A. Keeling, M.B., S. E. Keidan, M.B., W. L. R. Kenyon, M.B., I. Kessel, M.B., J. A. Kilpatrick, M.D., S. G. E. Laverty, M.B., C. W. Lawson, M.B., Theresa Lazar, M.B., R. F. L. Logan, M.D., S. L. Lopus, M.D., E. M. Lourie, M.B., J. MacW. MacGregor, M.R.C.P.E., A. G. McManis, M.B., W. B. D. Maile, M.D., B. M. Mandelbrote, M.B., J. Marshall, M.B., M. M. Martin, M.B., R. Martlew, M.B., W. J. Matheson, M.B., Edith M. Metcalfe, M.B., R. G. Miller, M.B., G. Monckton, M.B., P. D. Moss, M.B., R. Mulcahy, M.B., L. A. M. B. Musso, M.B., T. E. Oppé, M.B., J. S. Pegum, M.B., J. S. Prichard, M.C., M.B., A. W. S. Ritchie, M.B., W. Robinson, M.C., M.D., W. J. B. Rogers, M.B., R. A. Russell, M.B., J. B. G. Russell, M.B., A. Z. Shifer, M.B., R. A. Shanks, M.B., N. Shapiro, M.B., D. Sheehan, M.D., J. P. Shillingford, M.D., W. Sircus, M.B., T. G. Smilie, M.B., F. R. Staub, M.D., P. V. Suckling, M.B., J. M. Swinbank, M.D., Mary Townsend, M.B., L. H. Trelove, B.M., D. H. Turnbull, M.B., S. Vaisrub, M.D., D. D. Vora, M.D., Betty Walker, M.B., J. B. Walter, M.B., G. M. Watson, M.B., J. M. Watt, M.B., G. H. Wattlely, M.B., R. Wigglesworth, M.B., O. G. Williams, M.B., R. B. N. Wilsdon, M.B., S. R. Wood, M.B.

Licences to practise were conferred upon the following 149 candidates (including 25 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and who have complied with the necessary by-laws.

C. P. T. Alexander, M. J. Allwood, W. B. Ashby, R. H. R. Aston, P. M. Avis, J. C. Barker, M. D. Begley, J. R. Bennett, S. Y. Bhargwa, J. M. Bishop.

G C Blake R I K Blyth W O Bradbury M A Brennan W S Brown R W Buckley P I Bushfield Anthea M Bushby P J A Butcher H F Cantwell A J F Cater I Chance P J C Chapman Suzanne K R Clarke Sybil M Cockersell H Collier J L Cotton D N Cow D T Cox Katherine S M Crouch D J Crowther Mary E Curling Katharina D Dalton F J Davies H F Davies N C R Davies F A de Hamel Evelyn F P Dennett J A L Derlien A J De Villiers D J Douglass G E Dower E C Edwards D K Evans S Fahmy P Fehrsen E J F Filose R A Fox Linton P B Foxwell P N Gai Phyllis A George J A H Goldacre Barbara M Gray A M Green E J Hargadon G L Harper M Hatton J T Hemingway C A Higgins J F Hindle H Hollis P L Holman Jean M Horton J Humphreys O A N Husain Rosemary Huxley Williams R B Jackson F E James A G Jarrams G Jones J H Jones Nesta J Jones C H G Kendall K J Kingsbury J Koszyk N Lawrence A Lebedeff A J Lee A H Levy R L Linton H A Lomax M D Lord R A McGregor J W R McIntyre S A Mannan N C March M F P Marshall A P Maruff D Mendel Marie D Merchant A R Merrill J A R Moody W P C R Moody G Morgan K Z Novak P O Oliver G R Outwin S Panikkar D F Parkin C A Parsons P R Persey D L Postlethwaite Elizabeth Preston Thomas Deonarine Ramdin J Rankin E G Rees W S Richardson Janet P Rickard D G B Riddick D P Rough G J Schiller D L Sladden B H Smith R W Smithells R S Snell R Southwell W F W Southwood C K Spalding J R Spears R A Stanger Rosemary Stephens Alice H Stokes J W M Stone J L V Summerhayes E F Swift Margaret N A Tew R G Thomas A H Thompson J D Turtle P H Venn A F Verney J D Villiers D L Walker C Waller Daphne M L Walters D B J Wardle W K M C Watkins W F Weatherill M A Weller Audrey M Wells Margaret P Whittaker J H McN White Margaret P Whittaker Freda M Wilcox I L Wilkinson J L Wilkinson H O Williams A J Woolf Mary I Wray

Diplomas in Medical Radiotherapy were granted to the ten successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of June 26 (p 1264) as were the names of the 32 recipients of the Diploma in Medical Radio Diagnosis

Diplomas in Psychological Medicine were granted to the 20 successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of August 7 (p 317), as were the names of the 16 recipients of the Diploma in Laryngology and Otology

Diplomas in Public Health were granted to the 24 successful candidates whose names are printed in the report of the meeting of the Royal College of Surgeons of England below, as are the names of three of the 40 recipients of the Diploma in Anaesthetics (the names of the other 37 successful candidates were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of August 7 (p 317))

#### ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the College on July 29, with Lord Webb Johnson, President, in the chair, the John Tomes Prize for 1945-7 was awarded to Professor H H Stones in recognition of his distinguished research in the field of dental pathology. The Hallett Prize was awarded to T P S Powell (University of Edinburgh) on the result of the recent primary examination for the Fellowship

Diplomas of Membership were granted to the following successful candidates

C P T Alexander M J Allwood W B Ashby R H R Aston Pamela M Ayris J C Barker M D Begley J R Bennett S Y Bhagwat J M Bishop G C Blake R I K Blyth W O Bradbury M A Brennan W S Brown R W Buckley P I Bushfield Anthea M Bushby P J A Butcher H F Cantwell A J F Cater I Chance P J C Chapman Suzanne K R Clarke Sybil M Cockersell H Collier J L Cotton D N Cow D T Cox Katherine S M Crouch D J Crowther Mary E Curling Katharina D Dalton F J Davies H F Davies N C R Davies F A de Hamel Evelyn F P Dennett J A L Derlien A J De Villiers D J Douglass G E Dower E C Edwards D K Evans S Fahmy P Fehrsen E J F Filose R A Fox Linton P B Foxwell P N Gai Phyllis A George J A H Goldacre Barbara M Gray A M Green E J Hargadon G L Harper M Hatton J T Hemingway C A Higgins J F Hindle H Hollis P L Holman Jean M Horton J Humphreys O A N Husain Rosemary Huxley Williams R B Jackson F E James A G Jarrams G Jones J H Jones Nesta J Jones C H G Kendall K J Kingsbury J Koszyk N Lawrence A Lebedeff A J Lee A H Levy R L Linton H A Lomax M D Lord R A McGregor J W R McIntyre S A Mannan N C March M F P Marshall A P Maruff D Mendel Marie D Merchant A R Merrill J A R Moody W P C R Moody G Morgan K Z Novak P O Oliver G R Outwin S Panikkar D F Parkin C A Parsons P R Persey D L Postlethwaite Elizabeth Preston Thomas Deonarine Ramdin J Rankin E G Rees W S Richardson Janet P Rickard D G B Riddick D P Rough G J Schiller D L Sladden B H Smith R W Smithells R S Snell R Southwell W F W Southwood C K Spalding J R Spears R A Stanger Rosemary Stephens Alice H Stokes J W M Stone J L V Summerhayes E F Swift Margaret N A Tew R G Thomas A H Thompson J D Turtle P H Venn A F Verney J D Villiers D L Walker C Waller Daphne M L Walters D B J Wardle W K M C Watkins W F Weatherill M A Weller Audrey M Wells Margaret P Whittaker J H McN White Margaret P Whittaker Freda M Wilcox I L Wilkinson J L Wilkinson H O Williams A J Woolf Mary I Wray

Diplomas in Public Health and in Anaesthetics were granted jointly with the Royal College of Physicians of London to the following successful candidates

DIPLOMA IN PUBLIC HEALTH—E H Ansell F Bell R Calderwood S P C Carter R M Collins L J Cowe P C Dismore J L Fluer A W Gilbert J L Gordon F L G Oakle Mary I H Isaac L F Jepson A F H Keatinge J W McCorae A C McLeish M Price H Richards Peggy J C Roberts M. J. Roberts G G Shen F M I Silberton R A Smart R. H M West D. J. W. Williams

DIPLOMA IN ANAESTHETICS—G E. Baker T H S Barris J R S Shields

The following hospitals were recognized under Paragraph 23 of the Fellowship regulations: St Bartholomew's Hospital Rochester (resident surgical officer and two house surgeons), Victoria Hospital, Wexham (resident surgical officer)

#### FACULTY OF ANAESTHETISTS

The recently established Faculty of Anaesthetists of the Royal College of Surgeons of England has instituted a Fellowship of the Faculty (F.F.A., R.C.S.) which is being awarded by election and not by examination to medical practitioners who have made distinguished contributions to anaesthetics. The following are the members of the Board of the Faculty: Dr A D Marston (Dean), Dr Bernard R M Johnson (Vice-Dean), Dr I W Magill, Dr E S Rowbotham, Dr C Langton Hewer, Dr R E Pleasance, Dr W Alexander Low, Dr Frankis T Evans, Dr John Gillies, Professor R R Macintosh, Dr J H T Challis, Dr George Edwards, Dr Katherine G Lloyd-Williams, Dr B L S Murtigh, Dr A H Musgrove, Dr H J Brennan, Dr Vernon F Hall, Dr Ronald F Woolmer, Dr G S W Organe, Dr T Cecil Gray, and Dr E A Pask

The first Fellows have been elected as follows: Helen B Alcock, R E Apperly, Philip Ayre, Freda Bannister, R A Beaver, J Blomfield, John Boyd, E G Bradbeer, R J B Broad, G Maxwell Brown, F F Cartwright, J N Cave, L T Clarke, R J Clusen, R W Cope, H P Crampton, A S Daly, C J Massey Dawkins, I M Campbell Dewar, H W Featherstone, D Keir Fisher, R Blair Gould, C F Hadfield, E M Handfield-Jones, R P Harbord, T A B Harris, J K Hasler, B P Hill, E Falkner Hill, M W P Hudson, C H M Hughes, John T Hunter, Ronald Jarman, E F Johnson, W J Bennett Jones, Alison R Kerridge, E Landau, J A Lee, A Goodman Levy, W S McConnell, V O McCormick, R Machray, J Ross Mackenzie, R C Mansfield, Z Mennell, Edith J Miller, Arthur Mills, R J Minnitt, C W Morris, L H Morris, J J V Morton, W W Mushin, M D Nosworthy, G R Phillips, H H Pinkerton, K B Pinson, A F Potter, W B Primrose, R J Probyn-Williams, B Rait-Smith, H A Richards, E H Rink, Alison Ritchie, F W Roberts, S Thompson Rowling, J F Ryan, E A Scott, W Shearer, Sir Francis Shipway, O L C Sibley, H Sington, G F Rawdon Smith, R L Soper, C E Sykes, V E Vessell, F F Waddy, Sheila C H Watters, H N Webber, Humphrey B Wilson, H Bruce Wilson, H Woodfield-Davies

#### ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on July 28, with Mr Frank E Jardine, President, in the chair, the following candidates, having passed the requisite examinations, were admitted Fellows: S J Aptekar, H W C Baile, D M Bell, W N Boyd, W Brydone, D E Coyle, D D G Curran, K A Dalal, V J Downie, V K Drennan, J Evans, G C Farrington, R Finney, G E Fordyce, J M Gold, D F P Gordon, J P W Grant, T G Gray, F S Gregory, J Grieve, O E Hansen, G V Harry, A H Haysom, T Hunter, J B Jack, W McK S Kelso, M S Khan, D Lang, D M Lithgow, D J Livingstone, A W K Main, A Mills, J Macpherson, A W MacQuarrie, P M Naidu, R G Patel, V R Rob, F Selim, A McE Smith, Felicity E Soutter, D G Steer, E V Strisiver, P J Tarpey, R D Wilkins, J W Wilson

The Henry Arthur Dalziel Ferns Bursary was, after a competitive examination in organic chemistry in its application to medicine, awarded to John P Laidlaw

## The Services

Major-General Sir Robert Hay, KCIE, late IMS, has relinquished the appointment of Honorary Physician to the King, on retirement

The following decorations have been conferred by the President of the USA in recognition of distinguished services in the cause of the Allies

*Medal of Freedom with Silver Palm*—Colonel (Temporary) G M Frizell, T D, R A M C

*Bronze Star*—Brigadier (Temporary) A A Eagger, CBE, R A M C, Colonel (Temporary) J C Gilroy, OBE, R A M C, Major E S Rowbotham R A M C

Surgeon Lieutenant-Commanders R W Smith R N V R and D R Maitland, R N V R (ret.), have been awarded the R N V R Decoration

The Efficiency Decoration of the Territorial Army has been conferred upon Majors (Hon Lieutenant-Colonel's) J L Orr, R Ropner and R J Watson, MC (T A R O), and on Majors W H Dowell and M L Formby



## Medical Notes in Parliament

### Poisons Rules

Mr E P SMITH on July 29 again moved a motion for the annulment of the Poisons (Amendment) (No 2) Rules, 1948. The same motion had been counted out on July 26. Mr Smith said that, apart from women, the worst poisoners had all been male doctors. He questioned the adequacy of the safeguards in paragraph 2 of the order, which authorized the supply without a prescription of poison to a duly qualified medical practitioner who in an emergency was unable to furnish a prescription immediately. A prescription in writing must follow within 24 hours. Mr Smith read extracts from a memorandum submitted by the Home Office to the Select Committee on Statutory Rules and Orders. This memorandum referred to a disagreement between doctors and chemists on the practice of telephoning prescriptions, the doctors wanting some relaxation and the chemists being opposed to it. The Poisons Board at first came down on the side of the chemists, but in 1947 recommended the adoption of a draft rule allowing prescribing by telephone. The Home Office referred the matter back to the Poisons Board in consequence of the growing number of deaths from barbiturate poisoning. Eventually the Board's recommendation in a modified form had been embodied in the proposal. At the same time restrictions on the sale of Fourth Schedule poisons were increased.

Mr YOUNGER, replying for the Home Office, said the part of the Order questioned by Mr Smith referred to Fourth Schedule poisons. Mr Younger had no information to suggest that these had recently been used by poisoners or that poisoners had attempted to get hold of them. These poisons were required for medical treatment, and the Home Office had to take account of the legitimate needs of doctors and hospitals. The Poisons Board and the Home Secretary had considerably tightened the rules on the repetition of prescriptions and thereby reduced the facilities for people to obtain these drugs. At the same time one small relaxation had been made to meet legitimate cases of emergency. This relaxation had a parallel in the existing rules dealing with the more dangerous poisons under the First Schedule. In that case the rule had worked well. The Home Office had to depend on the common sense of the pharmacists. If they were not sensible or became corrupt the whole control broke down. There was reason to suppose that where the drug was urgently needed and it was impossible to get the prescriptions provided in advance there had been collusion between the doctor, the pharmacist, and the patient to provide that prescription. It was not good to bring the law into disrepute by retaining this restriction. It was unlikely that any pharmacist called to supply a drug in this way without a prescription would supply sufficient for a fatal dose.

Mr Smith withdrew his motion.

### Acts

Before Parliament adjourned for the Summer Recess on July 30 the Royal Assent was signified to the Criminal Justice Act, Factories Act, National Insurance (Industrial Injuries) Act, Nurseries and Child Minders (Regulations) Act, Statute Law Revision Act, and the Veterinary Surgeons Act.

**Women Medical Students**—Approximately 2,875 women medical students, representing about 27% of the total, are now attending medical schools in Great Britain. There are no schools without women students.

**Report on Midwifery**—The Minister of Health hopes to receive the report of the working party on midwifery in September.

**Deaf aids**—Up to July 26 1,680 Medresco deaf-aids had been delivered from the manufacturers, and 1,200 had been issued to hospitals in England and Wales.

The first issue of an international journal of comparative physiology and oecology, *Physiologia Comparata et Oecologia* has recently been published at The Hague. It has an international board of editors, and it is intended to publish the results of investigations in the fields of comparative physiology and oecology of vertebrates and invertebrates. Articles may be submitted in English, French, or German, those written in French must have an additional summary in English, those written in English or German an additional summary in French. The first number contains among other papers a description of an x-ray study of the intestinal movements of the hen and some observations on the breeding of hares in captivity. *Physiologia Comparata et Oecologia* is a well produced journal, the paper and printing are both good. Britain is represented on the editorial board by C F A Pantin, of Cambridge, and C M Yonge, of Glasgow.

## Medical News

### Honour for Belfast Hospital

His Majesty the King has commanded that the Belfast Hospital for Sick Children shall be known as the Royal Belfast Hospital for Sick Children. The hospital was founded in King Street in 1873, and six years later it was removed to the Old Queen Street Hospital. The present building was opened in 1932.

### Memorial to the late Dr J W Hunter

On July 28 two memorial plaques to the late Dr John William Hunter, medical officer of health and school and port medical officer at Ipswich, who died on August 26, 1947, were unveiled at the Borough General Hospital by his two sons. An obituary notice of Dr Hunter was published in the *Journal* of September 20, 1947 (p 471).

### The Medical Directory

The publishers of the *Medical Directory* (Messrs J and A Churchill, Ltd, 104, Gloucester Place, London, W 1) will be glad to send their schedule asking for particulars, on which they rely to maintain the accuracy of the volume, to any member of the medical profession who has not received one or who has mislaid it.

### Freedom of the Press

The Central London Branch of the National Union of Journalists has adopted a resolution protesting strongly against the threat to the freedom of the Press contained in the recommendation of the British Medical Association on June 29, 1948, that

"Because of the dangers of imitative suicide all inquests shall be held in public but in an inquest on a suicide the Press be prohibited from publishing an account of the proceedings and permitted only to publish that an inquest had been held, the name and address of the deceased and a verdict that the deceased died by his own hand."

### Streptomycin Treatment in Scotland

Arrangements have now been completed by Regional Hospital Boards in Scotland for the extension of hospital facilities for the streptomycin treatment of persons suffering from tuberculous meningitis and acute miliary tuberculosis. Beds for this purpose have been set aside in selected hospitals in each region and streptomycin is being supplied by the Department of Health for Scotland. Medical practitioners seeking admission for patients suffering from these conditions should apply direct to the nearest treatment centre or to the offices of the appropriate Regional Hospital Board. In the Glasgow area admission can be arranged by telephone application to Glasgow Central 9600. The hospitals in Scotland where this treatment can be given are: Western Region: Ruchill Hospital, Glasgow; Belvidere Hospital, Glasgow; Robroyston Hospital, Glasgow; Mearnskirk Hospital, Newton Mearns; Knightswood Hospital, Glasgow; Royal Hospital for Sick Children, Glasgow; Motherwell Infectious Diseases Hospital, Motherwell; Hairmyres Hospital, East Kilbride; Stonehouse Hospital, Paisley; Infectious Diseases Hospital, Gateside Hospital, Central Hospital, Ayrshire; Falkirk Royal Infirmary, Falkirk; Lochmaben Sanatorium, South-Eastern Region; Bangour Hospital, West Lothian; Southfield Sanatorium, Liberton, Edinburgh; and Cameron Hospital, Fife, will be able to accept cases in the near future. Eastern Region: King's Cross Hospital, Dundee; North Eastern Region: City Hospital, Aberdeen; Northern Region: Culduthel Infectious Diseases Hospital, Inverness.

### Streptomycin Regulations

Regulations (the Streptomycin Regulations, 1948) have been made by the Minister of Health, the Secretary of State for Scotland and the Minister of Health and Local Government for Northern Ireland, after consultation with the Medical Research Council, bringing streptomycin within the scope of the Penicillin Act, 1947. The effect of these regulations which came into force on Aug 1, is that streptomycin and preparations containing streptomycin may be supplied to the public only by or in accordance with the directions of doctors, dentists, or veterinary surgeons, or by registered pharmacists on the prescription of doctors, dentists, or veterinary surgeons, and may be administered only by, or in accordance with, the directions of such qualified practitioners. Though supplies of streptomycin have increased, it is still generally available only through the hospital service. The regulations anticipate the time when its use may be extended.

As with penicillin and preparations containing penicillin, pharmacists and authorized sellers of poisons will be able normally to dispense a prescription for streptomycin and preparations containing streptomycin only once and not more than three months after the prescription was given, if, however, the prescription directs that it may be dispensed on a specified number of occasions or at specified intervals in a specified period, it may be dispensed in accordance with that direction.

**Northern Ireland Health Services**

The present address of the Northern Ireland General Health Services Board is 27, Adelaide Street, Belfast

**Professor T Pomfret Kilner**

Professor T Pomfret Kilner, Director of the Nuffield Department of Plastic Surgery, University of Oxford, has been elected an Honorary Fellow of the American Association of Plastic Surgeons

**Standard Sizes for X-ray Films**

The British Standards Institution has recently issued BS 1443, which specifies the size of x ray film and intensifying screens, together with internal sizes of cassettes, adopted for future use. The Standard was prepared at the request of the manufacturers of x ray equipment and accessories, who have had to meet the needs not only of medical and industrial users in this country but were also faced with the necessity of producing equipment adapted for metric sizes for the export trade. The committee charged with this work has found it possible to provide satisfactorily for all uses with a range of ten inch sizes and six metric sizes, and these sixteen sizes will replace more than thirty formerly in use in this country. The Standard specifies minimum and maximum cutting sizes for x ray film and intensifying screens and also provides for a standard minimum size of cassettes. Films and screens of these sizes will be usable in all existing equipment.

**Diphtheria and Vaccination Returns**

The Ministry of Health has notified local authorities of the diphtheria and vaccination returns required after July 5. As at present there will be two forms of return for diphtheria immunization—six monthly and yearly. There will also be an annual return stating the number of persons vaccinated during the year. In addition special reports will be required about individual immunized children who die of diphtheria, and about cases of vaccination associated with generalized vaccinia, post vaccinal encephalomyelitis, and deaths from other complications.

**Wills**

Dr Charles Francis Orr White, of Dial House, New Inn Lane, Burgham, Guildford, left £45,569. Dr Walter Rupert Reynell, of London, W 1, left estate in England valued at £27,911.

**COMING EVENTS****Mental Health Exhibitions**

Throughout the International Congress on Mental Health which is being held in London between August 11 and 21, two exhibitions are on view in connexion with the session on Cultural Activities in Mental Hospitals. These are "Art and Occupational Therapy," at the County Hall, Westminster Bridge SE 1 and "Patients' Libraries and Pictures in Hospitals," at 1, Grosvenor Crescent, SW 1.

**Medical Week in Hungary**

The Hungarian Medical Trade Union is arranging a Medical Week from Sept 4 to 12 as part of the celebrations of the Hungarian War of Liberty in 1848. Information may be obtained from the Centenary Congress Committee, Bokor Janos u 53, Budapest, 8, Hungary.

**Venereal Diseases Congress**

The International Union against Venereal Diseases will celebrate its 25th anniversary at the General Assembly to be held in Copenhagen on September 6-10. The Assembly will consider plans for the international control of venereal disease and human behaviour in relation to its control. Further information may be obtained from Miss Marguerite Troue, Administrative Secretary, Institut Fournier, 25, Boulevard Saint-Jacques, Paris XIV.

**Speech Therapy Conference**

A Conference on Speech Therapy, arranged by the College of Speech Therapists (68, Queen's Gardens, London, W 2), will be held at the Royal Society of Medicine, 1, Wimpole Street, London, W, from Sept 20 to 24, with morning and afternoon sessions every day. Members of the medical profession making contributions to the conference are as follows: Dr Leopold Stein, "The Emotional Background of Stammering", Dr Macdonald Critchley, "Speech Disorders arising from Head Injuries", and Dr Eleanor M Creak, "The Role of Emotional Problems in Producing Disorders of Speech". Prof Henry V Dicks, Prof Geoffrey Jefferson and Dr W Russell Brain will be in the chair at three of the sessions. In the evening of Sept 20 there will be a Government Reception at Lancaster House, St James's, London, SW, the conference dinner

will be held on Sept 21, and in the evenings of Sept 22 and 23 there will be meetings of the conference committee of the College with overseas delegates and representatives to discuss an International Federation of Speech Therapists. Full particulars of the conference may be obtained from the secretary of the College at the above address.

**Sulphur Congress**

An International Sulphur Congress will be held on Sept 13-15, under the presidency of Prof M Loeper, at Cauterets, Hautes Pyrénées. Sulphur in relation to the endocrine glands, rheumatism, nutrition, the liver, etc., will be discussed. Information may be obtained from Docteur Bernard Mothe, Secrétaire Administratif, Président, Directeur Général de l'Union Thermale Pyrénéenne, 12, rue Dupin, Pau (Basses Pyrénées).

**SOCIETIES AND LECTURES****Friday**

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Anatomy Lecture Theatre, Edinburgh University, August 20, 3.30 p.m. *Some Aspects of Urine Secretion* by Professor E B Verney.

**APPOINTMENTS**

CARVER CHARLES Exhibitions Officer on headquarters staff Central Council for Health Education Tavistock House Tavistock Square London W C

JONES J A LL VALGHAN MB ChB Part time Regional Medical Consultant to the Ministry of Labour and National Service East and West Riding Regions

WILSON H D MB ChB DPH Assistant Medical Officer of Health Stirling County Council

WRIGHT E M BM BCh DPH Medical Officer for the City of Salisbury and Assistant Medical Officer for Wiltshire County Council

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

Lambert—On June 25 1948 at the Elphinstone Nursing Home Wolverhampton to Margaret Margaret (née Warner) wife of Captain Ian Lambert R A M C a son—Richard

McCracken—On July 25 1948 at St Mary's Hospital Manchester to Dr Margaret (née Laycock) and Dr Dermot McCracken a daughter—Elizabeth

Mayne—On June 24 1948 at Leinster Private Hospital Dublin to Anne wife of Brian Mayne MD MRCP a son

Orford Smith—On July 25 1948 to Mary wife of Dr E S Orford Smith of Norwich a son

Parsons—On Aug 3 1948 at Lynton Nursing Home Bexhill-on-Sea to Phyllis Joan (née Fox) wife of Dr A C Devonish Parsons a sister for Hugh and Guy

Servener—On July 31 1948 at the Cavendish Nursing Home Bognor Regis to Pat (née Rank) wife of Captain J P Servener R A M C a son—James Joseph

Vine—On Aug 4 1948 at the County Hospital Cambridge to Denise (née Welden) wife of Dr Maudsley Vine a son

Watkinson—On Aug 2 1948 at Park Hospital Daves Hulme Lancashire to Margaret Jean (née Jones) wife of Dr J I K Watkinson of 161 Urrinton Lane Streiford a son—Peter

**MARRIAGE**

Malary—Huss—On July 20 1948 at St George's Church Burrington Arthur Stuart Malary MB DRCOG Belfast to Edna Margaret Huss SRN Burrington Ludlow Shropshire

**DEATHS**

Aitken—On July 29 1948 at Prince of Wales Hospital Plymouth Alexander Gardner Aitken MB ChB BLS of Callington Cornwall

Alfordice—On Aug 2 1948 at 8 King Street Newcastle under Lyme Staffs William Clachan Alfordice JP MD I R C S Ed

Andrew—On July 29 1948 at 5 Montpelier Crescent Brighton, George Andrew MD I R C S aged 96

Cunning—On July 29 1948 at the Wall House Reigate Joseph Cunningham I R C S I R C S

Essex—On July 25 1948 at Penang William Henry (Krupp) Essex JP 1914 18 Tapt and France 1942 5 interned Singapore dear husband of Isabel Taylor (formerly Dr Taylor Walsh Preston Lancs)

Ferguson—On Aug 2 1948 at Sydenham House Goldsmiths Cornwall James Herbert Ferguson CBE MRCS LRCP Surgeon Rear Admiral RN retired aged 71

Finlayson—On July 15 1948 near Vernon BC Canada as the result of a motor accident William Finlayson MB ChB Ed

Gilloway—On Aug 2 1948 at Huddersfield Royal Infirmary William Dawson Gilloway I R C S aged 58

Henry—On July 20 1948 at his home in Glasgow Stephen John Henry MB ChB BLS aged 62

Kennedy—On July 26 1948 at The Red House North Bovey Devon Charles Matheson Kennedy MB F I R C S

Rushy—On Aug 1 1948 at 3 Christchurch House Christchurch Road London SW Edward Lionel Macpherson Rushy MB

Stone—On July 31 1948 Robert Dudley Algeo Stone LRCP FRCI of 88 Maison Dieu Road Dover aged 85

Trythall—On Aug 2 1948 at 2 Rock Villa Roche Cornwall William Reynolds Trythall MRCS LRCP Surgeon Commander RN retired aged 75

Wace—On Aug 5 1948 at 99 Ormonde Court London SW Richard Henry Wace MB CM Abert aged 80

Walman—On July 30 1948 at 266 Drwbury Road Leeds Wilfred Finest Walman MRCS LRCP of Horsforth aged 52

Wyse—On July 25 1948 Harry David Wyse MB BS of Cochrane Close Cochrane Street St John's Wood London NW aged 45

No 30

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 24

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths and of Deaths recorded under each infectious disease, are for (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	25	4	10	1	1	31	—	23	3	—
Diphtheria Deaths	139	19	32	15	2	174	15	33	13	2
Dysentery Deaths	108	45	52	1	—	61	11	23	—	—
Encephalitis lethargica acute Deaths	—	—	—	1	—	3	—	—	—	—
Erysipelas Deaths	—	—	34	9	3	—	—	22	7	3
Infective enteritis or diarrhoea under 2 years Deaths	34	4	8	30	1	61	4	20	51	5
Measles* Deaths†	8 501	552	70	103	53	7 644	373	60	332	10
Ophthalmia neonatorum Deaths	54	5	19	—	—	55	1	17	—	—
Paratyphoid fever Deaths	9	—	1(B)	—	—	18	2	—	—	—
Pneumonia influenzal Deaths (from influenza)‡	385	20	3	4	6	311	18	1	1	5
Pneumonia primary Deaths	127	22	122	30	6	—	17	142	15	7
Polio encephalitis acute Deaths	6	1	—	—	—	34	8	—	—	—
Polio myelitis acute Deaths§	39	5	3	2	2	302	51	28	6	7
Puerperal fever Deaths	—	1	17	—	1	—	1	8	—	—
Puerperal pyrexia   Deaths	121	10	13	1	—	133	6	8	1	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 747	93	245	68	41	987	76	96	25	19
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	13	1	3	1	—	8	1	—	3	3
Typhus fever Deaths	—	—	—	—	2	—	—	—	—	—
Whooping-cough* Deaths	3 359	274	14	99	7	1 924	233	31	71	4
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	253	35	45	14	14	337	41	59	19	12
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4 187	651	533	157	101	3 828	596	569	173	100
Live births Annual rate per 1 000 persons living	7 863	1370	1012	385	251	9 124	1479	1166	423	268
Stillbirths Rate per 1 000 total births (including stillborn)	199	24	31	—	—	248	31	35	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales (London (administrative county)) will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio encephalitis for England and Wales (London (administrative county)) are combined.

|| Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Paratyphoid at Eastbourne

There have been no new cases notified since Thursday, Aug 5. The total number of reported cases was 43 on that date. Investigations into the cause of the outbreak are still proceeding.

## Typhoid in Arab Refugees

According to a report in *The Times* of Aug 9, 49 cases of typhoid have been notified among the 100,000 Arab refugees who are existing in squalor in the hills of central Palestine. The medical officer of health of Ramallah has expressed fear that unless medical help is forthcoming outbreaks of infectious disease among the refugees may cause many deaths.

## Discussion of Table

In England and Wales a decrease in the number of notifications of measles 958, whooping-cough 57, and diphtheria 44 was reported, and an increase in notifications of scarlet fever 44 and dysentery 41.

The largest falls in the incidence of measles were Yorkshire West Riding 161 notifications, Essex 115, Yorkshire East Riding 105, Surrey 93, Caernarvon 92, while the only large rise was 61 in Gloucestershire. The fluctuations in the incidence of whooping-cough were increases in Middlesex 53, and Yorkshire West Riding 41, and a decrease of 40 in Cornwall. Only small changes occurred in the local returns of scarlet fever. The chief features of the returns for diphtheria were decreases in Lancashire 12 and Durham 10.

Rises in the notifications of dysentery of 13 and 11 were recorded in the metropolitan boroughs of Hampstead and Kensington respectively. An outbreak of dysentery involving 12 persons was notified in Yorkshire West Riding Bradford CB. The other large return of dysentery was Warwickshire 10 (Warwick RD 6).

The notifications of poliomyelitis numbered 39, the largest weekly total since January. The only county boroughs with more than one case were Birmingham 3 and Cardiff 3. Counties with more than one notification were London 5, Lancashire 4, Surrey 3, Middlesex 3, Hertfordshire 3, Yorkshire West Riding 2, Yorkshire East Riding 2, and Durham 2.

In Scotland the chief feature of the returns was an increase of 27 in the notifications of dysentery. This rise was due to an outbreak in the city of Glasgow, where the notifications increased from 9 to 42.

In Eire increases were recorded in the returns for scarlet fever 28 and measles 12, while whooping-cough notifications decreased by 18. In Dublin CB the notifications of scarlet fever rose from 23 to 51. The largest returns for measles were Dublin CB 31, Clare, Killrush RD 18, and Galway, Loughrea RD 18.

In Northern Ireland a decrease of 25 was recorded in the notifications of measles. Two cases of typhus were notified in the county of Tyrone.

## Week Ending July 31

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1,329, whooping-cough 3,309, diphtheria 125, measles 8,211, acute pneumonia 355, cerebrospinal fever 40, acute poliomyelitis 38, dysentery 77, paratyphoid 35, and typhoid 9.

The Surrey Hospitals Divisional Council held its final meeting at Guildford on July 14. It ceased to exist at the conclusion of the meeting, the work which it had set itself to do since 1941 having been taken over by the Ministry of Health as part of the National Health Services. The council came into existence under the chairmanship of the late Sir Laurence Halsey in May, 1941. It was supported by grants from the Nuffield Provincial Hospitals Trust, the Surrey County Council, the Council of the County Borough of Croydon, the voluntary hospitals of the area, and certain other organizations, and was composed of representatives of those bodies. The main work of the council was the preparation of a plan for co-ordinating hospital services in the area it covered. The plan was prepared and was printed in 1947, and has already proved of assistance to local committees set up under the new organization. At the final meeting a vote of thanks was passed to the chairman of the council and to the chairman of the various committees and sub-committees, and to Mrs Seabrooke, the secretary's clerk. Special reference was made, and a vote of thanks passed, to Major J. S. Knyvett, who had with such conspicuous success acted as secretary to the council during its whole existence.

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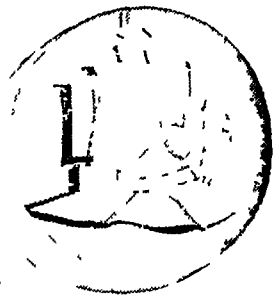
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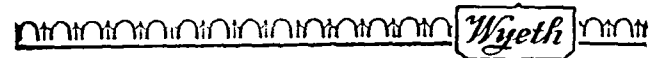
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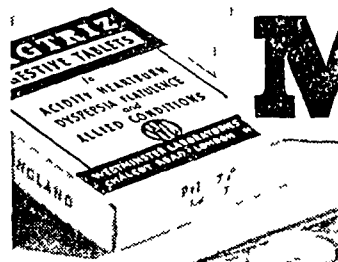
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## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

### White Children in the Tropics

**Q**—*What are the dangers of life in the Tropics for white children of school age as distinct from adults? Is there any special need for additional supplies of chlorides and vitamins especially the B complex?*

**A**—There are no special dangers in the Tropics for white children of school age as distinct from adults, except in so far as children, owing to lack of experience or judgment, may expose themselves to greater risks of infection, trauma, or exposure, but these additional risks may be minimized by supervision, instruction, and training. There is an increased loss of salt in the sweat and urine under tropical conditions, and it is therefore necessary to ensure an adequate salt intake. This should be within the range of 8 to 15 g daily, according to climatic conditions. If there is any doubt about adequacy of the salt intake the following test should be carried out on a 24-hour specimen of urine. Take 10 drops of urine, add 1 drop of 20% potassium chromate solution, and run in a 2.9% solution of silver nitrate drop by drop shaking after each drop.

Note the number of drops of silver nitrate solution needed to change the colour from yellow to brown, this gives the concentration of salt in grammes per litre of urine. If there is salt deficiency the number of drops will be less than 5. The human requirements of vitamins A and D are not increased by tropical conditions, and there is no reliable evidence that greater amounts of the vitamin-B complex or ascorbic acid are needed. If the child has a good mixed diet, including wholemeal bread, butter, eggs, milk, meat, and green vegetables or fruit, the vitamins will look after themselves.

### Pigmentation and Size of Nipples

**Q**—*A young woman who is to be married in a few months time is unduly worried about the fact that her nipples are diminutive and almost colourless. Would stilboestrol increase the pigmentation and size of the nipples and, if so, in what dosage? Is its use justifiable in a case such as this where the anxiety and worry are real and cannot be allayed by simple reassurance?*

**A**—Yes, stilboestrol would increase the size of the nipples and their pigmentation. The suggested dosage is 2 mg of oestradiol benzoate daily by injection locally for three weeks after the end of each period. The writer thinks its use is justifiable and the results would allay anxiety and worry. Treatment should be effective within a few months, and could then be discontinued. The physiological results of marriage and pregnancy will subsequently be beneficial to the diminutive nipples.

### Sulphathiazole as a Cream Base

**Q**—*Cremor sulphathiazole often contains sulphathiazole incorporated in an emulsion-cream base of the Janette wax type. The preparation is rather gritty owing to the crystalline nature of the sulphathiazole. The question arises whether the use of sodium sulphathiazole would be permissible. Would a better preparation result by dissolving an equivalent amount of this salt in the water used to make the emulsion base? On the other hand would the patient get the full action of sulphathiazole on the skin? A solution of sodium sulphathiazole is strongly alkaline (pH 10) would this affect the tissues or the therapeutic action of the preparation?*

**A**—Sulphathiazole usually occurs as a micro-crystalline compound, and if this were to be incorporated as an ingredient of a cream it would cause the preparation to be somewhat gritty but sulphathiazole itself is also available from a number of sources as a perfectly impalpable powder, and there seems to be no reason why this should not always be used in the preparation of a cream. The writer has used it since its

introduction and has produced a perfectly smooth cream about which no complaint has ever been made. The use of sodium sulphathiazole, because of its alkalinity, is not to be advised.

### "Mapharside" in Syphilis

**Q**—*Is "mapharside" superior to the arsphenamines in the treatment of syphilis with regard to therapeutic efficiency and to avoidance of toxic reactions (jaundice etc)?*

**A**—Opinions differ about whether mapharside is superior to the arsphenamines, especially neoarsphenamine, in the treatment of syphilis. In Great Britain most authorities on the subject favour the latter, but in the U.S.A. "mapharsen" has almost ousted neoarsphenamine. It is probable that there is not much to choose between the two in therapeutic efficiency if mapharside is given twice or three times weekly. As regards toxic reactions mapharside is safer in the dosage usually employed, but this is, in part at any rate, due to the fact that a relatively much smaller dosage is commonly used than is the case with neoarsphenamine. Much of the jaundice that occurred in the last four years, particularly in the Services, was shown to be due to virus infection rather than to arsenic.

### Unpleasant Taste and Hypochlorhydria

**Q**—*A woman aged 35 complains of an unpleasant taste in the mouth. A fractional test meal shows both total and free acid to be very low. Before withdrawing the last sample I gave her a glass of gin and vermouth (a drink which she often takes) with the result that the secretion of acid in the stomach rose to the equivalent of about 50 ml of N/10 sodium hydroxide. Is it likely that the unpleasant taste in the mouth is connected with hypochlorhydria? If so what should one do about it in view of the fractional-test-meal findings?*

**A**—It is highly improbable that the unpleasant taste in the mouth is connected with hypochlorhydria. The only connexion might be that the low acidity may be an indication of the presence of chronic gastritis or carcinoma. Both conditions may give rise to an unpleasant taste resulting from regurgitation of stomach contents. Further investigation is called for with these conditions in mind.

### Air Conditioning

**Q**—*What is meant by 'air conditioning' of buildings? Is there some article or booklet on the subject without too much technical detail?*

**A**—By air conditioning is meant the control of the moisture content, temperature, and purity of the air. It is a "combination of ventilation with heating or cooling." This is a quotation from *Modern Principles of Ventilation and Heating* by T. Bedford (H. K. Lewis, London 1937. Price 4s 6d).

### Stilboestrol and Prostatic Hypertrophy

**Q**—*Is the administration of stilboestrol likely to be helpful in ameliorating symptoms due to simple enlargement of the prostate in a man aged 60? If so, what dosage is advised?*

**A**—Stilboestrol has no action on a simple enlargement of the prostate, therefore the question of dosage need not be considered.

### Second Attack of Measles

**Q**—*During the recent epidemic of measles I saw a girl aged 2 who I believe had a second attack of measles. I first saw her in April, when she had a mild attack of what I presumed was measles in the absence of occipital glands etc. When I was called to see the child in June she was very poorly indeed with typical morbilliform eruption and very sore eyes. I do not overlook the possibility of the first attack being rubella but I doubt it. Could it be the measles virus attacking again in a greatly stronger phase after passing through susceptible hosts?*

**A**—While authenticated second attacks of measles are extremely rare, it would be unwise to say that they do not occur, since there are nearly always exceptions to the rule in biological phenomena. However, a child of 2 would be unlikely to escape with a mild first attack in the month of April, when



measles was prevalent, unless some attempt had been made to modify the infection with adult or convalescent serum. And if the first infection was measles a second more severe and more typical attack three months later would be most unlikely. The chances are that the earlier infection was not measles but rubella or some allergic urticaria. The possibility, on the other hand, that a child who has had an attenuated attack of measles as a result of the prophylactic use of serum or gamma globulin may not acquire a complete immunity to measles needs investigation.

#### Effects of Dexedrine

**Q**—A patient who complains that he is tired in the evenings and requires nine hours' sleep is in the habit of taking a tablet of dexedrine twice daily. This greatly increases his sense of well-being and he is able to finish a day's work with less conscious effort. Can you tell me (1) Will dexedrine taken continuously damage the kidneys? (2) Will he become addicted to it? (3) Will it cease to have its present happy effect?

**A**—Any healthy subject is tired in the evenings, and many require nine hours' sleep. Generally speaking it is not wise to take drugs such as dexedrine as a regular practice. This drug raises the blood pressure, and may therefore be harmful. It interferes with the formation of aldehydes in the brain, which is surely an undesirable effect to produce daily. It can certainly lead to addiction, as has been found in a considerable proportion of men in American prisons. Whether its good effect will cease is not known, but so far tolerance has not been described. While the use of dexedrine in normal healthy individuals is justifiable occasionally—for example, when it is necessary to drive a motor car throughout the night—its continuous use in healthy subjects is undesirable. Continuous use should be reserved for psychiatric patients with melancholia or similar conditions.

#### Boy's Activities after Epileptic Fit

**Q**—A boy aged 14 had one epileptic fit while in bed. He is athletic and keen on riding and swimming. To what extent am I justified in restricting his activities after only one fit and how am I to estimate the necessity for a sedative and the quantity to be administered? An aunt suffers from petit mal.

**A**—It would be wise to prohibit the boy from riding, and from swimming except in the company of another who is aware of the risk and is himself a powerful swimmer. Sedatives should certainly be prescribed, and a reasonable initial dose is phenobarbitone  $\frac{3}{4}$  gr (50 mg) daily.

#### Complications of Masturbation

**Q**—A man aged 35 who practises masturbation recently complained of severe occipital headache during the act and said that it took a long time to obtain an emission. Is there any explanation for the headache (blood pressure is 140), and is there any drug which will materially speed up the ejaculation?

**A**—If the headache is directly connected with the habit, it is probably of a psychosomatic type, that is to say, a physical disorder resulting from an emotional cause, acting through the autonomic nervous system. In such a case the emotional cause may be worry due to a mental conflict of which the patient may be quite unaware, such as that arising from a sense of guilt, a feeling of dissatisfaction with an imperfect form of sexual expression, disgust with himself, fear of consequences associated with early threats, a basic feeling of anxiety which may itself in the first place have led the patient to masturbation as a solace, or a feeling of latent rebelliousness of which masturbation may be a manifestation. In such cases of conflict emotions may be aroused but without proper discharge, the result being manifested in the form of a headache. Such occipital headaches were found to be the most common form of "worry" headaches among the shell-shock patients of the 1914-18 war (less so in the last war). This emotional conflict may also be a cause of the unsatisfactory emission, since the latent and perhaps unconscious sense of guilt or fear acts as an inhibition to the full expression of the sexual emotion. One would like to ask for what reason this patient has to resort to this habit rather than finding more natural forms of expression in adult love. Masturbation may itself be a neurosis, and, as in many cases of neurosis, the symptoms complained of may be an expression of the healthy and normal

part of his personality rebelling against the more abnormal expression of his sexual instinct. If such a diagnosis is correct, the use of a drug would not cure it, but a frank talk concerning the reason for the habit and for possible worry about the masturbation itself might be more helpful.

#### Doubtful Cases of Typhoid Fever

**Q**—A man aged 78 suffers from pyrexia has a very toxic appearance and a pleural rub. There is no cough or sputum. Widal reaction was positive to typhoid on the 14th day. A specimen of faeces was negative to typhoid bacillus in the third week and three successive examinations of faeces were negative. He has not previously had an illness suggesting typhoid and has not had any T A B inoculations. Was this a case of typhoid fever?

**A**—It is not stated to which antigens (H or O of *Bact. typhosum* or *Bact. paratyphosum* A or B) and to what titres the patient's serum reacted to give a "positive Widal." Positive Widal reactions in low dilutions of the patient's serum may occur in the absence of enteric infection, and have been reported, for example, in tuberculosis. Successive negative faecal cultures from the third week onwards would not be expected in a case of typhoid fever, particularly if modern selective culture media had been used. Again, a patient aged 78 would probably suffer a severe attack, so that diagnosis could usually be made on clinical symptoms and on the course of the disease. The possibility of some chronic infection or neoplasm in the lung in this case deserves consideration.

#### NOTES AND COMMENTS

**Meniere's Syndrome**—Dr A. PINEY (London, W) writes: The answer to the question on the treatment of Meniere's syndrome (July 24, p. 235) does not make mention of the great value of 10 gr (0.65 g) of bromide with  $\frac{1}{4}$  gr (8 mg) of pilocarpine nitrate thrice daily. This mixture, which has much the same composition as a pre-war German proprietary medicine the name of which I have forgotten, prevents attacks in a very large proportion of cases, and can be taken for months at a time without ill effect. Restriction of fluids is sometimes necessary in order to increase the efficacy of the medicine.

**Hypertension and Flying**—Air Vice-Marshal Sir ALAN ROOK writes: The answer given to the question about the patient with hypertension flying to Canada (*Journal* July 31 1948, p. 280) requires comment. More information about the patient is a necessity before a decision can be given. Are there any present symptoms? Have there been any symptoms or complications? An altitude of only a few thousand feet throws an added strain on the heart. To the normal heart this is no matter, but to one already under stress, causing symptoms while at ground level, it may be of considerable importance. Has the patient flown before? Is she of nervous temperament and likely to be in a state of constant apprehension while in the air? A sudden spasm of fear, possibly quite unnecessary, will increase the already raised blood pressure, perhaps with disastrous consequences. The question whether the stresses of a sea voyage are greater than those of an air passage or not is debatable but at least there is a doctor on board ship with facilities for dealing with an emergency.

It may well be decided when these points, and many others, are taken into consideration that air travel is the best method, but it is not a question that can be answered cursorily in less than five lines.

**Correction**—In the article entitled "Surgical Anatomy of the Parotid Gland" by Mr. Hamilton Bailey in the *Journal* of July 31 the diagrams of the deep lobe (Figures 4 and 5) have been printed in the wrong order. The diagram of the "Deep lobe Variety A, the 'knob'" (Fig. 4) should have been that which appears as "Deep lobe Variety B, the rabbit warren" (Fig. 5), and vice versa.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 14 1948

## CENTRAL CONSULTANTS AND SPECIALISTS COMMITTEE

### FIRST MEETING

The first meeting of the Central Consultants and Specialists Committee was held at B.M.A. House on July 28. It was attended by some 30 regional representatives from England and Wales (including six observers from Regional Committees not yet fully constituted), six members appointed by the Specialists Subcommittee of the Scottish Committee, two representatives from Northern Ireland, and representatives from certain Standing Committees and Group Committees. Mr A. M. A. Moore was asked to take the chair for the meeting.

### Suggested Joint Action with Colleges and Corporations

The Secretary (Dr Hill) stated that earlier on the same day an important though informal conference had been held attended by representatives of the Royal Colleges and Corporations and of the B.M.A. A long discussion had taken place on the desirability of having a body capable of expressing to the Minister of Health consultants' views on all questions academic, medico-political, and questions which perhaps were intermediate between the two. It had been decided to set up an exploratory committee under the chairmanship of Sir Lionel Whitby to try to hammer out a scheme of collaboration and division of labour. It was decided, too, to put three propositions to the bodies invited to the Conference, these propositions to be worked out by the exploratory committee. They were as follows:

(1) That a joint committee of the Royal Colleges, the Royal Scottish Corporations, and the British Medical Association be established to advise the Minister of Health on all matters concerning consultants and specialists.

(2) That the existing Committee of the Colleges and Corporations and the Central Consultants and Specialists Committee established by the British Medical Association continue in existence to brief the Joint Committee.

(3) That the Joint Committee be requested to allocate, as soon as practicable, fields in which their constituent bodies are free to take independent action and to deal with Governmental bodies direct.

After discussion the Secretary suggested that without making any decision on the main issue the meeting should appoint representatives to the exploratory committee, should examine the report these representatives brought back, and refer it to the regions before coming to any conclusion. Points to be considered would be the terms of reference of the proposed joint committee and the division of labour as between one side and the other.

This course was agreed to, and those appointed to the exploratory committee were Mr A. M. A. Moore, Mr C. E. Kindersley, and Dr Charles Hill.

### Rights of Part-time Consultants

Dr Rowland Hill raised the question why part-time consultants were not regarded as transferable officers. He said that some specialists might find their appointments terminated by the Minister. Possibly other appointments which the regional board considered to be of equivalent importance would be offered them, but the ideas of the board and of the consultant himself as to equivalent importance might differ considerably. Consultants should have the same security of tenure or compensation on displacement as general practitioners.

Mr Lawrence Abel said that this was one of the points on which the Negotiating Committee had fought all along the line. In Northern Ireland every consultant was allowed to retain his existing appointment.

A resolution was carried that members of consultant and specialist staffs of hospitals, including special departments of hospitals taken over by the Minister on the appointed day should be given security of tenure in their appointments under the National Health Service and should not be compelled to vacate such appointments without their consent for any reason other than misconduct until the attainment of an agreed upper age limit.

The Chairman in putting the resolution said that the Committee fully realized that in some places changes were inevitable owing to the disappearance of a department or the conversion of a hospital to a different use but in the great mass of hospitals there would be no changes and it was desired to secure the position of the part-time consultants in such hospitals.

### Interim Terms of Service

The Committee had before it a summary of recent negotiations on terms of service for consultants and specialists. The Chairman said that powerful opposition had been offered to the limitation of the maximum quarterly payment for domiciliary work to 100 guineas. Suggestions had also been made for the definition of the half-day such as would prevent specialists who habitually worked very long half-days from being unfairly treated. Finally the inadequacy of the proposed mileage payments had been stressed.

The Committee endorsed a minute of the recent Representative Meeting that every session attended by a practitioner should be paid for at full rate with no limitation on the number of sessions undertaken.

On the question of the length of the half-day Dr Rowland Hill proposed that a half-day session should not exceed three hours. Dr Cochrane Shanks felt that any limitation would bring about the introduction of clocking-in. Consultants and specialists should be trusted by their institutions to do their work and not be required to account to any authority for the hours they spent in hospital.

Mr E. R. Fizzelle said that at Leicester a book had been presented to members of the staff in which they were expected to enter the times of arriving at and leaving hospital. Yet they were doing work they had been doing before July 5 and had been asked to go on as in the past. It had been hinted that this instruction to have a book came from above the level of the regional board though whether that was true or not he could not say. Attendance at the hospital for any committee meeting or even for a meal was duly entered. The practice signified distrust and even engendered a feeling of distrust between colleagues. Members from other areas said that something of the same kind had been brought into force and was resented.

The Secretary said that clearly different methods were obtaining in different regions. The notion of the half-day which grew up during the next few months was extremely important because it would have a great effect on the permanent remuneration. He suggested that information should be collected through the Regional Committees as to the half-day definition which was prevailing in each region and that when these reports were available a small subcommittee should look into them. He added that the Ministry disapproved the practice of clocking in. The only excuse for some sort of log record would be as a means of obtaining information concerning the work of specialists on the basis of which annual payments might be

calculated—a method of timing which, temporarily adopted, would help to eliminate timing in the future

It was agreed to proceed on the lines the Secretary had suggested, and the following were appointed as a subcommittee to examine the reports from regions when available: Dr Rowland Hill, Dr Cochrane Shanks, Mr Staveley Gough, and Dr Ross Smith

On the question of mileage, Mr Abel protested that 6d a mile was totally inadequate, and that both time and distance should be paid for. Mr Hedley Whyte said that if he was required to go from Newcastle to Berwick for a consultation, the fee being £4 4s, and the mileage payment 6d, the net gain to him, supposing the actual cost to be 1s a mile, would be about £1

The Committee decided to undertake an investigation of exact costs of motor-car travel

Brief consideration was given to the question of maximum fees for pay-beds as set out in the regulations under Sect. 5 (2) of the Act. Professor T. H. Oliver expressed the fear that the high cost of pay-beds might be one of the methods of eliminating private practice, and he hoped the Negotiating Committee would pay attention to this

It was decided that this matter should be referred to Regional Committees for their consideration and brought up again

The Committee had sat for 3½ hours, and certain other matters remained on the agenda, including the general consideration of the Specialist Spens Report. It was agreed that this should be the first item on the agenda of the next meeting of the Committee, to be held on Sept. 30, and that in the meantime Regional Committees should call meetings of consultants in their areas to brief their representatives on the Central Committee

## THE SCHOOL HEALTH SERVICE EFFECT OF NHS ACT

In circular 179 (dated Aug. 4, 1948) the Ministry of Education has notified local education authorities of the changes which will have to be made in the administration of the school medical service as a consequence of the coming into operation of the National Health Service. The routine work of school medical inspection and the ascertainment of handicapped pupils will be continued by education authorities, but it will now be the responsibility of the regional hospital boards to provide the specialist services needed by school-children, and education authorities are asked to make the local needs known to the regional boards. No charge will be made to education authorities for any such services provided. It should be noted that in spite of the foregoing arrangement education authorities are not precluded from directly providing any specialist service which it appears to them desirable to provide

### Ophthalmic Work

Ophthalmic work by specialists will follow the same course as other specialist work, but it will be impossible at present for the hospital and specialist services to provide a general service of refraction. In order that the refraction work and the provision of spectacles by the school health service should be maintained, education authorities are asked to take advantage to the fullest possible extent of the supplementary ophthalmic services under the executive councils. Spectacles for children will be provided free of charge provided the prescription is from a doctor on the ophthalmic list or from a doctor employed directly by the education authority

### Minor Ailments

Minor ailments clinics have proved so successful that the Ministry of Education does not intend to make any change in this work, which will continue to be the responsibility of education authorities. The same applies to speech therapy and child guidance, though in the latter connexion children found to need psychiatric treatment should normally be referred to the clinics which will be provided in due course by the regional hospital boards

The school dental service will remain unaffected, and it will continue to be a responsibility of education authorities to provide a comprehensive dental service for school-children

## Hospital Treatment

The cost of treating school-children in hospital will no longer have to be met by education authorities. It is hoped that hospital management committees will be willing to supply information about children on discharge from hospital for the confidential use of the school medical officer

The regional hospital boards will have no power to provide education for children in hospitals, but the special schools now in existence in hospitals will be continued either by local education authorities or by the voluntary organizations which have previously administered such schools. Co-operation between the regional boards, education authorities, and voluntary organizations will be essential if the much-needed special schools are to be provided within a reasonable time

## GROWING-PAINS IN NHS

Miss Alice Bacon, M.P., in the House of Commons recently accused some doctors in the National Health Service of improper practices, but has declined to meet the B.M.A.'s request for details. In a statement issued to the press on Monday of this week the B.M.A. observes that it is regarded as contrary to the standards of medical practice for doctors to discriminate against particular classes, e.g. to refuse to accept as patients children or old people on the ground that they involve too much work.

The Association's statement corrects some prevailing misunderstandings of the present position. It observes that the basis of family medical practice is free choice. "The country wants free choice, and free choice works both ways." It points out that registration with a doctor is a voluntary act and that private practice by doctors who have joined the Service is fully protected by law. And it points out, too, that every doctor has a right to set a limit to the number of patients he is prepared to accept on his National Health Service List.

## WHITE COATS AND OPERATING GOWNS

Members of the profession in private practice have on a number of occasions expressed their surprise that there should be arrangements for the issue of clothing coupon equivalents to enable them to purchase operating gowns but that no similar concession should exist for those who find white coats more serviceable. The Board of Trade has now agreed that coupon equivalents shall be available, for the purchase of operating gowns or white coats at the discretion of the practitioner, to pathologists and other practitioners in private practice who are engaged to some extent in one or more of the following: obstetrics, the treatment of venereal diseases, operations, necropsies, or dispensing.

Practitioners entering or returning to practice—e.g. from H.M. Forces—will be entitled to a coupon equivalent sufficient for the purchase of six gowns or coats, and those already in practice to a replacement issue of three gowns or coats. Applications from practitioners in England and Wales should be addressed to the Ministry of Health in Scotland to the Department of Health for Scotland, and in Northern Ireland to the Secretary of the British Medical Association, and in each case practitioners should state the category in respect of which the claim is made. The coupon equivalents will be made out for 'operating gowns' or 'industrial coat overalls'.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Tyldesley

## LOCAL HEALTH AUTHORITY SERVICES

A pleasant gesture has been made by the Middlesex County Council in parting from a large number of the staff of the county medical officer of health who as from the appointed day, have ceased to be officers of the Council and have become officers of the Regional Hospital Boards. The Public Health Committee has asked the Council to place on record its appreciation of the loyal and conscientious service which these officers have at all times rendered to the Council—as also have the public assistance officers transferred to the National Assistance Board—and the ready assistance which has invariably been freely given in dealing with the many problems which have confronted the Public Health Committee during the 18 years of its existence. The thanks are accompanied by an expression of the hope that these members of the staff will find every happiness in their new sphere of work, and that by their efforts the great step forward which has been taken in the administration of the hospital services of the country will, with the same loyal and conscientious service, be an immediate and lasting success.

### New Posts for Preventive Medicine

The London County Council, which had already fixed the key positions in the medical and other staff at the central office and the nine divisional health offices under the National Health Service Act, has been considering proposals to give to the key officers the assistance which, so far as can be foreseen at present will be necessary to organize and administer the health services for which the Council is responsible. The estimates of the number of staff required are tentative and will be reviewed after a year's experience. It is considered that positions for two additional senior medical officers should be created at a salary of £1,500 rising by increments of £100 to £1,800. The function of one of these would be to organize preventive and social work against tuberculosis and to co-ordinate the Council's work with the activities of the regional hospital boards and the teaching hospitals. The other officer would be employed in investigating the incidence of epidemics and co-ordinating measures for their prevention and control, and in dealing with the control of infectious diseases in the Council's remaining residential establishments.

Other health services which will need more medical staff are school health, midwifery and maternity and child welfare, and environmental hygiene, for which last a senior assistant medical officer and an assistant medical officer, both part-time, will be employed. It is proposed that the Council shall continue to have the services of Dr A A W Petrie, physician superintendent of Banstead Hospital, as part-time adviser on the Council's duties in relation to mental health after his transfer to the South-West Metropolitan Regional Hospitals Board.

### SUPERANNUATION SCHEME

By amending regulations (S.I. No. 1474) the benefits conferred upon mental health officers are extended to regional psychiatrists employed by regional hospital boards. Employees who undertake national service and who are not superannuable when they left their employment are enabled to become superannuable during their national service if they would have done so had they continued in their employment. The power previously given to local authorities to add years of service, or to convert non-contributing service into contributing service, in the case of such of their superannuable employees as are transferred under the Act to the central health service has been extended to cover their employees who transfer at any time.

Where a person ceases to be employed because of the N.H.S. Act and he did not complete a sufficient number of years' service to entitle him to compensation under regulations made under Section 68 of the Act, he is now entitled to receive the accrued value of his superannuation rights instead of merely a return of the contributions to which he might otherwise be entitled. The class of employment entitling certain mental health officers to reckon part of their service at twice its actual length is extended.

## MEDICAL WAR RELIEF FUND

### EIGHTIETH LIST

#### Individual Contributions

£5 5s—Miss K McArthur, Harrow (5th donation)  
£2 2s—Dr A G F McArthur, London (6th donation)  
£20 19s—Practitioners in the Island of Man Branch—per Dr C G Pantin (amount already sent £267 9s 6d)  
£10 9s—Practitioners in the Worcester and Bromsgrove Division—per Dr R S MacArthur  
£5 14s—Practitioners in the Ross and Cromarty Division—per Dr J R Anderson (amount already sent £22 7s) Dr L A Gillanders, Dr J Gray

#### Local Medical and Panel Committees

£171 17s 11d—Northumberland (5th donation)  
£43 16s 7d—Ayr County (24th donation)

	£	s	d
Total of above contributions	260	3	6
Total received since issue of second appeal	24,837	11	8
Total since inauguration of Fund	83,491	1	1
Sums for boot's for prisoners of war	216	14	6

As already announced, the Committee of the Fund considers it unnecessary for supporters to send further contributions.

## Correspondence

### Superannuation Scheme

SIR—For weeks I have been watching the *Journal* to see whether someone more competent than I would point out what a raw deal the medical profession is getting over the new superannuation scheme. The District M.O. on a fixed salary always *did* get a raw deal compared with a municipal clerk on a rising salary but this new scheme is even worse. Let us compare the D.M.O. working for 30 years on a fixed salary of £360+£6 extra fees with the clerk starting aged 20 at 25s a week and rising to £525 a year the last five or six years, retiring at 60. Let us tabulate the figures. Lines 1 and 2 refer to those contributing to the Local Government Superannuation Scheme and lines 3 and 4 to those entering the superannuation scheme for those engaged in the National Health Service.

	Years of Service	Total Earnings	Average Income	Pension
Clerk aged 60	40	£11 000	£275	£350
D.M.O. aged 65	30	£11 000	£366	£183
Doctor A	30	£11 000	£366	£165
Doctor B aged 65	40	£22 000	£550	£330

The first and fourth lines show that the doctor working the same number of years as the clerk, earning double the money, retiring five years older is going to get a smaller pension. Granted there may be other benefits, but the clerk will have paid £550 for his pension and the doctor (line 4) £1,320 for a smaller one. What a scheme!—I am, etc.,

Lincs

G D SUMMERS

\*\* The "other benefits" available under the new scheme include a lump sum retiring allowance (in the case of Dr B this would be £990 if single, or £330 if married), injury pension, widow's pension, short service gratuity, and death gratuity—ED, B M J

### Mileage Fund

SIR—I read the report of the discussion (*Supplement* July 3, p. 5) on the mileage fund at the Annual Representative Meeting. The Chairman of Council "hoped that the mileage fund would be adequate." He stated that "to day it was approximately £600,000, and in the proposals under the new Health Service it would be something like £1,300,000—a very substantial increase."

Might I point out that it is estimated under the new scheme that for every insured person on a doctor's list there will be 2½ after the commencement of the new Service. Therefore if the mileage is to be even at the same level, the old figure should also be multiplied by 2½, which gives a sum of £1,350,000—practically the same figure as the Chairman quoted, and not "a very substantial increase."

Where a practitioner has many patients on his list over 10 miles distant, it indicates that part of his practice must lie in a sparsely populated area where the patients are shepherds or crofters residing considerable distances apart. A number of the roads are classified as "third class" or even as "bad roads," and the roads are frequently intersected by gates. I am attending a patient just now where I have to open seven gates, drive my car through, and close seven gates before reaching the cottage, and then repeat the performance of opening and closing these seven gates on my way back to the main road again.

The real rural practitioner must often work longer hours than his town or suburban colleague on account of the hours he spends each day travelling yet the urban practitioner can see very many more patients in the day and have a much larger list. The rural practitioners are not satisfied with the present mileage grants, and are not likely to be satisfied with the grant under the new Service if it is to be practically the same as the Chairman of Council states.

I entirely agree with Dr G O Barber (Mid-Essex), Dr G MacFeat (Council) and Dr T O McDonagh (Perth). The whole mileage fund should be increased and higher mileages—i.e. eight miles and over—substantially stepped up as suggested by Dr MacFeat. Let us have the whole question of rural practitioners' time and the mileage fund put on a proper basis right from the beginning of the new Service and not rely on the pickings from the inducement fund—a fund about the administration of which we know practically nothing—I am, etc.,

Newton Stewart Wigtown

A KELLIE BROOKE

\* \* The Secretary of the Association writes: (1) To double the number of persons in respect of whom mileage is paid is not to double the numbers of miles travelled. Accordingly a doubling of the mileage fund means an increase in the payment per mile actually travelled. (2) The Rural Practitioners' Subcommittee is now engaged in preparing a model scheme of distribution which deals with higher mileage and more difficult mileage. (3) Steps are now being taken to divide the special inducement fund between England and Wales and Scotland. When this is done applications will be invited for special inducement grants for consideration by the medical practices committees.

### Future of Assistants

SIR—Now that most of the arguments for or against the National Health Service have been fully dealt with and the midwives of the new Service can rest after the successful birth, is it not time to look more closely into the future of assistants and to rectify the unfairness of their position by withholding from them any practical status in the Act? We are promised that the medical practices committees will soon start combing the districts for finding new openings for the non-established doctors. Meanwhile we also watch the lists of our principals swelling to the most of their capacities while we who did not feel justified after the release from H.M. Forces to buy practices have to hope that, by the time a new opening is found for us, there will be still a few patients free to enter our list, if the neighbouring doctors' lists have already been filled.

The competitive nature of our occupation compels us for the time being to content ourselves with a meagre salary, knowing full well that our work justifies the principals' accepting on their lists an additional 2,500 patients with all the material benefit derived from it. If in the words of the Minister, "it has been vital that the new situation did not carry with it any unfair worsening of a doctor's material livelihood" is it not also vital that something was done about our future now?—I am, etc.,

A DISSATISFIED ASSISTANT

### Medical Records

SIR—How to file the new National Health Service envelopes and record cards is a problem now facing us. Those of us who have made inquiries with a view to purchasing filing drawers or cabinets will have discovered the present high cost of this equipment. The high prices are, I believe, to a large extent due to purchase tax. Why are we being forced to pay out this money now for the various types of filing equipment, which will

sooner or later be of no use to us when the promised centres are built? In my opinion it would have been and fairer to all concerned if the Ministry of Health in England and the Department of Health for Scotland had arranged for supply of standard filing units to all general practitioners engaged in the NHS. This equipment when the time came could be transferred for use in the health centres and for the present provided on loan to those G.P.s requiring it at a nominal charge.

If this is asking too much, then surely we should be granted a rebate of purchase tax in view of the fact it is to be used only for keeping records for Government purposes—I am, etc.,

Glasgow

THOMAS A CHRISTIE

### Prescribing in NHS

SIR—In view of the statement made by the Minister of Health in the House of Commons to the effect that there is no limit to the medicine or drugs which a doctor can prescribe to his patients in the NHS, there is an urgent necessity for a radical revision of the panel list of emergency drugs and appliances which has been in force hitherto. Apart from the fact that this list is now very much out of date, it does not cater for all the emergencies confronting a doctor on his daily rounds. Before July 5 the doctor used to resort to drugs which he himself bought for his private patients. When most of one's patients have become panel, this reserve will have gone.

It is therefore clear that if the standard of medical practice is not to sink it is essential that a doctor should be allowed to prescribe for his bag any drugs he may deem necessary. I personally would like to see the following additions to the emergency list: 2 oz 2% solution of gentian violet, 6 oz cod liver oil for burns, a comprehensive range of barbiturates, dihydromorphine hydrochloride and the same with atropine for injection, sulphathiazole, penicillin 100,000 units, for injection, an antihistamine drug, 5-yards roll of "elastoplast" 3 in wide—I am, etc.,

Glasgow

M LICHTENSTEIN

### Remuneration of General Practitioners

SIR—The annotation on the above (July 17 p 143) is of interest to those in towns, but is cold comfort to the country practitioner.

Item 2. He has no surplus of patients on which to train an assistant.

Item 3. Maternity fees (often no electricity and no tap) are not likely to exceed £100.

Items 4 and 5 are not remuneration but merely payment for out-of-pocket expenses, and in the experience of many of us do not cover the cost of drugs let alone the labour of dispensing.

Item 6. To the 60 years old and over the superannuation contribution is merely an imposition.

Item 7. There are no clinics.

Item 8. There is no hospital.

Item 9. Private practice has been virtually killed.

So all that remains is to plead pauper and beg alms under Item 1.

A scheme which through no fault of his increases a man's work and reduces his income by 20% must surely have germinated in a stratum even lower than the subverminous. It is a safe bet that before Christmas many men over the 60 mark will resign and the Minister (and the nation) will be left with an even worse shortage of general practitioners—I am, etc.,

Newton Ferrers Devon

W F BENSTED SMITH

### Remuneration of G.P.s for Hospital Work

SIR—The general practitioners on the staff of the Haywards Heath Hospital (General Practitioners' Hospital) view with grave dissatisfaction the terms offered to them in the recent letter from the Regional Hospitals Board. In this it is stated that a sum of £25 per bed per annum is to be paid into a pool and the proceeds divided according to the wishes of the medical staff of the hospital. This payment is to be made for the care of patients of doctors who are not on the staff and for the treatment of accidents brought to the hospital. Further the letter states that no payment is to be made for the staff attending their own patients in hospital, as this is taken to be included in the remuneration from the local executive council.

In our view the following facts must be considered before the remuneration is accepted. (1) In 1947, 610 major operations were performed in the hospital. This involved the giving of 610 anaesthetics, all of which were administered by the general-practitioner staff. (2) The necessary pre-operative and post-operative treatments were carried out in all these cases. It may be added that many of these cases were night emergencies, and in some cases transfusions were necessary. (3) Treatment of fractures is undertaken at the hospital largely by the general-practitioner staff.

All these duties take up a considerable amount of time estimated to average 10-13 hours per week for each practitioner and are far in excess of the services rendered by general practitioners not on the staff of general-practitioner hospitals. We should be grateful for the views of other practitioners who find themselves in the same position as ourselves.—We are, etc

W S NUTT  
F H MATHER  
C F J SMITH

Haywards Heath Sussex

### G P's Doing Obstetrics

SIR—May I, on behalf of Lincoln Local Medical Committee crave the courtesy of your columns regarding a matter of urgent importance to all practitioners doing obstetrics?

We have been informed that the Sheffield Regional Hospital Board proposes to prohibit general practitioners from conducting cases in the Lincoln City Maternity Home and any other maternity homes taken over by the Ministry of Health. This, in effect, means that the general practitioners will be left only with domiciliary midwifery, while the full-time specialists (not yet appointed) will attend all cases in these nursing-homes and maternity homes under ideal conditions. As these circumstances will no doubt be repeated in many districts, the Lincoln Local Medical Committee would appreciate the views of other interested local medical committees with a view to joint action being taken to counteract this further encroachment on the domain of general practice.

As the columns of the *BMJ* are already overburdened, the best method would be direct communication with the undersigned. Although, at the present stage a sense of frustration pervades the profession, we in Lincoln desire to discourage apathy. Only by concerted and vigorous action now can we protect what little is left of our freedom.—I am, etc,

DANIEL ROBERTSON

Secretary

Lincoln Local Medical Committee

The Brooklands  
Swallowbeck Lincoln

### Rise in Cost of Living

SIR,—Esau has sold his birthright let him see that he gets his mess of pottage. The medical profession, partly because of that apathy which is now so widespread in all sections of the community, partly by reason of a misplaced belief that defence of one's personal rights is somehow out of place and dishonourable, has signed away its freedom. Let us, now that we have agreed upon entering the National Health Service, insist upon full honouring of the Spens Report, which has been accepted by the Minister. This report specifically says that the figures for remuneration are at the 1939 value of money and that they must be adjusted to meet the increased cost of living.

What is the rise in the cost of living? Mr Gavin Martin, of the Confederation of Engineering and Shipbuilding Unions, has recently complained bitterly that skilled workers in these industries are only getting 52% more wages than they did before the war, while the cost of living is 76½% above the pre-war figure. This figure seems to be generally accepted in official circles, as the official cost of living index is so obviously completely misleading.

The cost of living is then over 70% above the pre-war cost. The Spens Report says definitely that the figures recommended must be adjusted to follow the rise in the cost of living since 1939, and this report has been accepted by the Minister of Health. Let us see if its acceptance is being honoured. The report, if I remember correctly, recommended a capitation fee of 15s 6d per head at 1939 values. The Minister is offering us 16s-18s per head at present-day values—a rise of less than 20%.

The specialists' salaries also have been suggested by the Report, and these too are in 1939 values and are also to be adjusted. It now

appears that the Minister is proposing an addition of roughly 20%, an addition which would make a mockery of the whole Report, as it would have the effect of cutting its recommendations by about a third.

It would be interesting to see the Labour reaction if the NCB, for example, offered the miners a one-fifth increase on their pre-war wage—and yet the Minister of Health is offering it to the doctors. Are we going to be such apathetic slaves as to accept this treatment? Let us insist, with all the not inconsiderable means at our disposal, upon a full and honest carrying out of recommendations already accepted by the Government. Let us call for a Royal Commission to decide once and for all what is the real rise in the cost of living, and undertake to abide by its judgment. The Minister could hardly do less than agree also. As things are, the Government is using the NHS to destroy the independence and status of a great profession. We, along with other members of the professions, have been told quite candidly by Mr Shinwell that Labour cares neither two hoots nor a tinker's cuss for us—and I for one believe it.

We know our position. We are lost if we are apathetic or indifferent. We must show Mr Bevan that he and his friends cannot ride rough-shod over the professions. Labour seeks only to give fair treatment and justice to its own class. It must learn that the new Britain cannot be built upon this monopoly any more than upon any other monopoly. No country can remain great nor be contented while sectional interests forbid co-operation for the common weal.—I am, etc,

Durham

A A REID

### Compulsory Saving

SIR—Is it really of the essence of democracy that a man of nearly 50 years of age may no longer decide for himself whether he wishes to invest in his own senescence or in the education of his children? My eldest daughter has nearly completed her first year at an academy of dramatic art. My eldest son is in his first year at school. If I can find £70 to give him an extra term he stands a very good chance of winning a scholarship at one of our senior universities. Next to him is a boy who wants a career in the Army and is anxious to qualify for Sandhurst. This means another three terms at school, for which I must find some £200. I am perfectly willing, and my wife will gladly share any hardship involved, to make sacrifices in order that these three may achieve their ambitions, but I am officially told that a slab of my earnings is to be taken for a superannuation scheme for which I have never asked or alternatively that I must more than double my payment of life insurance premiums.

One chases around in an endless cycle of irritation, frustration, irritation, frustration and is then supposed to be able to respond gallantly to glib phrases about "ambitious adventure." We know who is ambitious, and some of us at least, prefer to do our own adventuring in company of our own choosing.

I submit that Mr A Wilfrid Adams must have meant to write "by" rather than "with" in the last paragraph of his letter in the *Journal* of July 17 (p 175)—I am, etc,

Launceston Cornwall

DONALD M O CONNOR

### Conditions of Service

SIR—For how long are we to suffer the taunts of the Minister of Health before we dare take some action to redress our wrongs? One week we read that those of us who are not of his political convictions are "less than vermin," and the next week we read that "bovine Anglo-Saxons" could not have had the force of character to launch this new Health Service. Are there not several "less than vermin" and "bovine Anglo-Saxon" members of Council who advised us to enter this Service? I write as a mere general practitioner who has unwillingly accepted the advice of Council and signed into this unhappy Service.

Now that we are all shepherded into the fold, and the gates are closed on private initiative and freedom for ever, let us at least get some sense into our conditions of service, if only by the clarification of some essential points.

1 What compensation are we to get for the use of our homes as consulting-rooms for State patients? The original scheme allowed for health centres for State patients, and it is completely unreasonable to expect the doctor to continue to provide for the upkeep of his surgery and waiting rooms, with their furnishings, light, and heat, without some reimbursement from public funds pending the opening of health centres.



2 What allowance is going to be made the doctor to meet the extra cost of domestic help entailed by the greater influx of patients to the surgeries, resulting in the constant necessity to answer the door bell (for a doctor's house is after all his private home also, and we have not all got homes in which it is convenient to have patients walk straight in)? If the State is going to use my home it should surely provide me with a State paid help to deal with the door telephone calls, and other matters pertaining to a doctor's work, but not his express concern.

3 I received a circular from my local executive council yesterday which informed me that I must purchase my own filing cabinet for documents relating to State patients. They even told me where I can buy it and how much it will cost. What other servant paid by the State has to buy his own filing cabinet for Government forms? Frankly, out of the miserable remuneration we are likely to get, I shall have no loose money to buy filing cabinets, which will doubtless have a purchase tax on them into the bargain.

4 When are we going to get a simple answer to the most important question of all—i.e., the actual pay we are going to receive for the State patients in our medical care? One gathers it is going to be not less than 15s and not more than 18s per head per annum, but nobody seems to know what the exact amount will be. I can think of no other section of the community which has entered into contract to work for the State but has amply left its income to be discussed after it has started employment. It is just not common sense to do so. In any event, even at 18s per head it is a miserable reward for assuming responsibility for a human life for twenty four hours a day for a whole year.

Finally since the *BMJ* has now come down so heavily in favour of this Service which only a few weeks ago it deplored so much please have the sense to cut out this cheap advertisement of the benefits of the Service as evidenced on p 143 of the *BMJ* (July 17) under the heading "Remuneration of General Practitioners." Among other sources of income you draw our attention to the insulting 2s 6d per annum for every 100 persons on the doctor's list. If this is to be one of the sources, then heaven help our gross income! But in any event this could not be reckoned as a source of income by any trick of the imagination since it is merely an amount which is provided by the State for the express purpose of spending immediately on drugs and dressings for emergency use for State patients, and any general practitioner knows that 2s 6d per annum for 100 patients on his list will not by one quarter cover his bills for emergency drugs and dressings.

I have put forward only a few common-sense fundamental points. They are points, however, which call out for early clarification. After the decision of Council in recommending us to accept service in the Scheme we feel that the ground has been swept from under our feet, and that we are bereft of leaders. Will not the Association even at this late hour rouse itself from its lethargy and obtain at least an early clarification of some of these outstanding points?—I am, etc.,

Harrrogate

HARRY R W HAWSON

### Safeguards in the Service

SIR—In reply to Dr G Tayleur Stockings (*Journal* July 17, p 176), who asks what safeguards the BMA has secured against ill-usage, injustice, and tyranny by our employers the British Government, the short realistic answer is *none*. The only protection against ill-usage of the individual is collective action—trade unionism. The BMA is not a trade union and has no legal or effective weapon. If you wish to protect and insure yourself, join the new medical trade union which is inevitable sooner or later. If you refuse to join a trade union, then put up with the ill-usage and don't grumble.

I have been in practice under the old NI Act over 35 years and can assure my younger colleague his fears are very real. I am sending him examples of this privately.—I am, etc.,

Shrewsbury

ALBERT E NICHOLLS

### Holidays in NHS

SIR—Having read most of the correspondence in the *Journal* on the subject of the National Health Service, I have been surprised that I have not yet seen any comment upon what I consider to be a very serious defect in the terms of service. I refer to the subject of holidays. While nowadays it is an accepted condition of almost all employment that employees are given holidays with pay, we in the medical profession, or at any rate those of us in general practice, are required to provide

a deputy in all cases of absence from duty, whether such be due to sickness or recreation, and at our own expense.

I consider this to be a glaring injustice and I am astonished that the Negotiating Committee did not press for a system whereby a locum tenens would be provided at the Ministry of Health's expense (as was done during the postgraduate courses in 1938) for a definite period—say 21 days each year. Since the Government have taken over our practices and we no longer own them, it is up to the Government to look after them when we are away on holiday—or is it considered that doctors ought not to have holidays as other citizens do?

While on the subject of deputies, I do not know of any other section of the community the individuals of which have to pay others to perform their duties when they themselves are absent from work owing to sickness. Is it too much to hope that our leaders will take up this vital matter with the Minister and to persist until they achieve justice for the profession?—I am, etc.,

Birmingham

C SPENCER WHITEHOUSE

### Free Choice of Patient

SIR—In the *Daily Telegraph* of July 21, 1948, mention is made of a case in which the London Executive Council has been asking a doctor to give his reasons for not accepting a certain case on his list. Is it not true that a doctor has got a full choice in the selection of his patients? He can accept anyone he likes and refuse anyone he does not like. Why should the doctor be asked by the executive council to give his reasons for not accepting a case? Whatever may be this doctor's personal reasons I strongly believe that the executive council have no right to question him on the matter. If they have, where is the free choice of a patient by a doctor? The Service is only in its third week now and we have lost all our liberties already. What will it be like when it is in full swing?—I am, etc.,

Preston Lancs

H C SAKSENA

### Message from the Minister

SIR—Perhaps you were almost bound to print the thing, and it may be churlish to complain, but I think that many readers of the *Journal* will regard "A Message to the Medical Profession" from our Mr Bevan as merely one more, if a minor, irritation. We know that we are supposed to make the best of a rather bad sort of job—a job designed with far too much speed and far too little thought—and I for one do not relish having the matter "rubbed in" by our present Minister of Health, in whom I have hardly any confidence. It is perfectly obvious that the whole scheme should have been postponed until proper clinics had been built and more nurses trained—a fact which will become very obvious during the next twelve months, the only consolation for which may be that we have some other Minister of Health.—I am, etc.,

London W 4

JOHN C C LANGFORD

### Bigotry and Intolerance

SIR,—I should like to heartily endorse the letter of Dr S Dillon (July 17, p 176) and to draw the attention of the profession to the systematic campaign of slander directed against us by certain politicians and newspapers during the last two weeks. Barely a fortnight from the inception of the National Health Service we are accused of "sabotaging the Service" and "running a medical black market," apparently for no other reason than that some doctors have exercised the right specifically granted them under the Act—namely, that of being at liberty to accept or decline a particular patient as they think fit. No mention is made of the loyal efforts of doctors to work the Act under the deadening hand of incompetent officialdom, but every trivial incident which can be construed into an attempt to "sabotage" the Service is given the greatest possible publicity, while patients are earnestly exhorted to act as informers and to report every case they can. During the past two weeks I have collected a number of newspaper cuttings and reports on Parliamentary debates which amply bear out the above statement.

The whole thing is sickeningly familiar. No sooner do we give way and agree to surrender our rights under threat of

conomic pressure than the venom and spite of a controlled and servile Press is immediately turned upon us. The timing, technique, and terms used are strikingly reminiscent of those of the late Dr Goebbels and entirely typical of the usages of the totalitarian State. It is a perfect example of that spirit of bigotry and intolerance, so ugly and un-British, which in the last three years has been transplanted on to British soil and developed like a malignant cancerous growth. The object of those behind this campaign is obvious—to prepare the way for demanding more and stricter controls and restrictions on our profession's freedom, so that British medicine will in time be reduced to the same level as German medicine under the Nazi regime.

The slander campaign, of course, is by no means a new thing. For many years the profession has been subjected to a campaign of subtle suggestion and innuendo, encouraged unfortunately by the effusions of certain medical men turned novelists. The general practitioner has been variously represented as Dr Dillon states, either as an ineffectual and obsolescent dodderer or as a racketeering, money-grabbing charlatan, while an ignorant and credulous public has been only too ready to swallow suggestions of this sort.

The result of our lack of spirit and readiness to give in is already becoming only too clear, as is the kind of treatment that we may expect from the exponents of the "lower-than-vermin" school of thought. We are told that the B.M.A. organization includes a well-organized public relations department. If this is so, is it not high time that this department made some sort of effort to justify its existence? In conclusion, I may mention that I have offered to submit the newspaper and other cuttings referred to in this letter to the Association's Public Relations Department for their scrutiny and appropriate action—I am, etc.,

Catford London

G TAYLEUR STOCKINGS

### Compensation for Loss of Goodwill

SIR—It seems to me that the method of calculating annual loss laid down in N.H.S. (Medical Practices Compensation) Regulations, 1948 (No. 1506), Regulation 7 (2) (a), (b), and (c), on the average of the last two years before the appointed day is unfair to ex-Service practitioners and their partners. Most doctors were released in early 1946, in my experience at least a year's work was necessary to work up a practice to its pre-war gross receipts. Hence the gross receipts of the year 1946-7 are considerably less than those of a normal year. The use of a two-year average in calculating annual loss is also at variance with the memorandum 'General Medical Services: Arrangements Concerning General Practitioners,' which "contemplated that the total amount will be divided in proportion to gross incomes in the last convenient accounting year."

I suggest that in the case of ex-Service practitioners practising alone or in partnership, and other practices affected by the war, the average should be of the last year before service and the year 1947-8. Some precedent for this is given by the generous action of the Surrey Panel Committee, which, with the approval of the panel practitioners of the county, paid ex-Service practitioners for 18 months after their return on the basis of their lists at the end of the last quarter before service. Most of us lost financially by our war service, if we gained in more intangible ways. It is unjust that we should lose again—I am, etc.,

West Byfleet Surrey

T T HARDY

\*\* The Secretary of the B.M.A. writes: Exceptional cases, including ex-Service practitioners who have not had time to recover the full value of their goodwill, will be referred to the Practices Compensation Committee (Regulation 9), and this Committee (under Proviso 2 to Regulation 7) will fix what they consider to be a fair assessment.

### Ophthalmic Certificates

SIR—In the past week I have given out over 50 certificates for ophthalmic benefit. The vast majority of these people already wear glasses, and it seems to me utterly nonsensical that our overcrowded surgeries should be cluttered up with people requiring this type of certification. Surely no one wants glasses unless they really need them and equally so the optician is

going to give them only where there is an eye defect. I cannot believe that the Ministry really expects every G.P. to take out a sight-testing chart each time a patient requests this certificate (incidentally without a fee).

It seems to me that this is another of the familiar Ministerial devices of putting obstacles in the way of people, hoping it will deter them from proceeding further in their objective. I should like to ask that the B.M.A. should take energetic action to have this entirely unnecessary certification abolished—I am, etc.

Urmston Lancs

B SANDLER

SIR—I think the "eye certificate" is absurd, and I consider that the B.M.A. should take the matter up at once. First, the certificate says, "I have examined you." What examination is required? Secondly, the word "require" is misused and silly. Thirdly, in common with many G.P.s, I never give a "certificate for eyes" other than a recommendation to consult an ophthalmic surgeon. Fourthly, patients make previous appointments with an ophthalmic optician and then require the doctor "just to sign." I myself have deleted the second line and written in the words "should consult an ophthalmic surgeon." You are not bound to take my advice. This procedure will become tedious. May I ask what is to be done in the case of broken frames and lenses?—I am, etc.

Cricklade Wilts

T R THOMSON

\*\* If a patient breaks his glasses less than two years after his sight was tested he goes to an ophthalmic or dispensing optician to have them repaired, he pays the cost unless he can show that the damage was not caused by his own carelessness. If he breaks them more than two years after his eyes were tested, he has them tested again—ED B.M.J.

### Anaesthetists' Fees

SIR—Any attempt to lay down a schedule of medical and surgical fees is bound to result in the creation of a number of anomalies. Many of these are unavoidable and therefore excusable. But when the anomaly amounts to a gross injustice, as is the case with the fees laid down for anaesthetists, a vigorous protest is called for.

Under the proposed scale of anaesthetic fees the maximum fee payable is twelve guineas, the minimum four guineas. Since the majority of operations fall within the intermediate and minor categories it follows that the average anaesthetic fee will be in the region of five guineas.

The administration of an anaesthetic by a competent and responsible anaesthetist entails a preliminary visit to the patient. This visit has usually to be made specially, late in the evening prior to the day of operation. At this visit a careful examination of the patient is made and the relevant history extracted. A suitable sedative and the appropriate premedication are prescribed and a decision come to as to the best anaesthetic technique to be employed for the particular operation and patient. The actual administration of the anaesthetic entails the arrival of the anaesthetist at the operating theatre some twenty minutes before the other members of the surgical team, the transport and supply of heavy and expensive apparatus, the supply of expensive anaesthetic gases and drugs, and the acceptance of a clinical responsibility second only to that of the surgeon, often by a very short head, during the operation. At the conclusion of the operation the patient is conducted, usually carried, back to bed and the necessary resuscitative measures instituted and suitable sedatives ordered. Departure from the building is usually considerably after the other members of the team have left. A post-operative visit is made later in the day, again usually in the late evening, to advise upon any immediate anaesthetic complications and a further visit is made the following day to deal with the less immediate anaesthetic sequelae and to examine the chest. Anaesthetic complications may entail further attendances upon the patient, but in all but frankly minor cases a final visit on the third or fourth post-operative day is customary. For these services, Sir, the anaesthetist is to be rewarded by a fee of the same dimension as that paid to his surgical and medical colleagues for a single consultation. Further comment is, I feel, unnecessary—I am, etc.,

Bournemouth

S F DURRANS

## B M A LIBRARY

The following books have been added to the Library

- Allen F M B Aids to Diagnosis and Treatment of Diseases of Children Eighth edition 1947  
Barcley, M, and Brouet, G Ptisiologie du Médecin Praticien Deuxieme edition 1947  
Bidou, G Energimétrie 1947  
Bishop, C L Does Science Deny God? 1947  
Boothway, E S, and Boothway, F Chiropody To day Second edition 1946  
Bowley, A H The Problems of Family Life Second edition 1948  
Brennan, M, and Gill, M M Hypnotherapy 1947  
Browne O D Manual of Practical Obstetrics Second edition 1948  
Carere Comes, O Vitamine e Bioregolatori Pt I 1947  
Crisp, M Utility Nurse 1947  
Curwen, E C Plough and Pasture 1946  
Davies, T A L Practice of Industrial Medicine 1948  
Davis, H, et al Hearing Aids 1947  
East, T, and Bain, C Recent Advances in Cardiology Fourth edition 1948  
Eilers, H, Saal, R N J, and van der Waarden M Chemical and Physical Investigations on Dairy Products 1947  
Elliott H C Textbook of the Nervous System 1947  
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## Association Notices

### MIDDLEMORE PRIZE

The Middlemore Prize consists of a cheque for £50 and an illuminated certificate, and was founded in 1880 by the late Richard Middlemore, FRCS, of Birmingham, to be awarded for the best essay or work on any subject which the Council of the British Medical Association may from time to time select in any department of ophthalmic medicine or surgery. The Council is prepared to consider the award of the prize in the year 1949 to the author of the best essay on "The Value of Orthoptics in the Treatment of Squint". Essays submitted in competition must reach the Secretary, British Medical Association, BMA House, Tavistock Square, London, WC1, on or before Dec 31, 1948. Each essay must be signed with a motto and accompanied by a sealed envelope marked on the outside with the motto and containing the name and address of the author. In the event of no essay being of sufficient merit the prize will not be awarded in 1949.

### SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award.

1 The prize is established by the Council of the British Medical Association for the promotion of systematic observation research, and record in general practice, it includes a money award of the value of 50 guineas.

2 Any member of the Association who is engaged in general practice is eligible to compete for the prize.

3 The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.

4 Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, WC1, not later than Dec 31, 1948. The prize will be awarded at the Annual General Meeting of the Association to be held in 1949.

5 No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize.

6 If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final.

7 Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

8 The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association.

9 Inquiries relative to the prize should be addressed to the Secretary.

### KATHERINE BISHOP HARMAN PRIZE

The Council of the BMA is prepared to consider an award of the Katherine Bishop Harman Prize of the value of £75 in 1949. The purpose of the prize, which was founded in 1926, is to encourage study and research directed to the diminution and avoidance of the risks to health and life that are apt to arise in pregnancy and child bearing. It will be awarded for the best essay submitted in open competition, competitors being left free to select the work they wish to present, provided this falls within the scope of the prize. Any medical practitioner registered in the British Empire is eligible to compete.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1949 but will be offered again in the year next following this decision, and in this event the money value of the prize on the occasion in question will be such proportion of the accumulated income as the Council shall determine.

The decision of the Council will be final.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address. Essays must be forwarded so as to reach the Secretary, to whom all inquiries should be addressed, at BMA House, Tavistock Square, London, WC1, not later than Dec 31, 1948.

## H M. Forces Appointments

### ARMY

Colonel C. Scales, MC late R.A.M.C., has retired on retired pay and has been granted the honorary rank of Brigadier.

Colonel H. G. Peake, late R.A.M.C., has retired on retired pay on account of disability.

Colonel W. D. Anderton, MC late R.A.M.C., having attained the age for retirement, is retained on the Active List supernumerary to Establishment.

Lieutenant Colonel R. R. Evans, from R.A.M.C., to be Colonel

LONDON SATURDAY AUGUST 21 1948

## TUBERCLES OF THE CHOROID

BY

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AND

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[WITH COLOUR PLATE]

It has long been known that careful examination of the fundus oculi in cases of milary tuberculosis and tuberculous meningitis may reveal tubercles of the choroid. The concentration of cases of this disease and the prolongation of life which has resulted from streptomycin therapy have provided the opportunity of studying these choroidal lesions and of observing their natural history. In this paper we discuss the frequency with which we were able to find tubercles of the choroid, describe their natural history, and report the findings of similar lesions in cases of tuberculosis in which there was no evidence of milary spread or of meningitis.

### Historical

It seems that Gueneau de Mussy (1830) was the first to recognize choroidal tubercles in milary tuberculosis. Jaeger (1855) gave the first anatomical demonstration of these lesions. Manz (1858) described the detailed histology of a choroidal tubercle in a girl aged 15 who died of milary tuberculosis. Fraenkel (1867) was the first to demonstrate them with the ophthalmoscope, though Von Graefe and Leber (1868) claimed that they were the first to demonstrate them with this instrument. They described the ophthalmoscopic appearance in detail. Cohnheim (1867) gave a detailed description of the necropsy on seven cases, and produced choroidal tubercles experimentally (with milary tuberculosis) by injecting guinea-pigs with tuberculous material.

Various writers (Fraenkel, 1869, Weiss, 1877, Marple, 1912, Groenouw, 1920, Lotin, 1924) suggest that choroidal tubercles may develop in a few hours. This seems to be extremely unlikely, and the statement is almost certainly accounted for by incomplete initial examination. Bouchut (1869), Fraenkel (1869), and Weiss (1877) emphasized the value in diagnosis of finding choroidal tubercles. Hoeve (1925), Bollack *et al* (1927), Mayrhofer (1935), and Baldenweck *et al* (1938) describe cases in which the diagnosis of milary tuberculosis was established by finding tubercles of the choroid. The literature was reviewed by Von Graefe and Leber (1868), Weiss (1877), Carpenter and Stephenson (1905), Bredeck (1916), Groenouw (1920), Bollack *et al* (1927) and Paton (1932).

The frequency with which various writers found choroidal tubercles is tabulated below. In many papers it is very difficult to determine whether the cases referred to were meningitis only, milary tuberculosis only, or a combination of these. The great majority were cases of milary tuberculosis with or without meningitis. In cases referred

to as meningitis only, the absence of post-mortem evidence that there was no milary spread makes the accurate designation of these cases impossible. For, as mentioned below, careful histological examination not infrequently reveals milary tuberculosis which on x-ray examination had not been evident.

TABLE I

	No. of Cases	No. of Cases in which Choroidal Tubercles were Found
Koch (1913)	60	8
Koplik (1907)	46	9
Garlick (1879)	26	1
Cohnheim (1867)	18	18
Groenouw (1920)*	225	54
Heinzel (1875)	41	0
Litten (1877)	52	39
Bredeck (1916)	11	2
Tooke (1915-16)	73	7
Moore (1922)	33	10
Carpenter and Stephenson (1905)	42	21
Marple (1912)	13	13
McDermott <i>et al</i> (1947)	13	2
Debré <i>et al</i> (1947)	84	22
Total	737	206 (28%)

\* Quoting Stricker, 1876; Weissenfels, 1881; Bock, 1883; Money, 1883; Neskovic, 1884; Demme, 1888; Rheinhold, 1891; and Gruning, 1901.

A recent textbook (Doggart, 1947) merely states that "choroidal tubercles are visible in many cases of tuberculous meningitis."

### The Clinical Material

Between January, 1947, and May, 1948, 65 cases of milary tuberculosis and tuberculous meningitis in patients under the age of 14 were admitted to the Children's Hospital, Sheffield. Ten of these cases are excluded from the series to be discussed—four because the fundi were not examined, three on account of some doubt whether or not choroidal tubercles were seen, two because it was impossible to classify the cases owing to lack of x-ray and necropsy examination, and one because pneumococcal meningitis in a case of milary tuberculosis masked the possible presence of tuberculous meningitis. The difficulty in some of these cases arose because the child was moribund on admission.

By the courtesy of Professor E. J. Wayne and Professor C. H. Stuart Harris we were able to examine the fundi of five unselected adults suffering from milary tuberculosis or meningitis, and these are included in the series.

Four additional cases of pulmonary tuberculosis in children are discussed because of the finding of choroidal

tubercles without evidence of miliary spread or meningitis. These are not included in the series of 60 cases given in Table II.

### Technique of Examination

It is obvious that the accurate examination of the fundi of infants and small children is a matter of considerable difficulty, and requires much patience and experience. The irritability occasioned by meningitis may make the examination particularly difficult. The pupils in all cases were dilated by 1% homatropine, and a sedative drug such as chloral,  $1\frac{1}{2}$  gr (0.1 g) per year of age, was used where necessary. The average time occupied for one examination of the fundi of a small child is about half an hour.

In almost all the children the fundi were examined repeatedly, but in view of the difficulties it is possible that in some cases choroidal tubercles were present but not detected. We feel, however, that in view of the care with which the examinations were carried out the number missed is likely to be small. It is certainly possible that histological examination would reveal tubercles which were too small to be detected by the ophthalmoscope.

TABLE II—Frequency of Choroidal Tubercles in the Series

	No. of Cases	No. of Cases in which Choroidal Tubercles were Found
Miliary tuberculosis	14	7
with meningitis	28	18
Meningitis	18	1
Total	60	26

It will be seen from Table II that choroidal tubercles were found in 25 (60%) out of 42 cases of miliary tuberculosis with or without meningitis, and in only one case of meningitis in which there was no miliary spread. This last case was one of chronic tuberculous caries of the spine with terminal meningitis. Careful histological examination of the organs did not reveal miliary lesions. Of the five adults seen, all suffering from miliary tuberculosis with meningitis, choroidal tubercles were found in three.

That post-mortem examination, especially histological section, is necessary to exclude miliary spread is shown by the fact that in nine of our cases of meningitis in which x-ray examination failed to indicate miliary infection the necropsy revealed miliary lesions in the lungs, in six of these only on histological examination. Our figures for the cases of meningitis without miliary spread may not be quite accurate, as five of the 18 patients are still alive (though two have been observed for more than three months) and in three of the 13 fatal cases no post-mortem examination was possible. Therefore it may be that some of these eight cases should have been included in the group of cases of miliary tuberculosis with meningitis.

It is noteworthy that Sir Frederick Still (1927) said "Tubercles of the choroid are rarely found in tuberculous meningitis if uncomplicated by miliary tuberculosis, whereas they are found in the majority of cases of miliary tuberculosis."

It is interesting that, whereas choroidal tubercles were found in 24 out of 33 cases in which there was x-ray evidence of miliary tuberculosis, they were found in only 1 out of 9 cases in which the miliary lesions in the lung were so small or non-opaque that they could only be discovered at necropsy. The significance of this observation is not clear.

The frequency of choroidal tubercles in the cases of miliary tuberculosis emphasizes the importance and value of a thorough examination of the fundi in all cases of possible miliary tuberculosis or meningitis. In some of the cases

of meningitis in the series the finding of choroidal tubercles enabled a definite diagnosis to be made before an x-ray photograph of the chest was available and before a lumbar puncture had been performed.

In almost all cases the choroidal tubercles were found at the time of the first or second examination. Several writers have suggested that they are found only in the terminal phase of the illness. Our experience does not confirm that suggestion.

In only one case did we observe the appearance of choroidal tubercles during the course of streptomycin treatment. In view of the unsatisfactory response of some cases to streptomycin there seems to be no reason why this should not happen, but it must be remembered that the difficulty of full examination of the fundi of an infant makes it very easy to miss choroidal tubercles at the time of the first one or two examinations. Their discovery may well be explained by an inadequate search previously.

### Description of the Choroidal Tubercle

In the early stage (Plate, Fig 1) the choroidal tubercle appears as a rounded pale-yellow area with a matt surface and an indefinite edge merging into the red background of the choroid. It does not appear to be elevated. There may be only one tubercle, but usually there are several. The largest number observed by us in one eye was ten. The majority are one or two disk-breadths from the disk. The size is usually one-quarter to three-quarters that of the disk, but it is sometimes slightly larger than the disk. It is unconnected with the retinal vessels. It may be traversed by vessels, and if so they are apparently normal.

The histological appearance of the tubercle has been well described by many writers (Manz, 1858; Cohnheim, 1867; Bouchut, 1869; Weiss, 1877; Haab, 1879; Carpenter and Stephenson, 1905; Petrovic, 1926; Bollack *et al.*, 1927; Penman and Wolff, 1933; Tooke, 1936; Baldenweck *et al.*, 1938). Tooke (1936) draws attention to the absence of involvement of the vaginal space and optic nerve sheath and considers that this is good evidence that choroidal tubercles arise from miliary spread and not by extension from meningitis.

There is swelling of the neighbouring choroid, with destruction of the stroma and infiltration with round cells, endothelial cells, and giant cells. Tubercle bacilli have been found in the lesions in large numbers. The retina is rarely involved, the tubercle being strictly limited to the choroid, but the retina may be thickened and show round cell infiltration (Penman and Wolff, 1933). The retina is often involved by so-called conglomerate tubercle (Groenouw, 1920; Petrovic, 1926; Groenwall, 1933; Balz and Mosto, 1935; Harlowe, 1946).

### The Natural History of the Choroidal Tubercle

We have found very little reference in the literature to changes in the choroidal tubercle. Von Graefe and Leber (1868), Fraenkel (1869), and Groenouw (1920) all mention the increase in size which can be observed by repeated observation. Cohnheim (1867), Von Graefe and Leber (1868), and Fraenkel (1869) describe the paling of the lesion which develops with its increase in size. Marple (1911) shows a good picture of an obviously old tubercle. Barlow (1910) says "Choroidal tubercles may be observed at different stages of development in different parts of the fundus. They begin as minute round dots which gradually become more opaque in their centre." Very little reference has been made to pigmentation. Von Graefe and Leber (1868) mention the occurrence of pigmentation in large tubercles. Debre *et al.* (1947) say that "they gradually heal or disappear, leaving residual pigmentation only." They go

n to say that new choroidal tubercles may appear during the course of streptomycin therapy, and may serve as the only indication that all is not well. Lotin (1924) says that pigmentation sometimes occurs in these tubercles and that a chronic course is not uncommon in tubercles of the choroid.

The relative effectiveness of streptomycin treatment has enabled us to observe the changes which occur in choroidal tubercles over a period of several months. We have not seen any tubercles disappear during treatment, and in view of their pathology it would seem unlikely that this would happen. In some cases the tubercles may remain unchanged for some weeks. The possible prognostic significance of the absence of changes in the tubercles is mentioned below.

In at least 20 cases we observed well-defined and definite changes. The area occupied by the tubercle becomes larger and paler and the outline more distinct. Fine dots of pigment appear in and around the pale area (Fig 2). This change is usually noted within eight weeks of starting treatment.

Following this intermediate stage the tubercle becomes paler still, until finally it becomes parchment-white, with a well-defined sharp edge, with heavy black pigment in and particularly around the lesion. There may also be a paling of the red choroid in the area immediately around the tubercle (Figs 3-6). These changes may be complete in 12 to 14 weeks. We think that this parchment-white scar with a well-defined edge and heavy pigmentation may represent the healed tubercle. We have seen incomplete pictures of this several times but the final parchment-white stage in only five cases. One was a case of miliary tuberculosis with meningitis which responded well to four months' streptomycin treatment. The girl had a solitary choroidal tubercle, and we observed in it all the changes from the earliest to the final stage. She is now perfectly well, four months after the cessation of treatment. In another case, discussed below, we noted the same changes occur in a solitary choroidal tubercle in a girl with a tuberculous knee without miliary tuberculosis or meningitis. In another case one choroidal tubercle underwent these changes during the course of four months' streptomycin treatment (Fig 3), while other tubercles, about a dozen in number, never progressed beyond the early intermediate stage. She died. In another case, admitted with a five-months history of miliary tuberculosis, one choroidal tubercle was found in this late stage, while others were found in the early and intermediate stages. The different age of these tubercles may well be due to a continued discharge of tubercle bacilli from the primary focus. In yet another case we observed a choroidal tubercle in the final stage in a child with a primary complex with no evidence of miliary infection or of meningitis. In this case the tubercle had not been observed in the earlier stages. This case is also discussed below.

#### Possible Prognostic Value of Changes in Choroidal Tubercles

We have seen too few cases and observed them for too short a period of time to be able to make any definite statement about the prognostic value of the changes we have described. But it is of note that the three patients whose choroidal tubercles changed to what we consider the final or healed stage, without other tubercles in earlier stages, are clinically well after fairly prolonged observation (all more than seven months), and that of the eight cases in which in spite of prolonged treatment (over three months) the tubercles failed to progress beyond the early intermediate stage death occurred in five and in the remaining three the response to treatment has been unsatisfactory and recovery seems to be very unlikely.

The following are records of two of the cases mentioned above. They illustrate the possible value of the changes described.

*Case 1*—A girl aged 2 years 9 months was admitted with miliary tuberculosis. Four choroidal tubercles were seen in the early stage. She seemed to respond extremely well to streptomycin, and the x-ray picture of the chest became normal. But at the end of four and a half months' treatment, when the question of stopping the drug arose, the choroidal tubercles had not progressed beyond the early intermediate stage. The drug was therefore continued. Meningitis developed, and she died eight months after treatment had been started.

*Case 2*—A boy aged 16 months was admitted with miliary tuberculosis. He seemed to respond very well to streptomycin, and the x-ray picture of the chest became clear, but his solitary choroidal tubercle failed to progress beyond the intermediate stage. Treatment was continued for six months—two months longer than the normal duration of treatment given here—and two months after the treatment was stopped tubercle bacilli were cultured from the gastric washings.

The appearance of a new choroidal tubercle after prolonged streptomycin treatment is naturally of bad prognostic significance. We have seen this happen only once.

*Case 3*—A boy aged 15 months was treated with streptomycin on account of miliary tuberculosis with meningitis. One choroidal tubercle was found when he was first examined. In spite of four months' treatment this tubercle never progressed beyond the intermediate stage, and the radiograph of his chest showed only a partial clearing of the lung field. Five months after the treatment had been started a new choroidal tubercle was discovered. His fundi had been repeatedly and carefully examined, and it seems unlikely that this tubercle had been missed previously. The tubercle, furthermore, is in the early non-pigmented stage.

It is clear that a great deal more work is required on this subject, and we hope to give a further report in due course.

#### Choroidal Tubercles in Other Cases of Tuberculosis

It is generally considered that a tuberculous bacteraemia is a common if not usual sequel of a primary tuberculous infection. It would seem possible that if careful search were made of the fundi of all children with primary tuberculosis an occasional choroidal tubercle would be found.

Randolph and Schmeisser (1915-16) stated that choroidal tubercles could be found, though infrequently, in practically any type of tuberculosis with a primary lesion. Brunthaler (1926) described a boy aged 4 with congenital syphilis and epituberculosis. Multiple choroidal tubercles were found. A year later the boy was in good health, and a few small rounded scars of the choroid were present. Weiss (1877) describes the finding of choroidal tubercles at necropsy in a man in whom no other evidence of tuberculosis could be discovered. Cohnheim (1867) said that choroidal tubercles could occasionally be found in cases of tuberculosis without miliary spread.

We have found choroidal tubercles in four such cases, but in two (thought by the physician and the radiologist to have merely a primary complex) the period of observation has at the time of writing been only a very short one (7 and 19 weeks respectively) and it is too soon to exclude miliary spread.

The two other cases, however, are of special interest, for they have both been observed for nine months and both are clinically and radiologically entirely normal. The following is a summary of these cases.

*Case 4*—A girl aged 4 was first seen with a six-months history of pain in the right knee. Her tuberculin test was positive and a diagnosis of tuberculosis of the knee-joint was made. Three weeks after admission she was found to have a solitary choroidal



tubercle in the early stage. A radiograph of the chest showed a very doubtful generalized mottling of the lung field which the radiologist did not think was that of miliary spread. Tubercle bacilli were cultured from the gastric washings. Further radiographs were taken at intervals, and they have now been normal for four months or more and the child is well. She has not been given streptomycin or other specific therapy. The x-ray photographs are not reproduced in this article, because the mottling was so fine that it would certainly not show in a reproduction, the x-ray picture would probably have been passed as normal unless miliary tuberculosis had been particularly suspected. The interesting feature of this case is that we observed all the changes in the choroidal tubercle which we have seen in the streptomycin cases. The tubercle is now a parchment-white scar with heavy pigmentation around (Fig 4).

**Case 5**—A boy aged 3 was admitted on account of a tuberculous cervical lymph node. He had a history of recurrent cervical abscesses for two years. His tuberculin test was positive. A radiograph of his chest showed a picture identical with that of Case 3, and for the same reason the radiograph is not reproduced here. Tubercle bacilli were cultured from the gastric washings. A month after admission we found what we consider to be the final or healed stage of a choroidal tubercle (Fig 6). The child is now perfectly well, and a radiograph of his chest has been clear for over four months. His choroidal tubercle remains unchanged. He too has had no specific treatment.

It is quite possible that both these cases are in fact examples of chronic miliary tuberculosis undergoing spontaneous cure, but in neither case was it possible to make that diagnosis from the radiograph of the chest.

### Summary

Choroidal tubercles were found in 7 out of 14 cases of miliary tuberculosis without meningitis, and in 18 out of 28 cases of miliary tuberculosis with meningitis. In other words they were found in 25 (60%) out of 42 of all the cases of miliary tuberculosis. They are therefore of great diagnostic value in these cases. They may establish a definite diagnosis before a radiograph of the chest or a lumbar puncture has been performed.

Choroidal tubercles were found in only one out of 18 cases of tuberculous meningitis without miliary spread.

In nine of our cases necropsy revealed miliary tubercles which had not been detected by x-ray photographs of the chest. It is emphasized, therefore, that in a case of tuberculous meningitis miliary spread can be excluded only at necropsy.

In no cases were choroidal tubercles found merely as a terminal phenomenon. They were found at the time of the first or second examination.

The natural history of the choroidal tubercle is described. As time passes the margin of the tubercle becomes more definite, the tubercle enlarges, the centre becomes paler, and the tubercle and the surrounding area become stippled with pigment. In the final stage there is a parchment-white scar with heavy surrounding pigmentation and paling of the near-by choroid.

It is suggested that further observation may well show that the changes described are of prognostic value. Of those cases (eight in number) in which in spite of prolonged streptomycin treatment the tubercles failed to progress beyond the early intermediate stage, death has occurred in five and the remaining three are doing badly. All the cases in which the tubercle progressed to the parchment-white appearance without any tubercles in earlier stages were apparently cured.

Choroidal tubercles were found in four cases of tuberculosis in children in which there was no meningitis or certain evidence of miliary spread. In one of these cases a solitary choroidal tubercle was seen to pass through all the stages described above to the final or healed stage. It seems possible that careful examination of the fundi of all cases of primary tuberculosis will, in some, reveal choroidal tubercles.

Our thanks are due to Professor E. J. Wayne and Professor C. H. Stuart-Harris for allowing us to see their cases, to Drs J. Burke, M. Powell, and J. Briggs for helping in the examination of fundi, to Mr B. Nutt, ophthalmic surgeon, for advice, to Dr J. L. Emery for the histology, and to Dr T. Colver for letting us see his cases. The paintings are by Messrs Hamblin.

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### LEGENDS

FIG 1—Choroidal tubercle early stage, on commencement of streptomycin treatment.

FIG 2—Very early choroidal tubercle at 3 o'clock. Several others in slightly later stages. Choroidal tubercles at intermediate stage at 7 and 11 o'clock. (After six weeks' streptomycin treatment.)

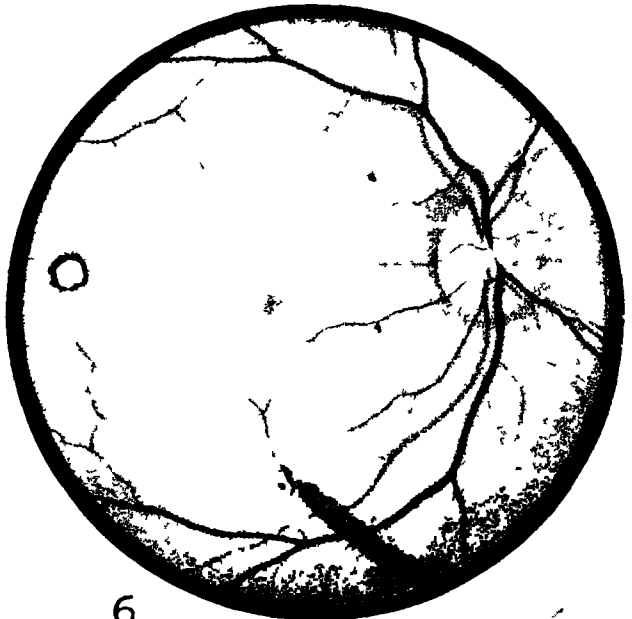
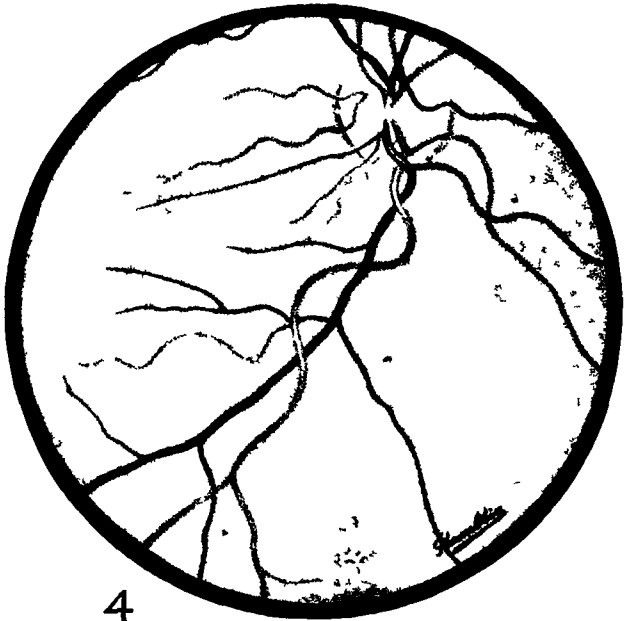
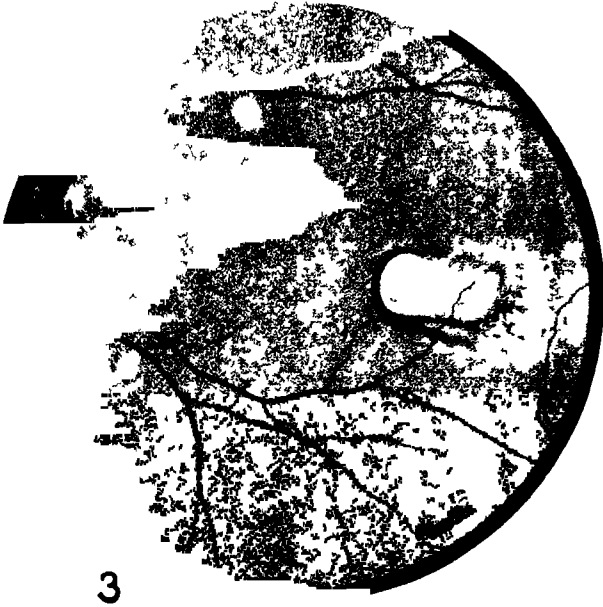
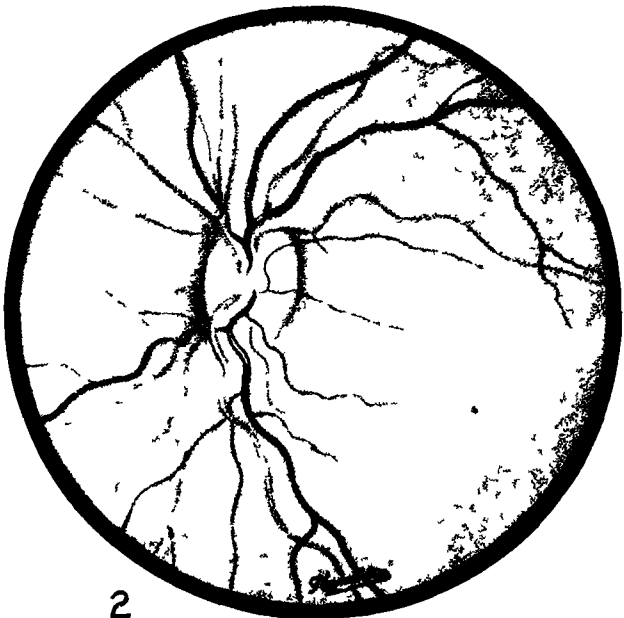
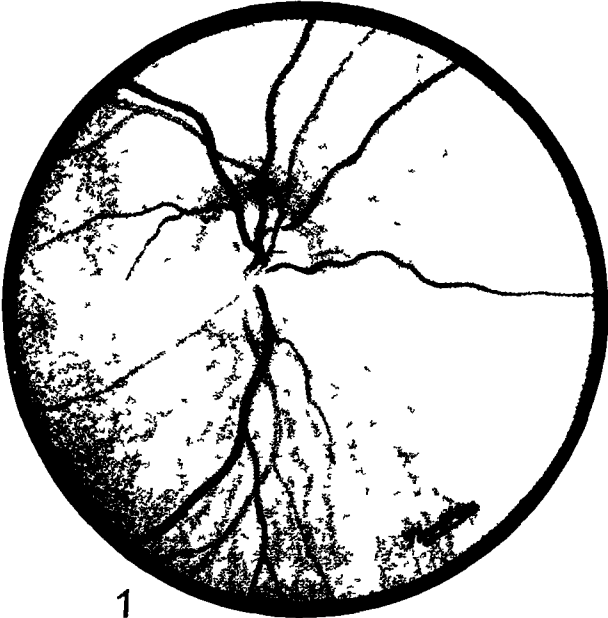
FIG 3—Late stage of choroidal tubercle at 3 o'clock, with two other tubercles in early intermediate stage. Case of miliary tuberculosis with meningitis which failed to respond to streptomycin.

FIG 4—"Healed" choroidal tubercle, Case 4, at end of six months' observation. Case of tuberculosis of knee without evidence of miliary infection. No specific treatment.

FIG 5—"Healed" choroidal tubercle. Case of miliary tuberculosis with meningitis on completion of streptomycin treatment, apparently cured.

FIG 6—Healed choroidal tubercle (Case 5). Case of primary tuberculosis without evidence of miliary spread or meningitis. No specific treatment.

R S ILLINGWORTH AND TREVOR WRIGHT TUBERCLES OF THE CHOROID



## P ROSS OCCUPATIONAL SKIN LESIONS DUE TO PITCH AND TAR

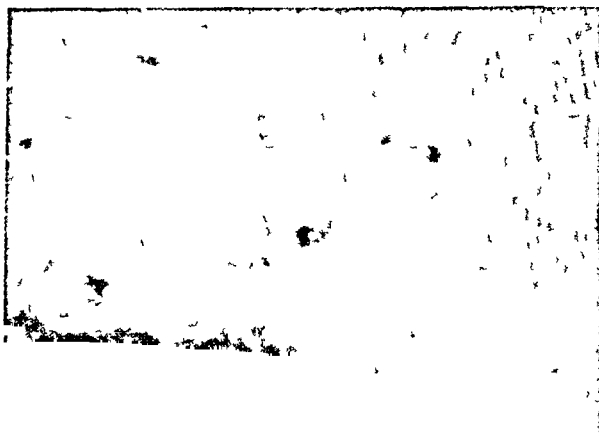


Fig 1—Shagreen skin of forearm. A B aged 52. Contact for 26 years. A close up has been taken of the affected part to show the details of the skin degeneration.



Fig 2—Typical pitch wart on upper lip. C D aged 50. Contact for 4 years. Dome shaped tumour with keratotic head proved innocent at biopsy. Two tiny warts near main lesion.

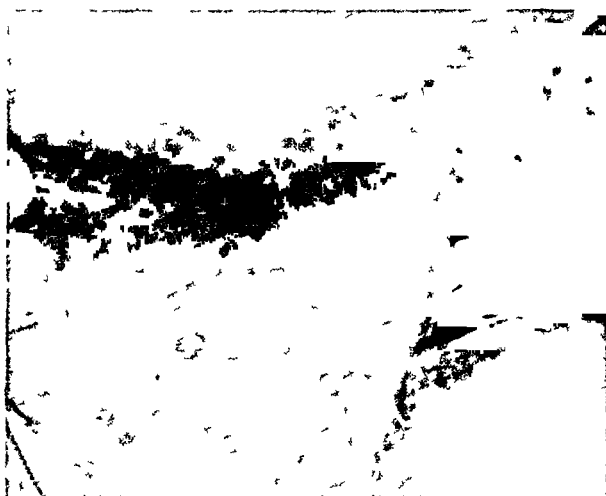


Fig 3—Pitch wart of the scrotum. E F aged 41. Contact with pitch and tar for 16 years. Tumour was innocent and disappeared with x-ray treatment.



Fig 4—Epithelioma of scrotum. G H aged 42. Contact with pitch and tar for 17 years. Mushroom shaped lesion had been growing for one month and had been mistaken for indolent boil.



Fig 5—Epithelioma of pinna. I J aged 39. Contact with pitch and tar for 20 years. He had had the lesion for one month and it was beginning to enlarge rapidly. Note similarity to papilloma in Fig 2.



Fig 6—Epithelioma of upper arm. K L aged 49. Contact with pitch and tar for 34 years. Lesion for 5 weeks treated as indolent boil. Note typical epithelioma. Slight break in wall of ulcer marks earlier biopsy. No glands. Healing perfect after

## OCCUPATIONAL SKIN LESIONS DUE TO PITCH AND TAR

BY

PHILIP ROSS, MD

[WITH COLOUR PLATE]

The terms "pitch" and "tar" refer to a multitude of substances of varying composition and complexity, and a brief study of these compounds is desirable for the better appreciation of some of the problems they produce in industry. In addition to various asphalts and bitumens, Abraham (1945) in his recent treatise describes many types of pitch and tar, their origin and mode of preparation, but from our point of view we need consider only those derived from wood and coal.

*Wood Tars and Pitches*—These are made by distilling various kinds of wood. Typical examples are the Stockholm, Norwegian, and Russian tars, all of which are used in the tarring of ropes, fishing-nets, boats, etc.

*Coal-Tar and Pitch*—The main supply of tar in this country is from the destructive distillation of coal—a process carried out first and foremost in all gas-works, and, secondly, by the big iron and steel manufacturers. In the former instance we have the gas-works tar and in the latter the coke-oven variety. A small amount of blast-furnace tar is formed as a by-product in some of the Scottish iron-works where "splint" coal is used in the extraction of the pure metal from its ore, and an increasing quantity of tar is being made by the low-temperature carbonization of coal.

### Chemistry

As the chemical composition of tar and pitch has a direct bearing on the production of skin lesions it is necessary to consider not only the mode of preparation but also some of the concomitant chemical changes. Tar is made by distilling coal, and pitch is the residue left after the distillation of tar.

*Distillation of Coal*—At the gas-works coal is placed into retorts and heated to a temperature ranging from 1,200° to 1,400° C (Martin, 1917), and, as the coal decomposes, ammonia, steam, coal-gas, and crude tar are evolved, leaving an amorphous mass of coke in the retorts. Similar decomposition occurs when coal is treated in the coke ovens, though the final products may vary somewhat from those produced in the retort houses. In both cases, however, the crude tar is collected for further distillation. In the low-temperature carbonization process the coal is distilled at a reading not exceeding 700° C.

*Distillation of Crude Tar*—This process is carried out either at the gas-works by-products department or at the special tar distilleries. The results of a typical fractional distillation are indicated in Table I, but it must be stressed that the chemicals which are ultimately formed depend on several factors: (a) the type of coal in the original distillation, (b) the exact method of coal treatment—whether by vertical, inclined, or horizontal retort, (c) the temperature and conditions prevailing in the retort itself, and (d) the

actual technique adopted in the tar distillation. The remaining pitch, which represents about a half of the original quantity of tar, is composed of carbon and numerous polycyclic hydrocarbons.

Under normal working conditions tar is a black, heavy, viscous, and tenacious fluid, while pitch is a black, lustrous semi-solid. When subjected to an increasing temperature they become more and more labile, and tar begins to evolve fumes at about 80° C. The pitches fragment easily, and even the "softer" varieties may be ground to a fine dust when cooled to 10° C.

### Industrial Hazards

Because of their unique properties and their cheapness tar and pitch have a widespread application in industry. Hazards from this source occur not only in the gas-works, coke ovens, blast furnaces, and tar distilleries, but also in the manufacture of producer gas, patent fuels, and "briquettes", in asphalt-workers and road-repairers, in the making of certain electrical equipment such as cables, carbon brushes, carbon electrodes and insulations, in the lens industry, where pitch is used to imbed the lenses during polishing, in the building and allied trades, as in the preparation and the handling of roofing felt, special floor materials, paints, and weather-proofing compounds. Seamen and fishermen, too, handle a fair amount of tar and at times show typical lesions.

### Pathology

When we consider the formidable array of coal-tar products, ranging from the light aliphatic and aromatic oils to the complex polycyclic hydrocarbons of pitch, it is not surprising to find that the pathological changes are both varied and bizarre. Our appreciation of these effects is assisted by the knowledge that the heavier oils, tar, and pitch have these characteristics in common: they are all skin irritants, are solvents of lipoids and cholesterol, are auxetic and keratoplastic, and, finally they are carcinogenic. Therefore a skin exposed to these materials may show evidence of epidermal and dermal inflammation, changes associated with an "eczematous" reaction, signs of excessive cell proliferation such as acanthosis, keratosis, and telangiectasis, and perhaps in the later stages malignant degeneration—usually a squamous-celled carcinoma.

An important physical reaction common to many polycyclic hydrocarbons is the property of fluorescence when their extracts are activated by ultra-violet light, and when these solutions are examined spectroscopically one can detect the carcinogens by their typical absorption bands (Mayneord, 1927).

### Clinical Effects

Generally speaking, tar and pitch produce similar skin changes, but differences do occur by virtue of their respective physical and chemical properties. On the one hand, tar contains many light, middle, and heavy oils, while pitch is relatively richer in the polycyclic hydrocarbons. Furthermore, during the processing of pitch a fine dust can be generated with a high power of dissemination and penetration—a circumstance which explains the appearance of lesions (a) in remote parts of the body, and (b) in persons who work in the vicinity of, but not actually in, the particular workshop.

Regarding my own findings, I have been unable to differentiate between the effects of each material, as most of our employees are in contact with both pitch and tar either separately or mixed. Only rarely has it been possible to indict only one compound.

*Tar Burns*—Owing to more thorough mechanization and enhanced methods of protection of the employees severe

TABLE I—Distillation of Crude Coal-Tar

Temperature	Compounds Produced
170° C	Light oils benzol, toluol xylols
170–230° C.	Middle oils phenols, cresols, naphthalene
230–270° C.	Creosote oils tar oils
270–400° C	Anthracene oils
	Residue pitch

Note.—Numerous other compounds are formed in addition to the above aliphatic hydrocarbons, pyridine anilines quinolines sulphur compounds, etc.

tar burns are uncommon in industry. Should, however, the skin receive splashes of hot tar it must be cleansed either by swabbing gently with trichlorethylene or by the use of a special spray containing this solvent. The burn, usually of the second degree, may then be treated in the routine way. The belief that a tar burn could be followed rapidly by an epithelioma (Bang, 1923) is not substantiated by recent observation.

**Tar Erythema**—This reaction is referred to in industry under a variety of names: pitch burn, tar "flashes," and "the smarts." It occurs in those in contact with pitch or tar fumes, and may appear either at the end of the day's work, when the employee emerges into the open, or during the working spell if he is engaged on outdoor duties such as loading or trucking pitch, or tarring roofs. The condition is apparently precipitated by sunlight or a strong wind, and is characterized by severe smarting of the exposed parts of the body, particularly the face and neck. The eyes, too, are often affected, resulting in a burning sensation and photophobia.

Though the symptoms may be sufficiently intolerable to compel the victim to seek refuge indoors, only rarely is he incapacitated for more than a day, and in the majority of cases he is quite able to resume work on the next shift.

In appearance tar erythema resembles ordinary sunburn, and may vary from a slight redness of the skin to a severe dermatitis with oedema. This latter reaction is now uncommon, and is to be seen in those working out of doors in bright sunlight. Of interest, too, is the fact that repeated attacks of this intense form of pitch burn is followed by persistent pigmentation. Conjunctivitis of a varying degree usually accompanies this condition and may necessitate the wearing of dark glasses temporarily.

The causal agent or agents are still unknown, but there appear to be two predominating factors—a sensitization of the skin by some ingredient of the pitch or tar fumes, and the action of bright sunlight on a skin thus rendered susceptible. With regard to the former, the chemicals indicted are thiazine, thiazone, acridine, and other azines present in tar (Leymann, 1930).

To prevent this condition it is necessary not only to apply the general precautionary measures outlined below (under "Prophylaxis") but to use in addition a protective paste or cream which is impervious to tar fumes, pitch dust, and light rays. After experimenting with several applications I have found a kaolin paste based on a formula suggested by Jenkins (personal communication) most efficacious when applied liberally to the exposed parts before each shift (see Appendix).

Treatment of the dermatitis itself should be carried out according to general principles, though I have found that the patients prefer cold cream or similar emollients.

**Allergic Eczematous Dermatitis**—In my experience this reaction has occurred most infrequently. During the past twelve years I have carried out periodic and regular inspections of about 170 employees who handle pitch and tar, and my records show that during that time only six cases occurred, four of which were sufficiently severe to warrant a transfer to alternative work. This may appear somewhat surprising when we consider the virulent effects common to many coal-tar derivatives, such as the phenols, cresols, anilines, nitrotoluene, nitrobenzene, etc.

**Folliculitis, Acne, Comedones**—These phenomena, though quite common among these workers, rarely cause symptoms or disability. The lesions are, in the main, limited to the forearms, face, and neck, and they pursue a chronic course, waxing and waning at intervals. As with ordinary acne, any severe secondary infection may result in the

formation of small pitted scars, many of which can be seen on the faces and necks of some of our older employees. Of interest, too, is the presence in the scrotum and elsewhere of comedones from which one can express a small plug of sebaceous matter, and Henry (1946) has reported the presence of numerous sebaceous cysts in the scrotum of a man working in a low-temperature carbonization plant. These comedones are no doubt due to the mechanical obstruction of the glands by pitch dust.

In the selection of men for this type of work it is best to avoid engaging those who suffer from acne, as their condition is likely to be adversely affected by the materials they handle.

**Pitch and Tar Melanosis**—This form of pigmentation has been recognized in industry for many years. Broadly speaking, there are two main types: (a) a fairly acute form where there is deep tanning of the exposed parts, especially the face, neck, and forearms, and (b) a more chronic variety accompanying other skin changes, such as keratosis and poikiloderma.

The first is a well-known event seen in those who work principally out of doors and who are in contact with pitch or tar fumes. The melanosis usually appears after a few months, is preceded by several bouts of tar "erythema," and persists throughout the summer months, with a tendency to fade during the winter or when the employee is transferred to indoor duties. An interesting concomitant phenomenon is the brown staining of the sclerotics. It is of interest to note also the presence of melanoderma in those in contact with creosote (Prosser White 1934), anthracene (O'Donovan, 1929), and other coal tar derivatives. The incidence of this form of pigmentation has been reduced considerably in recent years by the adoption of the various preventive measures directed against the development of pitch "burn."

The second variety of melanoderma evolves much more slowly and, in my experience, affects first the forearms and later the face, the neck, and occasionally the scrotum. After several years' contact with the materials in question one may perceive one of the following abnormalities: first, a brown mottling of the skin not unlike "freckles"; secondly, a diffuse dusky red pigmentation; and thirdly, a patchy or reticulated deep reddish brown discoloration. The two latter lesions either herald or accompany "shagreen" skin (Fig. 1).

The factors present in the causation of tar "erythema" appear to operate in the production of melanosis, for, according to Foerster and Schwartz (1939), who have carefully studied this latter condition, the tanning is due to the action of certain light rays on a skin made susceptible by the chemical photosensitizers in tar and pitch.

The mechanism of pigmentation has been investigated by Bloch (1927), who asserts that the epidermal dendritic cells of the basal layer of the skin and of the hair follicles (known as melanoblasts) produce the colourless precursor melanogen, which is transmuted into the pigment melanin by the action either of the ferment oxidase or of ultra-violet light. Some authorities believe that the chromatophores which normally carry pigment from the dendritic cells to the blood vessels may themselves generate melanin when affected by tar.

In contrast to this form of pigmentation is the observation of Dr. R. E. W. Fisher (personal communication) that tar workers frequently show on their forearms pale areas of skin which are the relics of burns caused by splashes of hot tar.

**"Shagreen" Skin**—This was the name given by Prosser White (1934) to a pathological state of the skin characterized by keratosis, pigmentation, dilatation of the superficial capillaries, and alteration of its texture. It can be caused by the action of a variety of agents such as excessive sunlight, x-rays, and prolonged exposure to oils, pitch, and tar.

and clinically the condition may be regarded as a poikiloderma, several types of which, according to Kinnear (1935), have been described by the following authorities: Jacobi, Petges, Civatte, Riehl, and Hoffmann and Habermann. Only the condition reported by the last two observers had an occupational aetiology. The appearance of "shagreen" skin is unmistakable (Fig 1), and on palpation the integument feels hard, rough, craggy, and inelastic. So far as pitch and tar are concerned one may perceive the inception of this degeneration after about ten years' close contact, when there appear patches of keratosis and scattered areas of telangiectasis on a background of dusky-red pigmentation affecting the forearms. As the condition advances the lesions become more marked and widespread, and involve also the dorsa of the hands, the face, and the neck, until in due course we have the full-fledged "shagreen" skin with pigmentation, telangiectasis, keratoses, areas of epidermal hypertrophy and atrophy, superficial fissuring, and possibly papillomata. Except for occasional irritation or burning sensation, symptoms are absent, and as the changes are permanent treatment is essentially preventive.

### Neoplastic Changes

As has already been indicated, these are manifest as keratoses, papillomata, and epitheliomata.

#### (a) Keratosis

The earliest macroscopic evidence of the auxetic effects of tar or pitch is perhaps to be seen in the stratum corneum, where after several months of exposure one may detect small, raised flattened areas of keratosis ranging from 1 to 5 mm in diameter on the dorsal surfaces of the hands, on the forearms, or on the face. These lesions, which closely resemble flat warts, usually remain unaltered for many years. On rare occasions the hypertrophy can be sufficiently prolific to result in the formation of a cutaneous horn.

#### (b) Papillomata

Papillomatous growths can occur in these workers after one year, though I have seen instances where they have appeared after only six months' contact. Three types have been observed: first, the simple wart, secondly, the typical pitch wart, and thirdly, the soft papilloma. The regions affected are the dorsa of the hands, the forearms, the face, the neck, and the scrotum. Only rarely do we see lesions on other parts of the body.

The *simple wart* resembles the common verruca, and may be sessile or pedunculated. It is innocuous and, as a rule, retrogresses and falls off—the latter process not infrequently being assisted by some minor trauma such as shaving. Should any prove uncomfortable or begin to enlarge rapidly, treatment by low-voltage x rays, by carbon dioxide snow, or by minor surgery should be instituted. Caustics are best avoided in these cases, as their irritant action might stimulate further proliferation.

The *typical pitch wart* appears as a small conical or dome-shaped tumour having a base of apparently normal skin and a keratotic head. The most common site is on the face, particularly near the nostrils (Fig 2), and on palpation one finds the base hard and infiltrated. The lesion should be regarded as precancerous or frankly malignant, and should be treated either by low-voltage x rays or by local excision.

The *soft papillomata* are to be found in those who have been in contact with these substances for several years, and they appear on the face, especially on the eyelids and adjacent regions. They form small, soft, multiple, pedunculated tumours not unlike skin fibromata, and they are quite innocuous.

#### (c) Epitheliomata

Every worker who handles pitch or tar and anyone exposed to pitch dust is liable to become a victim of this hazard. As with the production of experimental cancer in mice there is always a variable latent period between the initial contact with these materials and the appearance of the growth—an interval which in my group of cases has extended from 18 months to 34 years. The occasional and casual handling of the compounds is scarcely sufficient to precipitate neoplasms, but five years' exposure to small amounts of pitch dust has resulted in malignant disease of the skin of the face. The cessation of all handling of these carcinogenic substances does not necessarily render the individual immune from further trouble, as growths have appeared after a "lag" period of many years.

Though pre-existing papules, keratoses, and follicles may suddenly become malignant the majority of these neoplasms are cancerous from the start, beginning usually as a typical pitch wart and enlarging to a diameter of  $1/4$  in (0.63 cm) or more within two weeks or so. The most common site for their appearance is on the face (Fig 2), in the neighbourhood of the nostrils, but they also occur with some frequency on the dorsa of the hands, the forearms, the nape of the neck, the ears (Fig 5), and the scrotum (Figs 3 and 4). One patient, a man with an industrial history of 28 years' contact with pitch and tar who had advanced "shagreen" skin, suddenly developed four epitheliomata simultaneously—one on the back of the neck, another on the right ear, and one on each forearm.

If left untreated the tumour enlarges and the keratotic head falls off, leaving the classical epitheliomatous ulcer, circular in shape, with a hard infiltrated base, indurated edge, and raw bleeding surface (Fig 6). At first the surface is covered with a tenacious slough giving the lesion the appearance of an indolent boil—an error which, in my experience, has occurred on two or three occasions. At times the base advances rapidly, and by a process of eversion converts the ulcer into a mushroom-shaped mass (Fig 4). The growth is of low malignancy, its spread is slow and localized for quite a considerable time, and glandular involvement is very late. Histological examination reveals a squamous-celled carcinoma, and with early tumours the problem is not so much to find a malignant growth as a cancerous cell.

The best treatment is by the contact low-voltage x-ray apparatus giving about 4,000 to 6,000 r over a period of 8 to 14 days. The epithelioma becomes necrotic, sloughs away, and heals with a thin supple scar which is almost invisible. Early cancers often disappear after a single dose of 1,500 r.

### Pathogenesis of Pitch and Tar Cancer

*The Exciting Cause*—The association between occupation and epithelioma was first recorded by Pott, who in 1775, in his classical description of chimneysweep's cancer (or soot wart) of the scrotum, suggested that the soot (which contains about 40% of tar) was to blame. It was not, however, till the end of the nineteenth century that the lethal effects of pitch and tar were recognized, and in 1907 the definition "scrotal epithelioma occurring in chimneysweeps and epitheliomatous cancer or ulceration of the skin occurring in the handling or use of pitch, tar, and tarry compounds" was added to the Workmen's Compensation Act (Henry, 1946).

Fresh light was thrown on the subject in 1915 when two Japanese research workers produced malignant skin growths in mice by painting their ears with coal-tar, and in 1924 Kennaway proved that a carcinogenic hydrocarbon was present in a fraction of coal-tar which distilled over a



temperature exceeding 500° C. Carrying this investigation further, Cook, Hewett, and Hieger (1933) were able to isolate from two tons of pitch a few grammes of a powerful cancer-producing agent which on spectrum analysis proved to be 3-4 benzpyrene—the now-recognized carcinogen of pitch and tar. In recent years numerous synthetic compounds having a similar action have been prepared—many of them related to the anthracenes (Cook, 1943)—and we now have about 300 such chemicals (Hieger, 1947).

**Relative Potency of the Tars and Pitches**—It would appear, then, that the potency of a tar or pitch depends on the benzpyrene content, and any condition favourable to the appearance of this hydrocarbon would render its action more powerful. Such conditions are (a) the particular type of coal that is mined in Britain and Belgium, (b) the distillation of this mineral at a high temperature, and (c) certain technical factors arising during the treatment both of the coal and of the tar. Generally speaking, gas-works tar and pitch are highly active, blast-works tar is believed to be less noxious, as are the pitch and tar derived from French coal, tar prepared during the low-temperature carbonization process is also relatively harmless, as is the tar obtained from the various woods, coke-oven tar and pitch prepared in America have low lethal effects (Cranch, personal communication), and the bitumens and asphalts, too, have a low carcinogenic action. Some observers, however, regard all types of tar and pitch with suspicion, and in any case from an industrial point of view it is almost impossible at present to obtain in sufficient quantities an inactive tar or pitch. Of the two, pitch is the more conducive to the development of malignant disease.

**Ultra-violet Light**—The skin lesions poikiloderma and epithelioma caused by an excess of ultra-violet light resemble those produced by pitch and tar, but what the relationship is between the light rays and the polycyclic hydrocarbons is unknown. It is of interest to note, however, that the epitheliomata appear far more rapidly in rural districts than in urban—for example, in a country factory the latent period for a skin cancer is from 18 months to five years, whereas in London the analogous interval is from 9 to 34 years. It would appear, then, that an excess of ultra-violet light accelerates the action of the carcinogens in some mysterious way.

**The "Lag" Period, or Delayed Action**—It has long been recognized that a malignant skin growth can appear several years after the individual has ceased all contact with pitch or tar. The longest interval in my series of cases is seven years, but Henry (1946) reports a "lag" period of 51 years in a patent-fuel worker. In what way the cutaneous cells have been "primed" is another puzzle to be solved.

**Susceptibility**—There is no doubt that some workers are highly susceptible to the development of neoplasms of the skin, and this idiosyncrasy does not depend on the colouring alone, as blonds and brunettes are equally liable. Moreover, some employees who have well-marked shagreen skin have apparently never suffered from typical pitch warts, and there are others who have had numerous warts but never an epithelioma. On the other hand, an epithelioma was the first skin lesion (apart from attacks of tar erythema) to appear in seven of my cases. During the past 12 years, from a personnel averaging 170, including 10 women, I have noted skin growths in 102 individuals, and of these 16 showed malignant tumours. Among the women employees who come into contact with these compounds I have observed a corresponding ratio of papillomata but no incidence of malignancy. It is understandable why the exposed parts are affected, but why the scrotum too is involved is not easily explained. Contamination alone is

not the answer, as I have never seen an industrial epithelioma of the penis or of the adjacent parts of the thigh.

### The Increasing Incidence of Occupational Cancer

Since 1920, when epitheliomatous ulceration due to pitch and tar became an industrial disease notifiable to the Chief Inspector of Factories, there has been a steady increase in the number of cases notified. This is clearly shown in Tables II and III, taken from the Annual Report of the Chief Inspector of Factories for the years 1945 and 1946.

TABLE II—Notified Cases of Epitheliomatous Ulceration in Tar Distilling and Gas works 1921-45 (in Five-Yearly Periods)

Period	Tar Distilling	Gas works	Total
1921-5	67 (9)	22 (6)	89 (15)
1926-30	132 (12)	85 (43)	217 (55)
1931-5	178 (11)	88 (51)	266 (62)
1936-40	299 (10)	59 (19)	358 (29)
1941-5	358 (5)	91 (4)	449 (9)

Note.—The principal figures relate to cases; the figures in parentheses to deaths.

TABLE III—Extract from Table I of the Annual Report of the Chief Inspector of Factories for 1946

Industrial Diseases							
Epitheliomatous Ulceration	1920	1930	1940	1943	1944	1945	1946
1 Pitch	32	44 (1)	85 (1)	54	99 (1)	83	98 (3)
2 Tar	10 (1)	53 (9)	34 (3)	57 (1)	61 (2)	93 (1)	103 (4)

It is nevertheless encouraging to observe the decline during the past ten years in the number of deaths recorded, despite the somewhat alarming increase in the numbers notified.

What is the reason for the apparent increase in the incidence of industrial skin cancer? Several factors are involved: first, following the efforts of the Home Office Inspectorate, both the medical world and factory managements have been made aware of this particular hazard and skin epitheliomata which were formerly thought to be a natural visitation are now being considered correctly in the light of occupational environment. Secondly, many workers have now passed the "latent" period and the skins are liable to develop this lesion. Thirdly, because of the increasing interest displayed by surgeons, pathologists and industrial medical officers, many more biopsies are being performed, and tumours which were at one time thought to be innocent are now found to be malignant.

### Prophylaxis

The widespread use of pitch and tar and the dangers attendant on their use render the question of prevention of the utmost importance in industry. This problem can be attacked in several ways.

#### 1 Substitution

As gas-works tar and pitch are carcinogenic, attempts should be made to substitute other less noxious compounds—as, for example, wood tar, bitumen, tar from the low-temperature carbonization process, and fractions from petroleum. Unfortunately the application of these alternative products is not always practicable either because of their unsuitability or because of their prohibitive cost.

#### 2 Protection of the Worker

One of the requirements of the Factories Act is that injurious fumes and dust should be removed by mechanical means, and the strict observance of this regulation would go far in the prevention of skin troubles. Where practicable all the processes should be mechanized to avoid handling of the materials, machines should be enclosed and efficient exhausts should be fitted to carry away any dust or fumes that are generated.

Employees should be made aware of the hazards involved, and be trained to work cleanly and to prevent the dissemination of effluvia. Also they should be encouraged to report early any abnormal skin condition or appearance.

The use of protective clothing, too, is of paramount importance. Overalls made of stout drill material or denim should fit snugly at the neck, wrists, and ankles, and they should be changed and cleaned daily. I would recommend also a daily change of underclothing, but this, unfortunately, is not feasible while clothes rationing remains so severe. The use of "any old suit" which rapidly becomes soiled and impregnated with pitch and tar is to be condemned.

Gauntlet gloves made of stout rubber or leather, when used judiciously in certain processes, have a definite protective value, as have suitable goggles in shielding the eyes.

Employees should be encouraged to maintain a high standard of body cleanliness, and time and facilities should be provided so as to ensure a wash and shower bath after every shift. The application of "barrier creams" and the plentiful supply of warm soft water should obviate the use of special cleansers—either chemical or abrasive—which of themselves may be a fruitful source of dermatitis. The restricted supply of soap is causing concern and the use of substitutes is not always desirable, though "teepol" or similar "wetting" agents may help to eke out the soap ration.

In some firms it has been the custom among those working with pitch, tar, and heavy oils to use soda ash for washing purposes, and some of the older employees are unequivocal in their assertion that the use of this alkali prevented the development of warts. The use of caustic soda has also been referred to by O'Donovan (1929) in the popular treatment of skin growths by men working with tar. Though weak alkali solutions may be beneficial, the use of them cannot be recommended, because of the serious risk of dermatitis.

I am of the opinion that barrier creams fulfil a useful function, and at our works several types are available, depending not only on the materials handled but on personal idiosyncrasy. In addition to the usual properties of a protective cream, the compound should be opaque to ultra-violet light. Several chemical and cosmetic firms now specialize in these preparations and are prepared to make suitable applications, especially if they are supplied with samples of the materials used and provided they are given information about the conditions under which these are handled—for example, the temperature of the process and the use of ancillary substances and solvents. The creams should be applied liberally to the hands, forearms, face, and neck before each working shift.

In a recent investigation by Kennaway (personal communication) it was shown that the use of a protective cream on the skin of a mouse delayed considerably the appearance of experimental tar growths.

### 3 Selection

While it is not yet possible to foretell those likely to develop skin lesions I nevertheless examine all prospective candidates for this type of work, and I exclude those with existing skin disease or with a bad dermatological history. The question of skin colouring is in my opinion not very helpful.

### 4 Inspection

I regard the frequent and regular inspection of employees an important step in prophylaxis. Not only am I able to detect early skin changes of which the worker himself may be unaware, but I am able also to educate and reassure him,

and discuss with him the various precautionary measures that are being adopted. I see almost every pitch and tar worker at three-monthly intervals, and those who have or have had skin lesions are examined as often as their condition warrants. Only in this way can we be sure of instituting early treatment and prevent serious complications.

### 5 Propaganda

Most industrial concerns are loath to broadcast indiscriminately the hazards obtaining in the use of these compounds, and do not favour the distribution of leaflets or the posting of warning notices (except the one recommended by the tar distillers), as these measures are likely to deter men from working in these processes. Instead, individual education and training are left to the medical officer and to the foremen and charge hands. In this way adequate welfare supervision is ensured without creating unnecessary alarm.

### Statistical Surveys

As medical officer to a large engineering firm who manufacture various types of carbon products, I have had during the past 12 years the opportunity of observing some 170 employees who have handled pitch and tar more or less consistently during that period. My investigation has been facilitated by the small labour turnover, for at the end of 1947 there were 87 workers with at least 12 years' service to their credit and 53 with 20 years' or more.

An analysis of the incidence of their lesions is shown in the following tables. In Table IV I have recorded the number of personnel who have shown the appropriate condition for the first time—subsequent recurrences being ignored, and in Table V are noted the latent periods of the various manifestations. Tables VI and VII show the sites of election for papillomata and epitheliomata.

TABLE IV—Incidence of Lesions Among a Personnel (including 10 Women) Averaging 170 from 1936 to 1947 Arranged in Four 3-Yearly Periods Recurrences Not Included

Lesions	1936-8	1939-41	1942-4	1945-7	Total
Allergic dermatitis	2	2	2	0	6
Folliculitis, acne, comedones	15	14	21	16	66
Melanosis	10	7	5	3	25
Shagreen skin	17	6	2	1	26
Keratosis	9	8	11	3	31
Papilloma	18	24	40	20	102
Epithelioma	2	2	8	4	16

The following points are worthy of note.

1 *1936 to 1938*—I began my investigations during these years, and while collating the data I encountered conditions which had been in existence for several years. This was particularly the case with the 17 instances of shagreen skin, which had developed several years before 1936.

2 *1942 to 1944*—The increased incidence of folliculitis, keratosis, papillomata, and epitheliomata during this period can be accounted for in two ways: first, the advent of war necessitated an augmented production of accessories derived from pitch and tar, and from 1940 onwards not only were greater amounts of these materials being handled but working hours were extended. Secondly, the establishment of a dispersal factory in a rural area brought a further 20 men into contact with these compounds from the years 1941 and 1942. By taking into account the latent periods one can appreciate the rise in the number of lesions recorded during these years.

3 *1945 to 1947*—I attribute the reduction in skin troubles in this interval to the intensification of the campaign of prophylaxis, especially in the provision of clean overalls daily, in the more widespread use of barrier creams, in the supply of soft water for washing, and in the allowance of ample washing-time. We are indebted to the medical inspectors of factories for their assistance in the clean-overall service and to a firm of cosmetic manufacturers for their research work on suitable creams.

4 *Papillomata*—Of the 102 cases 62 showed multiple warts

5 *Epitheliomata*—16 men developed malignant skin tumours (all confirmed by biopsy), and of these 9 had previously suffered from simple warts and 3 had multiple epitheliomata. There were no fatal cases. The 9 with simple warts have also been included under "papillomata".

TABLE V—*Latent Periods*

Folliculitis acne comedones	1 month or more
Melanosis	6 months to 5 years
Shagreen skin	Over 10 years
Keratosis	6 months or more
Papilloma	6 months to 43 years
Epithelioma { Rural district	18 months to 5 years
{ Urban district	9 to 34 years

Note.—The shorter latent period for the appearance of a skin carcinoma in the rural district is discussed under Ultra violet Light. Because of this latent period all employees who leave the firm are requested (where practicable) to report to us any rash, pimples, or warts that might appear at some future date.

TABLE VI—*Site Incidence Papillomata*

Employees affected	102 (including 6 women)	Age from 29 to 66)
Single lesions	40	
Multiple lesions	62	
Site affected		
Nose and lips	43	
Cheeks eyelids chin	24	
Ears	6	
Neck	8	
Scalp	1	
Hands	29	
Forearms	16	
Scrotum	11	
Leg	1	
Anus	1	
Total	140	

It would appear that the site of election for these growths is the face (48%), the incidence on the hands and forearms is 32%, and on the scrotum 8%.

TABLE VII—*Site Incidence Epitheliomata*

Employees affected	16 (no women)	Age from 34 to 62)
Single lesions	13	
Multiple lesions	3	
Site affected		
Cheeks	5	
Nostrils lips	4	
Ears	3	
Neck	2	
Scalp	1	
Forearms	3	
Arm	1	
Scrotum	4	
Total	23	

The most frequent site for the appearance of epithelioma is on the head and neck regions (65%). The upper limbs and the scrotum each show a rate of 17%.

### Summary

A brief account has been given of the preparation, the chemistry, and the industrial uses of coal-tar and pitch.

The following clinical effects have been described and discussed: tar burns, tar erythema, allergic eczematous dermatitis, folliculitis, acne, and comedones, melanosis, shagreen skin, neoplastic changes, and epitheliomata.

The pathogenesis of pitch and tar cancer has been discussed. Various prophylactic measures have been described.

A statistical survey has been included.

### APPENDIX

#### Formula for Starch and Kaolin Paste for the Prevention of Tar Erythema

Starch	28 g
Kaolin	1,600 g
Phenol	36 g
Glycerin	50 ml
Distilled water	2 litres

The starch is made into a thin paste with about 50 ml of water and poured into 950 ml of boiling water. The boiling is continued for a few minutes to ensure the breaking up of the starch cells. The phenol and glycerin are added to the mucilage and finally the kaolin, in small quantities at a time, with constant stirring. The final mixing is best done with the hands to make certain that no lumps remain.

The phenol prevents the development of mould in the paste and the glycerin renders the paste more "supple" and prevents rapid drying and cracking. Colouring matter such as cochineal may be added for a better cosmetic effect.

I wish to thank the Controller of H.M. Stationery Office for permission to reproduce the tables from the Annual Reports of the Chief Inspector of Factories, and Professor Kennaway for permission to publish the results of his experiment with a barrier cream in the production of experimental skin cancer (1946). I also wish to express my indebtedness to Mr A. E. Wiggs, B.Sc., Dr Henry MacCormac, Dr Davidson, late H.M. Inspector of Factories, and Dr L. B. Bourne for their kind assistance and suggestions.

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## OBSERVATIONS ON TUBERCULOUS MENINGITIS IN CHILDHOOD\*

WITH SPECIAL REFERENCE TO EARLY DIAGNOSIS

BY

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Of all the clinical pictures met with in children there is probably none which has sustained such intense interest over so many years as that of tuberculous meningitis. The first account of the clinical course of the condition was given over 180 years ago by Robert Whytt during the time that he occupied the chair of medicine at Edinburgh University. His description, under the title "Observations on the Dropsy in the Brain," is still recognized as a classic.

Interest in the subject of tuberculosis in childhood, and of tuberculous meningitis in particular, has received additional stimulus from the trials being given to streptomycin therapy. If this new form of therapy is to receive reasonable trial patients submitted to treatment must be diagnosed early. This constitutes something of a challenge to clinicians, because it must be admitted that we have not advanced greatly from the days of Whytt in the early diagnosis of tuberculous meningitis, no matter how improved are our methods of investigation in relation to the later stages of the condition.

### Successive Clinical Phases

It is customary to describe the clinical course of tuberculous meningitis in terms of three stages. Sir Frederic Still used to say that while no fool could err when the middle and last stage had been reached, the wisest physician might fail to recognize that anything serious was amiss with a child in the first and early stage. It is this early

\*Summary of an address given to the Harrogate Medical Society on Dec. 11, 1947.

stage with which I am concerned, but in order to present things in their proper perspective I will first briefly describe the clinical course of a typical case of tuberculous meningitis in childhood from its insidious onset to its tragic termination

Because I am anxious to lay stress on clinical aspects I propose to consider my subject in the light of what I feel to be the immediate problem faced by the family doctor who has not the advantages of laboratory facilities at his elbow

#### First Stage

This is usually described as the *prodromal or the premonitory stage*. There are many recorded opinions concerning the average length of this period. While most are agreed that it usually lasts for some two to three weeks it has been recognized that it may last for as long as two months. It is generally agreed that there are no absolutely characteristic symptoms during this phase of the disease. Indeed, a disconcerting feature is that not only are symptoms rather vague but they are too apt to resemble those often met with in a number of other conditions. To add to the worry of the clinician, when tuberculous meningitis is suspected at this early stage the problem is not merely one of differential diagnosis as between a number of serious possibilities, but is equally one of deciding whether the symptoms are in fact attributable to a serious or to a comparatively minor condition.

Most of us can remember children whom we have had under observation on account of anorexia, fretfulness, or lassitude, and possibly also failure to gain weight, and who in the course of only a week or two have developed headache and constipation severe and persistent enough seriously to raise the question of meningitis. If vomiting is also present we would instinctively suspect meningitis, but it has to be remembered that cases occur in which the vomiting is so infrequent or is so isolated in character that its significance may not be immediately grasped. Nevertheless I have no hesitation in saying that of the triad vomiting is unquestionably the earliest symptom in the great majority of cases no matter how occasionally it may occur in the individual case. A further point well worth mentioning is that sometimes a child not complaining of headache will complain of pain or perhaps only discomfort in the neck—a symptom never to be lightly ignored.

I like to look upon this stage as one characterized by symptoms which individually appear to have no serious import but collectively reflect considerable and to some extent increasing physical and emotional debility, and concerning which the most striking feature is their persistence.

#### Second Stage

The prodromal stage is usually described as being followed by the *period of irritation* or, as it is sometimes called, the stage of invasion. The transition from one to the other is only gradual. Despite the fact that such suggestive terms as "invasion" and "irritation" are employed, the point to remember is that even in this second stage many of the pronounced signs and symptoms commonly associated with other forms of meningitis are much more likely to be absent than present. This is certainly the case until such time as the stage of irritation is in process of passing over to the third and terminal stage—that of increased intracranial pressure.

In saying this I do not wish to suggest that the clinical picture in the second stage is not often typical to the extent of being almost diagnostic. It is during the second stage that prodromal symptoms lose some of their earlier vagueness and assume more pronounced form. A disgruntled fretful child is seen to become irritable to the point of petulance. Lassitude gradually merges into drowsiness. As drowsiness increases the breathing tends to become irregular, and even before this the child can be heard every now and again—sometimes at long sometimes at short intervals—to give a prolonged, deep sigh. Even at this stage older children may be found up and about in their homes, but more often than not they are curled up in a chair in a shaded corner of the room, their faces turned from the light. If, on the other hand, the child is in bed all the points I have mentioned can be observed without turning down the clothes.

Often the cheeks are slightly flushed although there may be little or no fever. The so-called *tache cérébrale* can be easily obtained. In many cases you will find the child grinding his teeth, sometimes for hours on end. In strange contrast the eyes retain an unnatural brightness.

The moment you draw down the clothes the child shows his resentment. He pushes away the examining hands, clutches at the sheets, protests in a high-pitched voice, firmly closes his eyes, and remains curled up on his side his legs flexed at the hips and knees. The likelihood is that the bones of the thoracic skeleton will be a little prominent, and that the abdomen from being a little full is beginning to show a scaphoid contour. Increasing anaemia becomes apparent. There are periods of great restlessness during which the child picks away at his lips, the umbilicus, or genitalia, and may cry out, not in pain but rather irritably. These periods are only too likely to alternate with times when the patient may sit up and take an interest in his immediate surroundings. Often there is a frown of the forehead, which is the more striking because it is so rare in children. These intermissions of spontaneous interest gradually lessen in length and in frequency as weakness increases.

When you come to examine the child in greater detail the pulse will be found to be slow and possibly irregular until eventually it usually assumes the characteristics of the so-called cerebral pulse. Too much should not be expected from examination of the central nervous system at this stage. It is the exception rather than the rule to elicit Kernig's sign—and although many disagree I find little help from Brudzinski's sign. An extensor plantar reflex is sometimes present in older children, but its absence is of little or no significance. Nor is neck rigidity by any means a constant finding. There are on the other hand, cases which show evidence of what I like to describe as objection rather than rigidity in response to flexion of the neck. This I realize is only a matter of degree, nevertheless, I have found that sensing neck objection of this sort has helped me to anticipate the development of other and more conclusive signs.

If the child with tuberculous meningitis is an infant the fontanelle provides valuable clinical evidence. Here again, however, it is, I am convinced, well worth while trying to recognize differing degrees of departure from normal in an attempt to arrive at an early diagnosis. There can of course be no mistaking the tense pulsating fontanelle, but before this stage is reached it is sometimes possible to appreciate a fullness characterized by "bogginess" rather than by tension. Where this occurs in the presence of other suggestive findings it is of undoubted value in arriving at a diagnosis. Even where there is neck rigidity, head retraction of any degree is unusual, and where it is present a noticeably thick exudate in the medullary region is usually found at necropsy.

In general, then, it can be said that true neck rigidity, head retraction, and Kernig's sign, as they are found in other forms of meningitis in childhood, are by no means typical where infection is due to the tubercle bacillus. A more common finding at this stage is the sudden appearance of motor palsy albeit slight, in some form or another. Ptosis, unilateral or bilateral, and strabismus, usually internal, are the most common. Either of these may be associated with irregularity or inequality of the pupils. More rarely, but not altogether uncommonly, a limb or the facial muscles are involved, sometimes temporarily for some days, only to reappear.

So much for the stage of irritation, which usually lasts for a week but which more often than is sometimes stated may last longer than that.

#### Third Stage

I do not propose to enlarge upon the terminal stage. Suffice it to say that during this stage the slow pulse gives place to a rapid pulse, coma develops from drowsiness, and the temperature from being moderately irregular rises progressively. There may be delirium, convulsions are common—so also is incontinence of urine and faeces, flushing is pronounced, and wasting is increasingly rapid. The gaunt facies, the dry lips, the haggard expression, and the rattle of the throat make for one of the most trying ordeals parents at the bedside of a dying child have to face. I have dwelt on this because I feel that in striving to improve our knowledge of the condition we

should be mindful of the anguish that we may be able to save parents to whom at present we can offer little comfort, only understanding

Such, then, is the unfolding clinical picture presented by tuberculous meningitis in childhood. This picture contains three salutary warnings, one related to each phase of the picture. Briefly these lessons are (1) The clinical picture in the third and terminal stage is so predominantly one of intracranial disease that sight is apt to be lost of the fact that infection of the meninges has been secondary to an earlier infection elsewhere in the body, (2) The clinical picture in the second stage is sufficiently typical to suggest a correct diagnosis, but it is not dependent for its characteristics on findings associated with other forms of meningitis in childhood, (3) The symptoms which go to make the clinical picture of the first or prodromal stage have four more or less constant characteristics—namely, vagueness, insidiousness, a slow progressiveness, and a certain ominous persistence when reviewed over a period of time.

### The Problem of Early Diagnosis

It is to this baffling prodromal period that I shall devote the rest of this address. When we are faced with the problem of diagnosis in a child presenting vague but rather persistent symptoms, what factors should or should not raise the question of tuberculous meningitis?

And here I would say at the outset that I think we would succeed in diagnosing tuberculous meningitis earlier were we, in the first place at least, to consider whether active tuberculous infection is present rather than whether there is or is not meningitis. In saying this I am influenced by two things. First, it is recognized that there is a special risk of meningitis occurring during the three months which succeed primary infection, and, secondly, the symptoms of primary infection, of early miliary infection, and of early meningeal involvement are vague and indefinite. The symptoms, consisting of nothing more than slight fever in a child who for some unexplained reason has gone off his food or off his feet, may pass unrecognized.

I have already referred to the importance of headache, constipation, and vomiting in the early symptomatology. Judged by the literature on the subject there is no agreement on which of these three is the earliest. As I have said, in my experience vomiting has almost always been the first. A point of some importance, more especially in the case of older children, is that mention of vomiting is often omitted in the mother's description and that reliable information is got only if leading questions are asked. The reason for this is that the vomiting bears no relation to food, has no periodicity, and occurs at long intervals. A point concerning the constipation is that more often than not it is associated with a clean tongue. In most cases the headache is frontal, but in the early stages at least it is not usually severe enough to keep the child awake.

Quite apart from actual wakefulness at night, restlessness may be an early complaint. Sometimes by restlessness at night a mother means irregular and unusual breathing during sleep, and observations which I made on cases of early tuberculous meningitis when holding resident hospital appointments certainly did suggest that irregular breathing in sleep is by no means uncommon at an early stage in these cases. Other forms of restlessness in sleep have been given a good deal of prominence in the literature but I have not found them to be constant findings. More commonly a mother comments, without any suggestion of worry, that her child is more difficult to waken in the morning. This may mean little, but if later the mother remarks that her child is not only difficult to waken in the morning but has gone to sleep after tea or has volun-

tarily expressed a wish to go to bed earlier than usual, the clinician must be very much on the alert.

While on the question of information given by a mother there is another aspect which I should like to stress. Important as questions and replies may be, very often it is the aside made by the mother or her casual observation that sounds a note of warning. The mother is the first to note changes in temperament in her child. Because she is perplexed she is not always good at describing what she has noticed. If a mother talks about her girl or boy "being different" or "not himself" it is always worth while probing deeper. Disinclination to play is an early sign of many illnesses in childhood. But on many occasions it has struck me that this temperamental change or adjustment goes a stage further in cases of tuberculous infection. The child not only limits his physical and mental activities but, over and above that, withdraws from contact with others and retires within himself. He wishes neither to be spoken to nor to talk. He shows a preference for a chair in the corner. He is moody to the point of sullenness, and then, for no apparent reason and with altogether surprising suddenness, recovers some but not all of his former vivacity and interests. A certain sense of tiredness, perhaps even weariness, persists and increases as the moods come and go, but still the eyes remain bright and the pupils a little dilated. I do not wish to suggest that the picture I have drawn is diagnostic, but I do say that in the presence of other indefinite symptoms this fitful temperamentalism in association with tiredness is an important feature of most cases.

### Physical Signs

And what of physical appearance and physical findings as distinct from emotional behaviour? There is no typical appearance. While it is true that many children show evidence of previous disease or of debility of varying degrees, many others are apparently robust, well clad, and rosy-cheeked. In the individual case an appearance of ill health is of value in diagnosis, but the fact that a child looks physically healthy and does not seem to have lost weight in no way offsets the possible significance of other symptoms suggestive of tuberculous infection. On the other hand, no matter what my own assessment of a case may be, I never ignore a mother's suspicion, much less her statement, that a child has got thinner. And when I have compared my own observations with those of parents I have usually found that any discrepancies have been due to the latter sensing an early almost infinitesimal loss of subcutaneous tissue as yet unaccompanied by wasting of muscles.

Another feature worth noting is the tendency of many of these patients—including those of apparently robust physique—to show an unnatural and early dryness of the skin. This is usually most in evidence over the trunk, but sometimes it first appears over the inner aspects of the thighs. Although of itself a small point, I mention this minor observation as being one of many which go to make up the elusive clinical picture of some cases of early tuberculous meningitis.

There are of course other aspects of a case which may legitimately influence diagnosis. Chief among these is a history of exposure to infection or the presence of tuberculosis elsewhere in the body. So far as exposure is concerned there is, I think, a tendency to jump to conclusion too readily. It is not the fact that a member of the household has had open tuberculosis that matters, but the fact that the patient has or has not been in contact with the suspected person at a material time (Table I). My experience on this particular point is mainly based upon hospital work in Edinburgh and to a smaller extent in the south, but it has always surprised me how very ofte

TABLE I—Environmental Factors\*

1 History of contact in connexion with cases due to human infection or to infection of unknown type	
No. of cases lacking reliable history of contact	48
No. of cases with no reliable history of contact but with history of tuberculosis in family	42
No. of cases established as having been exposed at a material time to contact with	
A Unsuspected open infection in	
a A parent	20
b A sibling	5
c A grandparent	4
d Other relative	9
e A member of the household (or children's community) not a relative	13
f Neighbours	6
B Previously suspected infection in a relative	
a Discharged the Services	4
b On leave from sanatorium	2
c Awaiting transfer to sanatorium	7
2 History concerning milk consumption in 45 cases known to be due to bovine infection	

Particulars Concerning Milk	No. of Cases from	
	Rural Area	Urban Area
No information	5	9
Never boiled	13	5
Occasionally boiled	3	4
Pasteurized T T or "invariably boiled"	2	4

\* The cases included in the series were drawn from many administrative areas in both Scotland and England

careful inquiry can establish that there has been an unquestionable risk of exposure. Another finding which has impressed me is the frequency with which there is a history of previous children in the family having died from tuberculosis. In the series on which I am basing my remarks this was true of no fewer than 17 children, representing over 8% of all the cases. Equally striking in this same series is the fact that no fewer than 25 (12%) of the 205 cases occurred in first children who at the time of their death were "only" children. Why this should be I am uncertain. Nor can I explain why it is that so often this dread form of disease seems to pick out "the bonniest of bairns."

### Tuberculin Skin Test

Where tuberculous infection is known to exist elsewhere in the body the occurrence of new symptoms, no matter how vague or slight, should at least bring to mind the possibility of meningeal involvement. Even in those cases in which infection may have been previously suspected and not established, recourse should in such circumstances be had to radiological examination without delay. The fact remains, however, that in a large proportion of children known to be suffering from intracranial tuberculosis it is not possible to establish during life the presence of infection elsewhere in the body. I would suggest that this common experience has its lesson. We should accept that we cannot expect physical signs to help us very much where early meningitis is suspected. That being so, much greater use should be made of tuberculin skin tests to determine at an early stage whether or not a child has in fact been infected and acquired sensitivity. It may be argued that these tests are apt to fail in cases of tuberculous meningitis. That is true, but in my experience only rarely, and I am yet to be convinced that it ever fails in the early stages of the condition. In part the explanation lies in the fact that severe anaemia, impaired peripheral circulation, hyperpyrexia, and cachexia, which may contribute to failure or suppression of skin reactions, are not present in the early stages of tuberculous meningitis. Subject to the employment of a reliable method I have always looked to tuberculin skin-testing for invaluable help. While the Mantoux test is the most reliable method, I prefer the multiple puncture test for use in the home as being simpler and almost as reliable as the Mantoux and because it is unquestionably more reliable than the jelly or patch test. To get a negative reaction to a reliable test in a vague

worrying case can, by allowing a more favourable prognosis at an earlier stage, save parents as well as physician much anxiety. A positive reaction in the presence of signs or symptoms even vaguely suggestive of meningeal involvement, more especially in a child of 6 years or under, should point to the necessity for immediate admission to hospital for further investigations.

### Lumbar Puncture

If the tuberculin skin test is of value, what of lumbar puncture? In what I have said I have tried to keep the problems of the family doctor to the forefront, and the question of whether to perform a lumbar puncture or not often constitutes a problem in itself. It is always wise to study the parents before deciding to do a lumbar puncture in the home. There is the risk that in their distraction the relatives may attribute any subsequent developments to the puncture. And it is, I think, well to remember that in the early stage of tuberculous meningitis the findings in the fluid, while they may be valuable, are not likely to be conclusive. The fluid is always clear but not usually under pressure in the early stage. In the later stages a typical fluid shows a cellular increase mainly mononuclear in character, an increase in protein, a decrease in sugar, and a pronounced decrease in chlorides. It has been said that a chloride content of less than 650 mg per 100 ml is virtually diagnostic. This simplifies the position overmuch. A chloride content of 650 mg is suggestive of tuberculous meningitis, but can in my experience occur where intracranial inflammation is attributable to organisms other than the tubercle bacillus.

In the early stages of tuberculous meningitis the cerebrospinal fluid findings vary considerably. There may or may not be an increase in the cell content. It is no uncommon finding for polymorphs to be as numerous as lymphocytes. In some cases the polymorphs are actually in excess. This is more likely to occur where the patient is a small child and where the condition is running a more than usually rapid course. Great differences are found in the protein content. A normal figure or one as high as 400 or 500 mg per 100 ml may be obtained.

A reduction in chlorides is the exception and not the rule in the early stages of tuberculous meningitis. In nine cases, each of which I had under continuous clinical observation for over five weeks and from each of which cerebrospinal fluid was obtained at intervals of not less than five days, early signs of irritation preceded any significant reduction of chloride content of the fluid. On the other hand, a low sugar content appeared some four weeks before death in four of these cases. Whereas the sugar content tended to fluctuate, the protein content, which rose comparatively early, continued to increase gradually and progressively to a level which varied for each case but which, once attained, was maintained until death.

It will be appreciated, therefore, that in the early days of tuberculous meningitis there is a certain element of chance in what one may find in the fluid. And where lumbar puncture is performed in the early stage the findings are likely to provide no more than equivocal information to be evaluated in relation to clinical observations.

There is just one reservation I must make in this connexion. If cerebrospinal fluid from a well-established case of tuberculous meningitis is allowed to stand, a "shimmery" frail coagulum appears in the course of a few hours. Sometimes this occurs in fluid obtained early in the course of the disease. On four occasions I have known this coagulum to appear during the prodromal stage. Allowing that the likelihood of this occurring so early is slight, it is, I think, worth looking for in any suspected case, because if found



it is so highly suggestive. The same may be said of choroidal tubercles and changes in the optic disks. These were encountered at an early stage in only five of my series, but were of value in allowing of more rapid diagnosis than would otherwise have been possible. Extensive miliary spread was demonstrated post mortem in all five cases.

### The Factor of Age

And now I come to my last point, which I have left to the end because it has a bearing on almost all that I have already said. As is well known, the form which a particular disease assumes may differ in infancy as compared with older childhood. This tendency applies to tuberculous meningitis and in particular to the prodromal stage of the condition. A point of importance in diagnosis is that tuberculous meningitis is rare under 6 months of age. It occurs with greatest frequency in the second and third years of life (Table II). This is of some importance

TABLE II—Age Distribution

Age Period	No of Cases	Age Period	No of Cases
6 months and less	6	7-8 years	6
6 months-1 year	31	8-9 "	8
1-2 years	45	9-10 "	3
2-3 "	37	10-11 "	5
3-4 "	18	11-12 "	4
4-5 "	16	12-13 "	1
5-6 "	11	13-14 "	2
6-7 "	10	14-15 "	2

because the condition tends to run a more rapid course in infancy than in older childhood. Of the triad—headache, vomiting, constipation—headache is rarely a recognizable feature in infants. It is sometimes said that headache is indicated by screaming and by the hands being raised to the head. This is contrary to my experience. My impression is that the infant with early tuberculous meningitis tends to be quiet rather than noisy. Often, indeed, it is unnatural drowsiness that first gives a hint of the presence of trouble. Most commonly, however, vomiting is the first symptom. Sometimes, and I think frequently, it is preceded by a sudden and complete loss of appetite. Almost invariably it is followed by constipation.

In contrast with the condition in older children the vomiting tends to be persistent rather than erratic, but if a careful history is taken it will usually be found that anorexia has preceded even the first vomit. As I said earlier, the fontanelle often raises suspicion at an early stage. So also does a certain strangeness in the expression—a strangeness usually described by the mother as vacant, but which to me sometimes suggests a sense of apprehension. Eventually the expression becomes fixed. Nor is there, I think, any question that convulsions are more likely to occur early in infants, whereas in older children they are usually a late rather than an early sign. It is rare to come across recognizable papilloedema in the small baby.

Another point worth mentioning is the frequency with which there is a history of recent ear discharge in cases of tuberculous meningitis in infants. My experience is that it occurs in some 20 to 30% of those under 3 years of age. There is always the risk that it may delay the real diagnosis. For what it is worth I might mention my impression that it is usually, if not only, in those cases of tuberculous meningitis with associated otitis that the child is seen holding his head or ears as if in pain.

### Onset of Symptoms in Bizarre Form

So much, then, for the differences in infancy as compared with other ages. I need hardly say that we must

always be prepared for the case which presents at onset in an altogether unusual, even bizarre, form. I have twice had children brought to me on account of ptosis which had developed suddenly and which later proved to be the beginning of meningitis. In five other cases the first complaint was of paresis of a limb or part of a limb, or of the facial muscles. In two of these five cases the paresis disappeared only to be followed after an interval by the symptoms of early meningitis. In two cases difficulty in walking was the first thing noticed. In another child brought on account of hysteria, a coarse intention tremor of one hand was observed in the out-patient department. Ten days later the child showed signs of early meningeal involvement. Where there is inflammatory involvement of the cervical cord the head may be held in any grotesque position, and I have twice had infants referred to me in which torticollis was the first outward evidence of tuberculous meningitis.

Bizarre symptoms lacking other explanation—and the include the precipitately occurring convulsion lacking apparent organic or reflex association and the sudden development of gross athetoid-like movements in older children—should always raise the question of tuberculous meningitis. So, I think, should a history of headache dating back to an accident some time previously. This may seem rather irrational, but there was a history of accident in a few fewer than 7% of my cases. Even allowing that the connexion between accident and illness was more a figment of the mother's distraught imagination than a reality in some instances, the figure is too high to be ignored, and it has some pathological justification if Rich's theory concerning meningeal infection is accepted.

Lastly, importance should always be attached to child's past health history. Analysing my records, my impression is that the point of significance is not so much whether the child has had measles or whooping-cough recently as whether he has or has not had a number of debilitating conditions, more especially if they have followed in rapid succession or have been of pronounced severity.

Robert Whytt concludes his classic with a note on "The Cure of a Dropsy in the Brain." In this note he says "In this disease could be known early, and before any considerable quantity of water has been collected, it might probably sometimes be cured." He goes on to say "As it never discovers itself till so much water is accumulated, as to disturb the action of the brain we have little to hope from any medicine."

Whytt thought in terms of "purgatives, diuretics, blister frictions, exercise, and diet." To-day we are at the start of giving trial to streptomycin, which may provide us with some of the answers we seek. As yet we cannot say, but success in the use of streptomycin, whether for research purposes or as a form of therapy, will, I quote Whytt again, depend on "knowing the disease early."

The United Kingdom Trade Commissioner at Delhi has forwarded to the Board of Trade the following report of an answer to a question in the Constituent Assembly of India (Legislative): "The country is self-sufficient in regard to the common vaccines used for public health purposes, such as cholera vaccine, T.A.B. vaccine, plague vaccine, and vaccine lymph. The indigenous production of other drugs is inadequate to meet the country's requirements, and the hospitals obtain Indian-made medicines to the extent they are available. The question of increasing the production of certain essential drugs is under the consideration of the Government of India in the Ministry of Industry and Supply in consultation with the Ministry of Health. In view of the shortage of foreign currency the Government are already following a restrictive policy in respect of import of medicines and drugs, including patent medicines. Drugs are allowed to be imported only if they are essential."

## "MUSHROOM" POISONING DUE TO AMANITA PHALLOIDES

BY

DAVID LEWES, M.A., B.M., M.R.C.P.

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Edible fungi have been a favourite culinary delicacy for centuries. Mushrooms were recognized as a valuable form of food by the ancient Babylonians and early Romans, who employed them in large quantities not only as a delicacy for the tables of the rich but also as a staple article of diet of the poorer classes.

Although the ancients were possessed of considerable knowledge regarding edible fungi and poisonous varieties were well recognized, many fatalities must have occurred. Records of death from fungus poisoning, often amongst eminent people, figure prominently in contemporary writings, especially those of Pliny, but the earliest record of fatal poisoning dates back over two thousand years. In the fifth century B.C., when Euripides the poet was at Icarus, a woman with her two grown-up sons and a married daughter "were destroyed by pitiless fate in one day" after eating fungi gathered from the fields. In this instance it is probable that *Amanita phalloides* (Death Cap) was the cause of the tragedy, for besides being the most poisonous fungus known it is responsible for more than 90% of all deaths due to mushroom poisoning and is attended by a mortality rate of from 50 to 70% (Ford, 1923). Ramsbottom (1945) states that a death rate as high as 90% has been claimed. Although this percentage is unduly high as an overall figure, there are many examples of a 100% fatality rate in particular groups in which all members partaking of a meal have succumbed (Ford, 1923).

Mushroom poisoning is a commonplace on the European continent, while 200 fatal cases are said to occur annually in Germany alone. In this country but few cases have been reported in the literature. Thus Dubash and Teare (1946), recording four fatal cases, could trace only 21 reported cases of mushroom poisoning with 14 deaths in Great Britain between 1930 and 1942. Birch (1946), quoting from the Registrar-General's record, could find only 38 cases of fatal fungus poisoning in England and Wales between 1920 and 1945.

As the time of year is now upon us when *A. phalloides* will again be abundant in the woods and adjoining pastures, and when many continentals are still in our midst, two further cases of Death Cap poisoning seem worthy of report.

### The Present Cases

Two German prisoners of war—H W, aged 29, and J W, aged 30—were admitted to an R A F hospital on the morning of Sept 13, 1946, complaining of intermittent seizures of cramp-like abdominal pain accompanied by severe attacks of vomiting and violent purgings. They gave the following story. On the morning of Sept 11 they had gathered "mushrooms" from a near-by wood, and the next day, after preparation, the fungi were boiled in water for three-quarters of an hour before being fried. The failure of the cooking "mushrooms" to blacken a silver coin was considered proof that the meal would be safe, and each man ate approximately half a pound of mixed fungi. They found the meal most palatable and did not complain of ill effects until nine and twelve hours later respectively. In both cases initial symptoms consisted of severe vomiting, soon to be followed by intermittent attacks of griping upper abdominal pain and diarrhoea. Symptoms continued throughout the night, and on admission to hospital on Sept 13, eighteen hours after ingestion, diarrhoea and vomiting had taken place fifteen times in H W and ten times in J W.

The patients were first seen personally on Sept 14 the day after admission. Diarrhoea with vomiting had occurred almost

two-hourly in J W. Fluids by mouth and an intestinal sedative had been prescribed. On questioning the patients the history of ingestion of "mushrooms" followed by a silent period of many hours before the onset of symptoms made a diagnosis of poisoning by *A. phalloides* virtually certain. Treatment was therefore conducted along these lines without waiting for more definite proof. Additional evidence, however, was soon furnished by the patients themselves. One volunteered that the types of fungus they had gathered were chiefly those with large bulbous stems surrounded in their lower parts by a membrane or volva (see Fig)—characteristics typical of the *Amanita* group. They



Photograph of specimens of *A. phalloides* at different stages of growth. Note the well marked volva at the base of the stem, the faint dark (green) striations on the surface of the cap, and the dead-white gill-plates seen in the oldest specimen.

also identified a specimen picked by a fellow prisoner of war (who had also partaken of a small quantity of the mushrooms but had been unaffected) as similar to some of the fungi they had eaten. This specimen proved to be *A. phalloides*. Later a personal visit to the wood accompanied by a colleague with sound botanical knowledge showed that in an unselected picking from the area concerned *A. phalloides* constituted about 10% of the fungi collected. *A. rubescens* (Warty Caps), a non-poisonous variety, were plentiful, but no common mushrooms were identified. It was roughly estimated that in half a pound of uncooked fungi each man had probably eaten one or at most two specimens of *A. phalloides*.

### Clinical Examination

Seen on Sept 14 the second day, both patients, of good physique and development, were exhausted and somewhat dehydrated, especially H W, in whom symptoms had begun earlier and were more severe. Thirst was marked. Mental aberrations or nervous involvement—a muscarine-like effect that is sometimes observed—were not a feature in either case, except that H W was a little disorientated and excitable, although able to co-operate and give a rational history. There was no sign of jaundice or haemorrhagic tendency in either case, while lacrimation, sweating, and salivation were absent. The tongue was dry and coated and the breath heavy. The skin and especially the extremities felt cold, but were without lividity or cyanosis, the temperature was subnormal and the pulse small and rapid. On abdominal examination H W complained of tenderness under the right costal margin, in neither case was the liver or spleen palpable. No abnormal physical signs were found in the nervous system, and the rest of the examination was essentially negative. The urine, normal to routine tests, was small in amount and concentrated. Vomitus and excreta contained little solid matter, considerable mucus, but no macroscopic blood in the early stages.

### Treatment and Management

All efforts to obtain supplies of antiphallenic serum proved unsuccessful. Gastric and high colonic lavage with 1% saline solution was performed three times on the day after admission.

and daily for the next three days. On each occasion lavage was continued until the return was clear. This involved as much as three gallons of fluid during the early part of treatment. Two ounces (57 cc) of 50% magnesium sulphate were left in the stomach. The effect of lavage produced an immediate and striking diminution of vomiting and diarrhoea, which ceased in the case of J W after the first treatment.

On Sept 14, 5% glucose in normal saline, four to five litres in 24 hours, intravenously, was begun, this was continued for four days, together with 15 units of soluble insulin and 10 mg of vitamin K four-hourly in an attempt to prevent or minimize liver damage, which was fully anticipated. Apart from ice to suck, all fluid requirements were met by parenteral administration. Atropine 1/100 gr (0.65 mg) and morphine 1/4 gr (16 mg) were prescribed to control restlessness and pain during the first three days.

On the sixth day unlimited glucose drinks and small quantities of citrated milk were substituted for the intravenous drip, but four-hourly insulin injections, combined with vitamin K and vitamin B<sub>1</sub> 12,000 units and 10 ml of 10% solution of calcium gluconate parenterally, were continued for a further forty-eight hours. A light diet rich in protein and carbohydrate was then prescribed and steadily increased until discharge from hospital on Oct 21, when the patients were taking a normal diet.

#### Clinical Course of Case 1 (H W)

Although gastric and colonic lavage decreased the frequency and severity of vomiting and diarrhoea, both persisted until the evening of the third day, when these symptoms gave way to complaints of upper abdominal pain. At this time the patient was unduly drowsy and lethargic. Examination revealed tenderness under the right costal margin, but the liver was not found to be enlarged. On the fourth day definite jaundice of the sclerotics was noted, but the skin was normal in colour. The urine, small in amount, was dark amber and concentrated. The patient, however, felt much better, drowsiness was less marked and he was more alert, nor was there any complaint of abdominal pain or sign of liver enlargement. Clinical improvement from this point was rapid despite an intermittent pyrexia, which reached 102° F (38.9° C) on Sept 17 and persisted with gradual defervescence until Sept 27. All signs of jaundice had cleared by Sept 21, and urinary output, which had previously been unsatisfactory, rapidly improved.

**Laboratory Investigations**—Sept 14—Urine N A D. Sept 17—Blood Hb, 94% (Sahl), R B C, 4,280,000, W B C, 5,400 per c mm (polymorphs 77% lymphocytes 20% monocytes 3%). Urine Urobilinogen +, albumin and sugar nil, no deposit. Sept 18—Total plasma proteins 5.5 g per 100 ml, albumin-globulin ratio, 1.6:1. Oct 2—Electrocardiogram Physiological, no evidence of bundle-branch block (a feature reported by Hyman 1928). Oct 4—B S R 35 mm in first hour (Westergren). Oct 5—Total plasma proteins 6.5 g per 100 ml, albumin-globulin ratio, 5:1. Oct 7—Serum bilirubin - Less than 0.5 mg per 100 ml. Oct 17—B S R 14 mm in first hour (Westergren).

#### Clinical Course of Case 2 (J W)

On the second day after the first gastric and colonic lavage, for which three gallons (13.64 litres) were required, the patient felt more comfortable, while vomiting and diarrhoea ceased completely from this time. The patient still complained of pain under the right costal margin, but there was no jaundice or evidence of hepatic enlargement.

The condition appeared to have improved on the third day despite pyrexia to 101.6° F (38.7° C). Apart from superficial ulcers of lips and tongue there were no complaints, and the patient felt much better. Clinical examination was negative. Anuria, however, persisted throughout the day, and in the evening his condition rapidly deteriorated. He complained of generalized aching pain of sudden onset and severe right sided upper abdominal pain, requiring morphine for relief. A bowel action, consisting of a very pale stool, was accompanied by passage of a few ounces of dark amber urine.

On the fourth day, after a noisy restless night when morphine and atropine had to be administered, the patient became more restless and very drowsy, although rousable. His chief complaint was severe abdominal pain. Jaundice of sclerotics and skin, although not deep, was obvious, and pruritus was troublesome. No haemorrhage or petechiae were seen. Abdominal examination revealed extreme tenderness in the epigastrium and under the right costal margin. The liver was enlarged one to two fingerbreadths, the spleen was not palpable. Temperature was 100° F (37.8° C), pulse, 64 a minute, and regular.

Restlessness, with sleep for brief periods, occurred throughout the next night, but by the fifth day his condition showed some improvement. Jaundice and hepatic enlargement were unchanged, but abdominal pain and tenderness were less. Examination of the lungs showed coarse basal crepitations which persisted for several days, there were no respiratory symptoms. Following this acute attack the patient's condition steadily improved, but more slowly than in Case 1. Jaundice, never deep, persisted together with hepatic enlargement until Sept 28 (16th day), when he was free from all symptoms and taking a light diet.

**Laboratory Investigations**—Sept 17—Urine SG 1020, urobilinogen +, albumin +, sugar, nil deposit—leucocytes with granular debris. Plasma proteins Total 5.2 g per 100 ml, albumin-globulin ratio, 1.8:1. Blood Hb, 101% (Sahl), R B C, 4,820,000, W B C, 5,000 per c mm (polymorphs 71%, lymphocytes 19%, monocytes 10%). Sept 18—Serum bilirubin 1.25 mg per 100 ml. Oct 2—Electrocardiogram Physiological. Oct 8—Plasma proteins Total, 6.6 g per 100 ml, albumin-globulin ratio, 4:1. Serum bilirubin 0.5 mg per 100 ml.

Both patients were confined to bed for three weeks from the time of admission to hospital, they returned to duty on Oct 21.

#### Discussion

*Amanita phalloides* produces two main active principles—phallin and amanita toxin. The former, first described by Kobert (1891), is an alcohol-insoluble haemolysin. It is relatively unimportant in cases of poisoning, for, being an easily decomposed glucoside, it is rapidly destroyed by heat and by digestive juices. Amanita toxin, the essential poison, is an alcohol-soluble indole or aromatic phenol derivative. It is resistant to heat, to drying, and to digestive juices, and in experimental animals it produces most of the lesions which are described in fatal cases of *A. phalloides* poisoning in man (Ford, 1908, 1923).

The susceptibility of different individuals to the amanita toxin varies, but surprisingly small amounts of the fungus and even a portion of a single specimen may prove fatal, especially when eaten raw (Plowright, 1879). The case histories and course of the illness reported above indicate that

Table showing the comparative relationship of early and delayed symptoms and signs

Case	Period of Gastro intestinal Symptoms			Period of Delayed Hepato renal Damage						
	Silent Period (Hours)	Severity of D and V	Total Length of Symptoms (Hours)	Abdominal Pain and Tenderness	Duration of Jaundice (Days)	Pruritus	Liver Enlargement	Urine	Serum Bilirubin	Total Plasma Proteins Alb/Glob Ratio
1	9	+++ attacks before admission	69	+	Slight (6 days)	Nil	Nil	Urobilin + albumin nil no deposit	—	Sept 18 5.5 g ratio 1.6:1 Oct 5 6.2 g ratio 5:1
2	12	++ attacks before admission	38	+++	++ (13 days)	+	1-2 finger breadths	Urobilin + albumin + polys and deposit +	1.25 mg/100 ml	Sept 17 5.2 g ratio 1.8:1 Oct 8 6.6 g ratio 4:1

only a small quantity of *A. phalloides* had been eaten by the patients—a contingency made all the more probable by the fact that a third individual partaking of the meal was unaffected. Thermostability of amanita toxin was well demonstrated by its resistance to boiling and frying for almost an hour (at a maximum temperature of about 140° C), the silver-spoon test recommended by Atkinson (1900) proved a misleading and dangerous criterion by which to judge whether the "mushrooms" were safe or not, and, finally, *A. phalloides* was palatable and even pleasant to eat.

The long delay interval of nine and twelve hours respectively before the onset of symptoms emphasizes the important point made by Birch (1946), that in any case of mushroom poisoning an interval of eight hours or more between ingestion and symptoms should be regarded as diagnostic of *A. phalloides* poisoning. The severity of the gastrointestinal symptoms in the early stages of the illness contrasted with the surprisingly mild hepato-renal damage which took place later (see Table). The importance of eliminating factors in assisting recovery is indicated by the fact that the patient with the shorter silent interval and the more severe and prolonged diarrhoea and vomiting sustained less liver damage than his colleague, whose condition in the early stages was considered the more satisfactory. In addition, poisoning by *A. phalloides* combined with other species of fungus has a better prognosis than poisoning by *A. phalloides* alone, the reason for this being that other types of fungus often cause earlier diarrhoea (Vander Veer and Farley, 1935).

### Summary and Conclusions

Mushroom poisoning due to *Amanita phalloides* in two German prisoners of war is described. Both patients recovered.

The severity of the gastro-intestinal symptoms in the early stages of the illness contrasted with the mildness of the delayed hepato renal damage.

The delayed effects of poisoning were more severe in the patient with the longer silent period before the onset of symptoms and with the less pronounced and protracted diarrhoea and vomiting.

The ability of the gastro intestinal tract to eliminate the toxin of *A. phalloides* and the thoroughness with which this elimination is assisted by early and efficient gastric and colonic lavage, are regarded as factors of the greatest importance in determining recovery.

My thanks are due to the Director General of Medical Services for permission to publish this paper and to Professor John McMichael for his helpful criticism and advice. The invaluable assistance of Squadron-Leader Meredith Brown, who identified specimens of fungi, and the keen co operation of Flight-Lieut E R Arnold, who was responsible for the care of the patients and for carrying out treatment, are much appreciated.

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The Ministry of Health has issued two leaflets explaining how to get dental treatment or sight tests and spectacles under the National Health Service. Members of the public can get copies of them from the offices of the executive councils (address from any post office) at local offices of the Ministry of National Insurance, and at various other centres, such as citizens' advice bureaux.

## TREATMENT OF GENU VALGUM

### THE DISCARDED IRON

BY

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The psychological effect, both on child and on parent, of wearing irons is usually unpleasant. There are occasionally exceptional people, like the late President of the United States, who achieve superiority in spite of their disability. That is possibly because the essential necessity for wearing irons has been revealed to them and they have been told that irons are necessary for progression or even existence.

Every orthopaedic surgeon who has served during the war must have experienced a thrill on his return to civilian practice on seeing as a young adult apparently cured a child who had been under his treatment five years previously. He may be labouring in the fields, she may be soignée with lipstick and rouge. Yet if treatment has extended over several years it is always easy to detect in these patients a difference from others. An intangible shyness or barrier is present. It might be called an inferiority complex, but it is a sequel of prolonged immobilization, with which social segregation is invariably associated. This result may be regrettable, but it is tempered by the fact that such treatment has been inescapable.

In quite a different category is the child who has to wear an instrument which proclaims to all that he or she is a "cripple," though in truth such an instrument is merely corrective and not essential. Here, leading all the rest, is the knock-knee iron or brace, an appliance of very doubtful value.

This paper is based on impressions derived from the treatment of 8,000 cases of genu valgum treated over a period of 15 years, and has been prompted by seeing children returned to East Anglia after evacuation to other parts of England where treatment was carried out with knock-knee braces and without appreciable results.

### Aetiology

Jones and Lovett (1929) describe knock-knee under the heading of rickets. They, however, stress that rickets is not the only cause of knock-knee, and mention tuberculosis of the knee-joint and infantile paralysis as well as fractures in the neighbourhood of the knee-joint with malposition and epiphyseal injury. "Loose knees" in children are also mentioned, and I wish to emphasize these as being the chief cause. McMurray (1943) says "This very common deformity begins as a rule in early childhood, following on rickets," and ten lines later on he states "As a rule, deformity is due to this overgrowth of the inner side of the femur, the alignment and shape of the tibia remaining normal." Mercer (1943) states "The deformity of knock-knee develops, as a rule, in early childhood, and is almost invariably due to rickets."

Few orthopaedic surgeons now believe that rickets is the commonest cause of knock-knee, yet this claim holds pride of place in the three textbooks mentioned. I think that knock-knee is due to (1) laxity of ligaments or loose knees, as mentioned by Jones and Lovett (1929), (2) quadriceps insufficiency, and (3) the child being overweight.

It may be argued that if the knee is loose why does genu varum not occur at the knee instead of genu valgum? The femora are much wider apart at the level of the great trochanters, and slope inwards towards the knee, so that the tendency is normally to valgus. Furthermore, the external lateral ligament of the knee is a thick and very strong structure, reinforced by the ilio-tibial band, and

and daily for the next three days. On each occasion lavage was continued until the return was clear. This involved as much as three gallons of fluid during the early part of treatment. Two ounces (57 cc) of 50% magnesium sulphate were left in the stomach. The effect of lavage produced an immediate and striking diminution of vomiting and diarrhoea, which ceased in the case of J. W. after the first treatment.

On Sept 14, 5% glucose in normal saline, four to five litres in 24 hours, intravenously, was begun, this was continued for four days, together with 15 units of soluble insulin and 10 mg of vitamin K four-hourly in an attempt to prevent or minimize liver damage, which was fully anticipated. Apart from ice to suck, all fluid requirements were met by parenteral administration. Atropine 1/100 gr (0.65 mg) and morphine 1/4 gr (16 mg) were prescribed to control restlessness and pain during the first three days.

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#### Clinical Course of Case 1 (H. W.)

Although gastric and colonic lavage decreased the frequency and severity of vomiting and diarrhoea, both persisted until the evening of the third day, when these symptoms gave way to complaints of upper abdominal pain. At this time the patient was unduly drowsy and lethargic. Examination revealed tenderness under the right costal margin, but the liver was not found to be enlarged. On the fourth day definite jaundice of the sclerotics was noted, but the skin was normal in colour. The urine, small in amount, was dark amber and concentrated. The patient, however, felt much better, drowsiness was less marked and he was more alert, nor was there any complaint of abdominal pain or sign of liver enlargement. Clinical improvement from this point was rapid despite an intermittent pyrexia, which reached 102° F (38.9° C) on Sept 17 and persisted with gradual defervescence until Sept 27. All signs of jaundice had cleared by Sept 21, and urinary output, which had previously been unsatisfactory, rapidly improved.

**Laboratory Investigations**—Sept 14—Urine N.A.D. Sept 17—Blood Hb, 94% (Sahli), R.B.C., 4,280,000, W.B.C., 5,400 per c mm (polymorphs 77% lymphocytes 20% monocytes 3%). Urine Urobilinogen +, albumin and sugar, nil no deposit. Sept 18—Total plasma proteins 5.5 g per 100 ml, albumin-globulin ratio, 1.6:1. Oct 2—Electrocardiogram Physiological. no evidence of bundle-branch block (a feature reported by Hyman 1928). Oct 4—B.S.R. 35 mm in first hour (Westergren). Oct 5—Total plasma proteins 6.5 g per 100 ml, albumin-globulin ratio, 5:1. Oct 7—Serum bilirubin Less than 0.5 mg per 100 ml. Oct 17—B.S.R. 14 mm in first hour (Westergren).

#### Clinical Course of Case 2 (J. W.)

On the second day after the first gastric and colonic lavage, for which three gallons (13.64 litres) were required, the patient felt more comfortable, while vomiting and diarrhoea ceased completely from this time. The patient still complained of pain under the right costal margin, but there was no jaundice or evidence of hepatic enlargement.

The condition appeared to have improved on the third day despite pyrexia to 101.6° F (38.7° C). Apart from superficial ulcers of lips and tongue there were no complaints, and the patient felt much better. Clinical examination was negative. Anuria, however, persisted throughout the day, and in the evening his condition rapidly deteriorated. He complained of generalized aching pain of sudden onset and severe right-sided upper abdominal pain, requiring morphine for relief. A bowel action, consisting of a very pale stool, was accompanied by passage of a few ounces of dark amber urine.

On the fourth day, after a noisy restless night when morphine and atropine had to be administered, the patient became more restless and very drowsy, although rousable. His chief complaint was severe abdominal pain. Jaundice of sclerotics and skin although not deep, was obvious, and pruritus was troublesome. No haemorrhage or petechiae were seen. Abdominal examination revealed extreme tenderness in the epigastrium and under the right costal margin. The liver was enlarged one to two fingerbreadths, the spleen was not palpable. Temperature was 100° F (37.8° C), pulse, 64 a minute, and regular.

Restlessness, with sleep for brief periods, occurred throughout the next night, but by the fifth day his condition showed some improvement. Jaundice and hepatic enlargement were unchanged, but abdominal pain and tenderness were less. Examination of the lungs showed coarse basal crepitations which persisted for several days, there were no respiratory symptoms. Following this acute attack the patient's condition steadily improved, but more slowly than in Case 1. Jaundice, never deep, persisted together with hepatic enlargement until Sept 28 (16th day), when he was free from all symptoms and taking a light diet.

**Laboratory Investigations**—Sept 17—Urine S.G. 1020, urobilinogen +, albumin +, sugar, nil deposit—leucocytes with granular debris. Plasma proteins Total 5.2 g per 100 ml, albumin-globulin ratio, 1.8:1. Blood Hb, 101% (Sahli), R.B.C., 4,820,000, W.B.C., 5,000 per c mm (polymorphs 71%, lymphocytes 19%, monocytes 10%). Sept 18—Serum bilirubin 1.25 mg per 100 ml. Oct 2—Electrocardiogram Physiological. Oct 8—Plasma proteins Total, 6.6 g per 100 ml, albumin-globulin ratio, 4:1. Serum bilirubin 0.5 mg per 100 ml.

Both patients were confined to bed for three weeks from the time of admission to hospital, they returned to duty on Oct 21.

#### Discussion

*Amanita phalloides* produces two main active principles—phallin and amanita toxin. The former, first described by Kobert (1891), is an alcohol-insoluble haemolysin. It is relatively unimportant in cases of poisoning, for, being an easily decomposed glucoside, it is rapidly destroyed by heat and by digestive juices. Amanita toxin, the essential poison, is an alcohol-soluble indole or aromatic phenol derivative. It is resistant to heat, to drying, and to digestive juices, and in experimental animals it produces most of the lesions which are described in fatal cases of *A. phalloides* poisoning in man (Ford, 1908, 1923).

The susceptibility of different individuals to the amanita toxin varies, but surprisingly small amounts of the fungus and even a portion of a single specimen may prove fatal especially when eaten raw (Plowright, 1879). The case histories and course of the illness reported above indicate that

Table showing the comparative relationship of early and delayed symptoms and signs

Case	Period of Gastro intestinal Symptoms			Period of Delayed Hepato renal Damage						
	Silent Period (Hours)	Severity of D and V	Total Length of Symptoms (Hours)	Abdominal Pain and Tenderness	Duration of Jaundice (Days)	Pruritus	Liver Enlargement	Urine	Serum Bilirubin	Total Plasma Proteins Alb/Glob Ratio
1	9	+++ attacks before admission	69	+	Slight (6 days)	Nil	Nil	Urobilin + albumin nil no deposit	—	Sept 18 5.5 g ratio 1.6:1 Oct 5 6.2 g ratio 5:1
2	12	++ 10 attacks before admission	38	+++	+(13 days)	+	1-2 finger breadths	Urobilin + albumin + polys and deposit +	1.25 mg/100 ml	Sept 17 5.2 g ratio 1.8:1 Oct 8 6.6 g ratio 4:1

only a small quantity of *A. phalloides* had been eaten by the patients—a contingency made all the more probable by the fact that a third individual partaking of the meal was unaffected. Thermostability of amanita toxin was well demonstrated by its resistance to boiling and frying for almost an hour (at a maximum temperature of about 140° C), the silver-spoon test recommended by Atkinson (1900) proved a misleading and dangerous criterion by which to judge whether the "mushrooms" were safe or not, and, finally, *A. phalloides* was palatable and even pleasant to eat.

The long delay interval of nine and twelve hours respectively before the onset of symptoms emphasizes the important point made by Birch (1946), that in any case of mushroom poisoning an interval of eight hours or more between ingestion and symptoms should be regarded as diagnostic of *A. phalloides* poisoning. The severity of the gastro-intestinal symptoms in the early stages of the illness contrasted with the surprisingly mild hepato-renal damage which took place later (see Table). The importance of eliminating factors in assisting recovery is indicated by the fact that the patient with the shorter silent interval and the more severe and prolonged diarrhoea and vomiting sustained less liver damage than his colleague, whose condition in the early stages was considered the more satisfactory. In addition, poisoning by *A. phalloides* combined with other species of fungus has a better prognosis than poisoning by *A. phalloides* alone, the reason for this being that other types of fungus often cause earlier diarrhoea (Vander Veer and Farley, 1935).

### Summary and Conclusions

Mushroom poisoning due to *Amanita phalloides* in two German prisoners of war is described. Both patients recovered.

The severity of the gastro-intestinal symptoms in the early stages of the illness contrasted with the mildness of the delayed hepato-renal damage.

The delayed effects of poisoning were more severe in the patient with the longer silent period before the onset of symptoms and with the less pronounced and protracted diarrhoea and vomiting.

The ability of the gastro intestinal tract to eliminate the toxin of *A. phalloides* and the thoroughness with which this elimination is assisted by early and efficient gastric and colonic lavage, are regarded as factors of the greatest importance in determining recovery.

My thanks are due to the Director General of Medical Services for permission to publish this paper and to Professor John McMichael for his helpful criticism and advice. The invaluable assistance of Squadron Leader Meredith Brown, who identified specimens of fungus, and the keen co-operation of Flight-Lieut. E. R. Arnold, who was responsible for the care of the patients and for carrying out treatment, are much appreciated.

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## TREATMENT OF GENU VALGUM

### THE DISCARDED IRON

BY

H. A. BRITTAIN, M.Ch., F.R.C.S.

Senior Orthopaedic Surgeon Norfolk and Norwich Hospital

The psychological effect, both on child and on parent, of wearing irons is usually unpleasant. There are occasionally exceptional people, like the late President of the United States, who achieve superiority in spite of their disability. That is possibly because the essential necessity for wearing irons has been revealed to them and they have been told that irons are necessary for progression or even existence.

Every orthopaedic surgeon who has served during the war must have experienced a thrill on his return to civilian practice on seeing as a young adult apparently cured a child who had been under his treatment five years previously. He may be labouring in the fields, she may be soignée with lipstick and rouge. Yet if treatment has extended over several years it is always easy to detect in these patients a difference from others. An intangible shyness or barrier is present. It might be called an inferiority complex, but it is a sequel of prolonged immobilization, with which social segregation is invariably associated. This result may be regrettable, but it is tempered by the fact that such treatment has been inescapable.

In quite a different category is the child who has to wear an instrument which proclaims to all that he or she is a "cripple," though in truth such an instrument is merely corrective and not essential. Here, leading all the rest, is the knock-knee iron or brace, an appliance of very doubtful value.

This paper is based on impressions derived from the treatment of 8,000 cases of genu valgum treated over a period of 15 years, and has been prompted by seeing children returned to East Anglia after evacuation to other parts of England where treatment was carried out with knock-knee braces and without appreciable results.

### Aetiology

Jones and Lovett (1929) describe knock-knee under the heading of rickets. They, however, stress that rickets is not the only cause of knock-knee, and mention tuberculosis of the knee-joint and infantile paralysis as well as fractures in the neighbourhood of the knee-joint with malposition and epiphyseal injury. "Loose knees" in children are also mentioned, and I wish to emphasize these as being the chief cause. McMurray (1943) says "This very common deformity begins as a rule in early childhood, following on rickets," and ten lines later on he states "As a rule, deformity is due to this overgrowth of the inner side of the femur, the alignment and shape of the tibia remaining normal." Mercer (1943) states "The deformity of knock-knee develops, as a rule, in early childhood, and is almost invariably due to rickets."

Few orthopaedic surgeons now believe that rickets is the commonest cause of knock-knee, yet this claim holds pride of place in the three textbooks mentioned. I think that knock-knee is due to (1) laxity of ligaments or loose knees, as mentioned by Jones and Lovett (1929), (2) quadriceps insufficiency, and (3) the child being overweight.

It may be argued that if the knee is loose why does genu valgum not occur at the knee instead of genu valgum? The femora are much wider apart at the level of the great trochanters, and slope inwards towards the knee, so that the tendency is normally to valgus. Furthermore, the external lateral ligament of the knee is a thick and very strong structure, reinforced by the ilio-tibial band, and

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and daily for the next three days. On each occasion lavage was continued until the return was clear. This involved as much as three gallons of fluid during the early part of treatment. Two ounces (57 cc) of 50% magnesium sulphate were left in the stomach. The effect of lavage produced an immediate and striking diminution of vomiting and diarrhoea, which ceased in the case of J. W. after the first treatment.

On Sept 14, 5% glucose in normal saline, four to five litres in 24 hours, intravenously, was begun, this was continued for four days, together with 15 units of soluble insulin and 10 mg of vitamin K four-hourly in an attempt to prevent or minimize liver damage, which was fully anticipated. Apart from ice to suck, all fluid requirements were met by parenteral administration. Atropine 1/100 gr (0.65 mg) and morphine 1/4 gr (16 mg) were prescribed to control restlessness and pain during the first three days.

On the sixth day unlimited glucose drinks and small quantities of citrated milk were substituted for the intravenous drip, but four-hourly insulin injections, combined with vitamin K and vitamin B<sub>1</sub> 12,000 units and 10 ml of 10% solution of calcium gluconate parenterally, were continued for a further forty-eight hours. A light diet rich in protein and carbohydrate was then prescribed and steadily increased until discharge from hospital on Oct 21, when the patients were taking a normal diet.

#### Clinical Course of Case 1 (H. W.)

Although gastric and colonic lavage decreased the frequency and severity of vomiting and diarrhoea, both persisted until the evening of the third day, when these symptoms gave way to complaints of upper abdominal pain. At this time the patient was unduly drowsy and lethargic. Examination revealed tenderness under the right costal margin, but the liver was not found to be enlarged. On the fourth day definite jaundice of the sclerotics was noted but the skin was normal in colour. The urine, small in amount, was dark amber and concentrated. The patient, however, felt much better, drowsiness was less marked and he was more alert, nor was there any complaint of abdominal pain or sign of liver enlargement. Clinical improvement from this point was rapid despite an intermittent pyrexia, which reached 102° F (38.9° C) on Sept 17 and persisted with gradual defervescence until Sept 27. All signs of jaundice had cleared by Sept 21, and urinary output, which had previously been unsatisfactory, rapidly improved.

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### Aetiology

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It may be argued that if the knee is loose why does genu valgum not occur at the knee instead of genu valgum? The femora are much wider apart at the level of the great trochanters, and slope inwards towards the knee, so that the tendency is normally to valgus. Furthermore, the external lateral ligament of the knee is a thick and very strong structure, reinforced by the ilio-tibial band, and

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virtually unstretchable. The internal lateral ligament is a broad thin sheet, and inserted into it is the vastus internus, a muscle which always suffers in any lesion of the knee and, according to Smillie, contracts only in the last 10 to 15 degrees of extension. In a child whose muscles are incapable of supporting the weight-bearing joints adequately there is probably a generalized quadriceps insufficiency, and on clinical examination this is usually most pronounced in the vastus internus, with consequent stretching of the internal lateral ligament. It is much more common to find children overweight since the war, possibly because the diet has contained more carbohydrates—starch without stiffening. Lynx-eyed medical officers of health send to our clinics many children aged 2 with 1 in (2.5 cm) of genu valgum. They come so often that it seems that no child aged 2 can be without one inch of genu valgum. This genu valgum is entirely due to laxity of ligaments, and no bony deformity is present as yet.

In my opinion, to say that such a deformity is due to rickets is not true, but when these children are sent to us untreated at the age of 4 or 6 their femora have grown into a valgus deformity because of laxity of the internal lateral ligament and the effect of weight-bearing, and as a result there has been overgrowth of the internal condyle of the femur. I consider that this is the true aetiology and that seldom is rickets the cause.

### Diagnosis

The usual method of examining the amount of genu valgum is to measure the intermalleolar distance. This may be a fictitious assessment. (1) because if the angle between the femur and tibia is to remain the same the distance between the malleoli must increase with growth, and (2) one can seldom exert a pressure accurately to equal the weight of the child without causing pain. Therefore not only should the intermalleolar distance be assessed with the child both sitting and standing, but the angle between the femur and the tibia should be noted on each side.

### The Knock-knee Brace

Jones and Lovett (1929) devote at least one page to a description of the knock-knee brace, and McMurray (1943), dealing with moulding, says "As with all rickety deformities, continued moulding is often successful in correcting the knock-knee in the acute stages of the disease, and in a large proportion of children so treated operative correction is unnecessary. If, after moulding, the remaining deformity is slight, a knock-knee iron should be used to maintain and complete the correction. The iron should be removed only when correction has been obtained, or when it is obvious that further improvement is impossible." One may comment that if there is bony deformity moulding cannot help, and if there are loose knees moulding will only make them looser.

Mercer (1943) states that considerable improvement, if not cure, can be obtained by manipulation, and also mentions the Jones walking knock-knee brace.

### Treatment

About one patient a year requires operation, certainly not more, wedging of the shoes is carried out in every case, and night splints in the majority. "La vérité c'est dans les nuances," said Voltaire, and this apothegm can be applied to every branch of orthopaedics or surgery or medicine.

#### Wedging the Shoes

The shoe is wedged  $\frac{3}{16}$  in (0.47 cm) on the inner side, sole, and heel. When I returned to civilian practice I was impressed by the number of children who had not improved after having only the shoe heels wedged. If the wedge can

be incorporated in the upper so much the better. The mothers must be told how important it is that the children wear their wedged shoes all day. A "gramophone record" is quoted, based on a verbal communication from Watson-Jones, and here one cannot stress too much how important it is that the surgeon himself speaks to the mother as follows:

'Your child has knock-knees now. If she is not treated she may grow up with them. Apart from looking unsightly, they may become painful when she grows older. By seeing that her shoes are wedged now you can make sure that she will get better, but she must wear the shoes all the time. That is to say, she must put on her shoes before she gets out of bed, she must walk to her bath in them, and she must not stand up in her bath. If you bring her to see me in six months' time and she has not improved, I will tell you that she has been walking without her wedged shoes.'

Cleats or studs may be necessary to keep the wedges constant. As a rule three studs on the outer side of the heel are sufficient.

#### Night Splints

Night splints produce quicker results than wedging of the shoes alone, but are not prescribed for small amounts of deformity or for fretful children as they may interfere with sleep. Simple gutter splints suffice for small degrees of deformity in young children. In older children with a greater degree we have found the night splints described by Lloyd (1939, 1943) to be excellent, because they do not rotate in the longitudinal axis and therefore remain accurately in the corrective position. Lloyd's night splint (Fig 1) is based on the mechanics of the Jones knock-knee brace. Fig 2 shows the knee braced back into full extension by bandaging the limb to the smaller posterior piece. The longer portion of the splint is then locked into position by sliding the tubes A and B over the rods *a* and *b*, and lateral pressure is put on the knee by continuing the bandage round the lateral part of the splint. The bandage is taken well above and below the knee, but the greatest pressure is over the knee area.

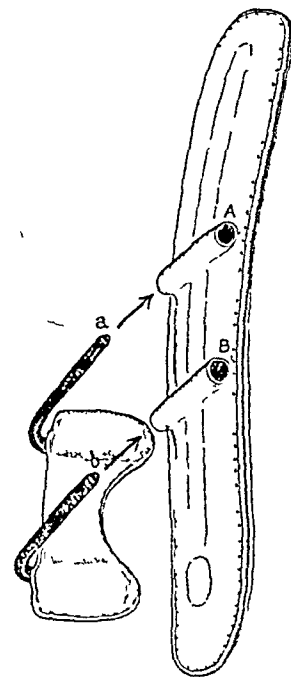


FIG 1

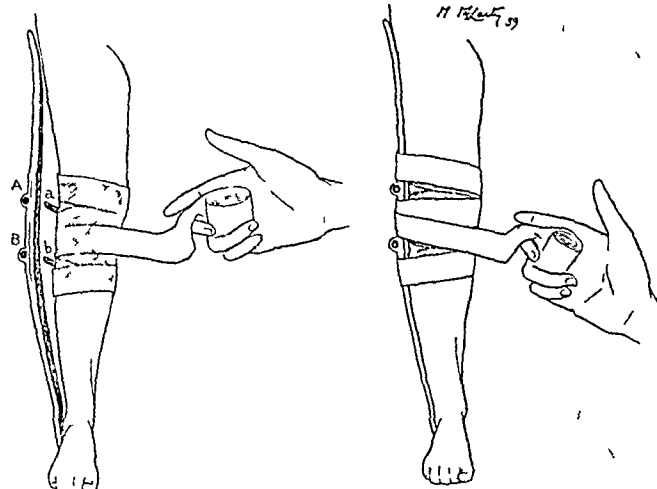


FIG 2

FIG 3

**Osteotomy**

An osteotomy is seldom necessary. It is carried out, however, in two circumstances

(a) *For the Child who is Resistant to Treatment*—These patients are generally over the age of 10, with a neglected deformity and 4 in (10 cm) of intermalleolar separation. The osteotomy is performed through a window in a bilateral plaster-of-Paris spica. A line is drawn on the anterior surface of the plaster through the long axis of the limb, an angle being made at the site of the proposed osteotomy. The operation is carried out from the outer side, the plaster first having been cut through two thirds of its circumference, the inner third remaining intact. The plaster is straightened until the angle no longer exists and the thigh and the shin make a straight line. The plaster is then completed. By this method the possibility of gross displacement of fragments is minimized and a meticulously perfect position is assured.

(b) *For Osteo-arthritis in Patients over the Age of 40*—Knock-knees become arthritic, and this is a point which should be stressed to mothers who are reluctant to have their children's shoes wedged and who consider the application of night splints tiresome and unnecessary. Osteo-arthritis occurs because the outer side of the joint is taking all the weight and the inner side is comparatively idle. In an adult the osteotomy is carried out by linear cuts with an electric saw through the femur just above the knee, and the femur is moulded into the position of correction. I have performed three osteotomies for osteo-arthritis due to excessive knock-knee in patients over the age of 50, with relief of pain and apparently good function.

McMurray suggests an osteotomy through the tibia. Of this I have no experience. Nevertheless I would hesitate to perform a high tibial osteotomy nowadays because of my experience of occasional severe vascular complications after fractures in this region.

The following table gives a working basis for treatment

2 in (5 cm) G V below age of 4	Wedge sole and heel only
2 in G V above age of 4	Wedge sole and heel, night splints
More than 2 in G V below age of 4	Wedge sole and heel, night splints
More than 2 in G V above age of 5	Wedge sole and heel, night splints
4 in (10 cm) G V above age of 7	Osteotomy

This plan may require modification when deformity increases in spite of these conservative measures. That occurs but rarely, and when it does I carry out an osteotomy at an earlier age.

During a recent visit to America I was impressed by the intermediate results of stapling—i.e., the application of staples to control the growth of the lower end of the femur (Blount, 1944). This appears to be a simple, tidy method, less tedious than the prolonged wearing of wedged shoes and night splints, and seems to have a definite place in the treatment of children aged 14–15, in whom shoes have little corrective action and in whom there may be intolerance of night splints. This treatment is, however, *sub judice*.

**Conclusions**

The psychological effect of knock-knee irons is bad. This is one of the reasons, and an important one, why they should not be used in the treatment of genu valgum.

Genu valgum is seldom caused by rickets. In a large proportion of patients it is due to laxity of ligaments, to quadriceps insufficiency, and to the child being overweight.

Wedged shoes and night splints are sufficient treatment in the majority of cases. Occasionally a supracondylar osteotomy of the femur is desirable in both children and adults.

I wish to thank Mr Eric I Lloyd and the Editor of the *British Medical Journal* by whose permission the illustrations are reproduced. The makers of the splints are Messrs Beckett and Bird, Bentinck Street, W 1.

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## A CASE OF SKIN SENSITIZATION TO STREPTOMYCIN

BY

**C STRINGFELLOW, MD**

Registrar Department of Medicine University of Leeds

The use of streptomycin is restricted at present in this country. The drug is soon to be produced in greater quantities, however, and the time is not long distant when it will become generally available and in common use. It is considered of interest, therefore, to publish details of the following case of sensitization to streptomycin.

**Case History**

Sister R W had had the care of six cases of tuberculous meningitis for four months, during the whole of which time she gave about 40 intramuscular injections of streptomycin a week. The strength of the solution varied between 200 and 500 mg per ml and at each injection some soiling of the fingers and hands with the solution was almost unavoidable. At no time did she wear protective rubber gloves.

She was well and did not complain of symptoms during the first three months of exposure, but after this period there was some irritation at night. The little and ring fingers of the right hand and the web between these two fingers were first affected. Two weeks later a similar irritation was noticed on the left hand. At about the same time an eruption suddenly appeared in the flexures of both elbows, and swelling and itching of both eyelids became apparent. There was some rhinitis with a thin watery discharge, and the patient felt generally unwell, but there was no fever.

On examination the contiguous and dorsal surfaces of the little and ring fingers of both hands showed thickening of the skin, with superficial desquamation and fissuring, and there was a slight serous discharge from the lesion. The skin of the web of the affected fingers was reddened, with pin-point papules and a few minute colourless vesicles, some of which had ruptured and discharged a little fluid. A similar fine papular and vesicular eruption affected the flexures of both elbows over an area of 6 by 4 in (15 by 10 cm). The skin of the eyelids was oedematous, dusky in colour, and showed a fine desquamation. Nothing further abnormal was discovered on full routine examination.

**Patch-testing**

Patch tests on the patient and all other members of the nursing staff handling streptomycin were carried out in the following way. 0.2 ml of 1.5 solution of streptomycin calcium chloride complex (Merck), containing 1 g of active base in 1.3 g of substance, was used, drawn from the same batch of drug as is in current use in the treatment of cases in this centre. Sterile water was the solvent. The solution was spread on a single layer of gauze 1 in (2.5 cm) square, and the whole was covered with a piece of jaconet, which was held in place with zinc-oxide plaster. A control patch consisting of gauze, jaconet, and plaster was used in each case. The skin was not cleaned as a preliminary. The patch was left in place for 24 hours, and the area was examined at the time of its removal and 24 and 48 hours later.

The patient and seven other nurses who had administered the drug for periods of between one and a half and five months were thus observed. A control group of seven volunteers who had not been in contact with the drug were also tested. In all

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virtually unstretchable. The internal lateral ligament is a broad thin sheet, and inserted into it is the vastus internus, a muscle which always suffers in any lesion of the knee and, according to Smillie, contracts only in the last 10 to 15 degrees of extension. In a child whose muscles are incapable of supporting the weight-bearing joints adequately there is probably a generalized quadriceps insufficiency, and on clinical examination this is usually most pronounced in the vastus internus, with consequent stretching of the internal lateral ligament. It is much more common to find children overweight since the war, possibly because the diet has contained more carbohydrates—starch without stiffening. Lynx-eyed medical officers of health send to our clinics many children aged 2 with 1 in (2.5 cm) of genu valgum. They come so often that it seems that no child aged 2 can be without one inch of genu valgum. This genu valgum is entirely due to laxity of ligaments, and no bony deformity is present as yet.

In my opinion, to say that such a deformity is due to rickets is not true, but when these children are sent to us untreated at the age of 4 or 6 their femora have grown into a valgus deformity because of laxity of the internal lateral ligament and the effect of weight-bearing, and as a result there has been overgrowth of the internal condyle of the femur. I consider that this is the true aetiology and that seldom is rickets the cause.

### Diagnosis

The usual method of examining the amount of genu valgum is to measure the intermalleolar distance. This may be a fictitious assessment. (1) because if the angle between the femur and tibia is to remain the same the distance between the malleoli must increase with growth, and (2) one can seldom exert a pressure accurately to equal the weight of the child without causing pain. Therefore not only should the intermalleolar distance be assessed with the child both sitting and standing, but the angle between the femur and the tibia should be noted on each side.

### The Knock-knee Brace

Jones and Lovett (1929) devote at least one page to a description of the knock-knee brace, and McMurray (1943), dealing with moulding, says "As with all rickety deformities, continued moulding is often successful in correcting the knock-knee in the acute stages of the disease, and in a large proportion of children so treated operative correction is unnecessary. If, after moulding, the remaining deformity is slight, a knock-knee iron should be used to maintain and complete the correction. The iron should be removed only when correction has been obtained, or when it is obvious that further improvement is impossible." One may comment that if there is bony deformity moulding cannot help, and if there are loose knees moulding will only make them looser.

Mercer (1943) states that considerable improvement, if not cure, can be obtained by manipulation, and also mentions the Jones walking knock-knee brace.

### Treatment

About one patient a year requires operation, certainly not more, wedging of the shoes is carried out in every case, and night splints in the majority. "La vérité c'est dans les nuances," said Voltaire, and this apothegm can be applied to every branch of orthopaedics or surgery or medicine.

#### Wedging the Shoes

The shoe is wedged  $\frac{3}{16}$  in (0.47 cm) on the inner side, sole, and heel. When I returned to civilian practice I was impressed by the number of children who had not improved after having only the shoe heels wedged. If the wedge can

be incorporated in the upper so much the better. The mothers must be told how important it is that the children wear their wedged shoes all day. A "gramophone record" is quoted, based on a verbal communication from Watson-Jones, and here one cannot stress too much how important it is that the surgeon himself speaks to the mother as follows:

"Your child has knock-knees now. If she is not treated she may grow up with them. Apart from looking unsightly, they may become painful when she grows older. By seeing that her shoes are wedged now you can make sure that she will get better, but she must wear the shoes all the time. That is to say, she must put on her shoes before she gets out of bed, she must walk to her bath in them, and she must not stand up in her bath. If you bring her to see me in six months' time and she has not improved, I will tell you that she has been walking without her wedged shoes."

Cleats or studs may be necessary to keep the wedges constant. As a rule three studs on the outer side of the heel are sufficient.

#### Night Splints

Night splints produce quicker results than wedging of the shoes alone, but are not prescribed for small amounts of deformity or for fretful children as they may interfere with sleep. Simple gutter splints suffice for small degrees of deformity in young children. In older children with a greater degree we have found the night splints described by Lloyd (1939, 1943) to be excellent, because they do not rotate in the longitudinal axis and therefore remain accurately in the corrective position. Lloyd's night splint (Fig 1) is based on the mechanics of the Jones knock-knee brace. Fig 2 shows the knee braced back into full extension by bandaging the limb to the smaller posterior piece. The longer portion of the splint is then locked into position by sliding the tubes A and B over the rods *a* and *b*, and lateral pressure is put on the knee by continuing the bandage round the lateral part of the splint. The bandage is taken well above and below the knee, but the greatest pressure is over the knee area.

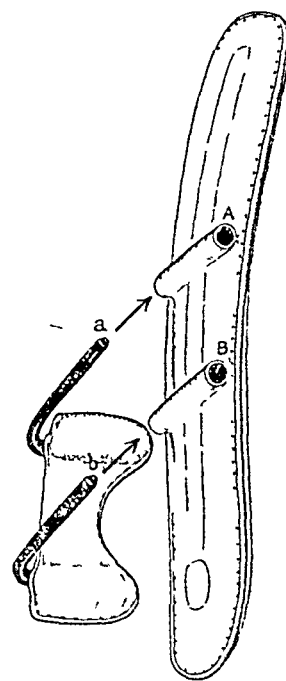


FIG 1

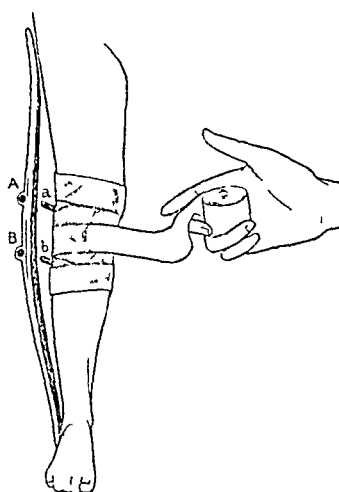


FIG 2

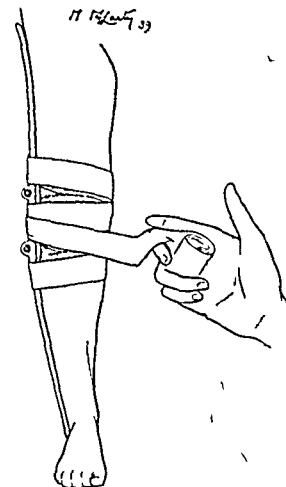


FIG 3



## Reviews

### STATISTICAL METHODS

*Statistical Methods in Research and Production* With Special Reference to the Chemical Industry Edited by Owen L. Davies, M.Sc., Ph.D. (Pp 292 28s) London and Edinburgh Oliver and Boyd

This volume is the work of seven contributors, and, Lord McGowan states in a foreword, the first of a series of scientific and technical handbooks which Imperial Chemical Industries intend to publish with the aim of making generally available the important information accumulated as a result of the company's manufacturing experience and research. While the company hopes that these publications will be of particular help to industrialists and technicians in industry, this book should certainly be more widely useful than that. Its approach is, naturally, through problems encountered in the chemical industry, and its examples are mainly of the applications of statistical methods in that field. But many research workers with other interests will undoubtedly find it of assistance in learning and applying statistical techniques to any type of data, particularly, it would be fair to add, those who either already have some grounding in statistical theory and methodology or are not perturbed by algebraical symbols. The arithmetician will be aided by the numerous examples that are fully worked out (and upon which—an essential step—he can practise), but much of the discussion and the approach to the arithmetical processes are centred around mathematical expressions.

The book contains chapters on frequency distributions, averages and measures of dispersion, the customary tests of significance, the analysis of variance, regressions and correlation, contingency tables and the chi-squared test, general problems of sampling, control charts, and prediction and specification. A useful glossary of statistical terms is included, and also a list of the statistical and mathematical symbols in general use with guidance on their type setting. The usual tables of statistical functions are given at the end—the normal, chi-squared  $t$  variance ratio, binomial and Poisson distributions, the significance levels for the correlation coefficient, and control-chart limits for the average and range. It is clear that the authors have taken great pains over the setting of their text, arithmetical examples, and algebra, and in these austere days it is a pleasure to handle a book so beautifully produced.

A BRADFORD HILL

### PSYCHO-ANALYSIS AND CHILDREN

*The Psychoanalytic Study of the Child* Volume II 1946 Edited by Anna Freud, Willie Hoffer, M.D., Ph.D., L.R.C.P., Edward Glover M.D., et al. (Pp 424 30s) London Imago Publishing Co

It is impossible to do justice to this volume in a short review, so that the reader is advised to get hold of a copy if his interest is in child psychiatry or in psychological theory. Much that is both interesting and clinically important is discussed, and the continued work of the Imago Publishing Company is justified by it. "Problems of Child Development" include a theoretical study of psychic structure, a study of laughter, a further contribution from Mrs. Burlingham on twins, and a study of the pre-oedipal development of the male child. "Clinical Problems" include articles on feeding disturbances by Anna Freud, the psychogeneses of tic and of reading disabilities, the analysis of a child with night terrors, and clinical observation of enuretics, a valuable description of psychosis in childhood by Elizabeth Galeerd and comments on the diaries of schizophrenics by Willie Hoffer. "Guidance Work" and "Problems of Education and Sociology" are other headings to sections, and there is a historical note on J. B. Felix Descuret (1795-1872).

Only one article can be picked out for detailed comment, that by Rene A. Spitz on what he calls anaclitic depression is chosen, because it involves consideration of Melanie Klein's concept of the depressive position in emotional development. Spitz makes a special point of disclaiming acceptance of this concept. The material of the article is excellent. The infants in an institution who had all been (unavoidably) separated from

their mothers at the age of 6-8 months were found to become depressed at 8-11 months. The author gives interesting clinical details.

Klein uses the term depressive position to describe an achievement of the human infant. If all goes well with the emotional development of any infant a stage is reached at which the infant recognizes the results of erotic and aggressive impulses and ideas, so that henceforth he is concerned, is able to feel responsibility and guilt. Only if this stage is achieved is deprivation liable to cause depression or, in the simplest case, mourning. Failure to arrive at, or regression from, this stage indicates a severe (psychotic) disturbance of emotional development, and results in the infant's showing the more primitive defences such as a disintegration of the personality, depersonalization, and loss of contact with reality. But Spitz writes: "Klein assumes that human beings are born with a finished and complete psychic structure." In fact, she does not.

It could be said of the depression observed and described by Spitz that these infants, through early contact with their own mothers and through their subsequent management in the institute, had gone forward in development sufficiently to be capable of becoming depressed, this being an indication of health, more seriously disturbed infants would have failed to achieve this clear depressive mood in reaction to loss. On the basis of an understanding of Klein's theory the author's observation that depression occurred only at 8-10 months is a useful contribution to the discussion of the theory, without such understanding his good clinical observations are wasted. It would be a pity if subsequent volumes must be marred by further uninformed references to Klein. The first volume contained a serious attack on Klein which was too biased to have an effect on scientific thought, but this article loses value through lack of understanding. It is urgently necessary that Klein's critics get to know what she is in fact saying.

D. W. WINNICOTT

### EMERGENCY SURGERY

*Emergency Surgery* By Hamilton Bailey, FRCS, FICS, FRSEd Part I Sixth edition To be issued in 5 parts (Pp 180, illustrated 21s) Bristol John Wright and Sons 1948

The sixth edition of Mr Hamilton Bailey's *Emergency Surgery* is appearing in five parts, of which we have recently received Part I. In size and arrangement it closely resembles one of the six parts of the third and last edition of the same author's highly successful book, *The Surgery of Modern Warfare*. Printing and binding difficulties are apparently still acute, and production in parts to a certain extent overcomes them.

In assessing the qualities necessary for the exacting practice of emergency surgery Mr Bailey rightly emphasizes physical fitness, mental alertness, and readiness at all times to attend to demands on his services as qualities as important to the surgeon as technical training and experience. However there is still a need for a guide book since emergency operations are so often performed by those beginning the practice of surgery. For many years such a guide was to be found in French in the *Traité de Chirurgie d'Urgence* of Felix Lejars, of Paris, who died in 1932 and in the translated English edition of the book by Mr W. S. Dickie of Middlesbrough. In more recent times Hamilton Bailey's book has met the same demand, and, now brought up to date in this new edition, it is, like all his well-known publications, an admirable production. The author has already achieved a world-wide reputation as a writer of surgical textbooks which are so well and clearly produced that certain of them have reached the "best seller" class—unusual enough among textbooks to be praise indeed.

In the first volume he discusses infusion and transfusion, shock, restoration of the patient in extremis while under anaesthesia, complications of operation such as burst abdomen, and intra-abdominal acute infective lesions such as appendicitis and salpingitis. Among aids to prevent phlebothrombosis he might have mentioned support of the Achilles tendons to keep the calf muscles free from pressure by the operating table, for there is incontrovertible evidence that it is in the calf veins that the condition begins and if the calves are immobile and lying on the table the vein walls are in apposition and free flow in them is impeded. In a balanced account of drainage, which

es save that of the patient both the patch and the control were negative. In the patient, at the end of 24 hours an erythematous eruption at the site was apparent, which later became oedematous and itched. The original skin lesions, which had by then almost disappeared following withdrawal from contact with the drug, showed a simultaneous exacerbation. Further patch tests were carried out with solutions of 1 10, 1 50, 1 100, 1 500, and 1 1,000. With the solutions of 1 10 and 1 50 a similar oedematous and erythematous lesion was observed at the site at the end of the examination period, and there was a similar exacerbation of the clinical manifestations in the original skin lesions. A papular erythematous eruption was seen with the weaker solutions, the lesion being minimal in the test to 1 1,000, and no general reaction was experienced. All the control patches were negative.

### Discussion

Strauss and Warring (1947) reported four similar cases among 12 nurses in contact with streptomycin. One developed symptoms after a month, whereas the other three required approximately three months' exposure before any changes were noticed. In all cases the eruption first showed upon the fingers, in two the flexures of the elbow were affected, and changes in the eyelids were noted in all four. The clinical development, the pattern of reaction, and the type of the eruption were strikingly similar to that in the present case. By patch-testing they detected two further cases of sensitization which had not hitherto shown clinical manifestations. They were able to patch-test their sensitized cases with a solution containing only 2% of impurities, and induced a similar lesion to that produced by a solution with as high a proportion of impurities as was used by ourselves. They conclude, therefore, that the sensitization is probably not due to the presence of impurities. For lack of material it was not possible to confirm their findings.

Crofton and Foreman (1948) described four cases of sensitization to streptomycin, the nurses concerned having been exposed to the drug for periods of between six weeks and six months. Oedema and itching of the eyes occurred in three of them, whilst in two cases the skin of the face was involved. The eruption on the hands and arms was similar to that in the present case. They carried out skin tests, using intradermal injections of 50  $\mu$ g of streptomycin hydrochloride dissolved in 0.1 ml of saline. Positive results were obtained in all four cases, and exacerbation of the original skin lesions occurred in three. The authors failed to detect similar skin sensitization in 30 other nurses who had been exposed to the drug.

The absence of reaction to a 1 5 solution in the other exposed personnel and the control volunteers in the present investigation suggests that the solution is not a primary irritant and that this eruption is a sensitization phenomenon. Considering the long period of exposure required before clinical signs become manifest, it seems reasonable to suppose that this sensitization is acquired. Further work is in progress in an attempt to elucidate this point.

### Summary

A case of skin sensitization to streptomycin in a nursing sister is reported.

Patch-testing of seven other exposed nurses failed to detect further sensitized cases.

Negative patch-tests in a control group suggest that the drug is unlikely to be a primary irritant.

It is considered probable that the sensitization is acquired.

My thanks are due to members of the Leeds Streptomycin Committee for their helpful advice and their permission to publish this case.

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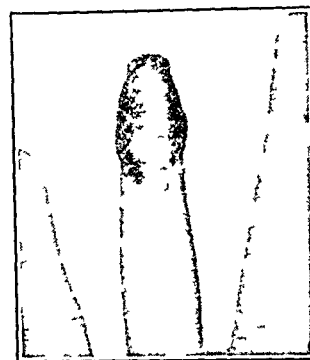
## Medical Memoranda

### Gangrene after Scorpion Sting

Scorpion sting causes pain and discomfort of only short duration and serious complications do not usually occur, though slight local necrosis has been seen in some cases. In rare cases, however, especially in children, death has been reported. In the following case gangrene of a finger occurred after a scorpion sting.

#### CASE REPORT

On Feb 13, 1947, a young healthy girl of about 17 was stung on the pulp of the right ring finger by a scorpion which was found and killed. This was followed immediately by the usual symptoms—namely, burning pain, tenderness, and swelling at the site of the sting and cold perspiration of the whole body. A few minutes later a blister appeared just proximal to the point of the sting and it soon spread to and round the middle of the second phalanx of the finger. Potassium permanganate crystals were applied to the point of the sting and a starch poultice to the blister. The latter was applied for about two hours with no effect on the blister, which



burst on the third day, leaving a raw surface underneath. As the tip of the finger was gradually getting dry and black she consulted a doctor on Feb 22, who advised cleaning the part with spirit and dusting it with 'cibazol'—acriflavine powder.

When I first saw her, on March 1, the tip of the finger was dry and black, and proximal to this was a discoloured area which was limited above by a demarcation line. When seen on March 10, the dry black area had extended to the demarcation line. (see illustration)

#### COMMENT

I could not find any reference to the occurrence of gangrene after scorpion sting in the literature on Indian scorpions. Dr K S Mhaskar, joint author of *Indian Medical Research Memoir on Indian Scorpions* (1932, No 24), writes in a personal letter that he never came across any case of gangrene after scorpion sting. S Kubota (1918), however, has reported a case in which local necrosis occurred after a sting by a Manchurian scorpion (*Buthus martensi*). Nowak (1898) showed that when injected subcutaneously scorpion venom, like snake venom, may produce local necrosis.

In the above case the gangrene may have been produced by the action of substances applied locally or by the infection of the part. However, the local application of potassium permanganate to the point of the sting and the application of starch poultice to the blister were not such as to give rise to the production of gangrene in the finger. Infection also does not seem to be the causative factor, as the gangrene appeared to be of the dry type from the beginning. The production of gangrene therefore seems to be due to the action of the venom.

The variety of the scorpion concerned is not known, but it seems probable that the venom of a particular variety produces local necrosis. Though the occurrence of gangrene after scorpion sting might not be very common, the disability it causes should call for further research in this field.

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## BRITISH MEDICAL JOURNAL

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## STREPTOMYCIN IN USE

The number of publications reporting results of treatment with streptomycin is now swelling to a flood reminiscent of that produced by penicillin about four years ago. Whereas those from the United States deal with the subject in all its aspects, publications in this country are almost exclusively concerned with the treatment of tuberculosis, our more exiguous supplies having been chiefly devoted to this purpose. Notable among these is the recent report<sup>1</sup> of the Medical Research Council's Streptomycin in Tuberculosis Trials Committee, which decided, on its formation in September, 1946, to restrict the use of the drug to cases of tuberculous meningitis and miliary tuberculosis. The provision of facilities for treating these two forms of the disease has since been greatly extended by the Ministry of Health, and an adequate number of hospitals throughout the country, in addition to the centres operating under the M R C scheme, have been able to obtain streptomycin for this purpose during the past twelve months.

This report deals only with tuberculous meningitis, and is based on 105 cases followed up for a minimum of 4 months, of these patients 71 had died, 7 were stationary or deteriorating, and 27 were doing well. This low proportion of recoveries is unfortunately in accordance with the experience of most others, but some improvement may be expected if earlier diagnosis can be made and in any case when the most satisfactory schedule of treatment has been worked out. The effect of the duration of the disease on prognosis is abundantly clear in this series. Early diagnosis is by no means easy, and an article on the subject by Professor W S Craig which appears elsewhere in this issue (p 374) should be helpful to the family doctor who has not the advantage of laboratory facilities at his elbow. In patients in whom meningitis is accompanied by miliary tuberculosis, retinoscopy may help to confirm an early diagnosis. Professor R S Illingworth and Dr T Wright describe on page 365 of this issue a study of the occurrence of tubercles of the choroid in 65 patients falling into three categories. Tubercles were observed in 25 out of 42 cases of miliary tuberculosis, with or without meningitis, and changes in their appearance during treatment could be related to prognosis. The import-

ance of age is well seen in the M R C series in children under 3 the outlook is clearly much worse. It was also shown that intramuscular streptomycin alone is inadequate, intrathecal injections must also be given. Beyond this single fact it seems difficult to draw any conclusions about methods of administration. Among the successful results some patients had long and others quite short courses, treatment during the long courses was in some cases continuous and in others intermittent.

When to stop in an apparently successful case is the most difficult aspect of this problem. Debre and his colleagues, who recently described in the *Journal* a series of 118 cases treated in Paris, continued administration for as long as 10 months. At the other extreme, Glanzmann,<sup>2</sup> of Bern, reports an apparent success after only 15 days' vigorous treatment consisting of intramuscular and intrathecal injections, and he believes that in some cases this may be adequate. It has even been suggested that intramuscular injections are unnecessary. Ketelaer<sup>3</sup> gives a short general account of very favourable results obtained by two groups of Russian workers using intracisternal injections only, 12-20 being given during a period of 2 to 3 weeks. Another valuable contribution came from Oxford, where Sir Hugh Cairns and his colleagues<sup>4</sup> treated 18 cases, of whom 7 have died, 7 are doing well, and 4 are still under treatment. This series is notable for the great variety of surgical procedures used to facilitate both diagnosis and treatment. Ventricular puncture was carried out in all but two cases and streptomycin sometimes administered either by this route or continuously through a tube leading into the interpeduncular space.

At what intervals and for how long to administer streptomycin in treating either meningitis or other forms of tuberculosis is still unsettled. The present tendency is to prolong the interval between doses and somewhat to reduce the dose, but to continue treatment for an arbitrary period of 3 months or more. The best system cannot be rationally worked out until the action of streptomycin is better understood, particularly until it is known whether it has a predominantly bactericidal or bacteriostatic effect. The duration of effective treatment is closely connected with the problem of acquired bacterial resistance. In the M R C series little evidence of this was obtained, 19 out of 22 strains of *Myco tuberculosis* isolated from the cerebrospinal fluid after a month or more of treatment remained fully sensitive. These tests were made in the Dubos medium, and according to Fisher<sup>5</sup> this may give misleading results. He examined 20 strains isolated from patients after 12 weeks' treatment for pulmonary disease, 5 had acquired resistance and 15 apparently had not, but when these 15 were retested in another medium 6 were shown to be resistant. Subsequent study showed that Tween 80, a constituent of the Dubos medium, may enable a very low concentration to inhibit growth, whereas one a thousand times greater will fail to do so in its absence. Glycerin had a similar though less marked effect. Most studies of the acquisition of resistance have been made in cases of pulmonary disease, in which the repeated isolation of bacilli is relatively simple. It may possibly be misleading to apply these findings to other forms of the disease, but it certainly appears that the efficacy of treatment must often decline

<sup>1</sup> *Lancet* 1948 1, 582.<sup>2</sup> *British Medical Journal* 1947 2 897.<sup>3</sup> *Artizl Mh* 1947 3 877.<sup>4</sup> *Brux-med* 1948 28 22.<sup>5</sup> *Lancet* 1948 2, 627.<sup>6</sup> *Amer Rev Tuberc* 1948 57 53.<sup>7</sup> *Proc Mayo Clin* 1947 22 465.<sup>8</sup> *J clin Invest* 1948 27 278.<sup>9</sup> *Ann intern Med* 1947 27 989.<sup>10</sup> Eisele C. W. and McCullough N. B. *J Amer med Ass* 1947 135 1053.<sup>11</sup> *J Lab clin Med* 1948 33 1.<sup>12</sup> *Ann Med intern Fenn* 1947 36 575.<sup>13</sup> *J Amer med Ass* 1946 130 485.<sup>14</sup> *Proc Soc exp Biol NY* 1948 67 249.<sup>15</sup> *Science* 1948 107 143.

opens with the statement that a cynic once condemned books because they do not tell us when to drain, the author would appear to be on the side of the drainers in doubtful cases but at the same time he well illustrates the harm which drainage tubes may do if used inadvisedly. Among his quotations from various surgeons he might have added the remark of still another surgeon who when asked why he had not drained the abdomen of a certain important person, remarked, 'There was nothing to drain'—sound reasoning enough.

If we may judge the whole from this first part this edition should be the best yet and more than ever appreciated by those for whom it has been written by one whose experience in this field is great, and who in the production of this account richly gives of it to his younger and less experienced colleagues.

LAMBERT ROGERS

## UNORTHODOX SYPHILOLOGY

*Syphilis* By Henri Mathias (Pp 722 600 francs) Paris  
Librairie Maloine 1947

This is a remarkable book to say that it is unorthodox would be an understatement. After an introduction in which the author points out that syphilis is one of the greatest enemies of the human race that it can and should be wiped out and that medical men should be better informed about it he discusses the subject in five parts. (1) Acquired syphilis, the causal organism, the progress of the disease, its prophylaxis and its relation to marriage and divorce. (2) treatment, with a criticism of current methods and attempts at shortening the time necessary for radical cure. (3) congenital syphilis. (4) the 'patho-genealogical' tree in the uncovering of congenital syphilis, and (5) a consideration of various problems connected with both the acquired and congenital forms.

It is not easy to understand why or for whom this book was written, presumably the author wished to air views which are not generally acceptable. It is not one for the student or general practitioner, though the dilettante experienced syphilologist may be interested and even amused by browsing over the 700 odd pages. It appears that the only remedy for early acquired syphilis is 'salvarsan' (the author dismisses penicillin in just over one page) given in a large number of small doses over a period of a year, in cases of congenital syphilis cyanide of mercury and bismuth may be given as well but must be injected intravenously.

The medical profession in general has no idea of the number of conditions for which congenital syphilis is directly or indirectly responsible, these range from psoriasis to haemophilia and from epilepsy to chronic appendicitis and include most of the ailments due to dysfunction of the ductless glands. The author evidently has the greatest contempt for the average syphilologist for refusing to use the gifts which God and science have given him—eyes to see congenital syphilis all around him and salvarsan. Perhaps the masterpiece of this work is the expression "Sterilisans magna sed in unum anno" (p 328).

T E OSMOND

The successive issues of the *Year Book of General Surgery* form milestones by which some estimate may be made of the advances in theory and practice as the years pass, they are also signposts to the general trend of surgical thought and investigation. Thus in the 1947 volume, edited by Dr Ewart A. Graham (H K Lewis, 21s), we find no less than 55 pages devoted to summaries of articles on the surgery of the blood vessels, and notices of eight papers relating to vagus section in the treatment of peptic ulceration but pilonidal sinuses, which during the war years attracted much attention, are now scantily represented by two articles only. As Dr Graham says in the introduction, surgical literature has returned largely to a peacetime plane after the large number of articles on military surgery in the preceding years. Work is being done in research laboratories again and many stimulating articles are appearing. He also makes a graceful reference to our own country "The British, despite most adverse conditions, are carrying on bravely. This is nothing new for them, as everybody knows. Most of their famous old hospitals were more or less badly damaged by the Nazi bombing, but by the use of make shifts of various kinds they are continuing to care for patients and to teach students." It is gratifying to read Dr Graham's opinion of our efforts. As usual we found it impossible to answer more than an insignificant number of the questions asked in the yearly 'quiz' on the dust-cover.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*The Stuff We're Made Of* By W O Kermack M A, D Sc, LL D, F R S, and P Eggleton D Sc F R S Ed 2nd ed (Pp 356 10s 6d) London Arnold 1948

An account of biochemistry including the vitamins and hormones for the general reader

*Transactions of the Fiftieth Annual Meeting of the American Laryngological, Rhinological and Otological Society* (Pp 587 No price) New York The Society 1946

Papers on a variety of E N T topics

*Proteins and Amino Acids in Nutrition* Edited by M Sahyun M A, Ph D (Pp 566 45s) London Chapman and Hall 1948

A collection of papers by various writers

*Identification of Tumors* By N Chandler Foot, M D (Pp 397 36s) London Lippincott 1948

A profusely illustrated account of the pathology of neoplasms

*The History of State Medicine in England* By Sir Arthur S MacNalty, K C B, M A, M D F R C P, F R C S (Pp 82 12s 6d) London Royal Institute of Public Health and Hygiene 1948

The FitzPatrick Lectures for 1946 and 1947 on State medicine in England from 1837 to 1919

*Disability Evaluation* By E D McBride, B S, M D F A C S 4th ed (Pp 667 72s) London Lippincott 1948

A textbook of the investigation and evaluation of industrial disabilities

*Treatment by Diet* By C J Barborka, B S M S, M D, D Sc F A C P 5th ed (Pp 784 60s) London Lippincott 1948

A textbook of diet therapy for the medical practitioner

*The Digestive Tract in Roentgenology* By J Buckstein, M D (Pp 889 100s) London Lippincott 1948

A textbook of x ray examination

*The Childless Marriage* By E F Griffith M R C S L R C P (Pp 206 8s 6d) London Methuen 1948

An account of the causes and treatment of sterility

*Dundee Royal Infirmary* By H J C Gibson (Pp 71 No price) Dundee Kidd 1948

Historical notes on the Infirmary

*Clinical Psychology* By C Berg M D, D P M (Pp 503 25s) London Allen and Unwin 1948

The psychoneuroses and their treatment, with illustrative case histories

*Calcium and Phosphorus in Foods and Nutrition* By H C Sheiman (Pp 176 15s) London Geoffrey Cumberlege 1948

A general account for students medical men and dietitians

*A Manual of Removable Partial Denture Design* By R Godfrey, D D S, M Sc (Pp 99 20s) London Geoffrey Cumberlege 1948

Intended for senior students of dentistry

*The Reach of the Mind* By J B Rhine (Pp 188 10s 6d) London Faber 1948

A brief account of experimental extra-sensory perception

*Textbook of Anaesthetics* By R J Minnitt M D, D A, and J Gillies, M C, M B, Ch B, F R C S Ed D A 7th ed (Pp 568 30s) Edinburgh Livingstone 1948

Much new material has been added to this edition

*Bacterial and Virus Diseases* By H J Paus M D, F R C P Ed, D P H (Pp 168 7s 6d) Edinburgh Livingstone 1948

A short account of the principles of immunology

regulations are pouring out from overworked Civil Servants who know nothing of practical detail," why does he not fix the blame for this on the Minister of Health, who refused to postpone the appointed day so that these matters could be considered more carefully once the profession had decided to co-operate with the Government in launching the new health service? The obsessional hurry of the Government to legislate is the cause of the sense of frustration Dr Bourne diagnoses as prevailing among medical men and women at the present time. Yet in spite of this the National Health Service has started off much more smoothly than anyone expected, and surely Dr Bourne is wearing blinkers when he suggests that the B M A should have had "plans ready in advance of the Ministry." He seems to have overlooked the fact that the B M A neither framed nor is operating the National Health Service Act. Dr Bourne continues to wield his *malleus maleficarum* by condemning the Association's proposals for the representation of the interests of consultants and specialists, and ignores the recent move made by the B M A in conjunction with the Royal Colleges and the Scottish Royal Corporations. These things are now being hammered out, and destructive criticism will be useful only in so far as it prepares the ground for constructive proposals.

That there should be unrest at this moment is, as has been stated, to be expected. Critical voices were heard at the Annual Representative Meeting at Cambridge, and have been echoed in letters to the *Journal*. The Winchester Division of the B M A has recently circulated a memorandum on the organization of the B M A in which it is interesting to find the exact opposite of Dr Bourne's criticism.

Members have been dismayed," the memorandum states, 'to find that while they have been engaged in the battle of general principles—capitation fee versus salary, etc.—negotiations of which we were not fully informed appear to have been proceeding over terms and conditions of service.' This underlines what has been stated above—namely, that members of the B M A generally would have disapproved of negotiations over terms and conditions of service during the controversy on general principles. The Winchester memorandum criticizes the method of election to the B M A Council, the Representative Meetings ("These are a shambles—too many members discussing too many resolutions"), and the Headquarters staff for 'being out of touch with the rank-and-file of the profession,' although the extension of the work of the staff in the Divisions which the Council has lately arranged provides greatly increased opportunities for the periphery to make its views known at the centre. The fact that such criticisms are made is a healthy sign of an active interest by members in the welfare of the Association. It is good that they should come out into the open, for criticism that is stifled breeds resentment. With the introduction of the National Health Service the B M A will pass into a new phase of its existence and its organization will continue to evolve to meet the needs of its members. It may be hoped that if the debate continues room will be found for constructive suggestions. Some are made in the memorandum of the Winchester Division and will, no doubt, be considered when the holiday season is over and the newly elected Council of the Association begins its year of work.

## "MUSHROOM" POISONING

About two hundred varieties of edible fungi grow in England, but most of us would not risk eating any except the usual variety. The term "mushroom" is often used to cover all varieties of edible fungi, but it is preferable to limit it to the field or cultivated mushroom (*Psalliota campestris*). Though many edible fungi are peculiarly shaped and coloured, the most deadly of the poisonous ones, *Amanita phalloides* or the Death Cap, is easily mistaken for a mushroom. It grows mostly in woods, however, where mushrooms are rare, and its gills are permanently white, whereas those of the mushroom never are. The popular tests of edibility are all fallacious, and safety lies in being able to recognize the Death Cap on sight (chiefly by its white gills) or in making sure that only undoubted mushrooms are eaten. The Death Cap must be avoided at all costs, because poisoning by it is usually fatal. Krause<sup>1</sup> reported 7 deaths in 8 cases, and several similarly dismal series have been described.

The two cases of Death Cap poisoning described elsewhere in this issue by Dr D Lewes illustrate several characteristic features, including the fact that prolonged cooking does not destroy *Amanita* toxin. Both patients recovered without specific treatment, possibly because the poisonous fungi were well diluted with edible ones. Certain other fungi such as *Amanita muscaria* and *Inocybe fastigiata* contain muscarine, which causes blurred vision, sweating, and giddiness soon after ingestion. Three such cases were described in this journal last year by Wilson.<sup>2</sup> Mild effects resemble alcoholic intoxication, and certain Siberian tribes eat fungi for this reason.

From the point of view of treatment, cases of "mushroom" poisoning fall into two groups according to whether the symptoms are immediate or delayed. Those with early symptoms should be given atropine by injection and magnesium trisilicate or charcoal by mouth after gastric lavage. A delay of 8 to 12 hours in the onset of symptoms is characteristic of Death Cap poisoning, and this in itself, as urged by Birch,<sup>3</sup> justifies prompt specific treatment. In addition to gastric lavage and measures to prevent failure of liver function anti-phallic serum should be used if obtainable in time (a limited supply is kept at the Central Public Health Laboratory, London, NW 9, Tel No Colindale 6041). Meusel and Orzechowski<sup>4</sup> recommend the use of choline chloride by intravenous drip and report two recoveries on this treatment.

The rabbit stomach-brain treatment of Limousin and Petit<sup>5</sup> must be mentioned because it was based on experimental observations and has been used with success. Unlike cats, rabbits do not die after eating the Death Cap, but the juice of the fungus is fatal if injected into rabbits, suggesting that the rabbit's stomach can destroy the toxin. Cats fed on *Amanita phalloides* mixed with rabbit's stomach survive several days, and if rabbit's brain is added they recover completely. However impracticable this treatment may seem in a very ill patient, the desperate nature of the emergency—merits its consideration. The procedure is to give five uncooked minced rabbits' brains and stomachs daily for several days, but the treatment will be useless if started late. Melendro<sup>6</sup> found it impracticable. Eight of his nine patients died—the survivor being a woman five months pregnant.

Proof that *Amanita phalloides* is the cause of symptoms should be sought by inspecting any fungi left over from the meal and by having the vomit or stomach washings examined

<sup>1</sup> *Med Klinik*, 1947 42 458

<sup>2</sup> *British Medical Journal*, 1947 2 297

<sup>3</sup> *Practitioner*, 1946 157 135

<sup>4</sup> *British Medical Journal*, 1947, 2 348

<sup>5</sup> *Ärzt Wschr*, 1947 1/2, 961

<sup>6</sup> *Bull Acad Méd Paris* 1932 107, 698

<sup>7</sup> *Rev clin esp* 1945 17 211

seriously after the first month, and perhaps disappears altogether after 2 or 3 months. Pyle,<sup>7</sup> in the most accurate quantitative study yet made, showed that during treatment bacilli of widely varying degrees of resistance can be obtained from the sputum at any given stage and that a steady shift towards higher degrees of resistance proceeds. After 2 months organisms originally sensitive to about 1  $\mu$ g may withstand 100  $\mu$ g per ml, and, after 3, as high a concentration as 1,000  $\mu$ g per ml. This change was observed in 5 out of 8 patients studied. Sądusk and Swift<sup>8</sup> report similar findings. Their observations extended to 4 months, and at that stage all strains that could still be isolated showed increased resistance in varying degrees. Whether to continue a policy of long courses of treatment in view of such findings is a matter for serious consideration.

Perhaps the greatest unsatisfied popular demand for streptomycin is for pulmonary tuberculosis. The profession can do much to allay anxiety and even indignation about non-availability of the drug for the average patient by acquainting the public with the fact that for the great majority it would be of little benefit. Recent reports from the U.S.A., such as Muschenheim's,<sup>9</sup> confirm earlier findings that chronic lesions with fibrosis and cavitation respond comparatively poorly, though chemotherapy may help by making thoracoplasty practicable when previously it was not. Apart from cases of miliary tuberculosis, streptomycin is chiefly indicated for early acute exudative lesions, laryngeal and tracheo-bronchial ulceration also respond favourably.

Another and even larger field for the use of streptomycin is in the treatment of infections of almost all kinds due to many species of Gram-negative bacilli. Most of these are highly resistant to penicillin and almost all are sensitive to streptomycin *in vitro*. It does not follow that the infections caused by them will respond to treatment, typhoid fever illustrates this, and undulant fever can be arrested only if full doses of sulphadiazine are given in addition.<sup>10</sup> Bacillary dysentery has been successfully treated so also, according to Pulaski and S. F. Seeley<sup>11</sup> and Leisti<sup>12</sup> has acute gastro-enteritis of unknown aetiology in infants. This may be an important use, for the drug can be given by mouth for such conditions, being neither destroyed in nor absorbed from the alimentary tract. Streptomycin is indicated in tularaemia and plague, also in meningitis due to any Gram-negative bacillus, notably *H. influenzae*, any Gram-negative bacillus septicaemia, and Friedlander's bacillus pneumonia. Large quantities of the drug have been used in the U.S.A. for treating urinary tract infections, with a fairly constant proportion—50% or more—of complete successes. The causes of failure are not perfectly understood, but they include obstructive lesions and probably incomplete alkalization of the urine before treatment. Whatever the cause of failure, it is accompanied by the acquisition of a high degree of resistance by the infecting organism, and second courses are therefore fruitless. Some bacteria not only become completely resistant to streptomycin but actually dependent on it for growth. This was first shown with meningococci by Miller and Bohnhoff,<sup>13</sup> as noted in these columns some months ago. The same extraordinary change has now been observed by Rake<sup>14</sup> in *Bact. coli*, and by Paine and Finland<sup>15</sup> not only in *Bact. coli* but in *Staph. aureus*,

*Ps. pyocyanea*, and *Proteus morganii*. These authors conclude on evidence based on this change that streptomycin probably acts as a metabolite antagonist. Whatever its precise significance, this sort of behaviour bodes ill for the ultimate future of streptomycin treatment. Acquired resistance is a permanent character, and it may not be long before such strains, derived from a case in which treatment failed, begin to be found in previously untreated patients.

## B.M.A. CRITICIZED

When such a vast scheme of reform as the National Health Service Act is introduced the transition from the old to the new is unlikely to be smooth. For six years the British Medical Association, through its Council and Representative Body, argued the case for the medical profession with three successive Ministers of Health, and during this period was subjected to criticism, some of it constructive and much of it destructive, for the way it conducted its business. It has been a difficult task for a voluntary organization to represent the interests of more than 50,000 medical men and women who by the nature of their work are self-reliant individualists. The onlooker who thinks he sees most of the game is at times tempted to think he can play it better than some of those trained to do so. No organization would claim to be perfect or free from the human capacity to err. But so long as it has put its hand to its task in good faith and with courage it can withstand the criticisms levelled at it. The correspondence columns of this *Journal* provide an open forum for medical men and women to discuss freely medical and professional problems, and to be outspoken in their criticism of medical institutions and persons in responsible positions. The catharsis of open criticism has its benefits.

In our correspondence columns this week Dr W. A. Bourne once more shows himself to be a somewhat severe critic of the Association to which he belongs, and in particular blames it for having concentrated on general principles to the neglect of the details of terms and conditions of service. But what would have been the position if the B.M.A. had entered into detailed discussions on the terms and conditions of service before the major controversies had been settled? There was, indeed, wide spread anxiety in the profession lest the B.M.A. should, by negotiating on terms and conditions of service, thereby unwittingly prejudice the issue of whether or not to enter the Service. Many were ready, for example, to criticize the B.M.A. for discussing the question and amount of compensation in relation to the prohibition in the Act of the sale and purchase of practices. In the face of a great deal of opposition among its members, the B.M.A. nevertheless had the wisdom to do this, and also, through the Spens Committee, to discuss in some detail the remuneration of general practitioners. The recommendations of the Spens Committee were accepted by the Government and welcomed by the majority of general practitioners. There would seem, therefore, to be little that is substantial in Dr Bourne's criticism beyond the sincerity with which he sustains it. And when he deplores the present situation "in which



## INTERNATIONAL CONGRESS ON MENTAL HEALTH

### GREAT ASSEMBLIES IN LONDON

An International Congress on Mental Health, attended by 2,000 delegates from more than fifty countries, was held at the Central Hall, Westminster, from Aug 11 to 21. The sessions on the first four mornings were under the auspices of the International Committee on Child Psychiatry, and on the first four afternoons under those of the International Federation for Medical Psychotherapy. During the second week the arrangements were made by the International Committee for Mental Hygiene, and the discussions then took a wider and less technical field.

The President of the Congress, Dr J R Rees, opened it with a speech of welcome and read a number of messages, including one from the World Health Organization and another from Mrs Eleanor Roosevelt. The Congress was under the patronage of the Prime Minister and Mr Eden, and its officers and committees included almost everyone prominently associated with psychiatry and psychology and mental health in this country.

In the second week of the Congress, in addition to the plenary sessions, over twenty organizations held specialist meetings. Speeches were in English and French, English speeches being simultaneously heard in French by means of an arrangement of earphones, and French speeches interpreted into English subsequent to delivery. The arrangements for the Congress, which have necessitated more than a year's hard work, reflected the greatest credit upon the organizing committee under the chairmanship of Dr Rees, the Congress organizer, Mr Michael Harvard, and the chief administrative officer, Miss Judith Jackson. Social events in connexion with the Congress included a Government reception, and receptions given by the Royal Society of Medicine, the British Medical Association, and the London County Council.

#### First Day

##### AGGRESSION IN RELATION TO EMOTIONAL DEVELOPMENT

The first session was devoted to the subject of aggression, which was introduced by Dr FREDERICK ALLEN (Philadelphia). He concentrated on the positive aspects of aggression—the 'going out' quality, as he called it. Aggression, he said, had become a sinister word, and with adequate justification, both in individual and in group behaviour. But it was necessary to restore to the concept of aggression the value of the 'going out' quality in all individuals—and nations for that matter—as a condition of creative and responsible action. "We want more of our children to develop the capacity to 'aggress and find their place,' not just as faithful precipitates of social forces, but as creators of the quality needed to sustain the virility of the race."

Dr NELLY TIBOUT, director of the Child Guidance Clinic, Amsterdam, described experiences with Dutch children during and since the occupation. One of the few clinical pictures practically unobserved before the war was of children who presented an almost complete loss of connexion with reality, while in a clownish way making superficial contacts in an attempt at recovery. Tremendous fears of being able to destroy and of being destroyed played a part in the mental life of very young children. The alarming fact had to be faced that many children in different countries had been placed in a situation which caused them to live on the borderland not only of physical but of psychical starvation.

Miss ANNA FREUD, who was received with special acclamation, described the Freudian theory of aggression in which the aggressive urges were considered to be the representatives of one of the two fundamental instinctive forces—that is, of the destructive instinct or death instinct. Their counterparts were the sex urges as representatives of the life instinct. Normally the development of aggression was intimately bound up with the developmental phases of infantile sexuality. Without this admixture of aggression none of the sex impulses could ever reach their aim. On the other hand, through this constant fusion with erotic impulses the aggressive urges were deprived of their destructive qualities and utilized for the purposes of life.

The general discussion which followed was scrappy owing to the severe time limit which had to be imposed on speakers. Dr JOACHIM FLESCHER (Italy) said that the fact was usually overlooked that the aggressive instinct, though primary, had as a rule in the form of an alloy with its counterpart, the erotic instinct. Under the impact of frustration, especially in the auto-erotic stage, there was not only danger of aggression but of what he called "pathological progression." Dr MELANIE KLEIN said that during the first three or four months of life destructive impulses, persecutory anxiety, and splitting processes were at their height. In states of anger and hatred, aggression and persecutory anxiety reinforced each other. In normal development at about 4 to 6 months of age, when love and hatred—libido and aggression—towards the mother came closer in the infant's mind, his anxiety lest she be destroyed as an internal and external object by his sadistic impulses and fantasies led to depressive feelings, a sense of guilt, and the urge to make reparation. If such anxieties in early infancy were excessive in relation to the capacity of the ego to deal step by step with them, the result might be the pathological development of the child.

After contributions from Polish, Greek, and other delegates, the discussion was summed up by Dr EMANUEL MILLER (Maudsley Hospital), who referred to the growth of the aggressive process as both offensive and defensive. It represented a quasi-attack upon environment but also the creation of a defensive ambience, very much as certain powers surrounded themselves with buffer States. In inquiring into the life history of the child it was his habit always to include not only the genetic factor in the family but also intrauterine activity during the last period of gestation. He found that children active in the uterus during the last few weeks of gestation tended to be the active, forthcoming, and aggressive children.

##### GENESIS OF GUILT

This subject at the second session was opened in three papers, by Dr VAN DER WALLS (Amsterdam), who expounded the psycho-analytical theory of guilt, Dr A HESNARD (Toulon), who spoke as a psychiatrist, and the Rev T GILBY (Cambridge), who presented the religious viewpoint. "Probably," said Mr Gilby, "the maddest people are not seen by the medical psychologist, just as the most vicious people are not seen by the priest." The discussion was continued by delegates from Copenhagen and Harvard and by two French psychiatrists.

Dr ERNEST JONES, who presided, summed up the discussion by saying that it was a fundamental question, both philosophical and sociological, whether the sense of guilt was primarily inborn or acquired. The religious view was that it was inborn, and the Christian view that it dated from the fall of man. The decision on the question whether it was innate or not would determine whether a sense of guilt was normal or not. One view was that the individual began with a norm or conscience and experienced morbid deviations from it. Freud put forward the view that guilt proceeded from parental condemnation and punishment, this, being absorbed into the individual, produced a sense of guilt. The sense of guilt did not develop along a straight line, it interacted with other emotional attitudes. Fear, for example, might lead to a sense of guilt, and guilt equally to a sense of fear. "Conscience doth make cowards of us all." Similarly hate could generate guilt, and guilt could generate hate. Thus there were a series of vicious cycles which obscured the tracing of the simple instinct. The complexity of this problem called for much further investigation.

#### Second Day

##### THE FAMILY BATTLE-GROUND

Another aspect of aggression, this time in relation to family life, was discussed on the morning of Aug 12. The chair was taken by Dr GEORGE HEUYER (Paris), who said that the definition of aggression was still awaited, but whatever the definition one essential element was the tendency of the subject to attack antagonistic individuals or groups. The most important aspect of the matter was the relation of the child to other members of the family.

Professor VITOR FONTES (Lisbon) spoke of the forms of aggression before and after puberty. At puberty the psycho-

for the characteristic spores. Because a meal of "mushrooms" may contain more than one type of poisonous fungus it would be wise to do this even in cases with early symptoms because of the possibility of the late onset of Death Cap poisoning.

### SKIN SENSITIVITY TO STREPTOMYCIN

A number of side effects have been reported from the use of streptomycin parenterally, including fever, headaches, pain at the site of injection, vestibular and eighth nerve injury, joint pains, and drug rashes. Pulaski and de Baake<sup>1</sup> found that drug rashes occurred in 5% of their cases, they included urticarial, erythematous, maculo-papular, and haemorrhagic rashes. It would seem that antibiotics derived from fungi like penicillin and streptomycin are particularly apt to give rise to eczematous rashes from external contact. Strauss and Warring<sup>2</sup> reported a series of six cases occurring in twelve nurses administering streptomycin and rinsing out syringes. Patch-test investigation confirmed the diagnosis. Recently Crofton and Foreman<sup>3</sup> described a similar occurrence, and Dr C Stringfellow reports a further case in this issue of the *Journal* (p 387). The wearing of rubber gloves and avoidance of direct contact are suggested as precautionary measures.

### THE DANGERS OF TAR

Tar and its derivatives have long been notorious as a cause of skin diseases in those who work with these substances. Even the fathers of industrial medicine were aware of the malignant sores which attacked men who worked in pitch. Tar also has the sinister property of being the source of the anthracene oils—the principal high-temperature constituents—which are the only definite chemical compounds isolated up to the present time known to be actively carcinogenic. Of these the best known is benzopyrene 3, 4, which is present in coal tar to the extent of 0.003%. Others which can be derived from anthracene but which perhaps are not actually present in tar are dienzanthracene and methylcholanthrene. Among the great numbers of men employed in handling tar and its derivatives fortunately only a very small percentage develop cancer of the skin, though a great many more suffer from milder conditions, some of which can be considered precancerous. These have been the subject of study by many writers, and the latest among these is Dr Philip Ross, whose interesting paper appears elsewhere in this issue (p 369). He finds that tar workers are prone to develop a rather peculiar erythema which is brought on by sunlight or strong winds. Other conditions are acne, tar melanosis, and also a characteristic change in the skin which was christened by Prosser White "shagreen" skin and is marked by keratosis, pigmentation, and telangiectasis, with superficial fissuring and the possible development of papillomata. It seems to take about ten years of working in tar before shagreen skin develops, and there are very few subjective symptoms. Curiously enough, workers in tar seldom contract allergic eczematous dermatitis, the type of "dermatitis due to dust or liquids" so familiar to those who until the "appointed day" assisted in the administration of the Workmen's Compensation Act of 1925. This is the more remarkable as many derivatives of tar are well known for their harmful effects on the skin.

The new growths which may be caused by exposure to tar range from simple keratoses through papillomata of various kinds (which, however, should all be distrusted as precancerous) to epitheliomata. Great variations are

reported in the length of time required to produce the latter in tar workers. Ross states that it may be anything from 18 months to 34 years. He discredits, however, the dramatic case first reported by Bang of an epithelioma which resulted from a single splash of tar, a case which made so much impression that it has since been quoted repeatedly. The cessation of handling of carcinogenic substances by no means insures immunity, since growths have appeared after a latent period of many years. Fortunately tar epithelioma is a growth of low malignancy, and Ross recommends the employment of the contact low-voltage x-ray apparatus as the treatment of choice.

Since tar cancer was first made notifiable in 1920 there has been a steady increase in the yearly notifications. It is, however, probable that this increase is more apparent than real and is due to the increasing vigilance and interest of officials and medical officers. Prophylaxis is of course most important, and Ross suggests that this problem should be tackled from several directions. So far as possible all processes involving tar and pitch should be mechanized, and actual handling should be avoided wherever possible. Fumes and dust should be removed through efficient exhausts. Protective clothing of stout material should be provided, and workers should be trained to work as cleanly as possible and to change their underclothing daily, or as often as the coupon situation permits. Above all the use of "any old suit," thoroughly impregnated with tarry residue, is to be avoided. On the more positive side the employment of barrier creams is a distinct help—Ross mentions that Professor Kennaway has found that the use of a protective cream on the skin of a mouse considerably delayed the appearance of experimental tar growths. Although many more cases have been notified of late years the number of deaths from tar epithelioma has diminished.

### VOLUNTARY ACCELERATION OF THE HEART

Emotional individuals often have a persistently rapid pulse. Sometimes the tachycardia may reach 140 per minute, and such cases present obscure problems similar to those of effort syndrome. It is difficult to imagine how processes in the cerebral cortex bring about such a puzzling state of affairs. There are, however, normal healthy people who can accelerate the heart at will. In most of the recorded cases the possessors of the attribute have been medical students or physicians, and it is quite possible that this exceptional type of response may be much commoner than is generally imagined. Feil<sup>1</sup> and his colleagues have recently reported the case of a medical student who first observed his ability to accelerate his heart while recollecting a terrifying nightmare. During the period of acceleration he developed paraesthesiae in the hands and feet, tinnitus, and palpitation. He could stop the acceleration at will, whereupon the symptoms disappeared and he was left only with a feeling of fatigue. Quite apart from this ability, however, he knew that he was liable to attacks of tachycardia which he could not control voluntarily. When an electrocardiogram was taken it was found that he also had the Wolff-Parkinson-White syndrome of short PR interval and a bundle-branch-block type of ventricular complex. When he was given atropine he was able at first to accelerate his heart beyond the intermediate rise produced by the drug, but with full doses no further acceleration was possible. This study shows that a relationship exists between cerebral activity and the autonomic control of the heart rate. The voluntary acceleration of the heart in the individual concerned may have been made easier by his liability to attacks of tachycardia as part of the Wolff-Parkinson-White syndrome.

<sup>1</sup> *Surgery* 1946 20 749

<sup>2</sup> *J invest Derm* 1947 9 99

<sup>3</sup> *British Medical Journal* 1948 2 71

sical factor that led mostly to aggressive reaction was lity, which at this stage of development was strongly It was thus that in the transferred forms of aggression there appeared occasionally sexual perversions with a ore or less apparent sadistic content The family, in spite of certain inconveniences, was the best organization for the f ulve education of the child

Dr TORSTEN RAMER (Stockholm) said that the most important aphylactic measure against aggression was a psychological understanding by the parent of the individuality of the child and his reactions Each child should be handled according to his peculiarities and his stage of development Not only parent but pre-parent education was important Certain social measures were also to be recommended The work of mothers outside the home should be limited, at all events it should be no more than half-time Cramped housing favoured the occurrence of aggression in the family, as also, according to Stockholm experience, did the crowding of large families into blocks of dwellings in the same area Collective child welfare also led to an increase of aggressiveness if the groups were too large

Professor D R MACCALMAN (Aberdeen) agreed in magnifying the home, which made possible an adjustment therapy for the child Aggressive tendencies could best be transmuted against a background of stable affection If aggression was not thus absorbed and controlled in early life, any later attempt would prove difficult and costly His own experience had convinced him that the early stages of development would be less productive of aggression if a determined attempt were made to give parents some knowledge and understanding of the fundamental needs of young children As matters stood, parents took this fundamentally important task without guidance Even the worst of bad parents met with in a child-guidance clinic responded to careful influence "There is much evidence to show that the bad parent is better than none at all" In a wider application of the subject Professor MacCalman quoted a Chinese proverb 'If there is righteousness in the heart there will be beauty in the character, if beauty in the character, harmony in the home, if harmony in the home, order in the nation, if order in the nation, peace in the world'

The general discussion was opened by Dr RENE DE MONCHY (Sweden), who said that the existence of aggression in family life should not be regarded as an unfortunate occurrence but as a necessity It was usual to associate the word with the externalized form of aggression, but the aggression directed inwards was of equal importance Sometimes it took the form of masochism, but that was only the extreme and pathological form of a normal and necessary impulse He instanced the manner in which parents repeated in their attitude to their children their own childish experience A young mother, when asked by her hostess whether her little son would like some cake, replied immediately, "Don't give him anything," and afterwards realized that she was literally repeating what her own mother used to say when out visiting, and how much she had resented it Professor F K GOKAY (Istanbul) gave an account of social work in Turkey, where they are investigating the effect of gangster films in manufacturing adolescent criminals, and also where they have prohibited accounts of suicide in the press Dr L CHENG (China) said that psychiatry was very new in China, and there were few psychiatrists in that country Family relationships had helped to maintain stability in Chinese society for generations, but under the impact of western civilization standards were breaking down However, there were very few cases of senile psychosis in China, thanks to the fact that old people did not worry about what was to become of them, knowing that their children would look after them

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playing fields of Eton would be significant of a greater achievement than the winning of the battle of Waterloo

#### DYNAMICS OF PSYCHOLOGICAL DISORDER

At the afternoon session, under the chairmanship of Professor H FULCHIGNONI (Rome), the Congress returned to the subject of guilt, and, as on the previous day, the religious and the psycho-analytical conceptions were contrasted Professor D BRINKMANN (Zurich) read a highly philosophical discourse on the subject, and he was followed by Dr JOHN RICKMAN (president of the British Psycho-analytical Society) with a paper emphasizing the depressive aspects of guilt Dr Rickman said that guilt could not be considered in isolation It was one kind of psychical action in a complicated, interconnected set of psychical actions which appeared to serve the purpose of keeping the organism in a quasi stable equilibrium He listed a number of reactions to guilt, such as the drive to restitution, the compulsive urge to propitiation of an aggressor, and an undue amount of social conformity, compulsive behaviour, and so on, and the wide range of cases of sexual anomaly in which the sexual act was felt to be an injury to the partner or at least a degradation (leading to impotence or frigidity or to a Don Juan-like compulsive change of lover) He also added, though only on the borderline of the present subject, that a reaction to guilt might take the form of an interest in religious and charitable organizations In the child, said Dr Rickman, guilt began early, and so did the considerable cultural restraint of its aggressive and other asocial impulses Certainly by the time the child was 4 years of age it was a cultural unit, though not yet a stable one "A child needs very little teaching about what is right and wrong, it is greatly helped if it is left to find its own way to a good relation even to not-so-good parents A parent's failure to recognize the child's capacity for guilt is a failure to recognize that it is a human being"

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[To be concluded]

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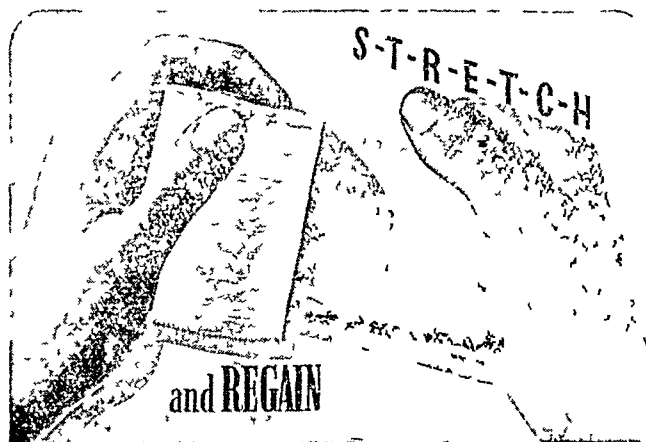
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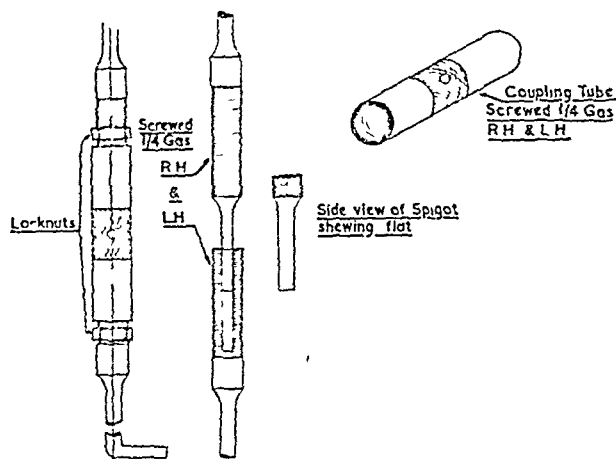
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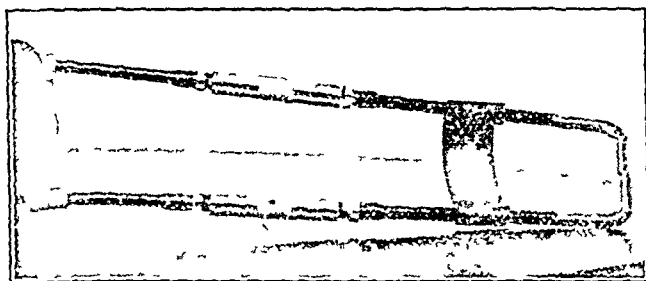
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### THE STRETCHING SCREW CALLIPER

Mr HORACE DAVIES, visiting orthopaedic surgeon, Birkenhead Municipal Hospital and Whiston County Hospital, writes: It is with some trepidation that I describe the following modification of the time-honoured walking calliper. Adjustment of calliper length to individual comfort and requirements by the conventional sliding bar and lock-screw principle is not a precision



method although mechanically very sound. The principle that I have applied for the adjustment of calliper length is that of the stretching screw commonly used for cable-tightening. From the diagram it will be seen that the calliper side-steels are divided and coupled about 10 in (25 cm) above the extension ends. The coupling is by means of a left- and right-hand



threaded tube which screws over corresponding left- and right-hand threads in the side-steels. To prevent rotation the end of the top steel is shaped into a thin flat projection which slides into a corresponding slot cut in the end of the lower steel. By turning the coupling with its milled centre adjustments can be made easily and with precision. The required position is then set by the lock nuts.

Continuing the series of reports summarizing the results of clinical surveys of the nutritional state of certain sections of the community, E. W. Adcock, H. E. Magee, E. H. M. Milligan, and H. S. Townsend describe in a recent issue of the *Monthly Bulletin of the Ministry of Health* (1948, 7, 153) the results of investigations undertaken between February, 1947, and May 1948. Representative samples of three groups were surveyed—adolescents, housewives with adolescent children and school-children. In none of the groups was any frank deficiency disease observed, and in the adolescents and school-children the nutritional state was well maintained as compared with past years. The assessment of the state of nutrition of housewives from the results of the examination of the 652 women who agreed to be medically examined proved difficult. 87.4% were considered to be of good, 10.9% of fair, and 1.7% of poor nutritional status. In general it may be said that this group of mothers, with children aged from 12 years upwards appears to be the most vulnerable section of the population yet examined.

## Correspondence

### The B.M.A. Under Fire

SIR—When the B.M.A. Study Groups began, about six years ago, I was a member, and I well recall my astonishment that no discussion was allowed on terms of service. Since then, as general practitioner and consultant, I have argued with the Divisional Executive Committee of which I have been chairman, and which includes a member of Council, that clear conceptions of terms of service were essential to the B.M.A. and that without them no real hold on the body of the profession was possible. My arguments were futile, the official bodies of the Association stuck to general conceptions, the fundamental point at issue was made refusal to enter a whole-time salaried service, this was put to interminable meetings of the profession. It may be that the B.M.A. never imagined the granted this all necessary was won, and then the Minister agreed. He agreed, not to any proposal made direct to him by the B.M.A., but to a proposal made by the Royal College of Physicians, who put in their resolution no less than had been said by innumerable speakers at innumerable meetings of the profession. It may be that the B.M.A. never imagined the Minister would give an amending Act, and made that the cover for a demand for further amendments, it may be that they have not the essential ability to bring the enormous weight of opinion they undoubtedly accumulated to bear on the one man who mattered at the time that mattered on the issue that mattered—in other words, they lack a negotiator. At any rate, when the Minister gave way, the B.M.A. was left with no practical policy, it had never allowed itself to consider terms, and was left hopelessly in the air. A negotiator must know what he wants, or he cannot begin to serve his party. Hence the impotence of the B.M.A. and the sense of frustration of its members. Hence the deplorable present situation in which regulations are pouring out from overworked Civil Servants who know nothing of practical detail, instead of the situation we idealists had pictured in which the B.M.A. would have had plans ready in advance of the Ministry, instead of protests several weeks too late.

To any consultant who has watched all this the present situation is alarming. It should be pointed out that the B.M.A. Consultants and Specialists Body is nominally autonomous and its decisions are "not to be subject to approval of the Council or the Representative Body except in so far as they might affect other forms of practice or other aspects of the policy or activities of the Association." This is not autonomy at all. Every man who enters consulting work leaves general practice at some stage of his career, every pound that goes to consultants deprives the general practitioner or will do. Every rise in the standard of consultant or specialist practice will put a few general practitioner-consultants out of consulting practice. And every decision on these and similar fundamental matters the B.M.A. Consultant and Specialist Body makes will be liable to veto by the Council or Representative Body. Of course, the B.M.A. is not clear on the matter, at a recent regional meeting of the consultants a B.M.A. official told those present that the meaning of the Cambridge resolution was not clear to him but added, "We understand it at B.M.A. House." How can this serve any useful purpose? What confidence can be felt in such a statement? It is the old situation over again, leave things to the B.M.A., who know who negotiate, who have the machinery. The result seems likely to be the same unless the B.M.A. is very careful. The disillusion of the general practitioners will be equalled only by that of the consultants. And what clear conceptions of a consulting service has the B.M.A.? Can it claim to know more than the professors of universities and deans of medical schools? How many new representatives better than these experienced men is the B.M.A. prepared to produce? And where is it going to find them if not in the Colleges?

This letter is written by a member of the B.M.A. who has served it locally to the best of his ability, and who has seen many of his worst forebodings proved miserably true. It is an unfortunate thing that honest criticism is called disloyalty, when

is not regarded as an abstruse form of mental defect or emotional displacement. But one more effort seems called for, and has been made. Can the B M A not grant the consultants and specialists true autonomy—dominion status? And can they not recognize the vital part the Colleges must play, that academic and financial matters are no longer separable, and that for the good of all the leading consultants should be recognized as leaders?—I am, etc.,

Hove Sussex

W A BOURNE

### Paratyphoid Osteomyelitis

SIR—The two examples of paratyphoid B osteomyelitis reported by Drs Rachmiel Rozansky, E N Ehrenfeld, and Y Matoth (Aug 7, p 297) prompted me to read my notes of a similar probable, though bacteriologically unproved, case of this rare condition. Briefly, this was a girl of 16 admitted to Chase Farm Hospital in 1942 with pyrexia and pain in the lower back of one week's duration. Osteomyelitis of the spine was considered but investigation showed that she was suffering from paratyphoid B. No radiological signs were present while the pyrexia lasted. A tentative diagnosis of early ankylosing spondylitis was made, and she was put in a plaster bed for three months. X-ray examination then showed complete destruction of the body of the fifth lumbar vertebra. Further immobilization resulted in a stable and symptomless spine. She was followed up until 1945, and I saw her in the street last year apparently quite well.

The interval of 32 years between the enteric fever and bone abscess in Dr Rozansky's second case warns me that although bone destruction has occurred my patient may not be out of the wood yet—I am, etc.,

London N 14

C ALLAN BIRCH

### Who Shall Minister to the Neuroses?

SIR—Is it fully appreciated that Dr C A H Watts has rendered a great public service by his unassuming article on this subject (July 24, p 214)? For he demonstrates therein that sufferers from the anxiety state can be very helpfully treated psychologically on simple common sense lines by a general practitioner.

It is admitted that about a third of our chronic patients are solely in need of psychological treatment of a kind which the average doctor has neither the time nor the education to provide, and only a minority have the necessary flair. His ordinary fees do not reward the extra time involved, and he naturally dislikes to surrender his influence over his patient by invoking a psychological specialist who is needed for complicated cases. But most cases can be treated on simple lines as Dr Watts has shown.

I see no solution of this pressing problem until a considerable proportion of general practitioners have been trained to treat the body-mind—recognized by a later degree (perhaps an M D) and rewarded by higher fees. The M B only qualifies to treat the body. Ordinary examinations test knowledge rather than the ability to use it. Special methods would be needed to detect the flair needed in this treatment. To treat the body mind can scarcely be taught in lectures but can be learnt (in a few years) from patients with the help of books such as *The Common Neuroses* by T A Ross (1937).

I speak from experience. Many years ago I realized as a general physician that it was necessary to treat the body-mind on such simple common-sense lines as Dr Watts advocates. Complex cases were beyond my scope, but they were a minority. This deplorable hiatus in treatment must be filled. To produce enough general practitioners of the right type will need long-term planning on a national scale. Dr Watts has shown that it is possible—I am, etc.,

Beverly Yorks

F C EVE

### Use and Abuse of Tonsillectomy

SIR—Mr T B Layton's reference (Aug 7, p 310) to the prohibition of tonsillectomy during the poliomyelitis epidemic last year brings up a very important matter—namely, the necessity or otherwise of such a step. As the prohibition was not absolute a good many surgeons must be in a position to

quote figures of cases done during the epidemic. I personally did nearly 500 cases without anyone developing the disease and conversation with colleagues leads me to believe that my experience was not exceptional.

Statistics from other countries point to an increased liability to poliomyelitis after recent operations on the upper respiratory tract. But is this increased susceptibility sufficiently great to warrant the prohibition of such operations? No doubt statistics, if such were available, would show an increased liability to all diseases involving the upper respiratory tract after recent operations on this region, so logically such operations should stop during practically all epidemics. This may well result in tonsil and adenoid operations ceasing for a large part of the year. If the contention that the number of such operations is excessive is correct, this may be a blessing in disguise. But is it correct?

In spite of discouragement from the Ministry of Education doctors and nurses continue to advocate, and parents to demand the operation in a large number of cases. Whether this number is excessive, or in other words includes an appreciable number of tonsils which are normal or likely to return to normal is a matter which cannot be decided without scientific research. I therefore heartily endorse Mr Layton's statement that the profession as a whole should reconsider its approach to tonsillectomy, and I think we would be justified in looking to the Medical Research Council for a lead in this matter of great practical importance—I am, etc.,

Birmingham 15

ROBERT EVANS

SIR—I should like to support the views expressed by Mr T B Layton (Aug 7, p 310). Neglect of chronic nasal catarrhs causes, as in measles too, infection of the middle ear. Damage having been done removal of tonsils for their further treatment can do no good. One of the complications following tonsillectomy is middle-ear disease. Distalization can cure most nasal catarrhs or, if taken early nasal oil may be successful. Sinusitis leading to enlarged adenoids can be relieved by Proetz's displacement method. Looking only at tonsils cannot decide the need for the removal of adenoids. I think the decision should be left to the parents and doctors should not dictate to them as to necessity. Dr J Alison Glover's survey of 90,000 tonsillectomies showed the rate of operation varied from 1% to 45% in different countries, and at one school the number increased with the income of the parents. Where the operation was reduced in number the so-called "dangers" of so-called "septic tonsils" did not exist. The consultant aurist at the Manchester health department has shown the value of treating nasal catarrhs and the reduction of tonsillectomies—I am, etc.,

Blyth

A G NEWELL

SIR—I have read with great interest the letter (Aug 7 p 310) by my old friend Mr T B Layton on the use and abuse of tonsillectomy, and I congratulate him on an excellent and reasoned exposition of this subject, which is, especially to general practitioners a most interesting and often worrying problem.

As he so wisely says "We cannot conduct the art of medicine by administrative fiat." I am convinced that many tonsils and adenoids are removed unnecessarily and I have seen many bitter disappointments in parents at the unrealized though expected improvement in their children after this operation. The converse equally holds good, and I have seen many a child steadily regress in health owing to the parental refusal of an obviously necessary operation. Following a sore throat many tonsils are removed owing to mere enlargement, through the failure to realize that this hypertrophy is only physiological and temporary. In my opinion the two pointers for operation are (1) glandular enlargement plus the fact that pus is exuded from the tonsil on pressure, and (2) obstruction to the air intake most often but by no means always due to adenoid vegetations. The patient showing mouth breathing by night with consequent chest deformities.

Much has been written on symptomatology but my submission is that epidemic or no each case must be judged on its individual merits—I am etc.

London SW 1

DESMOND MACMANUS

### Thyroidectomy Fatality Rate

SIR—In his comparison of safety between thiouracil and surgery for thyrotoxicosis, Professor H P Himsworth states (July 10, p 61) that "it is probable that the mortality rate (after surgery) in the best general hospitals, both in this country and abroad, is not far below 2%". I cannot help thinking that this is a most pessimistic estimate for modern thyroid surgery. For a period of 29 years I have had the honour to anaesthetize for three surgeons who specialized in thyroid work, and for the whole period the total operative mortality rate for thyroidectomy was 0.75%. This includes all patients who died in the hospital or nursing-home.

In recent years, however, owing to the advances in pre-operative treatment and in surgical and anaesthetic techniques the mortality rate has fallen to a very low figure there having been only two deaths in the last consecutive 1,000 cases (0.2%). There is no reason to suppose that this figure differs appreciably from that obtaining generally, and I would suggest that the insertion of a decimal point in Professor Himsworth's estimate would give a more accurate idea of the present day mortality rate from thyroid surgery. I should, perhaps, add that the majority of the thyroidectomies referred to were performed at St Bartholomew's Hospital either in London or at Hill End—I am, etc.,

St. Albans Herts

C LANGTON HFWER

### Prevention of Dust Diseases of the Lung

SIR—From this correspondence (July 17, p 172, and Aug 7 p 311) it would appear that so far we do not possess a face mask or respirator which in use will efficiently arrest dangerous dust particles and assure the workman of protection against pneumoconiosis. At the same time it seems agreed that face masks do not represent effective action directed to the control of the disease. From practical experience one thing is certain—namely, that no mask has yet been devised which heavy manual workers, particularly workers at the coal-face can comfortably wear throughout a day's work.

As a temporary expedient practical scientists are seeking to design a mask which is efficient in arresting the dust and at the same time is acceptable to the workman. To those scientists I would suggest they have a further responsibility which is to ensure that the wearing of the mask, its day-to-day storage, and disposal of pads do not bring new dangers. Workmen and employers are exceedingly careless in what to medical men are elementary matters of hygiene. It is a common observation at workplaces to see masks still fitted with soiled pads thrown into a common receptacle, from which masks are taken promiscuously when required, while soiled infected pads are discarded anywhere. The recent article by Dumbell, Lovelock and Lowbury (*Lancet*, July 31, p 183) on "Handkerchiefs in the Transfer of Respiratory Infection" may not be entirely irrelevant to this aspect of the problem, especially as it has frequently been argued in the literature that respiratory infection by pathogenic organisms may modify adversely the action of noxious dust in the lungs.

This is no place for a discussion of measures for the effective control of pneumoconiosis in coal-mines, but I would venture to ask your correspondents, Dr A Harper and Dr J M Morgan (Aug 7 p 311) or any others, what is the *earliest harmful evidence* in coal-miners at which the workman should be advised to give up his skilled occupation and seek alternative work? Or, in the language of the compensation schemes "What constitutes the disease to a *dangerous degree*?" This is the question which more than any other urgently demands a clear unequivocal answer now—I am, etc.

Glasgow

A MEIKLEJOHN

### Fibrositis

SIR—The article on fibrositis by Dr James Cyriax (July 31, p 251) certainly offers a simple solution to an aged and complex problem. The conclusion that he "forced on the unprejudiced observer" that "the symptoms of rheumatic fibrositis coming on for no apparent reason are the result of articular lesions" and "the underlying principle of treatment" that he wishes to teach the simple observer, that of the reduction of the intra-articular lesions by local manipulation are simple if not factual.

It would be interesting to know if Dr M Woodhouse is as happy about the finality of the conclusions drawn from his necessarily limited electromyographic studies as is Dr Cyriax.

It is an accepted fact that many people who in the past have been diagnosed as suffering from fibrositis and neuritis are really suffering from symptoms due to intra-articular lesions such as prolapsed and fragmented intervertebral disk in the cervical or lumbar regions and that the principle of local treatment is either movement or rest. Dr Cyriax has been among those who have impressed this fact on the medical profession. This, however, is not the problem of 'fibrositis,' and in consequence the solution offered in this article is no solution.

"Fibrositis" is a clinical term commonly used to describe the pain which seems to be located in the soft tissues of the limbs and for which there is no obvious cause. In practice the diagnosis is based on the exclusion of known systemic diseases or local disorders. Pain and stiffness are the cardinal symptoms occurring particularly on movement and localized on clinical examination to the subcutaneous tissues superficial and deep fasciae, aponeurosis, ligaments and capsules of joints, tendons and tendon sheaths, bursae, periosteum and the sheaths of the nerve trunks.

It is true that we have no adequate evidence that fibrous tissue is affected primarily, but we do know many of us from personal experience that sitting in a draught may be followed by a stiff neck or lumbago, also we know that pain in the shoulder may disappear after the removal of a septic tooth. We do know that the industrial worker the harried young housewife, and the plump, middle-aged ladies among our acquaintances frequently suffer from "fibrositis". Many of us know that the "reduction of an intra-articular lesion" has not only failed to relieve their symptoms but has made them worse.

"Fibrositis" is a problem in general medicine. At the present time "unprejudiced" and far from simple observers are studying this problem and I would bring to the notice of Dr Cyriax and his would-be disciples the many papers and books on this subject recently published in the English language. I would mention only those by Weddell, the anatomist; Draper the constitutionalist; May Wilson, the clinician and geneticist; Halliday, the industrial physician and psychiatrist; and Ling the sociologist; Hench Stone, and other physicians whose primary interest is in rheumatism have also made valuable contributions. Finally I refer Dr Cyriax to the papers by Drs Bauwens, Harman, and Dikes of his own hospital.

The problem of "fibrositis" is complex. To solve it the biochemist, the geneticist, the pathologist, and the clinician will need to work together as a team probably for quite a long time to come—I am, etc.

London W 1

FRANCIS BACH

### Treatment of Chronic Varicose Ulcers

SIR—I read the paper by Messrs John Borrie and E Vernon Barling on chronic varicose ulcers treated by lumbar sympathectomy (July 24, p 203) with great interest. When I was Mr (now Professor) Ascroft's house-surgeon we had a patient suffering from thromboangitis obliterans with large ulcers in the region of his malleoli which caused him much pain. To relieve this pain Mr Ascroft divided the superficial nerves supplying the area in question, and to our surprise and gratification not only was the patient's pain relieved but the ulcers quickly became smaller and healed within a very short time. Mr Ascroft attributed this effect to the improved local circulation, as the sensory nerves also carry some of the sympathetic fibres to the area.

Since then I often divided or crushed the great saphenous nerve just below the knee when I did a Trendelenburg operation in patients with varicose ulcers over the medial malleolus and always had the impression that this simple manoeuvre speeded the healing of the ulcer as well as relieved the patient's pain immediately.

The nerve is easily found a couple of inches below the knee, where it lies close to the saphenous vein which I ligate in this place as well as in the thigh in these cases. Often the nerve is not in a single trunk but divided into several strands. In the case of ulcers in the region of the lateral malleolus the sural and the cutaneous branch of the superficial peroneal nerve require division. This little operation adds only a few

minutes to a routine Trendelenburg operation and is, in my opinion, always worth while doing before embarking on a major operation like lumbar sympathectomy—I am etc

Coventry

P E ROLAND

### Prevention of Venereal Disease

SIR—I feel obliged to add my testimony on the subject of prevention of venereal disease to that of your correspondents in the *Journal* of July 31 (p 268). I am sure that to rely upon methods of prophylaxis to be applied after exposure to infection is to court failure. The attention to detail necessary to make them efficient is rarely available, and the false sense of security given simply encourages risks to be taken. Dr Earle Moore, with his vast experience, has no doubt that prophylactic treatment if properly carried out can be of value, but he says the average man will not take the necessary trouble, and when one remembers how often the patient was more or less under the influence of alcohol when the risk was taken this is not surprising. If anything is to be done on such lines of prevention surely the use of a rubber sheath is much simpler and more likely to be carried out, this indeed is what I am in the habit of telling those patients who seem unlikely, in spite of all one can say to abstain from future risks.

Finally I must add that I am astonished Lord Horder (July 17 p 171) should take such a pessimistic view of the present situation. Looking back over the 25 years that I have been in charge of a fairly busy clinic I feel that, owing chiefly to the action of the Ministry of Health in making the public "V D conscious" and in providing free treatment, we can reasonably anticipate a continuation of the improvement which was so marked before the war and which is now showing itself again. That war conditions should cause a relapse was inevitable and to be expected. Has not this happened in every war since syphilis was first brought to Europe by soldiers in the sixteenth century?—I am, etc,

East Croydon Surrey

P W HAMOND

SIR,—The sexual requirements of the individual vary immensely, and each is entitled to judge for himself or herself whether extramarital relations are right or wrong. There can never be a standard sexual morality. The problem is therefore a moral one for the individual only. To regard V D as a moral problem, as does Dr G L Russell (July 31, p 268) is to be prejudiced. It would appear from what Miss K B Hardwick writes (p 269) that the Association for Moral and Social Hygiene, having found chastity as an ideal unsuccessful, is now preaching chastity as an anti-V D device.

The first essential in any campaign against V D is to stop looking upon extramarital relations as a disease in itself. The lack of a marriage certificate does not transform sexual experience from something beautiful into something ugly and shameful, but the present official outlook of Church and State, by driving sex into back streets and sordid lodgings, does precisely that, and at the same time favours the spread of V D. The inevitability of extramarital sex relations must be accepted, and every effort made to keep such relations, if not on a spiritual, at least on a healthy physical level.

All anti-V D appliances should be banned until some really efficient method is discovered, and V D propaganda stopped. Would not anti-T B propaganda be of more value in its own field? Surely the early symptoms of pulmonary tuberculosis are more insidious than those of any of the venereal diseases, and early treatment more important.

Until some super prophylactic drug which can be taken by mouth comes along, legalized and controlled prostitution, as was carried on until recently in France, is the only safe method of V D control. The termination of this system in France has led to an increase in V D. The relaxation of official harshness manifested in the adoption of such a system would also do much to establish a healthier outlook on sexual matters, and a more sensible attitude to V D. A quotation from *Sex, Life and Faith* by Rom Landau is appropriate, "The number of divorces for sexual misdeemeanour is much smaller in France than in Great Britain—they have suffered far less from neuroses or sexual aberrations. Evidently their more frank and natural approach to the problem of sex is to some extent responsible"—I am, etc,

Edinburgh

W B LAING

### Confidential V D Treatment

SIR—By her complaint against the Minister of Health for removing the statutory requirement of secrecy about V D Miss Katharine B Hardwick (Aug 7, p 313) fails to see the wood for the statutory trees and betrays signs of a legalistic mind out of touch with realities.

When in 1916 the V D service was started the Government accepted the recommendations of the Royal Commission on Venereal Diseases that attendance should be voluntary and free, but added a statutory requirement of secrecy which was not one of the Commission's recommendations. No doubt this addition was made for propaganda purposes to beguile an unprepared and possibly distrustful public into voluntary attendance at V D clinics. No doubt also the provision was inserted in deference to the fears of those who thought that the public would not regard public clinics as sufficiently private and that therefore V D would still be treated inefficiently in an underground manner by unqualified persons.

Whatever the reasons for inclusion of the provision of statutory secrecy there is no doubt that after more than thirty years of experience of the V D service the public is firmly convinced that the staffs of V D clinics do in fact maintain the greatest secrecy, and few members of the public who use the V D clinics are as well informed as Miss Hardwick about the legal background or as impressed by its power.

Having worked in V D clinics for many years I have no hesitation in emphatically stating that the high standard of secrecy and confidence obtaining in these clinics is due neither to statute (as she asserts) nor to Ministerial hopes (as she agrees), but to the sense of responsibility and loyalty of the medical and lay staffs, who have learned during more than thirty years' experience the great importance of securing the trust and confidence of their patients. Secrecy is now so strongly entrenched by custom in the minds of public and clinic staffs alike that a statute is unnecessary to buttress it. Rather than complain that a Minister of a Socialist Government revokes regulations we should congratulate him and those who advised him for removing unnecessary legal lumber.

Finally, by encouraging ventilation of the Minister's revocation of statutory secrecy Miss Hardwick is tending to obtain the very opposite of what she wants. If she saves from the mountain tops that there is now no secrecy about V D (because it is not statutory) not only is she publishing error not only is she casting an unwarranted slur on the devoted staffs of V D clinics but she is herself likely to cause unfounded doubts to arise in the minds of the very public she wishes to protect—I am, etc,

London NW 5

F R CURTIS

### Thiouracil in Treatment of Thyrotoxicosis

SIR—We should be grateful to Professor H P Himsworth (July 10, p 61) for his lucid exposition of the status of thiouracil in the treatment of thyrotoxicosis. For more than a year I have taught that white counts are not a routine necessity in thiouracil therapy, but that they should be done in the three following circumstances: (1) In the first few weeks of treatment they are valuable in order to detect the occasional case in which granulopenia reaches a dangerous level. It is helpful to know the usual white cell level of each patient, for this varies greatly in different individuals (my own white count is usually between 4,000 and 5,500 with about 50% to 60% of polymorphs) and it is correspondingly difficult to generalize regarding the level of granulopenia. (2) A white count should be done whenever the minor toxic effects of thiouracil appear. By themselves these manifestations do not call for cessation of the drug, it is the level of the white count that matters. (3) Agranulocytosis. I fully agree with Professor Himsworth that routine white cell counts are no safeguard in preventing or detecting this dangerous complication.

I believe that the quickest way of dealing with a suspected case of agranulocytosis is to make a thick film of peripheral blood as is done in the diagnosis of malaria and stain it with Field's stain—a few seconds' gentle agitation in solution A then in distilled water, then in solution B, and finally in water again. Anyone can make a good thick film if they trouble to practise, and most people should be able to distinguish a polymorph in a thick smear. Given a microscope and the necessary stain (which

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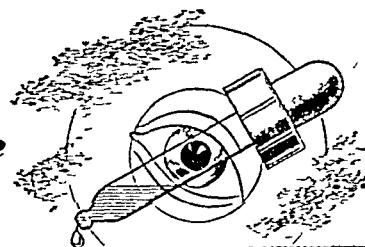
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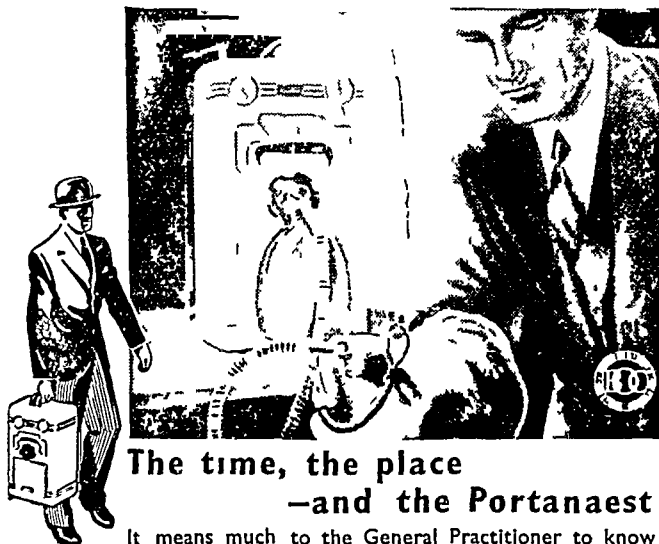
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can be carried in screw-capped bottles wide enough to admit a microscope slide) the method should be within the scope of any competent practitioner—I am, etc,

Liverpool

F J ZACHARIAS

#### REFERENCE

<sup>1</sup> Field J W *Bull Inst med Res, Federated Malay States*, 1941 No 2

### Dietetic Treatment of Hepatic Cirrhosis

SIR—In the leading article under the above heading (June 5, p 1089) you suggest among other considerations the use and clinical test of antithyroid drugs in the treatment of human hepatic cirrhosis. It is a pleasure for us to let you know briefly about our work in this subject since 1946. We used thiouracil in 11 cases of human cirrhosis based on the works of Gyorgy and Goldblatt (*Science*, 1945, 102, 450). These authors demonstrated that the addition of thiouracil in the cirrhosis diet, for rats plays a powerfully preventive role. In our group of patients the drug was used in amounts of 0.6 g per day with a total dosage which fluctuated between 3.6 g and 20.4 g.

In order to estimate the effects of this treatment three groups of cirrhotic patients of the same condition were studied—one group (the control) with hydrocarbonate diet, glucose, serum, and paracenteses, a second with a hyperprotein diet and vitamin B complex, and a third with hyperprotein diet, B complex, and thiouracil. The results of these different systems of therapy are summarized in the following table.

Group	No. of Cases	Better	Results Same	Worse
I	9	1 (11%)	4 (44.5%)	4 (44.5%)
II	17	7 (41%)	4 (24%)	6 (35%)
III	11	7 (63.6%)	1 (9%)	3 (27%)

Those requiring further information may like to refer to our paper in *Jornadas Clinicas de Verana Chile* (1947, 2, 291)—We are, etc,

Viña del Mar Chile

C SILVA LAFRENTZ

D VERDUGO BINIMELIS

### Liquid Paraffin in Baking

SIR—In the leading article entitled "Liquid Paraffin Risks" (June 12, p 1141) mention is made of the potential dangers inherent in the use of medicinal paraffin and other less refined mineral oils in baking. The work of Frazer and his colleagues indicating the possibility of liver and other damage due to mineral-oil absorption when ingested as finely dispersed emulsions of particle size less than  $0.5 \mu$  is reported, and comment is made on the lack of information regarding mineral oil distribution when dispersed in flour products, such as cakes and pastry, baked with liquid paraffin as a replacement for vegetable fat.

We have recently examined some emulsions containing mineral oil before and after heating, the unheated emulsions containing particles ranging in size from less than  $0.5 \mu$  to  $10 \mu$  or greater. On heating, the individual oil particles coalesce, forming larger aggregates, until ultimately the emulsion is completely broken into two layers. It might be anticipated therefore that, after incorporation of liquid paraffin in a cake batter, on baking the emulsified material would break down and no particles would remain in the final product less than  $0.5 \mu$  in size. This supposition is not, however, in accord with the observations herein reported. Examination, using a Reichert optical system, of sponge-batter smears containing liquid paraffin, baked in a micro-oven (to be described elsewhere) and under continuous observation on a glass screen, indicated that although some aggregation of the initially finely dispersed liquid paraffin did occur there still remained in the final product some particles approximately  $0.5 \mu$  in size. The smears under examination were taken from a bulk batter composed of cake flour 14 g, sugar 10 g, dried egg 3 g, baking powder 1 g, water 10 ml, and liquid paraffin 15 ml. A red, oil-soluble, water-insoluble dye was used to colour the liquid paraffin in order to differentiate it from the other constituents of the batter. Magnification was 600 diameters and the observation screen had a scale etched thereon so that direct observation of particle size could be made.

In the experiment quoted some 30% of the total number of liquid paraffin particles present in the uncooked batter were about  $0.5 \mu$  in size, and although this percentage was con-

siderably reduced after baking some very small particles were still clearly discernible. It should be noted that the actual weight percentage of the original mineral oil used that would exist in this fine state of subdivision would be extremely small, and it might be claimed that even on continuous ingestion over long periods absorption of sufficient oil likely to cause liver damage might not occur. Nevertheless the very existence of a number of small particles which come within Frazer's classification as potentially liable to cause liver damage suggests the desirability of ascertaining whether there exists a threshold limit to their number before damage becomes real.

The work of Alvarez<sup>1</sup> indicates, however, that the fine emulsification necessary for liver damage can be effected by the bile acids, oleic acid and glyceryl monostearate, which may be found in the bowel. In this connexion it should not be overlooked that glyceryl monostearate is a common emulsification agent and is, in fact, now used in the preparation of certain foods. It would appear therefore that, even though the number of particles of mineral oil of size less than  $0.5 \mu$  appears to be considerably reduced on baking, this may be immaterial inasmuch as subsequent ingestion may well restore the level of such particles to the original value. Further physiological investigation on these points is clearly desirable, as the problem would appear to be of even wider significance than the editorial previously referred to implies—We are, etc,

The British Baking Industries  
Research Association /  
Chorleywood Herts

J B M COPPOCK

R C A BRADSHAW

#### REFERENCE

<sup>1</sup> Alvarez, W C, *Gastroenterology*, 1947 9 315

### Comprehensive Child Health Service

SIR—Dr H R Youngman's letter (Aug 7, p 313) stirs me to comment on the recent correspondence on this subject. A high percentage, I should say the majority, of complaints for which the child is brought to the doctor these days are described as behaviour problems—e.g., feeding problems, sleeplessness, bed-wetting, etc. These are usually the result of home conditions and parental mismanagement. How can a "clinic" doctor appreciate these conditions unless he has an intimate knowledge of the complete home picture and of all its members? To abolish the general practitioner would be to kill the root and main stem of medicine—its specialist branches would then soon wither and die.

What we want are more general practitioners with better undergraduate training in paediatrics, who have time to know and understand the home life of their patients so that with the aid of improved housing conditions and social services behaviour problems can be more easily corrected or even prevented. Then we shall find the paediatric specialist will be superfluous—I am, etc,

London NW 7

C ELAINE FIELD

### Geriatrics

SIR—The first supplement to the report of the B M A Committee on the Care and Treatment of the Elderly and Infirm (Aug 7, p 71) contains several interesting recommendations for the solution of the chronic-sick problem. However, one important point seems to have been overlooked—this is the need to train more doctors in the special techniques which have been evolved by such hospitals as the West Middlesex, Orsett Lodge, and St John's, Battersea. It is probably true to say that a hemiplegic patient treated by Dr Marjory Warren's methods has a better chance of complete recovery than one not so rehabilitated. A patient with incontinence of urine is just another bed-wetter in hospitals where Dr Thomas Wilson's cystometric technique is unknown. A chronic arthritic treated by Mr Grant Waugh's procaine-lactic acid injections has prospects of improvement undreamt of by those who have not used this method.

In the same way the rehabilitation of elderly patients can reduce the number of bedfast patients considerably, as mentioned in the report.

Why does the Ministry of Health take no steps to make this special knowledge available throughout the country? The discoverer of a new form of treatment for cancer would probably be given every facility for making his techniques known.

all over the world. Yet in this country the chronic-sick problem is even more pressing. General practitioners sometimes have to strain the truth in order to get their elderly patients admitted to hospital. Nursing staff avoid "chronic" hospitals in which active treatment followed by recovery is unusual. A training school of geriatrics would not be likely to suffer in this way from shortage of staff. We have had many hospitals for children, and now there is a postgraduate institute of paediatrics where specialists in this branch of medicine are trained. What about a hospital for the elderly and a postgraduate centre for geriatrics?—I am, etc.,

Purley Surrey

TREVOR H HOWELL

### Medicine in General Practice

SIR—It would be interesting to know if Dr D V Hubble, who reviews (Aug 7, p 301) Dr R P McCombs's *Internal Medicine in General Practice* is himself engaged in general practice. He finds fault with the book because only half a page is devoted to cerebral tumour. I can recall only one case of intracranial tumour encountered in twenty years as a G.P. This baffled the diagnostic acumen of at least one consulting surgeon and one consulting physician. Another consulting physician suspected the condition. He referred the patient to a neurosurgeon, who failed to localize the tumour after full investigation at a special clinic. I sent the man to a hospital of international fame, where he lay for months before a sufficiently accurate diagnosis to permit operation could be made.

It seems strange to me, as a general practitioner, to expect a textbook of this kind to be devoted to any more detailed consideration of diseases of the nervous system than can be encompassed in one eighteenth of its volume. The vast majority of these diseases are incurable, and all the G.P. can usually do is to ask a consultant to announce the verdict to the patient. Certainly diseases of the nervous system do not form one eighteenth or even one one-hundredth of our daily work.

There may be areas in this country where the cost of x-ray investigation has not hitherto precluded its use as a "nearly routine measure" in gastro-intestinal disorders, but it would be by no means true of the country as a whole. The G.P. must in the first instance refer his poorer patient to the appropriate out-patient department, where the physician or surgeon in charge decides as to the necessity or otherwise of x-ray examination. One greatly doubts if the dawn of the Bevan era means that the G.P. will be able to use full x-ray study as a nearly routine measure for his patients—I am, etc.,

Launceston Cornwall

DONALD M O'CONNOR

### POINTS FROM LETTERS

#### Service Doctors in Far East

Lieut.-Col LENNOX R S MACFARLANE R A M C (Tripoli), writes. I was amazed at the unfairness and onesidedness of Lieutenant D R Morgan's letter (July 3, p 54). In fairness to your readers let me put the other side of the question. The "regular" who has no "difficulty in obtaining a passage" has to wait in any foreign station at least six months before he can get his family out and live "in comfort if not luxury". Moreover this happens at frequent intervals and will continue to do so while there is a shortage of quarters, and this is in addition to the many years' separation most R A M C regulars had to go through during the war. Also when the regular goes home for a short spell he goes to a station where there is another six months' delay in finding a house. If the "conscript," as Dr Morgan chooses to call him, were to have equal rights in quarters and passages he and the regular would have to wait at least a year to get their families out, which would be most unfair to the regular who has taken the job on voluntarily and of little use to the conscript who is only abroad for 18 months.

#### Fibrositis

Dr CYRIL HELM (Plymouth) writes. I was interested to read the article by Dr James Cyriax on fibrositis (July 31, p 251). When I came to Plymouth about a year ago, I was astonished to find that a large number of my patients were suffering from fibrositis or muscle spasm, call it what you will. Some of the cases were due to articular displacements, but the majority definitely were not. The climate here is humid and muggy, and this must have some bearing on the matter. A fair proportion of these cases are women who are tired and anxious. Physiotherapy and drugs are of little avail, but a good holiday or a week in bed, with plenty of sleep, cures the majority of them.

## Obituary

### JOSEPH CUNNING, M B, F R C S

Mr Joseph Cunning died at his home in Reigate on July 29 at the age of 76. He was senior surgeon at the Royal Free Hospital from 1919 to 1931.

Joseph Cunning was a son of the late James Erskine Cunning, and he was born in Victoria, Australia. He was educated at Ballarat, the University of Melbourne, and St Bartholomew's Hospital, London. His association with the Royal Free Hospital began in 1901 when he became the senior resident medical officer, in due course he was elected to the honorary staff, and in 1919 became the senior surgeon of the hospital, which position he held until his retirement in 1931. He was also surgeon to the Royal Cancer Hospital and the Victoria Hospital for Children, and a president of the Australian and New Zealand Association of Medical Men in England.

Mr Cunning was a man of great personal charm, kindly and debonaire, and he filled the post of senior surgeon to the Royal Free to the enhanced reputation of the hospital. He was wise in counsel, tolerant in judgment and criticism, and possessed of a kindly wit and great sense of humour which endeared him to his colleagues. His surgery was an art and a delight to watch—he was always cool and imperturbable, bold in design and skilful in execution. He was a great teacher, always ready and willing to help his juniors by advice, example, and assistance. There are many surgeons to day who owe their skill and experience to Mr Cunning's unfailing kindness and help, and they will remember with gratitude their debt to him.

Although Mr Cunning was a general surgeon, his chief interest was in the surgery of the upper abdomen. In the days when gastric surgery was in its infancy he was, as he himself expressed it, an ardent gastrectomist. He was the author of many papers on surgical subjects. The first three editions of *Aids to Surgery* (from 1904 to 1913) were from his pen.

After his retirement from the Royal Free Hospital Mr Cunning gave up surgical practice completely and retired to Broome Park, Betchworth, Surrey, where he transferred his interest and skill to the cultivation of irises and other gardening activities. Mr and Mrs Cunning in 1946 gave this lovely house and grounds to the Electrical Industries Benevolent Association as a home for old people, to serve as a memorial to their son, James Erskine Cunning, who was killed in action in 1941. Mr Cunning is survived by his wife—herself a medical woman and a Royal Free Hospital graduate—and by two sons and one daughter, who has followed in her parents' footsteps. To all of them sincere sympathy will be extended by all who knew and loved Mr Cunning—G B.

Miss K G Lloyd-Williams writes. Past students of the London (Royal Free Hospital) School of Medicine for Women have heard with sorrow of the death of Joseph Cunning. We knew him as a first-class surgeon and teacher, and his early retirement from surgery in 1931 was greatly regretted. His punctual arrival in the quadrangle, immaculately dressed, with buttonhole and cigar just at its last inch, was the prelude to a round in which in an apparently informal way he imparted a wealth of information. His humorous anecdotes enlivened the afternoon and served to impress salient facts on his audience. In his own inimitable way he was in the first rank of teachers. A versatile and amusing companion, he was the ideal mentor for young residents, who learnt much from his humane outlook on life.

As an operator he was outstanding, more especially in the field of abdominal surgery. The first to acknowledge and appreciate skill in others, one of his most engaging qualities was his modesty about his own work. He gave no appearance of haste or showmanship, but his results testified to his high skill. He was deeply attached to the Royal Free Hospital, and its welfare was always very near to his heart. He gave the hospital service of the highest order, and we all remember him with affection and pride.

## W C ALLARDICE, M.D., F.R.C.S.E.D

We announce with regret the death at the age of 77 on Aug 2 of Dr W C Allardice, honorary consulting surgeon to the North Staffordshire Royal Infirmary

William Clachan Allardice was educated at Bon Accord, Aberdeen, and Glasgow University. He qualified M.B., C.M. in 1892, and took his M.D. of Glasgow four years later, in 1906 he took the F.R.C.S. of Edinburgh. After qualification Allardice was house surgeon at Macclesfield General Infirmary, and subsequently house-surgeon and then house-physician at the North Staffordshire (now Royal) Infirmary. At one time he was resident clinical assistant to the Montrose Royal Asylum. At the turn of the century Dr Allardice went into partnership at Newcastle-under-Lyme with the late Dr G S Hatton, and remained in the same practice until he retired in 1945. In 1902 he became honorary assistant surgeon to the North Staffordshire Royal Infirmary, and subsequently honorary surgeon and orthopaedic surgeon to the same institution. When he retired from the active list under the infirmary's age regulation in 1930 he became honorary consultant surgeon. For many years he was also consulting surgeon to the Congleton War Memorial Hospital, and during the war of 1914-18 was surgeon to the London Road Military Hospital at Stoke-on-Trent. Dr Allardice contributed a number of articles to the medical press, his earliest being one to the *Glasgow Medical Journal* in 1896 entitled "Notes on 1,500 Cases of Anaesthesia." He joined the B.M.A. in 1895, was a representative in 1922, and president of the Staffordshire Branch 1926-7, he was also chairman of the North Staffordshire Division 1933-4. Dr Allardice had a successful career as a general practitioner surgeon, and it was due to him that the Orthopaedic Department and the Ear, Nose, and Throat Department were established at the North Staffordshire Royal Infirmary. By his first wife, who died in 1903, he had one son, and by his second wife, whom he married in 1911, he had two sons and two daughters. He won the affection and esteem of those among whom he lived and worked, and inspired confidence in his patients and respect among his colleagues as a man who gave of his best to his chosen profession. He was a justice of the peace for Newcastle-under-Lyme and was at one time Mayor of Hanley. A large gathering paid their tribute to his memory at the funeral held at St George's Church, Newcastle.

R. A. K. writes: Bill Allardice, as he was affectionately known by a host of friends, qualified from Glasgow University at the age of 21. He was a most able and conscientious surgeon and had developed a clinical sense and balance of judgment to an extraordinarily fine degree. He was the perfect example of the ideal family doctor—a most trusted friend, unfailing in his help and understanding of personal problems. His stately bearing and kindly smile inspired thousands of his patients with supreme confidence and trust. He realized full well the inestimable value of a good family life and devoted all his energies to that end. He was, indeed, a revered husband, father, doctor, and friend. To his widow, two daughters, and three sons the deepest sympathy is extended by all who have been fortunate enough to have known this grand old man.

Dr STEPHEN JOHN HENRY died suddenly at his home in Glasgow on July 20 at the age of 62. He studied medicine at Glasgow University and graduated M.B., Ch.B. in 1908. After holding resident hospital appointments he went into general practice in the Partick district of Glasgow in 1910. During the war of 1914-18 he served in France with the 70th Field Ambulance. He resumed general practice after the war and held several appointments, including membership of the Disabled Persons Advisory Panel in Glasgow. He was a former president of the Partick and District Medical Society. He leaves a widow, two sons, one of whom is a medical student, and two daughters.

Dr HUGH COLLIN DAVIES died at his home in Colwyn Bay on July 29. He was born in Carmarthen in 1878 and was educated at University College, Cardiff, and Glasgow University. He graduated M.B., Ch.B. in 1903. He spent many years in practice in South and West Wales, and served in the R.A.M.C. in the first world war. He took his M.D. Glas. in 1925 and joined the staff of the Welsh Board of Health as Regional Medical Officer the same year. His long experience as a general practitioner enabled him to carry out his official duties in an outstanding way. Dr Davies was known to medical practitioners

throughout Wales as a kind friend, and patients referred to him were sure not only of sympathetic consideration but also of a first-class opinion. During the last war he was seconded by the Welsh Board of Health to the Emergency Hospital Service, and he became Hospital Officer for North Wales. As such he was responsible single-handed for organizing the emergency service throughout the six counties of North Wales. There is no doubt that the efforts he made during the war, which came at a time of his life when he was past his prime, must have contributed to the ill-health from which he suffered after his retirement in 1945. The sympathy of all who knew him will be extended to his widow.

Dr GEORGE ANDREW, who was probably the oldest living Fellow of the Royal College of Surgeons, died at Brighton on July 29 at the age of 96. He was born in Devonshire and studied medicine at St Bartholomew's Hospital. He qualified in 1874 and took his F.R.C.S. in 1879 and his M.D. Durh. in 1893. He practised in Egham, Gravesend, Torquay, and finally in Monte Carlo. To the end of his life he retained the full use of all his faculties, and he was renowned among his relations and friends for his amazing memory. He will be greatly missed by all who knew him.—L. G.

Dr EDWARD LIONEL MACPHERSON RUSBY died suddenly at his home in London, S.W.2, on Aug 1, at the age of 76. He was a student at King's College Hospital and qualified in 1896. He graduated M.B. two years later. After a short assistantship in general practice in Bromley he joined up with many other members of the Honourable Artillery Company as a private in the Civil Imperial Volunteers and served in the Boer War. He was later promoted Civil Surgeon in the South African Field Force. On his return to this country he settled in Brixton and built up a large practice as well as a quite considerable reputation as an obstetrician. He was honorary medical officer to the Water Lane Dispensary, district medical officer, and public vaccinator for Lambeth. This last appointment he retained until July 5 of this year. He was a member of the British Medical Association throughout the whole of his professional life, and for several years was honorary secretary of the Lambeth Division. He was a keen athlete in his younger days, and he led a full and active life until the morning of his death. His wife predeceased him by six months. He leaves a son and a daughter.

Dr RICHARD HENRY WACE died in London on Aug 5 at the age of 80. He studied medicine in Aberdeen and graduated M.B., C.M. in 1894. He had a varied medical career having been coroner among the aborigines in the Northern Territory of Australia and medical officer in the Falkland Islands where he did his round on horseback, once even covering a hundred miles in a single day. In spite of failing health he continued in active practice until he was 78. During the last war Dr Wace turned earlier experience in a mental hospital to good effect by acting as locum tenens in mental hospitals. Dr Wace was of distinguished appearance and his manner was charming and courtly. He dearly loved a classical allusion. He was proud of his 800-year-old descent from the Anglo-Norman poet Wace or Eustace, of Jersey. He was a capable artist. He leaves a widow and a son.—E. S. S.

## Medico-Legal

### DAMAGES AGAINST A MEDICAL OFFICER OF HEALTH

[FROM OUR MEDICO LEGAL CORRESPONDENT]

A recent Irish case shows that when a medical officer of health, in attempting to protect the public against suspected carriers of typhoid, orders them to be discharged from employment he cannot be too careful to protect himself by observing all the regulations. Miss Annie O'Connor had been a cook on an Irish train. On June 29, 1944, a number of diners contracted typhoid fever, and Miss O'Connor herself caught the disease on July 21. She made a full recovery and was discharged cured. In March, 1945, she became assistant cook in the Grand Hotel, Greystones. In May a number of persons brought actions against the railway company but failed to establish negligence. On May 19, at the order of Dr Gerald P. G. Beckett, medical officer of health of County Wicklow, she was discharged on suspicion of being a "precocious" typhoid carrier. (As was explained later, this word should have been "chronic" or "intermittent.") She sued him and the county council for negligence and breach of duty, an allegation of libel and slander against the doctor was

withdrawn<sup>1</sup> The evidence showed that he made no tests when ordering Miss O'Connor to be discharged, and that afterwards three tests made at weekly intervals were negative. He did not carry out the regulation that in such a case a medical officer must give notice in writing to the employer that he considers it necessary that the suspect should submit to medical examination.

Miss O'Connor said in evidence that she was called to the private room of the manageress and asked by Dr Beckett if she had had typhoid fever, she replied that she had, but had been discharged with a clean bill of health. Later the manageress sent for her and read out a letter from the doctor saying that she was possibly a precocious carrier of typhoid and must not on any account be employed in any position connected with the preparation or handling of food, she would therefore have to leave at once with a week's wages. The letter was a terrible shock to her. She took a post as a waiting-room attendant, and was offered one as a cook but was afraid to take it up. She was waiting for the case to clear her before she applied for another. No one associated with her or in contact with her had contracted typhoid. Miss Mary Loughnane, the manageress, gave evidence that Dr Beckett, at his visit to her, did not seem to know what to do. He did not want to take the girl from employment, but at the same time wanted to do his duty. He rang up the hospital where the girl had been treated, and, judging by his answers, seemed to get no choice in the matter. He then said he was afraid she would have to let the girl go, and sent her the official letter.

Dr C J McSweeney, chief medical officer of the fever hospital where Miss O'Connor had been a patient, said that before and after her discharge the usual tests were carried out and proved negative. That, however, did not necessarily mean that the outbreak on the train had not been due to a member of the staff. He had come to the tentative conclusion that the carrier had been Miss O'Connor. When Dr Beckett asked him for information about Miss O'Connor, he said that it would be risky to keep the girl on without a check. Even a negative result would not enable anyone to certify her free from the danger of disseminating typhoid. She was an unsuitable person to employ as a cook. In the hospital she had had an unhealthy gall-bladder, and that predisposed to a carrier state. Women were five times as liable as men to become chronic carriers. It was difficult and tedious to clear a person conclusively of being a carrier, sixteen negative tests might be followed by a positive. Even now Miss O'Connor might be clear for three years and then give a positive result. The control of carriers was the hard core of the problem of prevention. A person undergoing test should not be employed in the preparation of food.

Professor J W Bigger, of Trinity College, Dublin, said that no examination at the hospital on the date of Miss O'Connor's discharge would have disclosed whether or not she was a chronic carrier, considering that it had taken three days with all the facilities of the laboratories to carry out the tests he had done in the case. The tests made at the hospital and after Miss O'Connor had left it were conventional but quite inadequate. In answer to the judge he said that it would have been proper to give the girl warning when she left hospital, compensate her amply, and take precautions to see that she was never allowed to handle food until an investigation had been carried out. "In practice, it had better be a life sentence."

Dr Beckett said in defence that when he received a letter from the medical officer of health for the city of Dublin about Miss O'Connor he considered that it required immediate action. Dr McSweeney told him that an investigation had pointed to Miss O'Connor as the cause of the outbreak on the railway. He told Miss Loughnane that Miss O'Connor must not be employed in connexion with food, but he very definitely did not say that she must be sacked. He had no objection to her doing a job which did not involve the handling or preparation of food. There was no time for an examination, he felt it his primary duty to stop her from acting as a cook.

Dr James Deeney, chief medical officer of the Department of Health, said it was a tribute to the public health officers that they had achieved a great reduction in the incidence of typhoid under practically unworkable and misleading regulations. The medical officer had practically no power. Dr Beckett could not

have prevented the girl from cooking without taking her to court.

Mr Justice Maguire ruled that Dr Beckett was for this purpose a statutory officer, responsible for the enforcement of the regulations to the Minister for Local Government and Public Health, and not the servant of the county council. Summing up for the jury, he said that no legal justification had been put forward for the dismissal of Miss O'Connor at the request of Dr Beckett without warning. A strange feature of the case was that Miss O'Connor had been given no warning when she left hospital about the danger of her handling or preparing food. It also seemed a little strange that the public authorities responsible for the prevention of typhoid should not be a little more careful, possibly if they were they would have a little less trouble. Miss O'Connor had not been a party to the inquiry about the railway outbreak, and could not be bound by any decision taken at it. The jury found that Dr Beckett had been negligent and awarded £750 damages.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

D B Cater, MB, BChir, FRCS, has been appointed to a University Demonstratorship in Pathology until Dec 31, 1949, I S Longmuir, MB, BChir, Assistant in Research in Colloid Science for two years from Oct 1, and J Marks, MB, BS, University Assistant Pathologist to Addenbrooke's Hospital for three years from Oct 1.

The following medical degrees were conferred on Aug 7

MD—\*D Vêrel \*F A Whitlock R R Wilson E R Hargreaves R B Heisch R T Hastings James H I Winner  
MB BChir—\*L Sefton \*D I Storey \*R G O Tayler \*P H Abbott \*V E Amassian \*J R Bennett \*J E Forster \*W M Keynes \*W F W Southwood \*J D Whitby C Q Henneques H G LI Lloyd Thomas \*P Allebone \*I W Broomhead \*E J Dowling \*C P E Elliott Binnis \*D G Julian \*D B Sugden \*C H Talbot \*D B J Wardle D S Craig W J D Eberlie, A A McInnes \*R A Robinson \*J G H Shaw \*K R Wallace \*R D Williams \*A Ackroyd \*D V G Feltham, \*I W de G Gregory, \*N Kennedy \*C M B Pare \*H Piggott \*W R Walsh \*A R H Worssam I Henderson P F D Naylor \*H I Williams \*J A MacDougall \*G E W Wolstenholme \*S Powell \*J E S Scott \*G S Smith \*E A Kauffmann F N Hicks P J Higgins \*J L Hine \*M Honey \*E F Soothill \*J Mander \*G W Page \*R T Sears P Fehrsen C K Smith \*D G Bonham R A Stanger \*P G Seed \*J M L Shearer, J C Barker

\* By proxy

### UNIVERSITY OF GLASGOW

Thomas Ferguson Rodger, MB, Ch B Glas, FRCP Ed, DPM, has been appointed to the recently founded Chair of Psychological Medicine in the University.

### UNIVERSITY OF LONDON

Theodore Crawford, MD, FRFPS, has been appointed to the University Chair of Pathology tenable at St George's Hospital Medical School, from Oct 1.

David Vaughan Davies, MB, BS, has been appointed to the University Chair of Anatomy tenable at St Thomas's Hospital Medical School, from Oct 1.

The following candidates have been approved at the examinations indicated

MD—Branch I (Medicine) R H Andrews A Bogdanovitch H-J Boutourline Young R E Bowers E J S N Briggs R N Cates W E Clarke C F Cooper P G Dalglish (University Medal) A St J Dixon M Elias R H J Fanthorpe D A Ferguson A Freedman T J B Geffen J H Goonewardene J L Greaves D B Irwin H B Kelly R E Kelly R King Brown V M Leveaux I P McL MacDougall G MacGregor R I Meanock J B Mehta D E Meredith J B Mitchell G Monckton P B Newcomb T M Li Price K O Rawlings T L Reeves G K C Rettie Elizabeth V Rohr J Rubie J P Shillingsford Honour M V Smith J S Staffurth (Mark of Distinction) C Symons R B Terry F J H Walters H F West A A Williams G F Willson Branch II (Pathology) R D Clay E A Fairburn R C B Pugh R W Riddell K A D Turk P T J C P Warner (University Medal) Branch IV (Midwifery and Diseases of Women) Lois E Hurter F L E Musgrove Branch V (Hygiene) Patricia M Elliott J Knowelden P A Raffle A T Roden I Taylor P Tomlinson P A Tyser W A Wilson Branch VI (Tropical Medicine) A J Duggan J T Harold J M Wilson

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

We are asked to state that the Members of the Board of the Faculty of Anaesthetists, whose names were announced in this column last week (p 359), have also received the Fellowship of the Faculty (F F A, R C S).

No 31

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 31

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland

Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	40	2	17	4	—	48	11	17	2	1
Diphtheria Deaths	125	15	28	18	5	200	26	29	16	6
Dysentery Deaths	77	24	35	—	—	53	9	10	—	—
Encephalitis lethargica, acute Deaths	2	—	2	—	—	2	—	—	—	—
Erysipelas Deaths	—	—	33	6	—	—	—	22	8	2
Infective enteritis or diarrhoea under 2 years Deaths	40	2	2	18	3	52	4	17	52	1
Measles* Deaths†	8,211	457	59	87	59	6,954	366	61	336	8
Ophthalmia neonatorum Deaths	54	4	10	1	—	80	7	19	3	1
Paratyphoid fever Deaths	35	12	(B)	—	—	19	—	1(A)	1(B)	—
Pneumonia influenzae* Deaths (from influenza)‡	355	23	2	3	1	271	17	1	—	3
Pneumonia, primary Deaths	195	31	93	29	10	20	79	17	—	6
Polio-encephalitis acute Deaths	1	—	—	—	—	39	7	—	—	—
Polio-myelitis, acute Deaths§	38	6	4	—	1	448	53	37	5	11
Puerperal fever Deaths	—	1	5	—	2	—	—	9	—	—
Puerperal pyrexia   Deaths	122	9	8	1	1	145	14	6	—	3
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 329	83	208	64	18	803	80	98	32	20
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	9	—	1	1	—	6	—	4	3	2
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	3 309	275	8	78	10	1 737	195	29	71	5
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	297	23	29	13	11	320	45	67	31	7
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4 830	781	587	175	107	3 900	609	530	184	101
Live births Annual rate per 1 000 persons living	8 011	1230	913	409	228	8,972	1404	1073	365	251
Stillbirths Rate per 1 000 total births (including stillborn)	211	22	39	—	—	252	32	40	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore in approximation only

† Deaths from measles and scarlet fever for England and Wales London (administrative county) will no longer be published

‡ Includes primary form for England and Wales London (administrative county) and Northern Ireland

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales London (administrative county) are combined

|| Includes puerperal fever for England and Wales and Eire

## EPIDEMIOLOGICAL NOTES

## Discussion of Table

In England and Wales infectious diseases were less prevalent during the week. There was a decrease in the incidence of scarlet fever 418, measles 290, whooping-cough 50, acute pneumonia 30, dysentery 31, and diphtheria 14, while an increase was recorded in the notifications of paratyphoid fever 26 and cerebrospinal fever 15

A fall in the notifications of scarlet fever occurred throughout the country, the largest fall was 75 in Lancashire. The largest decreases in the incidence of measles were London 95, Durham 81, and Essex 73, the largest rises were Yorkshire West Riding 192 and Gloucestershire 67. The chief variations in the returns for whooping cough were falls in Middlesex 83, Yorkshire West Riding 55, and Durham 53, with rises in Cheshire 56 and Sussex 42

The notifications of diphtheria (125) reached the lowest level yet recorded and were 9 below the preceding lowest level. The largest variations in the returns for diphtheria during the week were a decrease of 10 in Yorkshire West Riding and an increase of 9 in Cheshire

The largest returns for dysentery were London 24 Lancashire 11, and Yorkshire West Riding 10. Paratyphoid fever reached the highest level for almost a year, the two principal centres of infection were Northamptonshire 14 (Corby U D 10) and Sussex, Eastbourne C B 10

Notifications of acute poliomyelitis have been practically constant during the past three weeks. Multiple cases were notified during the week from London 6 (Westminster 4), Middlesex 5 (Heston and Isleworth U D 2, Wood Green M B 2), Yorkshire West Riding 4, Yorkshire East Riding 3 (Kingston-upon-Hull C B 2), Southampton 3 (Southampton C B 2), Lancashire 3 (Warwickshire 2, and Yorkshire North Riding 2)

In Scotland a decreased incidence was recorded for scarlet fever 37 acute primary pneumonia 29, dysentery 17, and measles 11. Of the 35 cases of dysentery 25 were notified in Glasgow. Notifications of cerebrospinal fever increased from 10 to 17, and of these cases 14 were notified in Glasgow

In Eire a fall occurred in the notifications of whooping-cough 21, measles 16, and diarrhoea and enteritis 12. The largest outbreak of measles during the week was at Monaghan Castleblayney R D 30

In Northern Ireland the only fluctuation in the trends of infectious diseases was a decrease of 23 in the notifications of scarlet fever

## Quarterly Returns for England and Wales

During the first quarter of the year the births were equivalent to a rate of 18.9 per 1 000, which was 3.9 below the rate for the March quarter of 1947. Infant mortality was 41 per 1,000 live births and was the lowest rate ever recorded in a first quarter, being 11 below the rate for the first quarter of 1947 and 25 below the average rate for the March quarters of the 10 preceding years, 1937-46. The general death rate was 12.4 per 1,000 the lowest rate ever recorded for a March quarter. It was 4.7 below the rate for the first quarter of 1947 and 1.9 below the average of the first quarters of the five years 1942-6. Only 644 deaths were attributed to influenza, the lowest number previously recorded in a first quarter was 1,470 in 1945. The ten-yearly average of influenza deaths for the first quarters of 1938-47 was 3,800

## Quarterly Returns for Northern Ireland

During the first quarter the birth rate was 22.1 per 1,000, which was 1.2 below the average rate for the five preceding first quarters. Infant mortality was 53 per 1,000 registered births compared with an average rate of 78 for the corresponding quarters of the five preceding years. Maternal mortality was 2.4 per 1,000 births and was 0.5 below the five-year average. The general death rate was 12.8 per 1,000 and was 3.3 below the average rate for the first quarters of the five preceding years. Deaths attributed to the principal epidemic diseases numbered 92 and included 43 deaths from influenza, 26 from diarrhoea and enteritis in children under 2 years, and 16 from whooping cough. Deaths from pulmonary tuberculosis numbered 207, and there were 44 deaths from other forms of tuberculosis. These totals were 39 and 30, respectively, below the average of the first quarters of 1943-7

## Week Ending August 7

The notifications of infectious diseases in England and Wales during the week included scarlet fever 848, whooping cough 3 185 diphtheria 107, measles 6 879, acute pneumonia 363, cerebrospinal fever 40, acute poliomyelitis 38, dysentery 111, paratyphoid 47, and typhoid 10



## Medical News

### Tuberculosis in Scotland

The Secretary of State for Scotland has asked the Scottish Health Services Council to assist him in making a special examination of the tuberculosis position in Scotland, and the Council has set up a special committee for this purpose. The committee includes three members of the Council—Captain J P Younger, of Alloa, who is chairman of the committee, Dr Matthew Fyfe, Medical Officer of Health of Fife County, and Dr J R Langmuir, a general practitioner in Glasgow. The other five members of the committee are Professor Cameron, Professor of Tuberculosis in Edinburgh University, Professor Crew, Professor of Public Health in Edinburgh University, Dr H C Elder, who is in charge of mass radiography in Edinburgh, Dr S I A Laidlaw, medical officer of health of Glasgow, and Dr Maclean, who is in charge of mass radiography arrangements in Glasgow.

### British Tuberculosis Association

At its recent annual general meeting the Tuberculosis Association decided to change its name to the British Tuberculosis Association.

### Waste Straw

Professor S Zuckerman, of Birmingham University, has been appointed head of a Government committee to find a use for waste straw.

### Sir Harold Gillies

The King of Norway has conferred the decoration of Commander of the Order of St Olav upon Sir Harold Gillies in recognition of services rendered during the war.

### Psychotherapeutic Conference

From Aug 3 to 9 psychiatrists and psychologists from Australia, Chile, China, Denmark, Finland, France, Holland, Norway, Sweden, Switzerland, South Africa, the U.S.A., and Great Britain took part in an international technical psychotherapeutic conference at the Institute of Child Psychology, this was complementary to the International Congress on Mental Health. At the close of the conference the possibilities were discussed of retraining the links formed at the conference between child psychiatrists and psychologists in an informal international association of national groups.

### Tribute to Pharmaceutical Society

The Minister of Health paid a tribute to the Pharmaceutical Society when he was the Council's guest at their monthly dinner on July 27. They had always got on well together, he said, and it was a fact that the discussions with the pharmaceutical profession had been more fruitful than with any other branch of the medical world. This great scheme had many tributaries, and the pharmaceutical was not the least of them. It would be almost impossible to launch a ship of the size of the National Health Service without considerable water displacement. Other countries were watching us. Britain had not been exhausted by 6½ years of war, we had been inspired by the war and our energies had hardly been tapped.

### Wills

Sir George Newman, of Grims Wood, Harrow Weald, late Chief Medical Officer of the Ministry of Health, left £58,618. Professor Henry Arthur Burgess, of Cheshire, President of the B.M.A. in 1929 and for many years Professor of Clinical Surgery in Manchester University, left £122,276 3s 9d. Dr Henry Willoughby Gardner, of Church Stretton, Salop, left £68,120 16s 6d.

## COMING EVENTS

### Physical Medicine

A short course of lectures on the various aspects of physical medicine has been arranged on Tuesdays and Thursdays at 5 p.m. from Sept 2 to Oct 7 inclusive, and will be suitable for candidates preparing for Part II of the Diploma in Physical Medicine. Further details can be obtained from the honorary secretary, British Association of Physical Medicine, 45, Lincoln's Inn Fields, London, W.C.2.

### Conference on Infertility

The annual conference on infertility, organized by the Family Planning Association (69, Eccleston Square, London, S.W.1), will be held at Exeter on Saturday and Sunday, Sept 25 and 26. A draft programme has been arranged as follows: Sept 25,

10 a.m., "Congenital Absence of the Vas," by Mr D Young, and "Application of the Supravital Stain to Human Spermatozoa," by Dr A C Crooke and Miss Anita Mandl, 2.15 p.m., "Some Lessons from 3,000 Utero-tubal Insufflations," by Dr Albert Sharman, "Hysterosalpingography in Water Soluble Radio-opaque Media," by Miss Josephine Barnes, and "Vitamin E Therapy for Sub-fertility in the Male," by Dr M Hadley Jackson and Dr H A Davidson. Sept 26, 10 a.m., contributions by members of the Royal Free Hospital Sub-fertility Unit. Introduction by Dr Gertrude Dearnley, "The Value of the Sim's Test in the Diagnosis of Male Infertility," by Dr Mary Barton, "Report on a Series of Testicular Biopsies," by Dr E Friedman, "Results of a Series of Testosterone Implants," by Miss M Moore White, "Preliminary Investigation in the Treatment of Oligozoospermia by Vitamin E," by Mr Norman Warren, "The Blood Supply of the Testis and its Relation to Sterility," by Dr R G Harrison, and "The Effect of Dilution on Sea Urchin Spermatozoa," by Lord Rothschild, 2.15 p.m., "The Critical Assessment of Infertility Data," by Dr G I M Swyer, "Coitus and Infertility in the Rabbit," by Dr Harris, "Relationship between Miscarriage and Seminal Characteristics as demonstrated by Seminal Analysis," by Mrs Harvey.

## SOCIETIES AND LECTURES

### Friday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Anatomy Lecture Theatre, Edinburgh University, Aug 27, 3.30 p.m. "Present State of Chemotherapy in Cancer" by Professor A Haddow.

## APPOINTMENTS

BECK, DIANA J. M.B., B.S., F.R.C.S. Neuro surgeon, Middlesex Hospital London W.

JONES D J. M.B. B.Ch. D.P.H. Medical Officer of Health for Rugby Borough and Rural District and Area Medical Officer.

MILLAR I B. M.D., D.P.H. Assistant Medical Officer, Newry Division, County Down Northern Ireland.

## BIRTHS, MARRIAGES, AND DEATHS

### BIRTHS

Cleland—On Aug 3 1948 at the Ayrshire Central Hospital Irvine to Joan wife of Mr Gavin Cleland F.R.C.S. Ed. a daughter.

Cowper—On Aug 4 1948 at the Anglo American Hospital Cairo to Grace (née Boxley) wife of Dr S G Cowper a daughter—Ann Christine.

Kennedy—On Aug 8 1948 at Queen Charlotte's Hospital to Minnie wife of Dr Gordon Kennedy of Twickenham a daughter—Ester Margaret.

Paget Davis—On Aug 12 1948 at St John's Hospital Chelmsford to Lillian (née Vaughan) wife of Dr Donald Paget Davis of Braintree Essex a second son—Mark Scot.

Pearsall—On Aug 1 1948 to Mary wife of Dr P R Pearsall Mill Hill London N.W. a daughter.

Pearson—On Aug 13 1948 at St Benda's Nursing Home Bristol to Elise (née Powell) late Q.A.R.N.N.S.(R.) wife of Dr G M Pearson a daughter prematurely—Fleur.

White—On Aug 8 1948 at Stelly Oak Hospital Birmingham to Edna wife of Mr J R A White F.R.C.S. a daughter.

### MARRIAGES

Gilas—Grenves—On Aug 12 1948 at St John's Wood Synagogue London. Leon Gilas M.B.E. M.B. B.Ch. Orth. F.R.C.S. to Rachel Grenves of Sheffield.

Kendall—Morgan—On June 26 1948 at Huntington Kington Herefordshire Arthur C Kendall M.R.C.P. to Hilda M Morgan M.B. Ch.B.

### DEATHS

Arnold—On Aug 6 1948 at Worthing Miles Bracewell Arnold M.D. D.P.H. late of the Ministry of Health.

Borrowman—Recently Alexander Pierson Robertson Borrowman M.B. Ch.B. of Brampton, Cumberland aged 45.

Brice—On Aug 7 1948 at Thornhill Edge Dewsbury Yorks Henry Doyle Brice M.R.C.S. L.R.C.P. aged 74.

Hounsfield—Recently Maurice Coupland Hounsfield M.B. B.Chir. of Stoke Bishop Bristol aged 43.

Mackie—On Aug 8 1948 while bathing at Sandown Kenneth William Mackie M.R.C.S. L.R.C.P. of Salisbury Green Southampton aged 44.

Maitland—On Aug 10 1948 Thomas Gwynne Maitland M.D. of Hatchmere Wood Norley Cheshire and late of the Cunard White Star Line.

Murray—Recently while on holiday at Dornoch David Alexander Murray M.B. Ch.B. Ed. of Helmsley Yorks.

Nimmons—On Aug 6 1948 Robert Nimmons M.B. B.Ch. of Wheldon House Pelton Co. Durham.

Reckless—On Aug 15 1948 at High Lane near Stockport Cheshire Philip Alfred Reckless F.R.C.S. aged 65.

Sutherland—On Aug 14 1948 at 3 Darnaway Street Edinburgh Francis Benjamin Sutherland M.B. Ch.B. D.P.H. Ed.

Walker—Recently Henry Francis Bell Walker M.D. of Cape Colony South Africa aged 72.

Williams—On Aug 9 1948 at Oakmead Exmouth S. Devon Percy Glyn Savours Williams M.D. late of Cairo.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Suppression and Treatment of Malaria

**Q**—What is the value of 'paludrine' therapeutically and as a suppressive? Can any order of preference be given as between paludrine, mepacrine and quinine for both purposes?

**A**—Paludrine is a valuable drug in the treatment of malarial infections due both to *Plasmodium vivax* and to *Plasmodium falciparum* owing to its lack of toxicity. In acute attacks due to *P. vivax* it will control fever and parasitaemia but will not prevent a subsequent relapse. In acute attacks due to African strains of *P. falciparum* it is slightly slower in its action than either mepacrine or quinine. It will not eradicate *P. falciparum* infections as will mepacrine, and it is not a true causal prophylactic either for *P. vivax* or for all strains of *P. falciparum*. Paludrine is possibly less active than mepacrine or quinine against *P. malariae*.

It is now recognized that paludrine, mepacrine, and quinine have essentially the same action on malaria parasites. In the control of an acute attack paludrine is to be preferred owing to its lack of toxicity. Mepacrine stains the skin and may cause gastro-intestinal discomfort and, in very rare instances, skin lesions and psychotic symptoms. Quinine may cause cinchonism, buzzing in the ears, or deafness. If the infection is due to *P. falciparum* or if *P. falciparum* is the prevailing parasite in the area quinine must be avoided both in treatment and in suppression because of the danger of inducing blackwater fever. If a *vivax* infection is to be eradicated recourse must be had to quinine and pamaquin or to quinine and pentaquine, if a *falciparum* infection is to be eradicated mepacrine will be effective, neither quinine nor paludrine alone will eradicate either *P. falciparum* or *P. vivax* infections. For suppression, the drug chosen must be taken daily. Mepacrine is a better suppressive than quinine for all forms of malaria. Results of controlled investigations into the comparative efficiency of mepacrine and paludrine as suppressives are not at present available.

### Agenized Flour

**Q**—What is 'agenized' flour and why has it been adopted for general use both by ourselves and by the Americans?

**A**—"Agene" is the trade name for nitrogen trichloride, which in the pure state is a very unstable compound. It is prepared commercially in impure form by passing chlorine into an aqueous solution of an ammonium salt. A current of air containing about 1% of agene is then passed into the flour, with adequate agitation, until a sufficient quantity has been absorbed. Agene has a strong bleaching action, but it also "improves" the flour so as to give a tough tenacious dough which bakes into a large porous loaf. Its trade name suggests its function in artificially ageing and maturing the flour. Reasons for the use of agene in preference to other bleaching or improving agents presumably lie in the ease and cheapness of its industrial application and in its efficiency in producing the desired properties in the flour.

### Tuberculous Rheumatism

**Q**—Is the condition of tuberculous rheumatism a definite entity and if so how is the diagnosis established? A boy of 15 had a febrile attack with pain in one knee. Overnight he developed a bilateral effusion in both knees which was painless. Simultaneously he developed erythema nodosum. His temperature fell after three days (he was on salicylates), and the Mantoux reaction was positive in a dilution of 1 in 10,000. No other joints were affected. There is no contact history of tuberculosis. Could this be a case of tuberculous rheumatism and if so is treatment on sanatorium lines indicated?

**A**—In 1902 Poncet described a form of polyarthritis which he believed to be tuberculous, and the "Poncet" type of rheumatoid arthritis is definitely recognized in France. Reitter and Lowenstein claimed to have isolated the tubercle bacillus

in the blood stream in these cases by a special technique, but others have failed to obtain the same results. Brav and Hench (*J Bone It Surg* 1934, 16, 839), after careful study, doubted the existence of a tuberculous form. Copeman (*Reports on Chronic Rheumatic Diseases* 1936, 2, 24) discussed the subject very fully and described cases which appeared to be tuberculous. On the whole it seems probable that the tubercle bacillus may be responsible for some cases of polyarthritis of the rheumatoid type.

The case described in the question does not, however, appear to be of this character, and such a diagnosis could not safely be reached at this stage. Careful observation over a long period would be required, and the first step should be an exhaustive search for any possible tuberculous focus in the body, possibly glandular. At a later stage, if the signs persisted, joint biopsy might be justified. The positive Mantoux reaction might be due to a healed focus, possibly calcified glands, without necessarily being associated with the joint attack. Erythema nodosum may be tuberculous or streptococcal in origin, or may occur without evidence of either, though a tuberculous infection is believed to be a predisposing factor. Subacute rheumatism may be a possible diagnosis, though the painlessness of the effusion is against this, some of the cases recorded as tuberculous rheumatism began with symptoms suggestive of subacute rheumatism. The general character of the attack is more like an intermittent hydrarthrosis, perhaps caused by some a lergic process. The age of onset and the character of the joint symptoms are against rheumatoid arthritis, though such a diagnosis could not be entirely excluded. Treatment might reasonably be carried out on sanatorium lines, that is, by rest, fresh air, cautiously graduated heliotherapy, and tonic measures, but not in a sanatorium—a sea-bathing hospital would be more appropriate.

### Treatment with Vitamin B<sub>2</sub>

**Q**—I have had a case of scrotal eczema with pruritus ani. The eczema was cured and the pruritus controlled by vitamin B<sub>2</sub> (riboflavin 3 mg morning and night), but treatment causes nasal congestion. Can you explain this, suggest a remedy and say if it is dangerous to increase the dose?

**A**—It is very unlikely that scrotal eczema and pruritus ani would respond to treatment with riboflavin unless the condition is due to a gross vitamin-B-complex deficiency. In this case treatment with a vitamin-B-complex preparation such as yeast, liver, or "marmite" is likely to be more effective than with any single vitamin. It is also very unlikely that the riboflavin causes nasal congestion. It is an extremely harmless substance, no side effects from its use have been reported, and no harm can come by increasing the dose—although this would appear to be unnecessary, since 6 mg a day, the dose given by the inquirer, is quite enough for the treatment of mild deficiency.

### Reversion of Changes caused by Androgens

**Q**—Are the changes brought about by the administration of androgens reversible? The case I have in mind is that of a young woman who was treated abroad with large doses of male hormone. She now has a pronounced enlargement of the clitoris and other signs of virilism. Can any treatment be suggested?

**A**—The changes are largely reversible, but the reversion may take several months. In the case of the clitoris and the larynx complete reversion to the condition existing before androgen therapy was begun does not necessarily occur. There is no hormone treatment likely to counteract the residual changes.

### Treatment of Varicose Veins after Sympathectomy

**Q**—A patient has developed a small varicose vein in the leg, which should be injected with some sclerosing agent. Is the fact that a sympathectomy was successfully performed five years ago for erythrocyanosis cruris puellarum a contraindication to injection treatment? The circulation in the legs has been quite good since the operation.

**A**—There is no objection at all to the injection of the veins in erythrocyanosis cruris puellarum frigida whether sympathectomy has been done or not. Varicose veins are often associated with this condition, and their treatment helps it slightly.

### Ulceration of Mucous Membranes

**Q**—A mother of three children aged 42 has suffered continuously for 18 years from multiple small ulcers on the mucous membrane of the mouth, tongue and vagina. They started after her first confinement and became chronic after her second. Sometimes she has only two or three on one occasion she had 19. She once had haemorrhoids and the ulcers appeared on the extruded mucous membrane. The Wassermann reaction is negative, test-meal examination revealed nothing abnormal and the blood and urine are normal. Ultra-violet radiation improved the vaginal ulcers but mouth-washes aggravated the mouth condition. Culture from the ulcers gave growth of staphylococci and streptococci which were only mildly sensitive to penicillin. What would you suggest for a cure?

**A**—Coincident ulceration of the mouth, vulva, vagina, and sometimes anus, though not very common, is a syndrome well known if only because its treatment is so unsatisfactory. The relation of ulceration to menstruation is not mentioned in the question, but very often it is striking, nor is it stated whether the ulceration cleared up during pregnancy, which it usually does. Many questions have been received on similar cases, and replies published in the *Journal* (March 15, 1947, p 365, June 15, 1946, p 940, Dec 25, 1943, p 839) should be consulted. The cause of the condition is unknown, although there are many theories to account for it. Simultaneous affection of the vulva and mouth is a feature of several diseases—e.g., glossitis and vulvitis in diabetes and in various anaemias, angular stomatitis and pruritus vulvae in anaemias, ariboflavinosis, and other deficiency states. The typical cyclical ulcerations may have an endocrine cause and a recent suggestion put forward by B Zondek and Y M Bromberg (*J Obstet Gynec Brit Emp* 1947, 54, 1) is that the condition is sometimes an allergic manifestation to one or other hormone. They give details of tests which can be applied. Previous writers have pointed out that there is sometimes a strong family history of various allergic states in these cases. The patient should be carefully investigated for evidence of dietetic deficiency, anaemia, and diabetes, and skin-sensitivity tests should be carried out. Any focus of infection in the mouth should be dealt with, as should any form of dyspepsia. If no obvious cause is found, empirical treatment with large doses of vitamins A, B, and C should be tried in turn. Chorionic gonadotrophin, 500 i.u. intramuscularly twice weekly, appears to help in some cases.

### Low-calorie Diet for Obesity

**Q**—Can you give details of a diet for obesity supplying 1 000 calories daily having regard to present-day difficulties of supply and to the patient's dislike of cooked green vegetables—e.g. cabbage, cauliflower, sprouts? The patient eats lettuce and other salad vegetables also peas, French beans, carrots, and beetroot.

**A**—The following diet will meet most of the requirements of the questioner. Difficulties arise when attempts are made to give the patient a sensation of satiety. This has usually been done by distending the stomach with green vegetables and fruit, which have a negligible calorie value. It is questionable whether this is the correct course, the fundamental aim in treating obesity is to educate the patient to control his appetite, and it is better that he should suffer for a few days the pangs of unassuaged hunger than to pander to his lust for repletion. The intense hunger disappears after a week and during this time it is perhaps justifiable to keep it in check with "benzedrine" thereafter a low-bulk diet can be taken without distress.

**Breakfast**—Raw fruit, no sugar, one boiled or poached egg, or grilled kidney, or smoked haddock, or steamed white fish, two thin slices of bread, toasted if desired, butter, jam, or marmalade very thinly spread, tea or coffee with milk to taste.

**Lunch**—Clear soup, lean meat chicken, rabbit, boiled white fish, lobster, crab, as much as desired, salad as much as desired, fruit raw or cooked without sugar, as much as desired.

**Tea**—Two thin slices of bread very thinly buttered, with tomato, cucumber, cress, or "marmite" as a sandwich filling, tea with milk to taste, no sugar.

**Dinner**—As for lunch.

A concentrate of vitamins A and D should be prescribed.

### Yellow-fever Immunization

**Q**—What is the most satisfactory method of yellow fever immunization? Is it now required that a second inoculation be given six months after the first with annual boosters thereafter?

**A**—This is not the usual ruling. Certificates of yellow-fever vaccination as were recognized by Unrra and generally accepted the world over are valid for four years. Individuals in the midst of an epidemic would probably be wise to be reinoculated after a shorter interval. The accepted vaccines are those made from chick embryos infected with the attenuated 17D strain, which is made in North and South America, England, and South Africa, and the mouse-brain vaccine made in Dakar from mice infected with the French neurotropic strain. A single injection of vaccine subcutaneously is given in either instance.

### Death Rate from Cancer

**Q**—As medical officer of health to a population of 8 900 in Scotland I should like to know if our 16 deaths from cancer is higher or lower than the rate for England and Wales?

**A**—The age constitution of the population at risk is an important factor in comparing death rates from cancer, since this disease is one of later life. If the age structure of the population was proportionately the same as in England and Wales then, on the basis of the mortality experience of England and Wales, the number of expected deaths would be 17.

### Use of Tap-water for Injections

**Q**—Are there any objections to using London tap-water in place of distilled water for the usual subcutaneous and intra muscular injections?

**A**—In an emergency, and when distilled water is not available, tap-water may be used for dissolving a tablet of, say, an alkaloid to be given by hypodermic injection. How far this practice should be extended depends on the nature of the medicament and the volume to be injected. London water is chlorinated and also contains various mineral constituents, mainly salts of calcium and magnesium, anything reacting with these substances should naturally not be made up in tap water. The injection of a considerable volume would be inadvisable, owing to the possible presence of pyrogens, these are more likely to be present if the water comes through a cistern which needs cleaning. The injection of any solution made from water which has not been autoclaved involves a very small risk of producing gas-gangrene owing to the chance presence of spores of *Clostridium welchii* or some related organism. For this reason alone the practice should be discountenanced.

### NOTES AND COMMENTS

**British Rheumatic Association**—Dr F HERNAMAN-JOHNSON, Chairman of the Council of the British Rheumatic Association, writes: As you rightly say in your report (June 26, p 1249), the British Rheumatic Association is chiefly a lay body. It leaves matters of research strictly to the Empire Rheumatism Council, but it is directly interested in securing that treatment based on existing knowledge shall be readily available to all rheumatic sufferers. We would welcome a large number of general practitioner members. They could tell us the needs of their particular district and help to increase the membership of the association among their patients. A very large total membership is aimed at, perhaps 100,000, and this can be reached only by the co-operation of that part of the medical profession which comes into intimate contact with the people. The literature of the British Rheumatic Association will be sent to anyone who cares to write to 5, Tite Street, Chelsea, London, S W 1.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Altholsey Westcent London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7 Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 21 1948

## COMPENSATION

### AN AGREED STATEMENT

Anxiety is being expressed by general practitioners who feel that a claim for compensation submitted in accordance with the regulations will not fairly represent the value of the goodwill of their practices on the appointed day. It is hoped that the following statement which has been agreed by the Ministry of Health will clear up misunderstandings.

It should be appreciated that in drafting regulations regard is had to the normal procedure which can be followed in the great majority of cases. However, to meet exceptional circumstances provision has been made to cover the anomalies which may arise. The case of the ex-Service practitioner who has not had time to re-establish his practice is only one of a number of anomalous cases which cannot be assessed on the mere statement of the income for the last two accounting years.

The situation will be met by reference to the Practices Compensation Committee, and the aim of the Minister, with the help of this committee, is to ensure a fair distribution within the global sum. Cases which are not quite straightforward will be referred to the Committee under Regulation 9, and the Committee is given power to fix what they consider to be a fair assessment. The relevant provision in Regulation 7 (2) (ii) is as follows:

"in the case of any claim referred to the Committee the Committee shall fix as the annual loss in respect of the practice such sum as they estimate fairly to represent the average gross yearly receipts of the practice"

Any practitioner who is desirous of bringing forward any circumstances which he wishes to be taken into account in fixing the annual value of his practice should submit with his application full details of those circumstances together with such supporting evidence as he deems appropriate. He should be prepared to supply any further facts at the request of the Practices Compensation Committee and he is reminded that if he feels aggrieved by the decision of the Committee he may appeal to arbitration.

### Forms for Obtaining Certificates

Doctors claiming compensation who have not already applied to an Inspector of Taxes for a certificate for the purpose of Regulation 7(3) of the National Health Medical Practices (Compensation) Regulations, 1948, should apply for the appropriate form on which to obtain such a certificate to the Secretary, Ministry of Health (A G D 3), Whitehall, SW 1.

## PRESCRIBING IN NHS

*In reference to the letter under the above heading from Dr M Lichtenstein in the Supplement of Aug 14 (p 84) the following extract from Department of Health Circular E C S 27/1948 to executive councils in Scotland may be of interest*

*Supply by practitioners of drugs and appliances required in special circumstances.* Apart from the cases of persons in rural areas to whom practitioners may be required by the executive council to supply all necessary drugs and appliances practitioners are required to supply to their patients such drugs and appliances as are required (a) for immediate administration or application or (b) for use before a supply can be obtained by means of the issue of a prescription and they may also

(c) supply any other drugs which are administered by them in person. It has been agreed with the British Medical Association that the arrangements under which practitioners may obtain and keep in stock supplies of drugs and appliances of the classes referred to will be similar to those which have been in operation under National Health Insurance—i.e., the practitioner will order his requirements from a local chemist and the latter will be paid for the articles supplied at Drug Tariff rates. There will, however, be two changes from the National Health Insurance arrangements.

1 There will be no fixed lists of "Emergency Drugs and Appliances" to which practitioners will be restricted, they will be free to order for "stock" whatever they require so long as they confine themselves to such articles as are required for the three purposes already stated.

2 A special order form (Form E C 10A) will be supplied for the convenience of practitioners, who will not, as hitherto, use the ordinary prescription form for the purpose of ordering stocks of drugs, etc. (Copies of these forms are being printed and will be supplied very shortly to executive councils for issue to practitioners.)

## WHITLEY COUNCIL FOR NURSES AND MIDWIVES

The Whitley Council will determine salaries and general conditions for nurses and midwives in England and Wales and Scotland under the National Health Service. It consists of a staff side and a management side, and the chairman will be appointed from each side alternately every year. Formerly the Rushcliffe Committee advised the Minister of Health on salaries and conditions for nurses and midwives, while in Scotland the Secretary of State was advised by the Guthrie Committee. Both these committees have now been wound up.

### Representatives of the Management Side

*Association of Education Committees* Alderman W C Redman

*Association of Municipal Corporations* Councillor Professor F E Tyecote

*County Councils Association* Mr T O Steventon and Alderman E A Cross

*London County Council* Representatives not yet nominated  
*Scottish Local Authorities* Councillor A T Morrison and another not yet nominated

*Regional Hospital Boards* Miss Mary Jones Mr H Goddard, and Mr James Wyatt

*Regional Hospital Boards Scotland* Miss Bella Jobson  
*Department of Health Scotland* Mr E W Hancock and Mr J Cochrane

*Ministry of Health* Miss E Cockayne Mr W O Chatterton, Mr E M T Firth, Mr S W Mayne, Miss E M R Russell-Smith, and Mr H Old (Welsh Board of Health)

### Representatives of the Staff Side

*Association of Hospital Matrons* Miss H Dey and Miss I R Taylor

*Association of Supervisors of Midwives* Miss M E Platt  
*Confederation of Health Service Employees* Mr R Barker Mr C Bartlett, Mr C F Comer, and Mr J T Waite

*National Association of Administrators of Local Government Establishments* Mr R W Ramsey

*National Association of Local Government Officers* Mr Haden Corser, Mr G W Phillips, Mr C A W Roberts, and Mr W Pitt-Steele

*National Union of General and Municipal Workers* Mr C H Beckett Mr A Bowden, and Mr D Horan

*National Union of Public Employees* Mr S Hill, Mr W L Griffiths, Mr S Barton, and Mr D Davies

*Royal College of Midwives* Mrs Alan Baker, Miss N B Deane, Miss J Ferlie, Miss F Gore, Mrs F R Mitchell, and Miss V Shand

*Royal College of Nursing* Miss F G Goodall, Miss M Houghton, Miss W Holland, Mrs E O Jackson, Miss M Johnston, Miss J E Laycock, Miss M Macnaughton, Mr J Sayer, Miss B Shenton, Miss M D Stewart, Miss B Wood and Mrs A A Woodman

*Scottish Health Visitors Association* Miss C Keachie

*Scottish Matrons Association* Miss E G Manners

*Women Public Health Officers Association* Miss M Blanchard and Miss N K Ross

## National Health Service News

### Certificates for Persons Attending Hospitals

When a patient is attending hospital and is not, for the time being, consulting his own doctor, it should not be necessary for him to be referred back to his doctor for a medical certificate. Stocks of official forms have been issued to all hospitals, and instructions on their use have been sent to hospital management committees and boards of governors. If a doctor finds that patients referred to a particular hospital are being sent back to him for certificates of incapacity, it is suggested that the matter be taken up with the hospital direct or with the local executive council.

### Persons Charged with Drunkenness

What is the position of a doctor who is called to a police station by a person charged with drunkenness? The view of the Ministry of Health is that if such a person exercises his right to call in his own doctor, and the doctor responds to the request, the doctor is entitled to charge the person a fee for his attendance, even though the person may be on the doctor's list under the National Health Service Act. This view relates solely to cases in which the person is charged with drunkenness and no medical treatment is required or given.

### Merchant Seamen and the NHS

Foreign-going British seamen whose names were already on the list of an insurance doctor should take no action if they wish to remain on that doctor's list, but others may complete Form EC 1. As they have not a national registration identity number, they should quote the number of their seamen's registration card or of their discharge book. Visiting seamen not domiciled in Britain are entitled to services under the NHS Act while ashore in this country and should obtain treatment as temporary residents.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Tyldesley

## Correspondence

### War Service of Specialists

SIR—In the Spens report on the remuneration of specialists and consultants, and in the pamphlet on pensions recently distributed, no mention has been made of the position with regard to war service. Does such service count towards seniority and towards pension?

Those specialists, particularly in full-time medicine, who for one reason or another were unable to be released from their civil hospitals during hostilities, have acquired much seniority as regards their posts, with consequent increases in basic salary under the N H S, and in their pensions.

Some, under existing rules, are being granted a variable number of years' seniority added to their pensions on the count of their past experience with the county service and their future value to the State. It seems quite fair, and indeed only proper, under such circumstances, that ex-Service doctors, both clinical and administrative, should count in full their years of service when their basic salary and their pensions are assessed.

As regards pension, it may be argued that while in the Service they received exactly the same salary and gratuity as regulars, which is worked out on a pensionable basis, and that therefore such service should rightly be regarded as contributed service. As regards experience, many of the officers concerned have acquired considerably greater and wider experience and have accepted heavier responsibilities than those in civil hospitals and full due should be given to this when salary scales are adjusted—I am, etc,

Ashford Middles\*

C A HINDS HOWELL

### Head-hunters

SIR—In his letter on "Reduced Incomes" (*Supplement* July 17 p 48) Dr C J Gordon Taylor makes a true but very sad statement that the only way to make a living is to taken on patients by the thousand. The Minister pays according to the number of heads on the doctor's list. In other words, we must become head-hunters.

Those G P s who have always set themselves a high standard in their everyday work and have taken pride in doing the best for their patients will thus find their incomes reduced. The alternative is to debase these standards, take on large numbers, and do what they know to be poor work under sweated labour conditions. These sweated-labour conditions turn out in actuality to be a test of physical endurance. They make no allowance for the not-so-young doctor, nor for those of exceptional experience and capability. The future is indeed grim, except for the head-hunters. The complacent pomposity of the B M A in saying doctors must make the Service a success is infuriating, because the better the doctors do their work the worse their pay.

Then there is the unfairness over the "free" supply of drugs, etc., to private patients—and some people still prefer to remain private patients, just as some people prefer to send their children to schools of their own choice. Day after day in the Press appeared a notice issued by the Ministry of Health about the Service: "You can use any part of it, or all of it as you wish."

Was this statement a careless inaccuracy, a deliberate falsehood, or just one example of the Minister's "burning hatred" (his own words) for those many people lower than vermin? Whatever the answer, it is obviously unjust that drugs should have to be paid for. Will the B M A insist that the Minister should stand by his printed word that "you can use any part" of the Service?—I am, etc,

Birmingham

HUMPHREY FOXELL

### Medical Records

SIR—I was pleased to see Dr C Coley Grayson's suggestion (*Supplement* July 24, p 60) that the back of the medical record envelopes should be left blank for the notation of salient points. I should like to make a suggestion which would, in my opinion, materially improve the front of the M R E s. This is, that a small column should be provided behind the patient's address and subsequent addresses for his or her telephone number. This would often be helpful for communication in maternity

cases, to give information regarding urgent admission to hospital, important laboratory reports, etc

The layout of the new continuation cards is, I think, less satisfactory than that of the old NHI cards in the following respects (1) By reducing three columns to one (for A,V,C) it is made much more difficult to review a case and see at a glance when a patient had a certificate or was signed off, when he was visited or had only a prescription repeated ("M" or B)—dates which are essential in compiling reports at a later date (e.g. for the Ministry of Pensions insurance companies, etc) (2) The column reserved for diagnosis was of definite value. It permitted the instant review of the patient's medical history and was a salutary reminder to unmethodical workers that other doctors at a later date might have to study the case history (3) It is in question whether a doctor should spend his time discovering the national registration identity number of a new patient. Surely it is more to the point to state at the head of the continuation cards the year (or in infants the date) of birth and occupation of the patient in two words

At the present time, when we are spending more and more of our time in clerical work, everything possible should be done to confine it to essentials—I am, etc,

London NW 9

J PULFER

PS—I am enclosing one MRE and a new and old form, EC 7

### Domiciliary Maternity Service

SIR—Surely Dr T G Scott (*Supplement* July 24, p 59) is incorrect in some of his interpretations of the domiciliary maternity service. The Minister has stated in the letter (*Supplement*, June 5, p 155) from Sir William Douglas to Dr Hill of May 26 that "the main objective—of encouraging the development within general practice of groups of practitioners with rather more than normal aptitude for midwifery—could still be achieved if he introduced a public payment of £5 5s for all doctors and £7 7s for those on the special list." Those on the latter "will go on, no doubt, with a view of regular and frequent midwifery work—and it will no doubt be these with whom the local midwifery authorities will wish to make arrangements to be 'on call' to midwives under the Midwifery Acts." Whatever we may think of the Minister and his methods, to describe £7 7s doctors as safe and £5 5s doctors as unsafe is not fair comment and not reassuring to prospective patients

Regarding attendance at confinements is it not accepted that one of the important factors in a satisfactory labour is the attitude of mind in which a woman anticipates her confinement? If it appears clear that psychologically the attendance of the doctor will help her, then surely he or she will deem this necessary

Dr Scott rightly stresses the necessity for antenatal examinations and domiciliary confinements to be carried out by competent midwives, and then writes, "This in fact means the district nurse" thereby, in my opinion, casting an unwarranted slur on a very fine body of extremely hard-working and conscientious women—I am, etc,

Poltimore D von

R FORTESCUE-FOULKES

### Amendments Required

SIR—Already the working of the National Health Service Act and its regulations has made evident the urgent need for reform of some of its provisions. I venture to suggest that the profession should draw up a list of amendments which are required and append a 10-point programme

1 The maximum number of patients which one doctor may accept on his list should be reduced and the capitation fee correspondingly raised. Overhead expenses are proportionately greater the lower the "income." No doctor should be faced with the dilemma of either accepting so many patients that he cannot look after them, or so few that he cannot live

2 Pharmaceutical benefit should be made immediately available to private patients

3 Ante- and post natal benefit should still be available for maternity patients who make private arrangements in advance for the attendance of their doctor at the time of delivery whether necessary or unnecessary

4 National Health Service patients who are normally entitled to free maintenance in a hospital should not forfeit this benefit if they go into a paying bed. They should pay only for the extra amenity

5 No practitioner should be compelled to dispense for National Health Service patients nor should he have to take any responsibility for making arrangements for the provision of dispensing facilities

6 National Health Service prescriptions, in suitable cases, should be made "repeatable" without further consultation with the doctor

7 Certificates (a) A number of categories should be issued only at extra charge to the patient (b) Disablement initial certificates should be issuable for longer periods in cases in which it is clear that disablement will persist for several weeks (c) Permanent disablement certificates should be issuable in cases of permanent disability—e.g. total blindness (d) Milk certificates category (2) should be issuable for longer periods (e) The unit of milk issue should be a 1/2 pint. Category 1 would normally get 4 units, and category 2 would normally get 2 units, but variation of unit number could take place within the category at the discretion of the doctor

8 Mileage claims should be simplified and the amount raised to 1s per mile (cost per mile when depreciation and all other expenses are included)

9 In the absence of equipped health centres the State should take financial responsibility for the provision of necessary equipment—e.g. record card cabinets

10 Provision should be made on medical cards for transfer of patients

—I am etc

Winchester

C J PENNY

### The Unattended Telephone

SIR—In a recent issue (*Supplement* July 3, p 28) you again suggest that the profession are very slow to take up the automatic telephone. You say the cost is approximately £80. You fail to mention £25 installation charge and £25 per annum maintenance. I am very keen to have the instrument, but 10s a week maintenance is expensive and very much implies that the machine will give trouble—I am, etc,

Emsworth Hants

H B C SANDIFORD

### Trade Union

SIR—Whatever our feelings as individuals may be about the new Health Service, one fact stands out and that is that we are now employed persons depending on the Government for our pay and terms of service, and we should have a trade union in order to ensure that in future we obtain fair terms by collective bargaining. I hope that no silly squeamishness will prevent our taking this necessary step—I am, etc,

Salisbury

PAUL HARRIS

### Children's Medicines in the National Formulary

SIR—The National Health Service has now been in operation for one month, and my personal impression as a principal in a busy industrial practice is on the whole favourable. However, there is an important criticism I should like to make

Children of the present generation are accustomed to be given by their doctor palatable medicines. The children's medicines in the National Formulary are strongly reminiscent of the nauseous compounds with which my childhood's palate and stomach were insulted. This is a retrograde step and a grave psychological blunder. In my opinion it is urgently necessary that an interim list of children's prescriptions should be issued for the National Formulary, and for this the wholesale manufacturing chemists should be taken into consultation and an agreed list of palatable concentrated mixtures drawn up which would merely require the addition of that important ingredient, Aq fontis to dilute them to the required strength. It is important that these various mixtures as made by different firms should be identical in appearance and taste and should be "elegant preparations." At present many of the children object strongly to NF prescriptions

One well-known firm puts up a "suspension sulphathiazols," which is very palatable and contains four grammes to the ounce—i.e. one drachm equals half a tablet. I have used it for some months past and always order it for my little panel patients, as I find they so often spit out the tablets. I should like to see equally palatable suspensions of the other "sulpha" drugs for administering to children

The use of palatable formulae for children would not cost the country any more, as they would be manufactured on a large scale and would save an immense amount of the chemists' time. According to present regulations the NF prescriptions must be compounded afresh for each prescription. The matter is very urgent, as autumn and winter are fast approaching—I am, etc,

London E 17

ST GEORGE B DELISLE GRAY



## Association Notices

### ELECTION BY MEMBERS OF

#### (1) BERKS, BUCKS AND OXFORD, BIRMINGHAM, AND STAFFORDSHIRE BRANCHES, AND (2) METROPOLITAN COUNTIES BRANCH, TO FILL VACANCIES ON THE COUNCIL OF THE ASSOCIATION

The following candidates have been nominated for the vacancies on the Council of the Association consequent on the election of A M A Moore as Treasurer of the Association and the election of J A Brown as Deputy Chairman of the Representative Body

Berks, Bucks and Oxford, Birmingham, and Staffordshire Branches S F Logan Dahne, Reading, R H D Lavery, Coventry

Metropolitan Counties Branch R W Cockshut, Hendon, R Hale-White, Marylebone, J A Moody, Stratford

Voting papers will be issued to the members of these Groups on Aug 28, 1948

CHARLES HILL,  
Secretary

## H M Forces Appointments

### ROYAL NAVY

Acting Surgeon Lieutenants D J Crowley, R W Poole, A C Millar, and A H J Whitehouse to be Surgeon Lieutenants

### ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Commander R Hall, VRD, has been placed on the retired list in the rank of Surgeon Captain (ret)

Temporary Acting Surgeon Lieutenants J T Young, M Shirley, D T Methuen, J K Doherty, S C B Yorke, T D Parsons, J E Owen, J McLaughlin, J D Lever, G A Lewis, and P T Ballantyne to be Temporary Surgeon Lieutenants

### ARMY

Colonel Q V B Wallace CBE, MC, has retired on retired pay, and has been granted the honorary rank of Brigadier

Colonels W J F Craig, OBE, and H C Godding, MC, late RAMC, have retired on retired pay

Lieutenant-Colonels E J S Bonnett and D C Bowie, OBE, from RAMC, to be Colonels

### ROYAL ARMY MEDICAL CORPS

Lieutenant Colonel J D A Champney has retired on retired pay, and has been granted the honorary rank of Colonel

Lieutenant Colonel S M Burrows has retired on retired pay and has been granted the honorary rank of Colonel (*corrected announcement*)

Major (War Substantive Lieutenant-Colonel) J A D Johnston, OBE, MC, to be Lieutenant Colonel

Majors T D Phelan, OBE, J D P Macpherson, OBE, and J O'Connell to be Lieutenant-Colonels

Major R H Foster has retired receiving a gratuity and has been granted the honorary rank of Lieutenant Colonel

*Short Service Commission Specialist*—War Substantive Major E H Larkin has retired on account of disability, and has been granted the honorary rank of Lieutenant-Colonel

*Short Service Commissions*—Captain (War Substantive Major) J R G Damrel has retired and has been granted the honorary rank of Lieutenant Colonel (*corrected announcement*) Captain (Temporary Major) P A Trafford from Emergency Commission, to be Captain Captains J C Crook and K H Fraser, from Emergency Commissions, to be Captains

### TERRITORIAL ARMY

Colonel W McK McCullagh, DSO, MC, TD, RAMC, having exceeded the age limit, has retired, retaining the rank of Colonel

Lieutenant-Colonels H L Garson, OBE, MC, TD, A J Gibson, DSO, TD, J Kinnear, OBE, TD, H J D Smythe, MC, TD, G W R Bishop, OBE, TD, I M Pirrie, MC, TD, and M McEwan, DSO, OBE, DFC, TD, RAMC, to be Colonels, and have been transferred supernumerary to establishment

Lieutenant-Colonels J L Hamilton, MC, TD, J P J Jenkins, OBE, TD, A C Macdonald, MC, TD, J Melvin, CBE, MC, TD, A Swindle, CBE, TD, J C Morgan, OBE, TD, T F Amott, CBE, TD, D P Levack, CBE, TD, J H Carver, TD, E C Woodhead, TD, J R Macdonald, MC, TD, I G W Hill, CBE, TD, R M Savage, OBE, MC, TD, J McSmellie, OBE, and G J V Crosby, CBE, TD, to be Colonels, supernumerary to establishment

### ROYAL ARMY MEDICAL CORPS

Lieutenant Colonels M H Summers, DSO, TD, and R E Rees, OBE, MC, TD, have been granted the acting rank of Colonel

Major (War Substantive Lieutenant-Colonel) D L Kerr, TD, has been granted the acting rank of Colonel

Major (War Substantive Lieutenant Colonel) J B Forsyth, TD, has been granted the acting rank of Lieutenant-Colonel

Majors J F Fraser, TD, F Heywood-Jones, OBE, and G D Kersley, TD, have been granted the acting rank of Colonel

Major T C Williams, TD, has been granted the acting rank of Lieutenant Colonel

Lieutenant Colonel W J Aitken from K A R Reserve of Officers, to be Lieutenant and has been granted the acting rank of Lieutenant Colonel

Major (War Substantive Lieutenant Colonel) J W Hirst, OBE, TD, has been granted the acting rank of Lieutenant Colonel

Captain (War Substantive Lieutenant Colonel) W Graham, OBE, to be Major, and has been granted the acting rank of Colonel

Captain (War Substantive Major) P Hawe, to be Major, and has been granted the acting rank of Colonel

Captains (War Substantive Majors) J D Finlayson, F R Langmaid, OBE, TD, H Sissons, OBE, TD, S R Trick, OBE, R L Turner, OBE, and R A S Keighley, to be Majors, and have been granted the acting rank of Lieutenant Colonel

Captain E F Hill to be Major, and has been granted the acting rank of Lieutenant Colonel

Captain (War Substantive Major) R E M Fawcett, TD, to be Major

Captains J B Schofield, A Young, H Bloom, W J Street, J A Reid, and C Berens to be Majors

Lieutenant (War Substantive Lieutenant Colonel) M E M Herford, DSO, MBE, MC, from Emergency Commission, to be Captain, and has been granted the acting rank of Colonel

Captains T M Park, J F Beren, J G Waugh, T Llovd, D M Cortes, and C E Hagenbach have been granted the acting rank of Major

Lieutenant (Acting Lieutenant-Colonel) S C de Clive-Lowe to be Captain

Lieutenant (War Substantive Captain) A D Broatch, from Emergency Commission (Burma Reserve of Officers, Medical), to be Captain, and has been granted the acting rank of Major

Lieutenants G T Ashley, D I McCallum, C Cameron, R H Tait, H Bolton, A S Barling, and G W Pimblett to be Captains, and have been granted the acting rank of Major

Lieutenants W G Ferguson, P G Seed, MBE, H N Smith, J L Broadbent, and A J Thomson to be Captains

### TERRITORIAL ARMY RESERVE OF OFFICERS ROYAL ARMY MEDICAL CORPS

Major A K Dougal, MC, from Active List to be Major

### WOMEN'S FORCES

#### EMPLOYED WITH THE RAMC

Lieutenants B M Parker and M M J Roberts to be Captains

### ROYAL AIR FORCE

Air Vice-Marshal Sir A F Rook, KBE, CB, KHP, has retired

Air Commodore T C St C Morton, OBE, KHP, to be Air Vice-Marshal

Air Vice-Marshal P C Livingston, CB, CBE, AFC, KHS, has been granted the acting rank of Air Marshal

Group Captain W E Barnes to be Air Commodore

Wing Commanders D A Wilson and J Kemp to be Group Captains

Squadron Leaders J P Brazil, D W I Thomas, J D Tomkinson, J B Ross, A M Hewat, J H Lewis, H H S Brown, AFC, and H P R Smith, AFC, to be Wing Commanders

R O Yerbury to be Squadron Leader

A Khidjan to be Squadron Leader (Temporary)

To be Flight Lieutenants E S Odber and S M Rigg

To be Flight Lieutenants (Temporary) P M Jeavons, E G McPherson, J L Winkler

J C Rushton to be Flying Officer

To be Flying Officers (Temporary) C R Cheridle, M B Conran, E N S Fry, J M Hall, S J Harris, R N Jackson, A J I Kelynak, J V Kilby, A M Mackay, J D Oriel, A P Phillips, N A Walker, J G Wall Clarke, E Williams, T A Williamson

### DENTAL BRANCH

A I S Share, MB, ChB, LDS, to be Flying Officer (Temporary)

### ROYAL AIR FORCE VOLUNTEER RESERVE

Flight Lieutenant E de M Connell has resigned his commission, retaining the rank of Flight Lieutenant

Flying Officers R D Eastham, D S M Graham, J A Huckbody, I J M Lumsden, H W MacIntyre, J D S Rowntree, A MacR Whittington, A S Carey, A O Chase, E O Field, and R S Jones to be Flight Lieutenants

The notification in the *Supplement to the London Gazette* dated June 29, and in the *Supplement to the Journal* dated July 10 (p 42) concerning W R St Clair should have read Flight Lieutenant and not Flying Officer

## THE REDUCTION IN DENTAL CARIES IN 5-YEAR-OLD LONDON SCHOOL-CHILDREN (1929-47)

BY

MAY MELLANBY

AND

HELEN MELLANBY, Ph D, M.B, Ch B

(Nutrition Building National Institute for Medical Research, Mill Hill London)

The present paper is a continuation of a series describing the dental condition of 5-year-old London County Council school-children in 1929, 1943, and 1945 (Mellanby and Coumoulos, 1944, 1946). Between July and the end of October, 1947, 1,590 such children were examined with the object of finding whether the improvement observed in 1943 and 1945 had been maintained. The children lived in the same areas of London, and in the majority of cases attended the same schools as those used for the earlier surveys. A few of the schools previously visited were no longer available, substitutes in the same localities were then provided by the London County Council. As before, only children who had attained their fifth birthday but had not yet reached their sixth were selected, the average age being the same as in the other surveys. Although the presence of any permanent teeth erupting or erupted was recorded, this report refers only to the deciduous dentition.

In this 1947 survey the methods and standards adopted were similar to those used previously, full details of which can be found in the earlier papers.

### Methods

**Structure**—The structure of the individual teeth of each child was assessed according to the method devised and first used by M. Mellanby as early as 1923 and since then also employed on numerous occasions by others, including King, Coumoulos, Deverall, H. Mellanby, and Davies.

In essence the method consists in rubbing the labial surface enamel of each tooth with a fine probe of standard size and sharpness (SS White Stainless No. 37). After some practice it is possible to grade teeth in the mouth by the smoothness or roughness felt with the probe. It was shown many years ago that this external enamel texture could be correlated with good and poor microscopic structure (M. Mellanby, 1934). On sectioning smooth teeth showed what were judged to be well-calcified enamel and dentine, whereas external roughness was usually associated with a less well-calcified minute structure, in particular with dentine containing interglobular spaces. The various macroscopic grades of surface roughness or defect are referred to as M-Hypoplasia (M-Hy) to distinguish them from gross or "textbook" hypoplasia (G-Hy), which is the only type whose existence is commonly recognized by dentists. Gross hypoplasia, the aetiology of which is not fully understood, is uncommon in deciduous teeth in this country; it is readily visible to the naked eye, the teeth so classed having obvious enamel pits or in some instances areas from which the enamel is lacking.

In surveys of this kind there are always some teeth whose structure it is difficult or even impossible to grade. This situation

may arise, for instance, when a tooth has some structural defect which does not correspond to any of the grades described below. These teeth are included in Tables under the heading "Hy unclassified". A small proportion of teeth were so carious and others had such heavy deposits of tartar over certain areas that no opinion could be formed about their original surface structure. Where for either reason it was impossible to make a satisfactory estimate of the average structure the teeth are recorded as being present in the mouth but are not included in the structure tables.

By the probe method described, each tooth whose structure could be assessed was graded according to the following symbols:

Hy, No hypoplasia, smooth shiny surface—good structure

M-Hy, Slightly rough surface—slightly defective tooth

M-Hy, Rougher surface—definitely defective

M-Hy, Very rough—very defective

G-Hy All varieties of gross or "textbook" hypoplasia

**Caries**—Each tooth was examined for caries with a standard probe (SS White Stainless No. 12) and illuminated mirror.

Any decay that could be diagnosed by this method was graded as 1, 2, or 3. Grade 1 included very early and suspected fissure and approximal caries and cavities up to the size of a pin-hole, grade 2 included all cavities from pin-hole size up to one-quarter of the crown, and grade 3 contained those teeth with more than one-quarter of the crown decayed, including those of which only the roots were left, and all missing canines and molars, which were assumed to have been extracted on account of caries. Obvious undermining decay was taken into account in judging the size of a cavity. Any incisors not present were counted as naturally shed.

A child's dentition was regarded as caries-free only when no caries, active or arrested, was recorded on the chart. A mouth containing one, two, or three teeth which were included in grade 1 caries, but none in the other grades, was described as being "almost caries-free". This system of classification was adopted in order to obtain figures which could be compared with those obtained in the 1929 survey, when so few children were completely caries-free, according to the above standards, that the two groups "caries-free" and "almost caries-free" were combined, even so the total was then only 4.7%.

**Other Conditions**—Besides structure and caries, a number of other conditions were noted for each mouth. These included the arrest of the carious process, treatment of caries, mottling of enamel, the state of the mouth, spacing of the teeth, obvious tartar, gingivitis, occlusion, attrition, and the presence or absence of stain, but not all these conditions are considered in this report.

## General Results

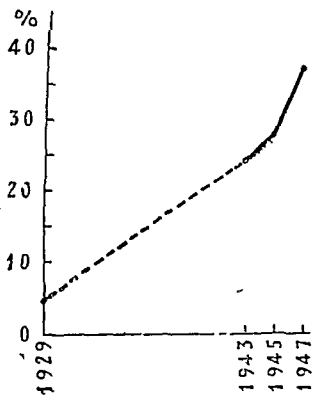
Before the detailed analysis of the data obtained in the latest survey is considered in relation to that of the earlier investigations a brief general comparison may be made

TABLE I—Percentages of Caries-free Children

Year	Total No of Children Examined	% Caries free	% Almost Caries free	Total %
1929	1 293	—	—	4.7*
1943	1 870	14.9	9.3	24.2
1945	691	24.2	3.9	28.1
1947	1 590	28.1	9.4	37.5

\* Percentages of caries free and almost caries free children not separately estimated in 1929

The number of children whose dentitions were of good structure showed obvious improvement from survey to survey, and the upward trend observed in 1943 and 1945 in the proportion of children who, according to the probe and mirror method, could be described as caries-free or nearly so continued in 1947 (see Table I and Graph). It was found that, whereas only 4.7% of the children examined in 1929 could be so classed, the figure had risen in 1943 to 24.2%, in 1945 to 28.1%, and in 1947 to 37.5%.



Showing increase in percentage of caries free and almost caries free children 1929 to 1947

slightly from the percentages found at the earlier inspections. The respective figures for 1943, 1945, and 1947 were 92.2, 94.4, and 93.9%.

## Detailed Results, 1943-7\*

**Structure**—Table II, which compares the results of the three surveys, shows the percentages of teeth included in the different grades of structure and also gives a computation of the extent of defective structure expressed as the average hypoplasia figure (AHF). The AHF is arrived at by allotting a number to each grade of M-hypoplasia (1 for M-Hy<sub>1</sub>, 2 for M-Hy<sub>2</sub>, and 3 for M-Hy<sub>3</sub>) and dividing the

\*The detailed 1929 results do not appear in these tables, as they were not published and the charts were lost early in the war

TABLE II—Comparison of Tooth Structure in 1943, 1945, and 1947

Type of Tooth	Total No of Teeth Examined for Structure			Good Hy <sub>0</sub>			M Hy <sub>1</sub>			M Hy <sub>2</sub>			Very Defective M-Hy <sub>3</sub>			Gross Hy <sub>4</sub>			Hy Unclassified			AHF*		
	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947
Upper Jaw																								
Central incisors	3 324	1 262	2 931	18.2	25.0	46.2	33.9	36.2	38.6	34.3	26.1	13.4	9.4	6.0	0.8	3.9	6.6	3.0	0.2	0.2	0.03	1.37	1.14	0.66
Lateral incisors	3 465	1 341	3 023	27.2	38.6	48.0	46.9	39.4	42.6	19.0	14.3	8.0	4.1	2.2	0.2	2.5	5.4	2.7	0.3	0.1	0.5	1.00	0.79	0.61
Cannines	3 707	1 369	3 119	32.5	40.8	45.1	50.8	45.7	48.5	13.2	10.1	4.2	1.5	1.1	0.2	1.0	1.1	0.7	1.0	1.2	1.1	0.83	0.71	0.59
1st molars	3 268	1 282	2 869	8.2	8.7	8.9	32.1	39.2	55.8	49.9	42.9	33.5	7.0	6.4	1.4	2.8	2.8	0.4	0.0	0.0	0.03	1.57	1.48	1.28
2nd molars	3 427	1 342	2 960	6.0	5.2	5.2	29.2	39.5	48.6	54.0	45.7	43.2	9.4	8.6	2.9	1.3	1.0	0.1	0.1	0.0	0.0	1.68	1.58	1.44
Lower Jaw																								
Central incisors	3 091	1 097	2 535	71.7	85.1	94.3	24.2	14.0	5.3	3.2	0.4	0.2	0.6	0.0	0.1	0.2	0.5	0.2	0.03	0.0	0.0	0.33	0.15	0.06
Lateral incisors	3 624	1 348	3 087	61.5	79.5	89.9	33.7	19.2	9.5	4.2	0.8	0.4	0.4	0.0	0.1	0.1	0.3	0.2	0.1	0.1	0.03	0.43	0.21	0.10
Cannines	3 702	1 370	3 109	51.9	69.7	79.1	36.9	23.5	17.2	5.9	2.3	0.6	0.5	0.1	0.1	1.4	0.7	0.3	3.4	3.8	2.7	0.53	0.30	0.19
1st molars	3 119	1 235	2 700	18.4	22.3	34.9	38.5	39.6	52.9	36.5	32.5	11.3	4.0	3.1	0.5	2.5	2.6	0.3	0.1	0.0	0.1	1.27	1.17	0.77
2nd molars	3 104	1 241	2 755	7.5	7.5	20.9	34.1	37.5	56.9	48.6	45.4	21.0	6.3	8.1	0.9	3.4	1.5	0.3	0.1	0.0	0.0	1.56	1.55	1.0 <sup>0</sup>
Totals	33 831	12 887	29 098	30.7	38.0	47.1	36.3	33.6	37.4	26.3	22.0	13.5	4.2	3.5	0.7	1.9	2.3	0.8	0.6	0.6	0.05	1.04	0.91	0.67

\*AHF (average hypoplasia figure) =

$$\frac{\text{Total hypoplasia figure}}{\text{Total No of teeth examined for structure (excluding those with gross or unclassified hypoplasia)}}$$

total hypoplasia figure so obtained for any group of teeth by the total number of teeth in the group, excluding those showing gross hypoplasia. Thus the greater the number of teeth classed as of good structure (Hy<sub>0</sub>) or included in the less severe grades of M-hypoplasia, the lower the AHF.

As is seen from the average hypoplasia figures (AHF), there was an improvement in structure in each type of tooth from 1943 to 1945 and from 1945 to 1947. The actual reduction in the AHF in the latest survey as compared with the previous one was greatest in the upper centrals and lower first and second molars, but the percentage reduction was substantial in all the lower teeth, as in the upper centrals. The least change in percentage reduction of the AHF in 1947 as compared with 1945 occurred in the upper molars, but these teeth are often covered by a thin film of tartar and it appears to us possible that their hypoplasia figures may be less reliable than those for other types of teeth.

Turning to the proportion of teeth showing the various grades of structure, it is seen that 47.1% were of good structure (Hy<sub>0</sub>) in 1947, as compared with 38.0% in 1945 and 30.7% in 1943. The progressive improvement from survey to survey was distributed among all types of teeth except the upper molars, which showed little change in structure in all three surveys. A possible reason for this will be considered in a future paper. In 1947 both the first and second lower molars were much better than in 1945. This was particularly evident in the case of the second molars, whose improvement in this period was approximately 179% (i.e., from 7.5 to 20.9%). As in the previous surveys, the upper teeth of all types were on the average of poorer structure than their counterparts in the lower jaw. The incidence of gross hypoplasia was lower in 1947 than formerly, whether the teeth were considered *en masse* or in individual types.

**Caries**—As has been already stated, the amount of caries in the 5-year-old L.C.C. school-children underwent a considerable reduction in 1947 as compared with 1945 and 1943. Table III shows the incidence and extent of caries in each type of tooth and in all types together for the three surveys. Like the structure of the teeth their condition as regards caries is expressed in two ways—first as percentages of teeth included in the various grades, and, secondly, as the average caries figure (ACF). For the latter the same principle is adopted as for the AHF. The number 1, 2, or 3 is allotted to each carious tooth according to the severity of the disease, and the total caries figure is divided by the number of teeth in the group concerned. The smaller the ACF the less the degree of caries in the group as a whole. The table indicates that there was improvement at each successive inspection in all types except the lower central incisors,

TABLE III—Comparison of Caries Incidence and Extent in 1943 1945 and 1947

Type of Tooth	Total No of Teeth			C <sub>0</sub>			C <sub>1</sub>			C <sub>2</sub>			C <sub>3</sub>			Total Carious Teeth			ACF*		
	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947
Upper Jaw																					
Central incisors	3 392	1 280	2 974	62.4	70.5	77.8	9.8	5.0	5.6	16.2	17.2	13.6	11.6	7.3	2.9	37.6	29.5	22.2	0.77	0.61	0.42
Lateral incisors	3 590	1 358	3 095	79.7	85.1	89.4	6.8	3.2	3.3	9.2	8.6	5.1	4.3	3.1	2.2	20.3	14.9	10.6	0.38	0.30	0.20
Canines	3 740	1 381	3 180	90.5	92.5	93.1	2.9	1.7	1.9	4.6	4.2	4.2	2.0	1.6	0.9	9.5	7.5	6.9	0.18	0.15	0.13
1st molars	3 740	1 382	3 180	58.0	61.1	69.4	8.7	8.3	6.5	13.3	17.4	14.3	20.0	13.2	9.9	42.0	38.9	30.6	0.95	0.83	0.65
2nd molars	3 740	1 382	3 180	43.5	48.6	65.6	17.2	17.7	14.0	18.1	23.6	11.7	21.1	10.1	8.7	56.5	51.4	34.4	1.17	0.95	0.64
Lower Jaw																					
Central incisors	3 112	1 098	2 576	95.1	98.3	98.3	2.7	0.9	0.7	1.5	0.8	0.6	0.7	0.0	0.3	4.9	1.7	1.7	0.08	0.03	0.03
Lateral incisors	3 662	1 354	3 114	96.3	97.9	98.3	2.0	0.6	0.5	1.3	1.3	0.9	0.4	0.2	0.2	3.7	2.1	1.7	0.06	0.04	0.03
Canines	3 740	1 382	3 180	93.1	94.1	95.9	2.4	0.7	1.4	3.3	4.3	2.3	1.2	0.9	0.4	6.9	5.9	4.1	0.13	0.12	0.07
1st molars	3 740	1 382	3 180	46.0	51.4	56.7	7.9	7.2	5.7	17.0	21.1	18.8	29.1	20.3	18.8	54.0	48.6	43.3	1.29	1.10	1.00
2nd molars	3 740	1 382	3 180	39.0	41.2	57.0	12.9	15.1	11.2	15.0	19.5	11.9	33.1	24.1	19.8	61.0	58.8	43.0	1.42	1.27	0.95
Totals	36 196	13 381	30 839	69.9	73.5	79.7	7.4	6.2	5.2	10.1	12.0	8.5	12.6	8.3	6.6	30.1	26.5	20.3	0.65	0.55	0.42

\*ACF (average caries figure) =  $\frac{\text{Total caries figure}}{\text{Total No of teeth (including extractions)}}$

TABLE IV—Percentage Incidence of Caries in Teeth with Varying Grades of Structure

Grade of Structure	Incisors						Canines						Molars					
	Total No Examined			% Carious			Total No Examined			% Carious			Total No Examined			% Carious		
	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947	1943	1945	1947
Hy	5 992	2 837	7 921	1.1	1.2	2.4	3,126	1 514	3 866	1.5	1.1	1.8	1 281	550	1 927	8.3	7.0	11.9
M Hy.	4 724	1 399	2 789	12.0	11.2	16.7	3,248	947	2,050	7.9	8.0	9.2	4 310	1,987	6 033	24.5	25.0	30.7
M Hy.	2 053	536	649	44.9	39.2	36.8	707	169	152	26.7	29.6	15.1	6 133	2 127	3 124	62.6	66.5	43.4
M Hy.	487	105	33	80.4	81.0	51.5	75	16	10	61.1	68.9	0.0	867	335	164	87.1	92.3	60.4
Gross Hy	226	165	178	64.2	62.4	36.0	90	24	32	23.3	20.8	34.4	319	101	32	58.9	52.5	34.4

NOTE—This table does not include the few teeth shown under the heading "Hy Unclassified" in Table II

where both incidence and extent of caries remained the same in 1947 and 1945. Here so few teeth were carious even in 1943 that little improvement could be expected. The proportion of caries-free teeth of all types increased from 69.9% in 1943 to 73.5% in 1945 and 79.7% in 1947. In the latest survey the most striking increase in this respect was in the upper and lower second molars, where there was most scope for improvement. It is of interest to note that although in 1947 over 70% of the children examined had at least some caries, yet the disease occurred in only about 20% of the teeth, including fillings and extractions. The proportion of carious teeth had diminished by approximately 33% since 1943.

**Relation between Structure and Caries**—All previous surveys using M-hypoplasia standards for structure showed that the better-formed teeth were less liable to decay. This was also true of the 1947 survey, as can be seen by reference to Table IV. For example, the incisors with no hypoplasia had a caries incidence of 2.4%, whereas those with grades M-Hv, and M-Hy had a caries incidence of 16.7 and 36.8%, respectively. Of the very few incisors in the M-Hy, grade 51.5% were carious. The corresponding figures for

molars with no hypoplasia and with M-Hy, and M-Hy, were 11.9%, 30.7%, and 43.4%. As in the case of the incisors, there were relatively few molars in the M-Hy, grade, but 60.4% of them were carious.

**Other Conditions**—There was less arrest or "spontaneous healing" of decay in individual teeth in 1947 than in 1945, though more than in 1943 (see Table V). The reason for this is not clear. The amount of treatment of carious teeth (see Table VI), which was lower in 1945 than in 1943, had risen in 1947 nearly to the 1943 level, and the percentage of extractions was almost identical in these two surveys.

Reference has previously been made (Pickerill, 1923, Ayers, 1939, Pincus, 1941, Pederson, 1946, Mellanby and Coumoulos, 1946) to the superficial stains commonly seen on children's deciduous teeth, and to the fact that mouths in which black and dark-brown stains occur appear to be associated with a lower incidence of caries, and green stains with a higher incidence. In the 1947 survey this was again the case (see Table VII).

## Discussion

An account has been given of a further survey, made in 1947, of the dental condition of 5-year-old children attending London County Council schools. Comparison has been made between the results of this work and those obtained in the examination of children of the same age group attending the same or neighbouring schools in 1929, 1943, and 1945. The main findings as regards the incidence of

TABLE V—Teeth showing Arrest (Spontaneous Healing) of the Carious Process

	No of Carious Teeth Present	% Carious Teeth Present Showing Arrest
1943	9 182	11.7
1945	3 203	21.5
1947	5 270	14.2

TABLE VI—Carious Teeth Extracted Treated by Silver Nitrate or Filled

	Total No of Carious Teeth (Including Extractions)	Treatment			Total Percentage of Carious Teeth Treated
		Extracted	% Silver Nitrate	% Filled	
1943	10 886	187	6.7	2.7	25.0
1945	3 545	96	2.8	2.7	14.8
1947	6 245	156	2.4	4.4	22.4

TABLE VII—Percentage Incidence of Carious Teeth in Children with and without Superficial Staining of Teeth

	Percentage of Carious Teeth			ACF		
	1943	1945	1947	1943	1945	1947
Children having						
(a) No stain	30.1	23.1	19.8	0.66	0.48	0.41
(b) Black and dark-brown stains	19.3	15.4	12.4	0.41	0.30	0.25
(c) Green stain	33.4	33.0	26.0	0.72	0.69	0.54

caries *per child* observed over this period of 18 years, are set out in Table I and the Graph. It will be seen that the improvement has been great, especially between 1945 and 1947. In the first period of 14 years the average increase in the percentage of caries-free or nearly caries-free children was at the rate of 1.4% per year, in the second period of approximately two years it was 1.95%, and in the third period, also of about two years, it was 4.7%. Tables II and III indicate that the structure of the teeth also has greatly improved from 1943 to 1947 and that the incidence and extent of caries *per tooth* have been substantially reduced.

These surveys were preceded by experimental investigations on animals, begun in 1917, and by controlled studies on children which were the natural outcome of the animal work. The earlier experiments were devoted to a study of the food factors which affected the structure of the teeth, and ultimately it became possible to state the chief dietetic conditions favouring good and poor structure. For the former it was essential that the diet during the period of tooth development should be rich in available calcium and phosphorus and in vitamins D and A. Indeed, it was this work, in association with the researches of E. Mellanby on the subject of rickets, which first helped to prove the existence of a calcifying vitamin (vitamin D). The factors resulting in defective structure were mainly associated with both the quantity and the type of cereals consumed when vitamin D and calcium were deficient in the diet.

The clinical investigations on children showed the importance of the animal experiments in demonstrating the factors controlling dental structure, for these human studies pointed to the conclusion that, other things being equal, well-calcified teeth, according to the criteria used, were less liable to caries than badly calcified teeth.

Another fact of importance made clear by the animal experiments was that those diets which produced teeth of good and poor structure, respectively, also increased or decreased the resistance of teeth to a stimulus such as attrition, quite apart from their original structure. Thus teeth of either good or poor structure, when worn by friction, produced well-formed secondary dentine when the diet was of a highly calcifying nature, but produced badly calcified secondary dentine or none when the diet was deficient in calcifying properties.

Examination of children's teeth which had been subject to attrition indicated the same kind of reaction to this stimulus. A matter of greater importance, however, as was shown by investigations in Sheffield and Birmingham, was that a diet of high calcifying properties given after eruption of the teeth, whatever their structure, could prevent or retard the onset of caries, or, if the disease had already developed, bring about the deposition of well-calcified secondary dentine and ultimately the arrest of the carious process (Mellanby, 1934).

This effect of the post-eruptive diet in altering the resistance of teeth to caries, as opposed to the control of their development and structure by the diet before eruption, was substantiated by surveys made in 1945 on three groups of 5-year-old children, one group attending private schools, another attending London County Council schools, and the third comprising mainly destitute or illegitimate children living from an early age in public institutions and in most cases attending the institutional schools (Counmoulos and Mellanby, 1947). As a group, the institutional children had worse-formed teeth than the LCC or private-school children, but nevertheless had relatively less caries. On the basis of previous experimental and clinical evidence and of the conditions under which the children were reared it seemed fair to postulate that the pre-eruptive diets of the private school children were better in calcifying properties

than those of the children who became the responsibility of the institutions, and thus their teeth were of better structure, but on the other hand it appeared that the post-eruptive diets of the institutional children, who received regularly a diet rich in calcifying properties which included cod-liver oil, were on the average better in this respect than those of the private-school group, so that, in spite of the poorer structure, the teeth became more resistant to invasion and allowed less caries to develop.

Thus all these studies emphasize the importance of feeding children, first via the mother and later independently, on diets which will result in better calcification and greater resistance of the teeth.

It might be asked, then, whether there is evidence that the rapid improvement in the dental condition of the London County Council school-children, as regards both structure and freedom from caries, between the years 1943 and 1947, and especially between 1945 and 1947, as compared with the period 1929 to 1943, is due to causes indicated by the earlier experimental and clinical investigations. Certainly on the basis of that work such improvement would be expected to result from the series of changes in the dietary of this country during the war years. It was well known to those familiar with the subject that one of the main defects of the pre-war British dietary was its poor calcifying qualities.

Early in the hostilities, when restrictions in both quantity and quality of food necessitated the best possible use of available supplies, one of the first steps taken by the Government, on the advice of nutritional scientists, was to direct foods with high calcifying properties to those classes needing them most—namely, expectant and nursing mothers and infants. For example, from July, 1940, all expectant mothers could claim a milk priority of 1 pint (568 ml) a day. After the child was born two pints (1.14 litres) a day were allotted between mother and child for the first year, so that if the mother fed the baby herself then the two pints were available for her own consumption. From the age of 1 to 5 years the child's own allocation was 1 pint a day. This was reduced to half a pint (284 ml) for home consumption when school age was reached, but could be supplemented by 1/3 or 2/3 pint (190 or 380 ml) daily at school. In December, 1941, cod-liver oil was made available at a reduced rate through welfare centres, clinics, and food offices to children aged 6 months to 2 years, and in February, 1942, provision was extended to all children up to the age of 5 years. Expectant mothers were eligible for the oil from these official sources from December, 1942, and in April, 1943, vitamin A and D tablets were instituted as an alternative. At this time the vitamin D content of the Ministry of Health's cod-liver oil compound was raised from 100 to 200 international units per gramme, and has remained at this level. More eggs have also been available to mothers and young children than to non-priority classes.

Besides these special allocations there have also been, during and since the war years, a series of nutritional changes which have affected the whole population of the country, including, of course, the mothers and growing children. In this case also the calcifying as well as certain other qualities of the diet have been improved. For instance, since 1940 all margarine has had to contain vitamins D and A. In July, 1940, the vitamin D content was at the rate of 30 international units per ounce (approx. 1.1 u per gramme), in November, 1941, it was raised to 60 i.u. (2.1 u per gramme) and in January, 1945, to 90 i.u. per ounce (3.1 u per gramme), the vitamin A content has been from 450–550 i.u. per ounce (16–20 i.u. per gramme) throughout this period. With a weekly ration of 3 to 4 oz (85–113 g) of margarine for the average person,

It has been possible for each to receive between 12 and 50 i.u. of vitamin D and 200 to 300 i.u. of vitamin A per day from this source alone. Again, from 1942 onwards calcium has been added to all flour, at first the rate was 7 oz (200 g) of calcium carbonate per sack of 280 lb (127 kg), later in 1946 the amount was doubled. This addition of calcium was necessary because the raising of the extraction rate of the flour from the pre-war level of 70-73% to the wartime level of 85%, or even higher, greatly increased the phytate content of the flour, and phytate is known to decrease the availability of calcium in the food. This additional calcium was also an important adjunct to the dietary of non-priority people because of the limited amounts of milk, eggs, and cheese available. The larger amount of added calcium was sufficient to neutralize the harmful anticalcifying properties of the phytate, and any excess was available to help in promoting or maintaining the calcification of bones and teeth and for other physiological functions which required optimal calcium supplies.

Prior to the war many mothers had neither the desire nor the means to procure for themselves or their children adequate supplies of such foods as milk, eggs, and cod-liver oil. Recently, however, there has been an increasing awareness, on the part of both the medical and the lay population, of the nutritional benefits conferred by these foods, and generally speaking, money has not been a limiting factor, since Government subsidies have brought them within the reach of most families. If, however, people cannot afford to buy milk even at the subsidized rate, it may be obtained free of charge for expectant mothers and children under 5 years of age, and cod-liver oil, which was previously supplied at reduced rates, can to-day be had without cost under the welfare service.

It appears, then, from the foregoing account of recent diet changes, that an important reason for the more rapid improvement in the dental condition of children between 1945 and 1947 as compared with the preceding years is clear-cut. For the first time in the course of these surveys all the expectant and nursing mothers and all the children up to the age of 5 years have been in a position to obtain increased quantities of calcium and vitamin D via established milk, cod-liver oil, and egg priorities, and they have benefited further by other Government measures outlined above, so that throughout the whole antenatal and post-natal life of the latest group of children examined, who were born between November, 1941, and October, 1942, the diet available has been of consistently better calcifying qualities than that of the subjects of the earlier surveys. The pre-eruptive diet has produced better-calcified teeth than were formerly observed, and the post-eruptive diet has tended still further to increase the already higher resistance of these teeth to caries.

It must not be forgotten, however, that even to-day the majority of children in the young age group studied have some carious teeth and it seems most likely, on the basis of the present hypothesis, that this is due, in part at least, to the fact that many mothers do not avail themselves of all the special foods at their disposal. In order, therefore, to get some idea of what proportion of the mothers whose children were examined in 1947 actually took up their special allowances, a point was made of asking any who were present at the examination some simple questions on the subject. The numbers involved are too small to be of significance but they give an indication of the general trend.

Of the 224 women questioned 68% stated that they drank their prior milk and 65% of the children were said to have consumed a pint of milk a day during the pre-school period. In answer to the question 'At what age did you begin to give your child cod-liver oil?' 20% of the mothers said that it was

given from the age of 8 weeks or less, but the amount and the length of time for which it was given varied. It was estimated that about 14% of the children had not had any cod-liver oil or alternative vitamin concentrate at any time, while the remaining 56% had had one or other of these supplements for some period during the first five years of life.

These figures suggest that there is still need for greatly increasing the numbers of women and children making use of the food priorities mentioned. This, of course, does not mean that the problem of caries would thus be solved. Indeed, it probably cannot be solved while the actual factors directly initiating the condition remain obscure, but when these are brought to light it may be possible to control the disease more directly and efficiently. Meanwhile the evidence grows stronger from year to year that the best way at present available to make a primary attack on this great health evil is to feed pregnant and nursing women, infants, and children along the lines which are known to produce well-constructed teeth and jaws and to increase resistance to decay—in other words, to ensure that both pre-eruptive and post-eruptive diets are relatively rich and balanced in available calcium and phosphorus and in vitamin D.

### Summary

The dental condition of 5-year-old children attending London County Council schools in 1947 has been described and compared with that of similar groups examined in 1929, 1943, and 1945.

The progressive improvement found in the two previous surveys has also been observed in 1947. The rate of increase in the percentage of caries-free or almost caries-free children between 1945 and 1947 has been more rapid than between 1943 and 1945, and certainly much more rapid than between 1929 and 1943. The same trend has occurred between 1943 and 1947 in the structure of the individual teeth and the incidence and extent of caries, the improvement being greater in the second two years than in the first two.

As in the 1943 and 1945 surveys, it is again suggested that the improvement is due to the increased calcifying properties of the dietary of this country, and particularly that of pregnant and nursing women, infants, and young children. The marked improvement in 1947 is thought to be mainly due to the fact that for the first time in these surveys the diet has been of consistently better calcifying qualities over the whole antenatal and post-natal life of the children concerned.

We wish to express our thanks to the London County Council and Sir Allen Daley for permission to undertake this survey to the head teachers of the schools and their staffs for their willing co-operation, to Mrs M. Kelley, Miss I. Allen, and Miss J. Robinson for their help in the preparation of this report, and to the Medical Research Council for financing the work.

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 (For fuller references to related work see Mellanby, M., and Coumoulos, H. 1944 and 1946.)

New regulations made by the Minister of Health about health visitors and tuberculosis visitors apply not only to those employed by local authorities, as formerly, but also to the employees of voluntary organizations. They also cover part-time visitors as well as whole-time.



## STURGE-KALISCHER-WEBER SYNDROME OF BILATERAL DISTRIBUTION

BY

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Congenital naevi of the face (and body) may be associated with corresponding lesions of the leptomeninges, the latter giving rise to epilepsy—often Jacksonian in type—and in some cases hemiparesis. Sturge, in 1879, reported the case of a girl, aged 6½ years, with an extensive telangiectatic naevus, especially of the right side of the face and head, right-sided buphthalmos, and epileptic attacks starting in the left hand, he concluded that the right side of the brain was also involved in the naevoid condition. Schirmer, in 1860, had already described the case of a man aged 36 with an extensive naevus, especially of the left side of the face, and left-sided buphthalmos, but he made no reference to epileptic attacks or a possible cerebral lesion.

Kalischer, in 1897, reported a case described as a diffuse evidently congenital telangiectasis of the scalp and brain, and in subsequent post-mortem study (Kalischer, 1901) the lesion is described as a blood-vessel tumour (angioma) of telangiectatic character with progressive alteration and participation of veins and capillaries in the growing lesion.

Parkes Weber, in 1922, reported the radiographic appearances of the brain in a typical case which showed a large telangiectatic naevus involving especially the left side of the face, right-sided hemiparesis, and hypotrophy of the affected limbs. X-ray examination of the skull revealed a more or less calcified and apparently "festooned" lesion on the surface of the left cerebral hemisphere. A year later Dimitri (1923), in the Argentine, described the radiographic findings in a similar case.

Other cases in which facial naevi—with or without similar lesions on other parts of the body—have been associated with proved leptomeningeal angiomas, or with symptoms such as epilepsy suggesting the presence of a similar cerebral lesion, have been reported by several observers. The condition may also be associated with buphthalmos ("ox-eye," congenital glaucoma) on the same side as the main cutaneous naevus, as in Parkes Weber's case (1922), three of Cushing's cases (1906 and 1928), and two of Brushfield and Wyatt's cases (1927). Mental deficiency may also be present, as in all Brushfield and Wyatt's cases (1927) and one of Cushing's (1928).

Unilateral intracranial haemorrhage from the abnormal blood vessels of the meningeal angiomatous condition may also occur in early life (or even intrauterine life) and may cause or increase the spastic hemiplegia. The history in one of Cushing's cases suggests this possibility, and in one of Brushfield and Wyatt's cases the left hemiplegia was first noticed after a severe left-sided convulsive attack at the age of 6 weeks.

The actual cerebral lesion would appear to be a capillary angioma of the leptomeninges, as judged from the few post-mortem examinations it has been possible to carry out—e.g., the cases of Kalischer (1901), Strominger (1905), Cushing (1906, 1928), and Brushfield and Wyatt (1927). Thus the meninges are described as "unduly vascular and in all probability representing a naevoid condition similar to that of the skin" (Cushing's first case), the cerebral meninges thickened and excessively vascular (Strominger's case), left cerebral hemisphere covered by a diffuse meningeal angioma (Brushfield and Wyatt). A very vascular condition of the dura mater with adhesions to the leptomeninges has been found at operation (Cushing). The affected cerebral hemisphere is sometimes smaller than

that of the opposite side (e.g., Kalischer's case and one of Cushing's cases).

Parkes Weber (1946) concludes that the condition is due not to any genetic cause but to an "accidental local injury (mechanical, chemical, or physical) to the ovum at some period after fertilization—that is to say, to the embryo during early intrauterine life."

Should an extensive naevus involving mainly one side of the face be present in a patient with contralateral Jacksonian epilepsy or a hemiparesis, the presence of a pial angioma, even if not revealed by calcification, is sufficient to justify the diagnosis. All the cases hitherto recorded appear to have been unilateral. Oppenheim, however, in 1913 reported four cases, in two of which the apparently involved cerebral hemisphere was contralateral to the facial naevus.

The following case showed extensive cutaneous naevi on both sides of the face and body, although more extensive on the right side, which was also hemiparetic. X-ray examination of the skull showed evidence of bilateral intracranial calcification. The epileptic attacks were generalized, although clonic movements usually began and were more pronounced on the right side of the body, also, the child was mentally deficient (amentia).

### Case Report

The patient, a female child, was first seen in December, 1942 at the age of 7½ months. She was a first child, full-term, both the pregnancy and the birth (vertex) being normal weight at birth, 6 lb 7 oz (2.92 kg). Convulsive attacks started at the age of 4 months and have continued at intervals, the fits were mainly but not exclusively right-sided. She has had as many as five fits in one day and has seldom been free from attacks for longer than two or three days. On phenobarbitone, ½ gr (16 mg) t.d.s., the attacks are somewhat reduced in frequency.

The family history showed that a cousin on her mother's side had a cutaneous naevus on the left side of the forehead but without fits. The father and mother were in good health and there had been no miscarriages. There was no consanguinity of the parents and the mother's blood Wassermann reaction was negative.



FIG 1—The patient at the age of 3½ years, showing extensive cutaneous naevi of left side of face and chest and left arm with less pronounced naevus formation on right side of face.



FIG 2—The patient at the age of 4½ years, showing the cutaneous naevus of the upper part of the back on the left side both buttocks—mainly the left—and the left leg

she moved the limbs fairly well. Heart and lungs were normal.

The cerebrospinal fluid was clear to the naked eye but showed 240 red cells, with 6 white cells per cmm, mainly small lymphocytes but with an occasional small endothelial cell, total protein, 140 mg. per 100 ml, with globulin in slight excess. Lange 1211110000 and WR negative. Blood WR negative. X-ray examination of the skull at this stage showed no abnormality.

The fits observed in hospital started with twitching of the right side of the face—at the angle of the mouth and around the eye—and deviation of eyes to the right; the clonic movements spreading to the right arm and leg; there was loss of consciousness with spread of the twitching to the left arm and leg.

#### Subsequent Progress

The patient was seen again a year later (December, 1943), aged 1 year and 7 months. Epileptiform attacks had continued at intervals usually beginning with twitching of the right side of the face, arm and leg as before, occasionally, however, the attack would start with twitching of the left arm. On whichever side the attack started however, both sides were eventually involved, but the right side usually more than the left. The child appeared unconscious for only a minute or so and sometimes consciousness was not lost. The anterior fontanelle was closed. X-ray examination of the skull now showed extensive fine calcification on the left side of the cerebrum and also similar calcification but of lesser extent on the right side.

At the age of 3½ years she could sit up unsupported but was unable to stand. She made no attempt to speak but at times uttered a monosyllabic cry. She followed a lighted electric torch with her eyes and turned her head at a sound. The cerebrospinal fluid now showed only two small lymphocytes per cmm and a total protein of 40 mg. per 100 ml, both WR and Lange reactions were negative. A blood examination was

On examination (December, 1942), extensive and bright-red capillary naevi were present on the left side of the face, scalp, and upper portion of the trunk, the left arm and hand and the outer portions of the left leg were also involved. On the right side of the face and scalp similar but less extensive naevi were present, on neither side of the face did the lesions extend below the level of the mouth. Further, on the right side smaller naevoid patches were seen on the posterior aspect of the shoulder, scapula, gluteal region, and calf, and on the outer side of both dorsum and sole of the foot (Figs 1 and 2, taken later). Her weight was 14 lb 6 oz (6.52 kg) and she appeared to be mentally deficient. The cranial nerves and optic disks were normal. There was slight spasticity of the right arm and leg, with increased deep reflexes on the right side, but



FIG 3—Skilogram of skull (antero posterior view) showing bilateral intracranial calcification, more pronounced on the left side (Patient at the age of 3½ years)

normal, with 5,040,000 red corpuscles, Hb, 92%, colour index, 0.8, and white cells normal.

An x-ray examination of the skull again showed bilateral intracranial calcification, but more pronounced on the left side than the right. In the antero-posterior view (Fig 3) the calcification is seen in fine linear markings radiating outwards towards the periphery. In the lateral view calcification extends from the cribriform plate to the occipital region, being more pronounced in the fronto-parietal areas (Fig 4).

When seen at the age of 4½ years (January, 1947), she had remained free from fits for several months at a time. When they occurred she might have any number from 1 or 2 to 12 in one day. They remained more or less of the same type, mainly right-sided but spreading to the left side, and sometimes vomiting occurred.

On examination speech was still absent and she made only unintelligible noises. The right arm was spastic, held flexed at the elbow, wrist and fingers, but showed a fair degree of voluntary movement. The right arm jerks were all brisker than those on the left. The left arm was used more than the right. The abdominal reflexes were present, left brisker than right. There was slight adductor spasm of the legs, the right leg being more spastic than the left. Voluntary movements were present but were weaker and of less range in the right leg, which was 2 in (1.9 cm) shorter than the left. There was a tendency to



FIG 4—Skilogram of skull (lateral view), showing intracranial calcification extending from the supra-occipital to the frontal region (Patient at the age of 3½ years)

talipes caicansus on both sides. She made no attempt to walk, but could stand when supported with both legs adducted. Occasionally restless movements of all limbs were observed. The knee and ankle jerks were brisk, right greater than left and plantar reflexes indefinite. Heart normal, pulse rate 76, and blood pressure 105/70.

### Commentary

I am not aware of any previous record of a case of Sturge-Kalischer-Weber syndrome showing bilateral intracranial calcification. Cases of extensive cutaneous naevi on both sides of the body, usually more continuous on one side and patchy on the other, in association with Jacksonian epilepsy are occasionally encountered. One such case under my care is described in an addendum to Parkes Weber's paper of 1929, in this case, no intracranial calcification was demonstrable on x-ray examination. In the case now reported the calcification is more extensive and more intense on the one side (left cerebral hemisphere), than on the other, and this corresponds to definite hemiplegic signs in the spasticity of the right arm and leg and the increased deep reflexes. Similarly, the epileptiform attacks usually begin on this (right) side, and even when more generalized the right side is the more affected. The blood found in the cerebrospinal fluid at the first lumbar puncture at the age of  $7\frac{1}{2}$  months was almost certainly due to contamination at the time of lumbar puncture (no doubt resulting from intense local vascularity) rather than to a recent subarachnoid haemorrhage from the intracranial angioma, as the red cells were quite fresh and there was neither haemolysis nor xanthochromia. Then again, the cerebrospinal fluid examined at the age of  $3\frac{1}{2}$  years was quite normal.

The calcification of the meningeal angioma evidently began between the ages of  $7\frac{1}{2}$  months and  $1\frac{1}{2}$  years, since no x-ray abnormality was seen at the earlier age, but a year later intracranial calcification was demonstrated on both sides, the more profound lesion of the left cerebral hemisphere showing the more extensive and denser calcification.

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Presiding at a conference of the Tuberculosis Association in Belfast, Dr Frederick Heaf, Director of the London County Council tuberculosis services, said the organization in Ulster for dealing with the disease was the envy of the profession in England. Dr Brice Clarke, Director of the Northern Ireland Tuberculosis Authority, informed the conference that there were 1,200 beds in tuberculosis hospitals in Ulster, as well as a number of beds in general hospitals for tuberculosis patients. Seven hundred additional beds were planned and 250 of them would be ready within the next twelve or eighteen months. A children's orthopaedic hospital was being built and an infants and children's hospital for pulmonary cases was being developed. It was hoped to have five or six clinics in Belfast and thirteen in other parts of Ulster. In addition, a contract had been placed for 100 rest chalets. Since June, 1945, 93,000 persons had been examined by the mass radiography unit in Belfast and a second unit had been ordered.

## POLIO-ENCEPHALITIS

BY

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AND

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The 1947 epidemic of poliomyelitis has again attracted attention to the question of polio-encephalitis, and there is no doubt that considerable confusion prevails concerning the definition of this condition. McAlpine (1947) stated that "during this epidemic the presence of nystagmus, photophobia, and neck rigidity in a patient who has been ill for a few days with headache and fever was considered sufficient evidence for the diagnosis of polio-encephalitis. Murray (1947) suggested that the brain-stem form of the disease should be regarded as an extension of the spinal type, and that the notification of polio-encephalitis as a separate condition should be discontinued.

Rothman (1931), in an excellent review of the situation at that time, stated that "the exact status of polio-encephalitis (using the term to mean cerebral and not bulbar involvement) and its relationship to the spinal form of infantile paralysis remains nearly as unsettled now as it was at the time of its description." This statement holds true to day. It is hardly surprising that this should be so when it is remembered that the name was first given by Strumpell in 1885 to a form of cerebral paralysis in children which, although displaying many of the manifestations of poliomyelitis, was probably due to toxic action on the cerebral vessels causing thrombosis or haemorrhage without evidence of encephalitis (Ford and Schaffer, 1927).

It has been stated that increased tendon reflexes, absent abdominal reflexes, and extensor responses are evidence of cerebral involvement in poliomyelitis (Kiss and Fenyess, 1936). These signs, and the combination of spastic and flaccid paralyses, may be due to pressure on the pyramidal tracts from inflammation and oedema in the white matter of the cord.

Scheinker (1947), in a detailed study of six cases, found that no part of the central nervous system entirely escaped damage, and that the medulla, pons, mid-brain, and cerebellum were involved in every case, while the cerebral cortex was not affected at all. He also found that inflammatory changes were intense but neuronal destruction rare in the higher centres, in contradistinction to conditions in the anterior horns. Bodian (1947), reporting on 24 human cases, stated that to the pathologist all cases of poliomyelitis were encephalitic, that some areas of the brain were never affected but the main cerebral changes were from the brain stem to the hypothalamus and thalamus. So far as the motor cortex was concerned, Bodian considered that only in rare cases were the lesions severe enough to cause clinical signs, and that spastic and psychic sequelae were not cortical in origin—nor were stupor, disorientation, and coma—but were produced by areas of focal softening in the basal centres.

The following case under our care appeared to show encephalitic manifestations and involvement of lower motor neurones.

### Case Report

A girl aged  $17\frac{1}{2}$  had been well until Nov. 9, 1947, when she suddenly developed a cold and generalized headache. On Nov. 12 vomiting started, being repeated several times, and she was admitted to hospital as a case of suspected meningococcal meningitis.

diagnostic value than cervical cultures. In 32 cases both swabs were positive, but 18 urethral swabs were positive when the corresponding cervical swab was negative, and only eight cervical swabs when the urethral swab was negative.

#### Trichomonas

During this investigation it was incidentally discovered that *T. vaginalis* remained alive and active in the transport medium. The detection of these organisms was simple. A drop of peptone-water suspension prepared from a swab was placed on a clean slide under a coverslip and examined microscopically with reduced illumination. Frequently the presence of the parasite could be detected with a 2/3-in. (1.7-cm) objective ( $\times 60$ ) by its active jerking movements, and brisk flagellar movement could be seen regularly with a 1/6-in. (0.4-cm) objective ( $\times 240$ ). To determine the reliability of this method of examination, 401 consecutive specimens, including a number from males and children, were examined in parallel by the simple wet-film method and after Leishman staining. To make the examination of direct comparative value the wet film was examined first and the result recorded as positive only if distinct movement, either organismal or flagellar, was seen. Then the coverslip was removed carefully, the fluid on the slide concentrated on as small an area as possible and fixed in the usual manner. Thus the same specimen was examined by the two methods. Staining and further examination were carried out independently by another worker with many years' special experience in this type of investigation. In spite of the apparent advantage of the stained film (Table III) it was found that in only two instances were more

TABLE III—*T. vaginalis* Comparison of Stained Film and Wet Film

Stained Film Wet Film	+	-	0	0
$\leq 12$ hours	16	4	5	42
$> 12$ hours	65	24	7	215
Total	81	28	12	260

than one or two trichomonads present in the 28 positives not detected by wet film, so in view of the latter's simplicity it was adopted as a routine. In all, 710 consecutive specimens were examined by this method (Table IV). Of 312

TABLE IV—Incidence of *T. vaginalis*

	Urethra		Cervix (Adults)	Vagina (Children)
	Male	Female		
Positive	2	60	120	2
Negative	39	237	191	59

adult women examined *T. vaginalis* was found in 139. The incidence in patients with gonorrhoea was 20 out of 45, in patients with non-specific leucorrhoea 73 out of 144—in both instances approximately 50%. However, in a series of 123 women examined as a test for cure and in whom no clinical symptoms were manifest 46 were found to be positive—an incidence of more than 37%.

#### Discussion

The success and simplicity of the above transport method recommend its use in clinical venereal disease practice. The principle that the prevention of oxidation helps to maintain gonococcal viability in transport material has been established by experience. Nevertheless, in common with many other newly established techniques unexpected difficulties have arisen. It has been found that many batches of agar now available are unsuitable, perhaps because of

their content of a bacteriostatic or bactericidal substance described by Ley and Mueller (1946). Recent experiments suggest that these difficulties may be circumvented comparatively simply, and it is hoped to publish shortly a description of the amended technique. The difficulty associated with the overgrowth of other bacteria does not arise in the method described, but the discovery of an effective selective bacteriostatic agent would still be of great benefit in culture by allowing a much larger inoculum to be used.

The value of cultural investigation of gonorrhoea is now probably universally accepted. Certainly in female gonorrhoea the difficulties which face the clinical worker dependent solely on the results of smear examinations cannot be overemphasized. Most observers will agree that a smear from an average mixed infection in a female always shows the presence of organisms with some morphological resemblance to gonococci. Many of these are Gram-negative coccobacilli which have often a distinct tendency to coccil morphology in exudates. De Bord (1943) described many of the organisms which may be mistaken for gonococci by simple microscopical examination. *Neisseria* other than gonococci are not uncommon, but in culture their identity is readily established. In the above series such organisms were isolated on three occasions.

Many striking examples of the advantage of culture have been noted in the above investigation. Six successive smears from one woman were negative, yet the first culture taken was positive. In many women known to have been in contact with a case of gonorrhoea no clinical signs were discovered yet positive cultures were obtained. Coincident with this or soon after frank clinical evidence of infection appeared in some of the patients. In spite of the numerous successes, however, failures have also been recorded. Some of these are possibly explicable by adventitious factors. A number of patients were found to have been swabbed in error with a weak antiseptic lotion before the specimen was taken. The persistence of this old clinic routine was only discovered late in the investigation when the patients affected could no longer be traced. Again specimens for smear examination were always taken first and this practice may have weighted the scales in favour of smear examination. Nevertheless, we are convinced that a few strains of gonococci are peculiarly difficult to grow. Such strains have been recorded by Linkford *et al.* (1943). Using media similar to those we employed Weller and Williams (1946) obtained cultures from only 76% of known positives. Media which are supposed to give better results are now being investigated, but it seems unlikely that complete success will be achieved so long as gonococci have to compete on equal terms with more vigorous contaminating bacteria. It is probably the consensus of modern opinion that even the well-established Loeffler's serum for *Corynebacterium diphtheriae* fails in from 5 to 30% of cases, and greater success has been obtained only since the introduction of potassium tellurite, a selective bacteriostatic agent. In the culture of the gonococcus final success awaits the introduction of such an agent. Perhaps some of the new antibiotic substances may be suitable for the purpose and it is unfortunate that workers in this field so often seem to abandon further investigation of bacteriostatic substances which prove inactive *in vitro*.

At present we believe that smear and culture investigations are complementary and that successful diagnosis and control of gonorrhoea, in females at least, demand the application of both. The difficulty of applying cultural methods to specimens taken from dispersed clinics has been largely resolved by the transport method described and we hope that this will prove of value to other workers.

The evidence presented in this paper of trichomonad infestation will not increase clinical belief in the pathogenic importance of this parasite. The very high incidence of the organism in the female genital tract without any inflammation or discharge may suggest very legitimately that its presence in inflammatory exudates is coincidental rather than causative. It may also be pointed out that the detection of *Trichomonas* was merely incidental to this investigation and that the specimens were not those generally considered best for the purpose. It is quite possible that in some women vaginal irritation may be caused by *T. vaginalis*, but to ascribe to it the importance it commonly gets because of its frequent presence in leucorrhoea is an example of *post hoc ergo propter hoc* reasoning which cannot be substantiated by the facts at present available. Further investigation of its occurrence in normal women is obviously desirable. The transport method described allows the investigation to be carried out more leisurely and conveniently than has hitherto been regarded possible.

### Summary

A method of transporting specimens for the diagnosis of gonorrhoea is described. By its use facilities for culture can be made available to all clinics within a "time distance" of 24 hours from a laboratory.

The method is at the same time applicable to the detection of *T. vaginalis*.

In the above investigation of gonorrhoea 139 positives out of 184 were found by smear examination alone and 158 by culture. The combination of smear and culture discovered 24% more positives than smear examination alone, and culture alone 10% more than smear.

*T. vaginalis* was found in approximately 50% of women with vaginal discharges and in almost 40% of women in whom no evidence of inflammatory disorder was evident and who were examined as a test for cure of gonorrhoea.

FOOTNOTE—Since this paper was written an alteration in technique has been found necessary owing to the bactericidal action on *Neisseria* of certain later batches of agar used in preparing the transport medium. This property is apparently the same as that described by Ley and Mueller (1946) and is particularly prominent in the absence of nutrient material which is a feature of the medium described. The inhibitory effect can be neutralized by charcoal (Stuart, 1947), but charcoal cannot be incorporated in the medium without absorbing the methylene-blue reduction indicator. Accordingly, swabs are prepared as described above and then dipped in a 1% water suspension of finely ground charcoal (B D H blood charcoal and "norit" have been found equally suitable) before being dried and sterilized. Results from a year's experience with these charcoal-impregnated swabs are significantly better than those given above, and suggest that even when the agar is apparently free from inhibitor this alteration in technique is desirable.

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## THE ROLE OF ABDOMINAL TRAUMA IN ACUTE APPENDICITIS

BY

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Abdominal trauma as a causative or contributory factor in the development of acute appendicitis occasionally merits attention, as the symptoms of that condition have appeared very soon after receipt of the injury. Boyd (1947) states that "there is no doubt that a blow on the abdominal wall may occasionally precipitate an acute attack of appendicitis". J B Murphy (1908) cites an analysis by von Neumann of 152 cases of acute appendicitis in 10 of which trauma, either from direct injury to the abdomen or from strain during lifting, was a causative factor. Romanis and Mitchner (1937) observe that "in some cases injury undoubtedly stimulates an attack, but this is rare. It is possible that a twist, blow, or strain will cause a concretion to move and completely block the appendix".

The role of trauma as an exciting factor in the production of acute appendicitis assumes importance from the medico-legal aspect when abdominal injury received during employment is advanced to procure compensation in the courts. Quite recently two cases of acute appendicitis have been encountered immediately after abdominal injury. As both occurred in children of school age, where the motive for procuring compensation did not arise, it is of interest to record them.

### Case 1

A schoolboy, aged 14, on mounting his bicycle at 9.50 p.m. on Feb 15, 1948, missed the pedal and fell forward, and the left handlebar struck him forcibly in the centre of the epigastrium. He had momentary upper abdominal pain, but almost immediately mounted his cycle and reached his home at 10.5 p.m. When in bed, about 10.30 p.m., he experienced soreness in the upper abdomen, but fell asleep. He woke about 3.30 a.m. with generalized colicky abdominal pain, and vomited, after which the pain localized in the right iliac fossa. His pain persisted, and he vomited twice more before his admission to hospital at 10 a.m. on Feb 16, twelve hours after the receipt of the injury. He had not had his bowels open since his injury, there was no abnormality of micturition, and there was no previous history of a similar attack.

On examination the temperature was 99.4° F (37.4° C), pulse 84 respirations 16. The patient was pale and evidently in pain. His tongue had a light yellow fur, and there was slight fetor oris. The abdominal wall was immobile on respiration with resistance and tenderness in the centre of the epigastrium above the umbilicus. Tenderness and guarding were greatest in the right lower abdominal quadrant, where "release pain" was also elicited. There was no loss of liver dullness. Rectal examination revealed tenderness maximal towards the right side of the pelvis. The urine contained no abnormal constituents. The blood pressure was 120/90.

A provisional diagnosis of a ruptured hollow viscus, probably upper jejunum, was made, and laparotomy was decided on.

Operation—Under thiopentone, 0.5 g nitrous oxide-ether and oxygen anaesthesia, the abdomen was opened through a right paramedian incision, greater in extent above the umbilicus than below. The stomach, duodenum, and duodeno-jejunal junction were normal. There was a very fine frothy exudate

on the surface of the duodenum and upper jejunum, but no lesion was found here or in the ileum. The gall bladder and pancreas were normal. The caecum was delivered and immediately a gangrenous appendix was seen. It had not perforated. Appendicectomy with invagination of the stump was performed and the abdomen closed without drainage.

On section the appendix showed a hard faecalith impacted about  $\frac{1}{2}$  in (1.25 cm) from the base. Distal to this point the lumen of the appendix was filled with foul smelling dark blood-stained mucopus. The mucosa was gangrenous and showed patchy ulceration. Recovery was uninterrupted, and the patient was discharged on Feb 26.

### Case 2

At 3 p.m. on March 10, 1948 the patient a schoolgirl aged 14, slipped while turning a somersault on the horizontal bar, which struck her across the centre of the abdomen. She continued with her exercises, but about three hours later experienced colicky abdominal pain, which became worse during the night. She vomited twice, after which the pain localized in the right iliac fossa. She had diarrhoea twice during the night. There was no abnormality of micturition or of menses. She had no history of a previous similar attack. The patient was admitted to hospital at 2.30 p.m. on March 11, 24 hours after receipt of the abdominal injury.

On examination the temperature was  $100^{\circ}\text{F}$  ( $37.8^{\circ}\text{C}$ ), pulse 100, respirations 20. The patient was flushed and had a rather dry tongue. Fœtor oris was present. There was marked tenderness with muscular guarding and "release" pain confined to the right iliac fossa. Rectal examination revealed well-defined tenderness towards the right side of the pelvis. The urine contained no abnormal constituents. The blood pressure was 110/80. A diagnosis of acute obstructive appendicitis was made.

**Operation**—Under thiopentone 0.5 g, nitrous oxide-ether and oxygen anaesthesia, a McBurney muscle splitting incision was made, and a gangrenous appendix lying towards the brim of the pelvis was found. It had not perforated. Appendicectomy with invagination of the stump was performed. The abdomen was closed without drainage. On section the appendix was found to have a faecalith impacted in its lumen, just distal to its base. Beyond this point the appendix contained light reddish brown mucopus. The mucosa showed gangrenous patches. Recovery was uneventful, and the patient was discharged home on March 18.

### Commentary

It is interesting to observe that both cases had a faecalith impacted in the lumen of the appendix. It is reasonable to conjecture that the increased intra-abdominal pressure resulting from the abdominal injury might conceivably force a faecalith already formed at the base of the appendix more distally into the lumen, thereby precipitating an attack of acute obstructive appendicitis.

One might justifiably conclude in a case of acute appendicitis immediately following abdominal trauma, where the presence of a faecalith impacted in the lumen of the appendix was found at operation that the injury was a contributory and causative factor of the attack.

I should like to thank Mr D. G. C. Tasker for his interest in and advice on this paper.

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On July 6 x-ray and electro medical apparatus worth £3,500 was officially handed over to the Children's Clinic of Poznan University, Poland by the General Sikorski Memorial Hospital Fund. A ceremony was held at Century House (Philips Electrical, Ltd.), London makers of the equipment. His Excellency the Polish Ambassador, representing Poznan University, received an illuminated scroll commemorating the event from Mrs E. d'A. Willis and Major Rowland Sanders, Trustees of the General Sikorski Memorial Hospital Fund.

## Medical Memoranda

### A Case of Intrauterine Amputation due to External Trauma

The following case is recorded because of its apparent rarity. Search of the literature has failed to reveal any case exactly similar, although undoubtedly such cases have occurred—e.g., during air raids—without being recorded.

#### CASE HISTORY

A second gravida aged 27 was admitted to hospital at 3 p.m. on March 30, 1946, about one and a half hours after a motor accident in which she had been thrown out of the near side window on to the grass verge, where she had been pinned down for about 20 seconds by the running board of the overturned car, which had come to rest across her abdomen. She stated that she was about 5½ months pregnant, the pregnancy being normal, as had been her previous pregnancies and confinement. She complained of constant severe pain over the whole abdomen, there had been no vomiting or loss of consciousness, and she felt quite well apart from the abdominal pain.

On examination the temperature was  $97.6^{\circ}\text{F}$  ( $36.4^{\circ}\text{C}$ ), pulse 74, respirations 18, B.P. 125/80, there were no abnormal physical signs in the respiratory, cardiovascular and central nervous systems. Examination of the abdomen showed a tense swelling corresponding in size to a 24 weeks pregnancy, the foetal heart was heard faintly, but no foetal movements were detected. Though the patient stated that she had felt movements since the accident. There was a transverse linear bruise at the level and to the right of the umbilicus overlying an area of deep tenderness. There was no abdominal rigidity or muscular guarding and no evidence of free fluid in the peritoneal cavity. The uterus was not actively contracting and gave no sensation of "woodiness". Bleeding per vaginam did not occur and a vaginal examination was not made.

Morphine, 1/6 gr (11 mg) was given every four hours and the patient passed a quiet night. The following morning her condition was not materially altered. There was no abdominal pain. The foetal heart was still thought to be heard but the height of the uterus had increased to that of a 28 weeks pregnancy and there was slight vaginal bleeding. Accidental haemorrhage was provisionally diagnosed, and conservative treatment consisting of nuchal, 1½ gr (0.1 g) eight hourly, progesterone 1 ml on alternate days and "ephyral", 1 tablet thrice daily, was given for three days. During this time the foetal heart was not heard, there was no increase in size of the uterus, and no further vaginal bleeding.

Five days after admission (April 3) she had a brisk vaginal haemorrhage, losing approximately 30 oz (850 ml) of bright blood. Rectal examination revealed that the cervix was three fingers dilated and that the membranes were bulging. The patient was having weak but regular pains and the height of the fundus had fallen to the level noted on admission. Twenty-four hours later there was spontaneous delivery of a 26 weeks foetus, followed immediately by the placenta and about 10 oz (280 ml) of old blood. She was given 1 ml of ergometrine intramuscularly and the uterus contracted firmly.

The foetus was normally developed and showed early signs of maceration. The left leg was almost completely severed from the body at the level of the anatomical neck of the femur, remaining attached only by the fibres of the quadriceps muscle. The remaining muscles had been neatly divided at the level of fracture of the femur. Apparently the foetus had been lying in the R.O.P. position at the time of injury, whereby the impact of the running board of the car had been transmitted to the posterior surface of the left thigh, resulting in an almost complete traumatic amputation of the limb *in utero*.

A detailed examination of the foetus was impossible, as it was unfortunately disposed of by mistake before further examination could be made.

It is worthy of comment that the foetus, which was relatively well protected by its position and its covering, should have suffered severely, while the uterine and abdominal walls which were subjected to the direct impact showed minimal damage.

Our thanks are due to Mr D. W. Currie, consultant obstetrician and to Dr W. McIntosh, medical superintendent, St James's Hospital, Leeds, for permission to submit these notes for publication.  
R. F. LAWRENCE, M.D., M.R.C.O.G.  
D. SHIRMAN, M.R.C.S., L.R.C.P.



## Reviews

### RECENT PATHOLOGY

*Recent Advances in Pathology* By Geoffrey Hadfield, M.D., F.R.C.P., and Lawrence P. Garrod, M.D., B.Ch., F.R.C.P. Fifth edition (Pp 363, 60 illustrations 21s) London J and A Churchill 1947

When a book has reached a fifth edition it is interesting to turn back to the original volume and see how the subject has progressed. The first edition of "Hadfield and Garrod" came out in 1932, its deliberate purpose to chronicle recent advances, and comparison gives us a record of the new facts which have been discovered in the last sixteen years and, what is of greater interest, the changes in thought and method that have occurred within this period. The first impression is of an increasing complexity—pathology seems so much more difficult than it used to be—and an increasing devotion to detail with a corresponding blurring of the stronger lines of the picture. A second and a very welcome one, is a certain loss of didacticism and of that tendency to catalogue causes and classify effects into those neat echelons, battalions, and regiments so dear to the heart of the examinee.

In this period of its existence the book has shrunk from 390 to 351 pages, and owing also to the use of inferior paper it is a slimmer and altogether handier book than it was in 1932. The general trend has altered remarkably little, only one or two new full subjects have been considered—e.g., the reticulosos and reticulo-sarcoma, and recent work on inflammation and allergy—but the matter is completely different even though chapter headings may remain the same. This comparison of what was recent with what is evokes some unmanly nostalgia and provides opportunity for gentle cynicism. "Nephritis" is perennially new, and, as before, the recent advance is one of nomenclature. Gone are Bright, Gull and Sutton, Samuel West, McLean, Volhard and Fahr, Dorothy Russell, John Gray, Dunn, Fishberg, and the rest—and Ellis is the new prophet. *Où sont les neiges d'antan?* And yet the "mixed types" are still with us to confound the most ingenious of nosologists, and the stage awaits the next performer. Gone are tissue culture, vitamins, tumours of the central nervous system, and encephalitis and lead therapy.

"Half the marvels of my morning, triumphs over time and space  
Staled by frequency, shrunk by usage into commonest commonplace"

*Spiroptera neoplastica* shuffles away under the alias of *Gongylonema* and the authors pronounce its valedictory with faint regrets. What a romantic story it makes for us! In its heyday it got Fibiger a Nobel prize—surely justice demands some condign reward for Passey. The gaps have been filled by a good review of recent work on inflammation and related conditions, a full account of hepatitis and liver necrosis, and an excellent survey of the cancer problem. It would have been easy for the writers to have resorted to scissors and paste, but they have withstood this temptation and have given the reader a summary of new facts and views and also their own valuable judicial comments on most questions.

It would hardly be in keeping with custom to close this review without some criticism, and after patient research the writer has discovered that Cullumbine (p. 7) is spelt for the harlequinade (no doubt the professor of physiology at Colombo is accustomed to this—yet it may irritate), and that Fig. 5 has lost much of the freshness it had in the Bart's Hospital Reports of 1939. The style and language of the book are such as would be expected from teachers of the experience of the authors, but we wince a little at "benzolised" (of rabbits) and recoil ("definitely") from "cancerisation". This is a book which every aspirant for higher medical qualifications must read and every teacher of pathology should own.

J HENRY DIBLE

### DEVELOPMENT OF CEREBRAL CORTEX

*The Postnatal Development of the Human Cerebral Cortex* By J. LeRoy Conel, Professor of Anatomy Boston University School of Medicine. Volume 3. *The Cortex of the Three month Infant* (Pp 158, 104 plates \$12.50 or £3.10s) Massachusetts Harvard University Press London Geoffrey Cumberlege (Oxford University Press) 1947

The third volume of Dr. Conel's comprehensive study of the post-natal development of the human cerebral cortex has now appeared. It comprises a detailed description of the cytoarchitecture of the cortex of the three month-old infant, and like the preceding volumes is documentary rather than explanatory. Almost half the volume is made up of an atlas of excellently produced photomicrographs illustrating the various areas of the cortex as they appear in sections stained with cresyl violet, the Cajal silver technique, and the Golgi-Cox method. This book will undoubtedly be useful as a work of reference for those concerned with the study of the maturation of the central nervous system and its functions.

### OPHTHALMOLOGY IN GENERAL PRACTICE

*Clinical Ophthalmology for General Practitioners and Students* By H. M. Traquair, M.D., F.R.C.S. Ed. (Pp 264, 72 illustrations, including 8 coloured plates 25s) London Henry Kimpton 1948

No one but Traquair would have had the courage to write a treatise on "ophthalmology without an ophthalmoscope." The purpose of the book is to help the general practitioner (who is assumed not to know how to use the ophthalmoscope—a shocking assumption, but too often true) to advise his ophthalmic patients in a common-sense way and without specialized techniques. The book is in no sense a textbook of ophthalmology but the author emphasizes common ocular complaints and symptoms and indicates their importance and when expert help should be sought. Within these somewhat severe limitations the book is very readable and full of practical teaching. The most valuable chapter is probably that on common misconceptions and prejudices, where the author admirably discusses popular ideas on such topics as the effect of near work on myopia, the "weakening" influence of spectacles, the "sin" of reading in bed, and so on. The book is worth reading by both the general practitioner and the specialist, but it would have been happier not to dedicate it to the medical student, who surely should not start his career without an ophthalmoscope.

STEWART DUKE-ELDER

### MENTAL HEALTH

*Personal Mental Hygiene* By Dr. Thomas Verner Moore, O.S.B., M.D., Ph.D. (Pp 331 21s) London William Heinemann (Medical Books) Ltd 1947

The author's object is to show that high ideals and principles can do much to ensure emotional stability and so enable a man to avoid the development of both psychoses and psychoneuroses. Written by a Catholic priest who is professor of psychology in a Catholic university, it is natural that Catholic doctrines and observances should constitute the high ideals and principles. The author's thesis involves two premises—namely, that every one can or should accept Catholic teaching and the Catholic way of life, and that if from the start the training, beliefs, and practices of a person are right he should not fall mentally ill. While no one will deny that the Catholic principles and way of life are of a high order it is improbable that everyone can accept or practise them, and even if they were to it seems unlikely that mental illness would disappear.

None the less, since this book is about personal mental hygiene, what the individual can do for himself, we must not complain if the treatment of the subject appears superficial and allows too little for deep seated constitutional factors and the subsequent struggle between what the Freudians would call the id and the superego, a struggle which cannot be altogether prevented or controlled by outside influences. Thus in discussing the paranoid reactions the author suggests that training in tolerance would make much difference yet it seems unlikely that a paranoiac would be able to control his ideas of reference however much he strove to develop tolerance from however

early in age, for the good reason that the paranoiac cannot be tolerant. We detect a certain bias not only religious but patriotic when he cites Hitlerite Germany as the paramount unstable nation a proposition with which we might well agree, but should we agree so readily that the U.S.A. is the paramount example of the stable nation? The author illustrates his points both from the lives of his own patients and from those of famous men. Abraham Lincoln overcame early depression and failure by faith and personal effort and Joyce Kilmer by overcompensation and reinterpretation—regarding suffering as an interesting experience and even 'great fun'. On the other hand Oliver Goldsmith suffered from an unrestrained emotional life without any definite goal, Dante Gabriel Rossetti from a failure to resist to evil influences and Swinburne from prying into his misochistic impulses while Francis Thompson recovered from his drug addiction by religious sublimation.

The author compares the family to a monastic community and contrasts the influence of schools which impose discipline with those that allow their pupils to follow all their impulses. There is no doubt that there would be much less mental trouble and unhappiness if we could ensure that all children were brought up in happy loving well regulated homes and if we could avoid alcohol syphilis, and arteriosclerosis though we might not agree with the author's assertion that the last was due almost exclusively to excessive smoking. Altogether there is much sound sense in this book and all could read it with profit, though the appeal of the author's contentions will be especially appreciated by his fellow Catholics.

R. G. GORDON

## HUMAN REPRODUCTION

*Fundamentals of Human Reproduction* By Edith I. Potter M.D. Illustrated by Alvin W. Meyer, F.A.A.R. (Pp. 231 illustrated \$3.50 or 21s) New York and London McGraw Hill Book Company, Inc.

This book is one of a series written for nurses and the authoress is lecturer to the nurses at the Chicago Living in Hospital. Her intention is to present an easily readable book on reproduction in the human female. She discusses the fundamentals of cytology and genetics the anatomy and physiology of the reproductive system the mechanism of implantation intrauterine development and the formation of the body organs. Finally she gives an account of the birth and future life of the infant.

The book is remarkably easy to read for the style is not particularly condensed and the authoress emulates Gibbon in collecting a large amount of material into a little space. The line drawings are very good and the photographs well chosen. It is an outstanding book and should have a wide appeal. It will interest senior obstetricians and gynaecologists for it is remarkably up to date and the author has described the modern problems of meiosis genetics and heredity simply and accurately. It is suitable for senior medical students particularly those reading for the primary fellowship examination and seems to contain far more than is required for the nursing profession.

WILFRID SHAW

*A Manual of Fractures and Dislocations* by Dr Barbara Bartlett Stimson (Henry Kimpton second edition 17s), is designed for medical students and general practitioners. It contains in the first sixty pages which are devoted to general considerations many excellent and clearly stated principles—in fact almost all the good conservative doctrines which should form the basis of intelligent management of fractures. However, many important fractures and their complications are discussed very briefly indeed. A few examples will serve to illustrate this. Fractures and dislocations of the spine including cord injuries occupy six pages, fractures of the pelvis two pages, which include two sentences on visceral injuries. The author describes pinning of fractures of the femoral neck in one sentence and Volkmann's ischaemic contracture in one short paragraph. That there is in places some disproportion may be seen from the fact that in contrast to these there are five pages on dislocations of the clavicle. Description of the individual fractures is clear and should be easily understood. The space devoted to the pathology of each fracture and dislocation might perhaps have been put to better use. The book is copiously illustrated with good line drawings. As a primer for medical students or as a fracture book for nurses it should prove useful.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Manual of Leprosy* By I. N. S. C. M. G. C. I. E. M. D. I. R. C. S. Ed. (Pp. 208 17s 6d) Edinburgh Livingstone 1945  
A practical manual of diagnosis and treatment

*Textbook of Chiropody* By M. J. McKenzie Swanson R. Litt. I. Ch. S. (Pp. 212 20s) Edinburgh Livingstone 1942  
An illustrated practical account of chiropody

*A Way to Natural Childbirth* By H. Heardman (Pp. 124 7s 6d) Edinburgh Livingstone 1948  
Practical instructions for the mother to be and physiotherapists

*Aseptic Treatment of Wounds* By C. W. Walter A. B. M. D. (Pp. 372 4s 6d) New York Macmillan 1948  
An account of the technique of asepsis in surgery

*Chest Examination* By R. R. Trail M. C. M. A. M. D. F. R. C. P. 3rd ed. (Pp. 170 12s 6d) London Churchill 1948  
A manual for the medical student

*Reproduction and Survival* By R. C. Brown, M. B. M. S. I. R. C. S. I. R. C. O. G. (Pp. 108 6s) London Arnold 1948  
An account of the physiology of reproduction, fertility and sterility and labour as an instrument of natural selection

*The Beginnings of Modern Medicine in Madras* By D. V. S. Reddy (Pp. 244 5 rupees) Calcutta Thacker 1947  
A history of modern medicine in India

*Aids to Biology* By R. G. Neill, M. A. 2nd ed. (Pp. 279 6s) London Baillière Tindall and Cox 1948  
Intended for medical students and others

*The Ides of March* By Thornton Wilder (Pp. 198 9s 6d) London Longmans 1948  
A novel set in the Rome of Julius Caesar

*Acute Intestinal Obstruction* By Rodney Smith M. S. F. R. C. S. (Pp. 259 18s) London Arnold 1948  
A manual of diagnosis and treatment

*Dental Practice Management* By S. L. Drummond Jackson (Pp. 370 30s) London Staples 1948  
An account of the administration and business management of dental practice

*The Yearbook of Psychoanalysis* Edited by S. Lorand M. D. et al. Vol. 3 (Pp. 309 30s) London Imago 1947  
Papers on different aspects of psychoanalysis

*The Neglected Child and His Family* By a subcommittee of the Women's Group on Public Welfare (Pp. 140 5s) London Geoffrey Cumberlege 1948  
A study of the neglected child in his home and of the relevant law and administration

*The Case of Augustus D. Este* By D. Firth, M. A. M. D. F. R. C. P. (Pp. 58 6s) Cambridge University Press 1948  
A collection of letters and diaries written by or relating to Sir Augustus d'Este, who had disseminated sclerosis giving an early clinical account of the disease

*That Which is Caesar's* By H. G. Woodley (Pp. 158 8s 6d) Oxford Pen in Hand 1948  
Comments on the treatment of mental disorder by one who was confined to a mental asylum for a year

*The Acute Bacterial Diseases* By H. F. Dowling, M. D. F. A. C. P. (Pp. 465 32s 6d) London Saunders 1948  
A textbook of diagnosis and treatment

*Nature's Way* By R. Millitt (Pp. 55 3s 6d) London Watts 1948  
Described as 'a means of health without medicine'

## BRITISH MEDICAL JOURNAL

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## CHLOROMYCETIN

The latest antibiotic to gain a place in the chemotherapy of disease is chloromycetin, which was originally obtained from a streptomycetes found in the soil of a field near Caraças, Venezuela, by Ehrlich and his colleagues<sup>1</sup>, it has now also been isolated from a streptomycetes found in a compost heap in Illinois<sup>2</sup>. A preliminary examination of the antibiotic activity of chloromycetin by Smadel and Jackson<sup>3</sup> showed that in addition to having some action on viruses of the psittacosis-lymphogranuloma group it inhibited the growth of a number of pathogenic rickettsiae both in experimental animals and in developing chick embryos. Chloromycetin is active when given by mouth, and Ley and his co-workers<sup>4</sup> showed that a dose of 10 g by mouth daily for 11 days caused no abnormal signs or symptoms. The substance is found in the greatest quantity in both blood and urine two hours after an initial dose of 10 g by mouth, the estimation being carried out by a method of microbiological assay which involves inhibition of the growth of *Shigella paradysenteriae* (Sonne). After two hours the blood levels steadily fall from about 6 µg per ml till at eight hours detectable amounts are no longer found. Urine levels of the drug are approximately 200 µg at two hours, falling to 50 µg per ml at eight hours and remaining at this level for the next 10 days of treatment. When an initial dose of 20 g of chloromycetin is given blood levels are 10 µg per ml at two hours and above 5 µg at the end of eight hours. Urine levels are highest at two hours, reaching values of 380 and 670 µg per ml and falling to about 10 µg per ml at eight hours. The fact that appreciable amounts of chloromycetin are found in blood and urine 30 minutes after being given by mouth indicates that the antibiotic must be rapidly absorbed from the gastrointestinal tract. Approximately 10% of the total amount of chloromycetin given daily was recovered in active form in the urine of volunteers, much must therefore be metabolized. No signs or symptoms attributable to toxicity were observed in three volunteers during or after the treatment, examination of the blood and urine showed no abnormalities. Since the drug is rapidly excreted or inactivated its administration at fairly frequent intervals is obviously necessary.

The activity of chloromycetin and its lack of toxicity have been confirmed by Smadel and his colleagues,<sup>5</sup> who used it in the treatment of cases of typhus fever in Mexico. Three adults and one child were suffering from epidemic

louse-borne typhus and one child from the murine type. One of the adults was very severely affected and was not treated till the seventh day of illness, then 15 g was given by mouth, followed one hour later by 15 g and thereafter 0.2 g every two hours for four days and subsequently 0.2 g every three hours for three days. The other two adults first treated on the fifth and sixth days of illness received an initial dose of 10 and 20 g respectively, followed by 0.2 g every four hours for the next three to four days. In the patient given the largest doses blood levels of 40.5 µg per ml and urinary levels of 400 µg per ml were attained, in the other patients the maximum blood levels were 5 and 11.5 µg per ml and the urinary levels 100 and 220 µg per ml. The most noticeable result in all cases was the rapid fall in temperature while the rash remained unchanged. Results in the children were less easy to judge, since typhus in childhood is a comparatively mild disease. No toxic reactions due to the drug were observed. Though the best dosage can be determined only by much further study, it is suggested that the initial dose should be 40 mg per kg of body weight, followed by a total daily dosage of 35 mg per kg given in divided amounts at two-hourly intervals until obvious improvement in the general condition occurs. Thereafter 20 mg per kg of body weight should be given four-hourly till the thirteenth or fourteenth day after onset of the disease.

At present the effect of the drug on scrub typhus is being investigated in Malaya by an American team headed by Dr J E Smadel, who is working in collaboration with Dr Lewthwaite and Dr Savoor at Kuala Lumpur. Preliminary results, which were announced at the International Congress of Tropical Medicine at Washington held in May of this year, are very encouraging. Twenty-five patients have so far received chloromycetin, and 12 patients from the same areas have been used as controls.

Among those treated none has died and no complications have developed. The duration of fever after the first dose averaged 31 hours and the whole febrile period 7.5 days. Among the untreated controls one died, and this patient and one other had serious complications, the mean duration of fever was 18.1 days. At first the same large doses were given as were thought to be necessary in louse-borne typhus, but gradually the dosage was reduced till only 6 g was administered in 24 hours to the last seven patients. The results, however, were equally good. Half the patients were nursed under "bush" conditions in the hospitals attached to rubber estates. Further studies on the results of chloromycetin in rickettsial diseases will be awaited with great interest, for rickettsiae are resistant not only to the older chemotherapeutic arsenicals and antimonials but also to the sulphonamides and penicillin. Recent investigations by Smith and his colleagues<sup>6</sup> have shown that, though yeasts, fungi, protozoa, and viruses other than those of the psittacosis-lymphogranuloma group are unaffected, chloromycetin is active against a number of Gram-positive and Gram-negative bacteria, particularly Friedlander's bacillus, *Bacterium coli*, *Salmonella typhi*, *S. paratyphi*, *Shigella paradysenteriae* and *Haemophilus pertussis*. It is moderately active against various strains of tubercle bacilli. Bartz<sup>7</sup> has recently isolated chloromycetin in crystalline form. Its stability in solution is greater than

<sup>1</sup> *Science* 1947 106 417

<sup>2</sup> Gottlieb D, Bhattacharyya P K, Anderson H W, and Carter H E, *J Biol Chem* 1948 55 409

<sup>3</sup> *Science* 1947 106 418

<sup>4</sup> *Proc Soc exp Biol NY*, 1948 68 9

<sup>5</sup> *Ibid* 1948 68 12

<sup>6</sup> *J Bact* 1948, 55 425

<sup>7</sup> *J Biol Chem* 1948 172 445

that of penicillin and in the acid range greater than that of streptomycin. It can be heated to 100° C for five hours without loss of activity. The solubility of the pure product in water is rather low, only 2.5 mg per ml, but its solubility in pure propylene glycol is high. When given parenterally it causes considerable irritation, but as it is extremely active when taken by mouth this is not of great importance. Another antibiotic of the same type, aureomycin, has now been isolated, preliminary reports suggest that it, too, is active against rickettsiae.

## FORMATION OF ADRENALINE AND HYPERTENSION

It is not yet known how adrenaline is formed in the body, but information is steadily accumulating. The general conception of the breakdown of amino-acids in the body was that they first lost their amino group in the process of oxidative deamination. In 1938 Holtz, Heise, and Ludtke<sup>1</sup> found an enzyme in various tissues capable of removing the -COOH group from dihydroxyphenylalanine (dopa), and they suggested that such an enzyme might play a part in the general breakdown of amino-acids, which only lost the amine group after decarboxylation. Blaschko<sup>2</sup> showed however, that the enzyme discovered by Holtz and his colleagues was specific for dopa, and other amino-acids were not decarboxylated, thus the process was evidently not a general one. The question then arose why dopa decarboxylase should exist, and Blaschko<sup>3</sup> suggested that it was probably concerned in the formation of adrenaline from tyrosine. The first change might be the introduction of a second phenolic hydroxyl group into the tyrosine molecule, thus forming dopa. Decarboxylation would then give hydroxytyramine, though whether the introduction of an -OH group into the side chain occurred before or after this decarboxylation there was at that time no means of knowing. Blaschko, however, showed that N-methyl dopa was not decarboxylated, and concluded that the primary amine noradrenaline must be formed as a preliminary to the formation of adrenaline itself.

The next step followed Holtz and Credner's<sup>4</sup> important observation that when dopa was given by intravenous injection or by mouth to rabbits a pressor substance appeared in the urine which they were able to identify chemically as hydroxytyramine. Thus they produced evidence of the normal activity in the body of the dopa decarboxylase. In the course of further work, Holtz, Credner, and Kroneberg<sup>5</sup> have shown that in normal urine there are pressor substances which are set free after acid hydrolysis, and they have produced pharmacological evidence which strongly suggests that these are a mixture of hydroxytyramine, noradrenaline, and adrenaline. They think that these substances may be produced in excess in the process of adrenaline formation, and that the body then gets rid of them in inactive forms which are excreted in the urine. They call the mixture urosympathin. They find that the amount

of these substances in the urine is increased in healthy individuals after strenuous exercise, and also in patients suffering from essential hypertension. In normal individuals the amount of urosympathin excreted in 24 hours is equivalent to 2-3 mg of hydroxytyramine, or to 0.1-0.15 mg of adrenaline. In essential hypertension it is equivalent to 8 mg of hydroxytyramine.

In a further paper Holtz and Credner<sup>6</sup> point out that renal ischaemia, by reducing the oxygen supply, will inactivate another enzyme which probably plays a part in removing substances like hydroxytyramine, which may be formed in excess. This is the enzyme amine oxidase, which converts hydroxytyramine to dihydroxyphenylacetaldehyde. The inactivation of amine oxidase will raise the amount of pressor amines in the blood. Loss of excretory power may have the same effect. Holtz and Credner administered 50 mg of L-dopa intravenously to 14 patients with nephritis and high blood pressure and also to 8 healthy subjects, they tested the urine excreted in the following 2-4 hours for the presence of hydroxytyramine by its effect on the blood pressure of the cat. They found little or no hydroxytyramine in the urine of the patients with nephritis and high blood pressure, but considerable amounts in that of the normal subjects. They demonstrated that the absence of hydroxytyramine in the patients' urine was not due to failure to convert the dopa to hydroxytyramine, for they found no dopa in the urine when they tested it for the total amount of polyphenol compounds. Thus renal ischaemia may lead to over-production of pressor amines by inactivation of amine oxidase and also to their retention in the blood. It should be made clear that these observations are considered by the authors to represent a subsidiary cause of hypertension, of less importance than the action of renin on hypertensinogen.

It has been shown by Blaschko, Holton, and Sloane Stanley<sup>7</sup> that in the formation of adrenaline the introduction of the -OH group into the side chain must follow decarboxylation, since they have found that the carboxylic acid of noradrenaline is not decarboxylated in animal tissues. This agrees with Holtz's evidence that dopa gives rise in the body to hydroxytyramine. Finally, Holton's<sup>8</sup> recent observation that a suprarenal medullary tumour, taken from a patient who suffered from temporary crises of hypertension, contained about twice as much noradrenaline as adrenaline supports the view that the last stage of adrenaline formation is the N-methylation of noradrenaline.

## END OF RADIUM COMMISSION

The affairs of the National Radium Trust and the Radium Commission are being wound up as a result of the coming into force of the National Health Act. The two bodies were established by royal charter issued under letters patent of July 25, 1929. The functions of the Trust were primarily to augment the supply of radium, and later, by supplemental charter, other radiotherapeutic apparatus, for use "in relation to the treatment of the sick in Great Britain" and for "the advancement of knowledge of the best methods of rendering such treatment." The main duty of the Commission was "to make arrangements for the proper custody, equitable distribution, and full use of the radium of the Trust with the object of promoting the

<sup>1</sup> *Arch. exp. Path. Pharmacol.* 1938, 191, 87.

<sup>2</sup> *J. Physiol.* 1939, 96, 50P.

<sup>3</sup> *Ibid.* 1942, 101, 337.

<sup>4</sup> *Arch. exp. Path. Pharmacol.*, 1942, 200, 356.

<sup>5</sup> *Ibid.*, 1947, 204, 228.

<sup>6</sup> *Ibid.* 1947, 204, 244.

<sup>7</sup> Communication to Biochemical Society, March 12, 1948.

<sup>8</sup> Communication to Physiological Society, May 21, 1948.

treatment of the sick and to make such arrangements for the supply on loan of the radium as are necessary."

When the Commission began work it was generally admitted that radium treatment in this country had not attained the standard then reached by such centres as the Fondation Curie and the Radiumhemmet. During the last nineteen years, however, some of the National (University) Radium Centres set up by the Commission have achieved a reputation equal to the best anywhere in the world. At the same time the standard of radiotherapy in general has been raised by the policy of centralization pursued by the Commission. Hospitals with small radiotherapy departments have been advised to make agreements with a National Centre for the treatment of their patients, and the formation of small independent centres has been consistently discouraged. The cordial relations which exist between the Commission and the staff of treatment centres have been fostered by personal visits, and the Commission has built up a reputation for disinterested service and unbiased advice which has been of the greatest value in the treatment of cancer in this country.

The present health organization requires that the work hitherto done by the Trust and the Commission shall in future be undertaken partly by a Ministry of Health committee and partly by the regional hospital boards. It is deemed advisable therefore that the radium and other radioactive substances, apparatus, appliances, funds, and property belonging to the Trust and the Commission shall be dealt with by vesting them in the Minister of Health or the Secretary of State for Scotland. The royal charter and the three supplemental charters are to be surrendered.

### SIXTY YEARS OF MEDICAL DEFENCE

Contrasted with the efficiency, stability, financial security—in a word, the success—of the three medical defence organizations as we know them to-day, it is surprising how fumbling was the approach to the problem only a little over sixty years ago. This history<sup>1</sup> of the Medical Defence Union, the pioneer society, by the secretary, Dr Robert Forbes, shows that the early steps were faltering indeed, in fact, two or three times in the first three years the project seemed likely to come to grief. Curiously enough, the initiators of it were laymen, not members of our profession, though that is not to say that the early troubles were due to this cause. Dr Forbes does well to recall, what few now remember, that the conception of a medical defence union arose out of a gross miscarriage of justice, recognized as such by the Home Secretary later on—namely the conviction of a medical man who was sentenced to two years' imprisonment on a charge of attempted rape resting solely on the evidence of an insane person. About the same time two partners had to spend £1,000 in clearing themselves of an unfounded charge of negligence in a diphtheria case. These two cases aroused the profession, and the Medical Defence Union was the result. Two other cases (both mentioned by Dr Forbes) had stimulating effects on the membership. The first of these was the celebrated Harnett case, where an ex-certified farmer brought an action for false imprisonment and was awarded fantastic damages, afterwards cancelled by a successful appeal, and the other was that of a country practitioner cast in heavy damages over a fractured femur, who would, so most people thought, have been exonerated if his defence had been conducted by a defence society. The *Lancet* raised a subscription to pay his expenses, but the editor afterwards announced that, since every practitioner could cover himself by join-

ing a defence society, on no future occasion would he repeat his action. Probably those to whom the young Union owed the most were Lawson Tait and Victor Horsley, both men of domineering personality as well as brilliant professional achievement—and both difficult to work with, of their successors Sir Herbert Waterhouse and Eric Pearce Gould have been the most notable, men as like able as the other two were the opposite. Considering that the election of Council members, theoretically a very democratic affair (as was to be expected in a constitution sponsored by Horsley), is in practice very largely oligarchic, it speaks well for the conscientiousness of successive Councils that nepotism has been conspicuously absent, there seems to be but one case where a son has succeeded a father (and in that instance greatly to the Union's advantage), though three brothers-in-law did also at various times serve as members. Dr Forbes handles tactfully the secession which more than fifty years ago resulted in the formation of a rival organization, now the Medical Protection Society. This whole brochure is eminently readable and interesting throughout, it is to be issued to every member of the Union, now and for some few years to come. Nothing but good can come of the publication of this valuable history, which reflects credit both on the author and on the august society whose secretary he is.

### LOCATION OF DISK LESIONS

Two difficulties have complicated the diagnosis and treatment of intervertebral disk lesions, the way in which symptoms are produced is not exactly known, and common variations in the lumbar plexus hinder accurate location of lesions by clinical neurology. Herniation of the nucleus pulposus may be regarded initially as a joint lesion. As such it can cause painful spasm in the lumbar muscles, postural changes, and secondary stresses in neighbouring ligaments. Removal of the displaced disk cannot restore the joint to normal, and this may explain the persistence of symptoms such as low backache after apparently successful operation. It may be that this joint derangement can itself give rise to deep referred pain throughout the corresponding sclerotome in the leg, even in the early stages before nerve roots are involved or localizing neurological signs develop. The experimental and operative studies of Falconer, McGeorge, and Begg,<sup>1</sup> however, show that severe limb pain in disk prolapse is mainly due to impingement of the displaced disk upon a nerve root. It is probable that the pain is produced by angulation and compression of the nerve root rather than by simple stretching. During laminectomy such distortion of the nerve over the protruded disk could be clearly seen when the straight leg was raised to an angle which normally induced limb pain. In patients who recovered after conservative treatment Falconer and his colleagues demonstrated by contrast myelography that the protrusion persisted unchanged. They therefore attributed recovery to spontaneous lengthening of the nerve trunk such as has been observed experimentally in animals, an observation which should encourage those who believe in persistence with conservative methods.

In the lumbar region lateral protrusion of the disk tends to involve the spinal root corresponding to the next segment caudally. Thus, a lesion at the level of the lumbo sacral joint affects the first sacral nerve, with production of deep pain throughout this sclerotome, the correspondence of which to the course of the sciatic nerve formerly gave rise to the belief that the syndrome was due to sciatic

<sup>1</sup> *Sixty Years of Medical Defence* By Robert Forbes M.B. Ch.B. J.P. Secretary of the Medical Defence Union (Pp 92 No price) London: Medical Defence Union Ltd. 1948

<sup>1</sup> *J. Neurol. Neurosurg. Psychiat.* 1948 11 13

<sup>2</sup> *J. Bone Jt. Surg.* 1944 26 238

<sup>3</sup> *Arch. Surg. Chicago*, 1948 65 246

neuritis. Severe deep pain, muscle spasm, and backache are the dominant symptoms, but on careful questioning a patient will often describe a tingling, "pins-and-needles" sensation, alternating with periods of numbness and felt in the dermatome of the affected root. In such cases it is frequently possible to find small areas of impaired skin sensation. The similarity of these signs to those produced by experimental nerve compression suggests that they result from intermittent direct pressure on the nerve.

Keegan,<sup>2</sup> who has collected an imposing series of cases of disk prolapse confirmed in many cases by operation, uses the discovery of such hypoalgesic areas of skin to locate disk protrusions. He rejects the view that impairment of sensation does not follow lesions involving a single root, and he does not accept the acknowledged variability of the lumbar plexus as a serious difficulty. His anatomical studies indicate that "there is no change of position of the nerve roots with addition or reduction of lumbar vertebrae in man if the vertebrae are counted in numerical sequence and not by an arbitrary lumbar series defined by a quite variable first sacral segment and last rib." Further he asserts that the separation or fusion into plexuses is a secondary arrangement which does not alter the ultimate root distribution to the skin. He therefore claims to be able to locate the level of a disk lesion by reference to the dermatome charts constructed on the basis of his observations. Anatomists in general may not accept these views, but the chief criticism of this approach is that it neglects the factor of ascending oedema, which may involve several roots and, in the cervical region, the cord itself. Nevertheless Keegan is right to stress the importance of accurate clinical assessment of each case, and his work should discourage immediate resort to laminectomy following a typical history and a cursory neurological examination.

### INCLUSION BODIES OF THE ERYTHROCYTE

The eponymous inclusion bodies of the erythrocyte make a formidable list. To those of Maragliano, Howell, Jolly, Cabot, Isaacs, Heinz, and Ehrlich have recently been added the Pappenheimer bodies, and a reawakening of interest in the whole subject of erythrocytic inclusions is now evident. In 1941 Gruneberg,<sup>1</sup> using the prussian-blue reaction, had found siderotic granules in the erythrocytes of man, the rat, and the "curly tailed" mouse. He was later able to demonstrate these siderocytes in increased numbers after splenectomy and in cases of chronic uraemia.<sup>2</sup> Case,<sup>3</sup> employing a more delicate staining method with  $\alpha\alpha'$  dipyridyl and potassium thiocyanate, showed that siderocytosis was related to haemolysis, though not to reticulocytosis. Case<sup>4</sup> and Granick<sup>5</sup> both believed siderocytes to be ageing corpuscles, but Gruneberg regarded their appearance as evidence of abnormal iron metabolism, and suggested that the siderotic material contained iron which had not been used for haemoglobin synthesis.

In 1945 Pappenheimer, Thompson, Parker, and Smith<sup>6</sup> reported another form of erythrocytic inclusion body which they saw in three cases of unexplained haemolytic anaemia following splenectomy. There were as many as 20 of these coccoid or rod-shaped bodies within a single erythrocyte. They gave a positive iron-reaction but did not stain by Feulgen's method. The authors concluded that although they could not be identified with any known parasite they might be of such nature, or they might be identical with

Gruneberg's siderotic granules. The problem of these Pappenheimer bodies has been studied by McFadzean and Davis.<sup>7</sup> They found them in a variety of haemopoietic disorders, but only in small numbers, except in acquired haemolytic anaemia. In eight patients with this disease Pappenheimer bodies were found in the peripheral blood and in the sternal marrow. Before splenectomy they tended to be scanty in the former and numerous in the latter. After splenectomy the number of affected erythrocytes in the peripheral blood rose sharply, in one instance from 3% to 88%, and in another from 11% to 82%. McFadzean and Davis believe that Pappenheimer bodies appear as a consequence of abnormal haemoglobin synthesis. From their observations of the flooding of the peripheral blood after splenectomy with cells containing these bodies they suggest that depraved erythropoiesis, resulting in cells doomed to early elimination by the spleen, may be the cause of haemolytic anaemia of this type. They are convinced that the siderotic granules of Gruneberg are different from the Pappenheimer bodies, and point out that Case regarded the former as a sign of age in a corpuscle, while the latter could be seen in reticulocytes and even in the nucleated precursors of erythrocytes. They have collected some evidence which suggests that the granules of basophilic stippling due to lead poisoning are similar to Pappenheimer bodies.

Less common, but with a longer history, are the Heinz-Ehrlich bodies first seen by Heinz<sup>8</sup> in 1890 in the erythrocytes of rabbits poisoned with phenylhydrazine. They stain poorly with Romanowsky stains, but readily by supravital methods, they give no iron-reaction. From time to time there have been reports of patients with anaemia whose erythrocytes contained these bodies. Fertman and Doan<sup>9</sup> have recently recorded the case of a 71-year-old physician who had taken 500 quarter-grain tablets of erythrol tetranitrate during the course of a year for angina pectoris and was admitted to hospital with a haemolytic anaemia. Inclusion bodies of the Heinz-Ehrlich type were found in up to 16% of his erythrocytes. The anaemia was unrelieved by iron, liver, or blood transfusions. Heinz-Ehrlich bodies, unlike the Pappenheimer bodies, were rarely seen in erythroblasts, this conforms with Figges's<sup>10</sup> view that the former are probably globules of denatured haemoglobin. His opinion is endorsed by Gajdos and Típrez,<sup>11</sup> who have shown that their appearance depends on the scission of the porphyrin ring in haemoglobin to form verdohaemochromogen, an early step in the degradation to bilirubin.

Although these three types of inclusion do not appear to be identical, they are all commonly associated with a haemolytic anaemia and indicate some disturbance of haemoglobin metabolism. The Pappenheimer body signifies defective haemoglobin synthesis, the Heinz-Ehrlich body precocious degradation, while the implication of the siderotic granules of Gruneberg is as yet uncertain. All are found in pathological erythrocytes, and the segregation and destruction of such cells by the spleen may be the basis of the haemolytic anaemia which marks their presence.

### THE HALF-YEARLY INDEXES

The half-yearly indexes to Vol. II of the *Journal* and the *Supplement* for 1947 have been printed. They will, however, not be issued with all copies of the *Journal* but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes can obtain what he wants, post free, by sending a postcard to the Accountant, B.M.A. House, Tavistock Square, London, W.C.1. Those wishing to receive the indexes regularly as published should intimate this

<sup>1</sup> *Nature* 1941 148 114

<sup>2</sup> Doniach I, Gruneberg H and Pearson J E G. *J. Path. Bact.* 1943, 55 23

<sup>3</sup> *Ibid.*, 1945 57 271

<sup>4</sup> *Nature* 1943 152 599

<sup>5</sup> *Proc. Soc. exp. Biol. N.Y.* 1943 53 255

<sup>6</sup> *Quart. J. Med.* 1945 n.s. 14 75

<sup>7</sup> *Glasg. med. J.* 1947 28 237

<sup>8</sup> *Virchow's Arch.* 1890 122, 112

<sup>9</sup> *Blood* 1948 3 349

<sup>10</sup> *Anat. Rec.* 1946 94 461

<sup>11</sup> *Sang.* 1947 18 35



## MENTAL HYGIENE AND WORLD PEACE

### Opening of International Assembly

Following the two specialist international conferences, the International Conference on Mental Hygiene was opened at Westminster Central Hall on Monday, Aug 16. About fifty nations were again represented among the delegates, and the opening ceremony was attended by leading representatives of medicine, public health, psychological science, and social administration. A message was read from the King in which he expressed himself as confident that the Conference and the work done in preparation for it would "contribute to a better understanding of troubled communities and a convalescent world." In a loyal reply it was stated "Your Majesty's demonstration of what happy family life can mean to mental health is in itself a source of inspiration."

Dr J R REES, President of the Conference, referred to the vast amount of preparatory work which had been carried out. Discussion groups had been working in 27 countries over a period of many months, and for a fortnight before the Conference met a Preparatory Commission had been preparing a statement as a basis for consideration. Dr Rees wondered whether there were many other instances in which a document covering so large a field had been produced by agreement between scientists and sociologists of ten countries and of eight different professions.

VISCOUNT ADDISON, Lord Privy Seal, who welcomed the Conference in the absence on holiday of the Minister of Health, recalled that when it was decided thirty years ago to set up a Ministry the conception of health which was accepted was the same as that which now appeared in the constitution of the World Health Organization, namely, "Health is a state of complete physical, mental, and social wellbeing, and not simply the absence of disease or infirmity." Harassing conditions of life, Lord Addison continued, by imposing continual anxiety on men and women, especially women in the home, provoked many of the conditions which led to physical or mental ill-health, but at the same time he had come across a large number of discontented people who were not in the worldly sense hard up, and he had often wondered what caused their anxieties. He thought that first and foremost it was because they lacked the right attitude to occupation. A satisfactory occupation had much to do with a state of mental restfulness. One of the biggest questions before the world to-day was whether people were prepared to face the responsibility for the vast forces which physical science had put into their hands. Wars began in the minds of men, and it was in the minds of men that the defences of peace must be constructed.

Mr R A BUTLER M P, president of the National Association for Mental Health, joined in the welcome. What agencies, he asked, were more important than those which contributed to the expansion of the social sciences, and in particular attempted to explore and chart the puzzling wilderness of the brain? He said "wilderness" because he was convinced that there was relatively more unknown territory to explore in the mind of man than remained undiscovered on the terrestrial globe. A world-famous brain-specialist in Canada recently remarked to him that there were ahead a hundred years or more of patient exploration of the normally unused recesses of the brain. Here was work for the Columbus or Magellan in their ranks. Mental health investigation called for team work and pooling of ideas. He had great hopes of the results of the present gathering because it represented every profession concerned with mental health, he trusted that its conclusions would be a spur and stimulus to mental-health workers all over the world and through them to their associates, the administrators, diplomats, and politicians.

To emphasize the world-wide character of the Conference, brief messages were given by representatives of six continents. For North America Dr FREMONT-SMITH, vice-president for the United States of the International Committee for Mental Hygiene, said that, just as physicists, chemists, engineers, and others needed to collaborate in the work on atomic energy, so must they, the specialists in individual and group behaviour, join forces to construct a different kind of cyclotron, one which would use the powerful rays of human intelligence to untap

the energies of good will and co-operative effort in the heart of man.

For South America Professor HENRIQUES ROXO, of the Psychiatric Clinic in the University of Brazil, said that it was for the Conference to interpret the reasons for what was now occurring in the world. If there should be mental illness it must do its best to cure it, if only symptoms of maladjustment, it must indicate ways of reconditioning. For Asia Dr K R MASANI, president of the Indian Council for Mental Hygiene, suggested that some clear cut recommendations should go from the Conference to the World Health Organization and to Unesco.

For Africa Dr LOUIS VAN SCHALKWIJK spoke of the social work proceeding in the Union of South Africa, a country which, he said, was mental health conscious. Dr HENRY MAUDSLEY of Melbourne, brought the greetings of Australasia, and, finally, for Europe, Dr ANDRE REPOND of the Swiss National Committee for Mental Hygiene, drew an analogy from the way in which the people in his own country dealt with avalanches, not by erecting barriers at the foot of the mountain, but at the top of the slope where the snow first settled. It was in the realm of ideas before they became action that catastrophe could be prevented.

### The Conference and the World Health Organization

The good wishes of the first World Health Assembly meeting in Geneva were brought by Dr G BROCK CHISHOLM, director-general of WHO. He pointed out that Governments in their international relationships could not be much more tolerant, co-operative, or helpful than the mass of the people who put them in power. Not too much was to be expected from Governments until people everywhere became more world-minded and emotionally capable of functioning as world citizens. He hoped that a World Federation for Mental Health would play a significant part in helping the world to learn to live in peace.

Dr ARVID BRODERSLÉN, representing Unesco, mentioned the co-operation between his organization and specialists in mental health, including national and international organizations.

These complimentary proceedings over, the Conference settled down to its discussions, the theme for the week being mental health and world citizenship. Professor RENE SAND, professor of social medicine, University of Brussels, took the chair during the first discussion, when problems of world citizenship and good group relations came forward. Professor Sand remarked that it was fitting to be meeting in the year which marked the centenary of the Public Health Act in England, and this was a welcome opportunity to acclaim Edwin Chadwick, Southwood Smith, and others to whom the passing of that Act was due. By a coincidence it was also a hundred years ago that the expression "social medicine" was coined by a French medical journalist, Jules Guérin, in the *Gazette Medicale de Paris*. It was also fitting to be meeting in historic Westminster, close to the Houses of Parliament, that substantial bulwark of freedom and progress, opposite the Abbey, the shrine of the men who had served both England and mankind and in the very hall in which the first assembly of United Nations had met.

A somewhat diffuse discussion was opened by Professor CARL BINGER, of Cornell, who spoke of the need for finding moral equivalents for war, and also the need to know more about the transmission of war fever, how the infection spread, and why it was no longer a localized outbreak but so quickly reached epidemic or global proportions. Delegates from Switzerland, France, Greece, Norway, Iran, and Czechoslovakia addressed the Conference, and Dr EDWARD GLOVER, who presided over this part of the meeting, summed up. He said that the work of the preparatory groups, although they had been functioning only for a year or so, had resulted in a nucleus organization in many countries, and had shown that everywhere there were people who were prepared to get down to the necessary committees on the subject of mental health. This work must be continued. He spoke of the need, particularly on this topic of world citizenship, of making use of the disciplined exercise of the imagination.

In the evening a reception was given by H M Government when Lord Addison received the guests.

## INTERNATIONAL CONGRESS ON MENTAL HEALTH

[Continued from page 396]

### Third Day

#### PSYCHIATRIC PROBLEMS IN EDUCATION

The morning session of Aug 13 was devoted to the topic of psychiatric problems in the educational sphere, and the chair was shared by Dr B BEHMAN (Egypt) and Dr S AHNISIO (Sweden). The subject was introduced by Dr JEANNE DECROLY (Belgium), who, while admitting that the school was in many instances a contributory cause of aggressive behaviour, considered that by careful attention to compatibilities as between teacher and pupil and between pupils themselves the school atmosphere could create an environment favourable to the improvement of even the gravest forms of aggression.

Dr GORDON STEPHENS, out of his experience as psychiatric consultant to the Winnipeg Child Guidance Clinic, set out a number of school influences which imposed undue restrictions upon healthy expression in the majority of children. One of these was a curriculum over stuffed with rigid, unrealistic subjects, tolerable only to an abnormally submissive child. Frustrations arising in the class-room with more than thirty children and an average teacher were obvious. Another severe source of frustration for at least half the average class was the measurement of academic achievement by examinations. Then there was the frustration due to restricted outlets for recreation, which produced irritability, restlessness, and impaired performance. He included among his unfortunate influences the preponderance of female teachers. In the Winnipeg school system there were three times as many female teachers as male, and several thousand boys had no male teacher until they were twelve or thirteen. Many of the women teachers, though by no means all, were a source of frustration to their pupils. But the most traumatic and crucial frustration which the child encountered in his school life was poor teacher-pupil relationship. "Too many teachers seem to choose their profession as an escape from the aggressive and more mature adult environment," Dr Stephens added that the same was said about some psychiatrists and social workers.

Finally Dr LUCIEN BOVET (Switzerland) spoke of the complementary (and in both cases limited) tasks of the physician and the educationist, the latter taking over at the point where the former left off. He begged the Congress to pass a recommendation that the training of doctors should include a training in experimental medical psychology and child psychiatry, that the training of educators should include training in psychopathology in so far as it related to the child and the adolescent, that medico-pedagogic services should be created to help in the diagnosis, therapeutics, and prophylaxis of the troubles in the development of the child and the adolescent, and that a body of psychiatrists should be attached to the schools in the same way as school nurses.

In some general discussion Dr LAURETTA BENDER (United States) described work among problem children in New York who had been brought up in institutions and deprived of the mother relationship so that they had become virtually ineducable, unable to identify with their teachers and school-fellows in a group programme. Dr ANTOINE PIERSON (Morocco) reminded the Congress of children in North Africa, products of an ancient civilization, in which the ordinary father-mother-child relationship did not hold, the child finding himself in a family of many mothers, and receiving no particular individual attention. The idea of personality in such children emerged much later. Mrs LLOYD NOAD (Australia) suggested that the nursery school was the place in which 'to begin to outlaw war'. Dr ALICE-MARIE LAPORTE (Belgium) described the lot of many Continental children who during the occupation had lived in a state of alternate exhilaration and fear which was highly detrimental. Various factors, such as insufficient housing and the black market, had contributed to further character degeneration. Moreover, teachers were apt to be neurotic, they were overworked, and owing to war circumstances many of them remained unmarried, so that their affective life was entirely dependent on the children. Every school should be provided with a trained psychiatric social worker. Dr G VAN LOON (Holland) gave an account

of Dutch children who had lived in the worst imaginable conditions during the war. In a group of 540 such children, however who had been orphaned and placed with foster parents, 90% got on well with them, and the frequency of aggressive and anxiety phenomena was only about 5%. The discussion was concluded by Dr RENE DELLAERT (Belgium) and Dr ANNA MARACHEN (United States), the latter remarking that psychologists too often dwelt in an ivory tower, and, seeing the problem of each child one by one in the luxury of the private interview, did not appreciate the influence of its surroundings upon the child's behaviour pattern.

#### COLLECTIVE GUILT

The subject of guilt, which had already occupied two sessions, was carried to a higher level in a discussion on collective guilt. The distinguished American anthropologist, MARGARET MEAD, introduced the subject from the standpoint of a comparative study of cultures. She referred in particular to the culture of the North American Indians and the less-known cultures of South America, which were based on shame as a sanction—that is to say, the child internalized not fear of loss of love or of punishment from its parents, but fear of disapproval by the whole of its group. In later life the individual conformed in shame and the shame remained an external sanction in which the chief effort was to avoid exposure to open ridicule and opprobrium. She outlined some other types of sanctions which were found in different cultures of the world and on the basis of comparative cultural data she came to the conclusion that the capacity to experience guilt as a dominant psychological mechanism was a human capacity which might be either developed or neglected by any given society and could not therefore be regarded as either universal or necessary, however desirable it might be found in terms of contemporary ethics.

Dr POUL BJERRE (Sweden) contested the proposition that aggression, like sexuality, was an instinct inherent in the nature of mankind. If it were the said, war could never be abolished. All talk of sublimation would be empty talk, for no instinct could be satisfied except directly through its own channels. One might divert the attention from hunger by reading poetry but it was impossible to satisfy thereby the need for food. Sooner or later, if aggression was an instinct, it would find an outlet in war. But in his view it was impossible to regard aggression as an elementary instinct: it was a reaction to inhibitions, neither more nor less.

Dr KRUGERS-JANZEN (Holland) read a paper in which he compared collective guilt with individual guilt from the standpoint of developed psychology, and Dr H V DICKS (Great Britain) entered upon an interesting analysis of the culture of pre-war Germany, with the authority of the father-figure resulting in a rigidly ordered society with a high degree of subordination linked to dread of social change. A highly theoretical discussion was continued by Dr KATE FRANKENTHAL (USA), Professor G BOSCHE (Italy), Dr CLIFFORD SCOTT (Great Britain), Dr F GREWEL (Holland), and Dr CHOISY-CLOUZET (France).

### Fourth Day

#### THE CHILD DELINQUENT

The final session of the International Congress on Child Psychiatry, on the morning of Aug 14, considered the problem of the child delinquent. The chairmen were Dr CARL FRANKENSTEIN (Palestine) and Dr KATA LEVI (Hungary). Three opening papers were read. Professor DE SANCTIS (Rome) expressed the point of view of the Italian school, and emphasized the importance of religious education. There was no cleavage between medicine and religion which could not be bridged. Dr JEAN DUBLINIAU (Paris) discussed the framework of re-education and Dr G E GARDNER (Boston, USA) the expressions of sexual instinct in childhood which led to sex delinquency, with particular reference to the role of aggression in such acts.

Dr J D W PEARCE (Great Britain) thought that too little attention had been paid in discussions on this subject to individual differences in native endowment as between one individual and another. Dr GEORGE HEUYER (France) astonished the Conference by calling for the abolition of all juvenile courts and judges. Delinquent children, he said, should not be

dependent upon the administration of justice but should be dealt with by some other department which did not import a legal or penitentiary aspect. Dr FRANK BODMAN (Great Britain) mentioned the factor of social backwardness or defectiveness, as distinct from mental defect, as important to bear in mind in these cases. Dr KLINSBERG (USA), in pointing out that criminality or delinquency varied from community to community and from period to period, amused the conference by the story of a man in the prohibition era who offended against the law, but before his trial the law was altered. He was, however, fined for breaking the law as it had then stood, and promptly entered the previously illegal employment of brewing in order to pay the fine. Dr G K STURUP (Denmark) spoke of the desirability that communities in which aggressive children were brought up should be small. It was hopeless to make a home out of a group of thirty children. Group co-operation in adults as well as in children was impossible above a certain number. Others who took part in the discussion were Dr KAISA LEPPÖ (Finland), Dr J ROUDINESCO (France), Dr LUSCIONI (Algeria), and Dr O FLEISCHMANN (Austria).

This brought to a close the International Conference on Child Psychiatry, and Dr J R REES, the president, announced that it had been decided that the Comité International de Psychiatrie Infantile should be reconstituted as the International Association, with one representative from each country on its council. Dr Frederick Allen, of Philadelphia, had been elected the first president of the new body, and an invitation to hold the next International Conference in Philadelphia had been received.

### ADVANCES IN GROUP THERAPY

The closing session of the International Conference on Medical Psychotherapy was concerned with advances in group and individual treatment. Professor O KAUDERS (Vienna) and, later, Dr W REES THOMAS presided. Criticism of the group method was made by Dr C A MEIER (Zurich). In Switzerland nobody was practising anything like group therapy, but then Switzerland had not had to cope with war neuroses and psychoses. Group therapy was said to be gaining ground in England and America—a disconcerting thought, for it looked as if it was becoming a fashion. If it had arisen only as a war necessity it should by now have been losing ground. It was a makeshift substitute for individual therapy when the latter was too expensive in money for the patient and in time for the overworked analyst. Grouping was a collective situation, it sacrificed the personal *vis-a-vis*, it could be only palliative and in the long run create a vacuum. One effect of group therapy was claimed as an advantage—namely, that it diminished the resistance of the patient—but this, Dr Meier argued, was no real gain, for resistance might be a protective system against complete breakdown.

"Brief psychotherapy" was described by Dr W B TERHUNE (USA). This, he said, was a practical form of individual psychotherapy which chose the best methods from all schools. Most of the patients so treated were fundamentally and permanently helped. Two years was the minimum time required for the training of a psychiatrist in the basic technique of brief intensive psychotherapy. The method employed the recognized processes of abreaction. It was largely dependent for its results on quick, strong, and successful transference. The patient was subjected to the treatment for from three to eight weeks. It could be used successfully in an out-patient clinic.

Dr W R BION followed with an exposition of group therapy as practised at the Tavistock Clinic. In psycho-analysis the most important condition was "one patient, one doctor." He had had it in mind, however, to elaborate a form of treatment for the proper carrying out of which a group would be as essential as the intimate relationship between two individuals in psycho-analysis, in other words, any form of treatment in which the psychiatrist felt that he had a group of patients *faute de mieux* was bad treatment, whereas any form of treatment, supposing it could be worked out, for which a group was essential would be good treatment. After describing his methods he said that, while most of the patients who had claimed to be better did not approach any standard he would have regarded as satisfactory in individual treatment, nevertheless there was an element of improvement which was stable and genuine.

Another exponent of American methods, Dr DANIEL BLAIN said that group therapy had been practised in America for many years, but there was a rapid expansion of the method during the war. At first it was considered purely a method of convenience in view of the shortage of psychiatric manpower, but now it was believed that there was something in it over and above individual psychotherapy, and that in its exercise just as much skill, though perhaps of a different kind, was required. The evidence that it produced results of value was subjective at present, but it was just as good as the evidence of most people reporting their work in individual psychiatry, because that also had not been submitted to any scientific valuation or objective control.

This and other recent developments in applied medical psychology were reviewed by Dr E B STRAUSS (London). Such methods had come about, he said, as the result of a long felt demand for effective short cuts in order to cope with the increasing number of patients who needed psychiatric help. The new methods included narco-analysis, abreactive psychotherapy, group therapy, and therapeutic social clubs. Although group psychotherapy originated in the United States, British psychiatrists had carried the application of the principles much further than was common in American practice. The form was most diffuse in the therapeutic social club and most compact in the closed analytical group. Many therapeutic social clubs had been started in Great Britain, both inside mental hospitals and in connexion with psychiatric out-patient departments. The group situation, with its opportunity of transference reactions, forced the patient out of his isolation by bringing him into vivid contact with the social situation and causing him to see his own anxieties and morbid ideas mirrored in other members of the group. Resistance was broken down and dynamic unconscious material more readily activated.

Two American psychiatrists spoke further on the subject. Dr JEROME FRANK said that in his clinic psychotics had been receiving group treatment only, neurotics received both group and individual treatment. The groups were small, ranging from five to ten members. Group therapy was a valuable adjunct to individual treatment, and for many patients it took its place. Dr S R SLAVSON pointed out that if one error was made in selecting a patient for the group there was no psychotherapy, but only confusion and exhaustion for the therapist. But, given the right selection, there was a large field for group treatment. The great thing was to choose patients who were similar not in their symptoms but in their psychodynamic syndrome. Psychiatrists had made the mistake of choosing patients on the basis of symptoms, whereas similar symptoms might derive from very different causes.

Dr JOHN RICKMAN (London) said that no doubt in some cases it was an advantage for treatment to be brief, but brevity in this field was not the way to knowledge. One price which could not be accelerated was the pace at which human problems could be understood. It led to sheer confusion to speak about brief therapy and group therapy as though they were the same thing.

Other speakers on this subject were Dr ANGELO (Italy), Dr C JORGENSEN, who gave an account of group therapy as practised in the municipal hospital at Copenhagen, and Dr A M ALONSO (Venezuela). The final speaker was Dr KEMPER (Berlin), who described the experiences of a large clinic where psychiatric treatment of up to 150 hours in an individual case was given. The staff included followers of the Freudian theory, but representatives of other schools as well. He agreed that major analysis could not be replaced by any brief treatment. The decisive condition in brief therapy was the correct choice of patient. The method was justified in one case and not in another, it was neither a substitute for nor a branch of analysis.

The International Conference of Medical Psychotherapy closed with warm expressions of appreciation from the delegates from abroad for the work of British organizers.

On the intervening Sunday special services were held at St Paul's Cathedral and the Central Hall, Westminster, and at Westminster Cathedral there was a solemn High Mass for members of the Congress. At St Paul's the preacher was Dr Donegan, the Bishop Suffragan of New York, and Mr R A Butler, MP, read the lesson.

## PSYCHOSOMATIC MEDICINE

### Widening Concepts

The meetings of the International Conference on Mental Hygiene, the third of the assemblies of the Mental Health Congress continued at Westminster during the whole of last week with eagerly sustained discussions on individual, family, and industrial relations. On two afternoons nine specialist meetings were held. At one of these, under the auspices of the Royal Medico-Psychological Association and the chairmanship of Dr W REES THOMAS a discussion took place on the widening concept of psychosomatic medicine.

This subject, in particular relation to public health, was introduced by Dr J L HALLIDAY who pointed out that the physical health of a nation could be assessed from its mortality rates, the incidence of infectious diseases, and so on, but for its social health it was necessary to know not only the occurrence of neurotic and psychotic manifestations but the fertility, the incidence of delinquency, and many other phenomena—economic, industrial, and cultural. Thus it was possible for the wartime paradox to occur, when the physical health of the population improved while its social health declined.

For the improvement of the psycho-social health of a community certain social patterns had to be altered. Dr Halliday mentioned some of the changes in social pattern which had occurred during the three years since the end of the war, and showed how in each instance there was a balancing of factors. There had been full employment, but along with that a certain rigidity in card-indexing and labelling of workers. There had been Government grants for higher education—an excellent policy, but its emphasis on the training of technicians tended to turn some universities into technical colleges. The advent of a State medical service would bring much social good, but also, if care were not taken, certain social evils—one being that creative ideas in the field of medicine might be discouraged and prevented. The nationalization of industries had taken place, but associated with it an increase in bureaucracy. The question was whether on balance these measures were lessening the causes of social sickness. The indices of psycho-social disorders which would give an answer were not available. There was, of course, the favourable employment index and a rise in the birth rate, but a rise in the birth rate had followed the earlier war and had proved to be transitory. One favourable figure was the post-war decline in the death rate from peptic ulcer which had risen steadily between the wars. The incidence of exophthalmic goitre and of diabetes was less, and the improvement in the latter disease was not wholly explainable by sugar rationing. Suicide, again, was declining. All this seemed to argue a loosening of obnoxious social pressure of some kind, but until there were adequate morbidity statistics such a conclusion should be accepted with reserve.

### The Social and Psychological Background

Dr ERIC WITTKOWER dealt with some common conditions from a psychosomatic point of view. It had been observed that patients with venereal diseases frequently came from broken homes. Of female patients in one recorded observation 80% had unresolved conflicts concerning their family. All observers agreed that delinquency and criminality were common in patients with V.D. The all-round picture was that such patients were emotional and sexually and socially immature, though physically and mentally they might have reached full maturity. The evidence of immaturity was most striking in the habitually promiscuous. War experience had been instructive in revealing the background of venereal disease. The bond of marriage in newly wedded couples might not be strong enough to withstand the dysuniting effect of long separation. Men in the Services lived in a regimented community abroad or in isolated posts, and boredom was conducive to promiscuity.

Turning to tuberculosis, Dr Wittkower said that many individuals who developed this disease seemed to have in common an inability to deal adequately with aggressive impulses and were prone for varying reasons and in different ways to turn these impulses against themselves. Illness and disablement in general had a regressive effect on the ill person, showing itself in hypochondriacal tendencies, surrender to despondency, and a

'bland, childlike faith in the powers, indeed the infallibility, of the doctor.

Generally speaking there was no justification for feeling guilty of being ill, but a person who felt guilty revealed by so doing that he was aware of an aggressive aim and purpose in his illness. Chronic illness almost invariably mobilized aggressiveness, finding expression in irritability and outbursts of temper. To many persons illness was equivalent to weakness and failure. Patients not infrequently felt ashamed of being ill, especially if the disease was one to which a stigma attached. The disproportionate emotional reaction to minor acts of kindness which was found quite commonly in the chronic sick could only be understood on the basis of assumption that they did not believe they deserved them.

Dr Wittkower also spoke of the emotional reactions attending loss of sight or the amputation of a limb. He said that the general belief that blinded persons were meek was mostly erroneous. Their dependence on sighted people and their need for affection compelled them to check aggressive traits or show them only in sarcastic wit and fantasy. Men who lost an arm had more severe emotional reactions than those who had had a leg amputated. There were various reasons for this, the arm being more important for social relations, self-expression and occupation, while its relative nearness to the heart made the loss of it seem a greater threat to life.

Dr J C AUERBACH (United States) urged that a halt should be called at the point where they could still speak of medicine, otherwise they would be "swallowing a bigger bite than they were able to digest." He thought that the term psychosomatic disease should be restricted to conditions in which the psychological disorder, occasioned perhaps by the disease or injury, itself reacted again upon the body. Dr G H DAY speaking from his experience of pulmonary tuberculosis, said that many of the patients were subject to conflicts. If the conflict, whether external or internal, was resolved they got well, if the external conflict (inability to get on in the social setting) was insoluble they lapsed into chronic invalidism, and where there was an insoluble internal conflict the illness might well prove fatal.

Dr RONALD MARKILLIE asked about the connexion between responsiveness to emotional factors and proneness to catch infection in an epidemic. On the question of suicide he suggested that some people died not by actually taking their own lives but as the result of a depressive process similar to that which operated in the mind of the suicide so that though they might be expected to commit suicide they did not do so, and yet they destroyed themselves by the precipitation of some grave disorder.

### Family Problems and Psychological Disturbance

In the plenary session devoted to family problems the opener of the discussion was Dr P J REITER, president of the Danish Association for Mental Hygiene. The disorganization and disintegration of the family institution, he said, was demonstrated by the increasing number of divorces. He was not prepared to say that matrimony at any cost ought to be preserved. Divorce might be preferable to continuing disharmony. But the important thing was a systematic and careful education of young people to a better understanding of the emotional, personal and social aspects of matrimony. Another problem was "extra-matrimonial births." This was not to be solved merely by counteracting conventional prejudices against the unmarried mother. The psychological effect went deeper. The illegitimate child during adolescence would miss the father-figure, while the mother-figure was likely to be defective in certain ways—bitter, disillusioned, severe, over-critical, over-anxious. The only child, again, was missing to a high degree the normal social microcosm, and was specially exposed to difficulties in dealing with the Oedipus situation. Difficulties of a similar character arose in families in which the children were spaced out at very long intervals.

Dr LESLIE HOUSDEN urged that a real attempt should be made in all countries to raise the standard of parentcraft. We poured out treasure and effort in trying to restore mental health to one generation while our homes manufactured casualties for the next. The Ministry of Health had appointed an adviser in parentcraft—the first such appointment in this country, and he did not know of a similar one elsewhere.

The work of the Marriage Guidance Council was described by Dr EDWARD GRIFFITH. It co-operated harmoniously, he said, with churchmen, doctors, and educationists. The need for such work was obvious. Marriage disharmony was increasing in practically every country. Sex relationships before marriage were on the increase. One in four of all women who married for the first time was pregnant before marriage. The rates of illegitimacy, abortion, and venereal disease were going up. The 500 divorces in this country in 1900 had become, probably, 50,000 this year. The causes of all this were widespread—economic insecurity, materialism, the changing social pattern, combined with a lack of creative outlet and ignorance of the biological, psychological, and spiritual factors in personal relationships. The first cure for marriage disharmony lay in effective and widespread pre-marital education. Adequate marriage preparation would go far to remove frustration, fear, and anxiety, such as dominated so many marriages and destroyed family life.

The religious ideal was put forward by at least two speakers. The Rev ROBERT MORRIS (USA) mentioned that in a community church in Ohio, where particular care was taken in the nurture and instruction of young people in respect of sex and marriage, 643 men went into the armed Forces and not one of them was discharged on account of any neurotic or psycho-neurotic disorder. This result had been obtained by combining the principles of mental health with a wholesome faith. He also mentioned that this summer in the United States 145 theological students were taking a clinical course in hospitals in order to get to know people and their difficulties. Dr PATRICK MORAN (Eire) also emphasized the religious factor. There was no synthetic substitute, he said, for a wholesome family life.

#### Medical Leadership in Industrial Relations

The session of the Congress which was most sparsely attended was the one concerned with mental health in industry and industrial relations, and fewer papers had been contributed to the Preparatory Commissions on this subject than on the others. The discussion turned to a considerable extent upon the question of medical leadership in industry. Professor WILLIAM LINE who is professor of psychology at the University of Toronto, called upon medicine to show leadership in this field which hitherto it had found difficulty in giving. "Medicine is in danger—on the North American continent at least—of becoming or continuing as a vested interest that will hamstring us as much as would the Church or industry itself." There had always, of course, been the example of the general practitioner in taking individual well-being as an objective, and there had been exciting, though isolated, instances of medical leadership in public mental health. He recalled the dramatic change of medical leadership in the Canadian Army in 1941 associated with the appointment of Brock Chisholm, now director-general of the World Health Organization, as D G M S. Up to that point army medicine had followed the traditional pattern of wounds, sickness, and sanitation. Immediately, however, there began to emerge a series of general staff directives to the effect that illiteracy in a culture demanding literacy was a health matter, that routine as a dominant condition of employment was a concern of the medical officer, as were selection and induction, and so on through the whole gamut of service morale. The whole conception of social ill-health was medical in origin, at least at the technical level. "The great virtue in medicine lies in its professional tradition. To the doctor there is no distinction between manager and worker. Neither can the doctor's policy or technique be prescribed by anyone other than his professional associates, whom he represents at all times."

All mental health work in industry, declared Professor Line, should be sponsored by professional medicine. The exact method of sponsorship would have to be determined locally, but the sanctions would be those of the ultimate professional medical authorities. If the present Congress contented itself with blessing lay groups, however politically or economically dominant they might be at the present time, and failed to meet the challenge of universal professional health sponsorship, it would have failed dismally. Work and industry were public health matters of first priority.

Dr G R HARGREAVES raised the delicate point of the doctor's own industrial relations. Psychiatric hospitals, he said,

displayed an archaic, autocratic pattern of working groups such as no longer existed in industry. The professional group was detached from other workers who made the wheels go round, so that very few doctors knew the name of the nurse who worked in their ward or the name of the liftman who took them up to that floor. Yet medical men, like others, were in a working group which could not be separated from the rest of society. This speaker dissented from Professor Line in his insistence that public health leadership should necessarily be undertaken by doctors, and he was doubtful whether social science and research in industry should necessarily be under medical control. One of the most distinguished professors of public health was an engineer, and the adviser on nutrition policy to the Ministry of Food was a biochemist. It would be foolish to believe that doctors were the only people to make a leading contribution in the field of health. At any moment, as occasion served, one or other member of the team—psychiatrist, sociologist, educationist—might take the lead. Dr ELLIOTT JACQUES spoke somewhat to the same effect. The problem of human relations in industry applied also to those who worked in the medical and social sciences. Could it be said that in scientific societies, in mental and general hospitals, in university departments, human relations concerning medical and other staffs were always modelled on the pattern they would like to see adopted in industry?

Dutch, Finnish, and French delegates took part in the discussion. Dr P M TURQUET made the useful point in an international assembly that many of the English terms used had no exact equivalent in other languages, and if they were to become world citizens they should use translatable terms. He knew of no French equivalent for "nervous breakdown," "frustration," "pilot study," or the statistical term "scatter" and similarly certain French and German terms appeared to have no English equivalent.

#### Concluding Sessions

The closing sessions of the Congress were devoted to the subject of planning for mental health organization, training, and propaganda. Dr T FERGUSON RODGER, professor of psychiatry, University of Glasgow, and Dr A QUERIDO, director of department of mental hygiene, Amsterdam, presented detailed surveys of present mental health services, with indications for the directions in which they should be extended. Dr J KEARNEY (Dublin) described the operation of the Irish Mental Treatment Act, 1945, whereby no judicial authority intervenes in the process of the reception of persons of unsound mind or temporary patients into a mental hospital. The procedure is entirely medical, and the Act has done much to remove the stigma so long associated with mental disease. Col A A W PETRIE gave some indication of the problem in the LCC area, where 34,000 people are dealt with under the Mental Treatment and Mental Deficiency Acts. In general discussion the complaint was made that there was almost no reference to the role of the teacher in the documents before the Congress, and that none of the national delegations included a practising teacher.

At a meeting held under the auspices of the National Association for Mental Health Dr DORIS ODLUM and others spoke on the various methods of bringing the principles of mental health home to the public—the appeal, on the one hand, to specialist groups such as educationists, magistrates, and industrialists, and, on the other hand, to a wider public, to whom the matter must be presented in some concrete way. The Royal College of Nursing arranged a special session for nurses, at which speakers from the United States, South Africa, and this country discussed recent trends in mental nursing. The Royal Medical Psychological Association continued on a second day its discussion on the widening conception of psychosomatic medicine. Dr H CRICHTON-MILLER suggested that there was a tendency among psychiatrists on both sides of the Atlantic to reserve their diagnostic and therapeutic activities for only one side of this problem—namely, the influence of the mind upon the body. If they were to be balanced in their treatment of both neuroses and psychoses they must not neglect the influence of the body on the mind. In Westminster School Hall a playlet entitled "The Universal Heckler," produced by Miss OLGA DRUCE (USA), was demonstrated as a method of public education on the topic of anxiety.



### World Federation for Mental Health

At the final meeting of the Congress Dr J R REES announced that a World Federation for Mental Health had been constituted during the week, with an executive committee consisting of twelve members from almost as many countries. The members of the Federation would be not individuals or nations but the professional societies in the various countries interested in this subject, and it was hoped in this way to secure a real co-operation of all bodies—educationalists, psychologists, anthropologists, sociologists, and psychiatrists. The Federation would eventually, it was hoped, have an office in Geneva. Its annual assemblies would take place in different countries, and there would be no limit to the number of observers who could attend. Dr Rees himself was elected the first President of the organization, with Dr André Repond as vice-president and Dr Kenneth Soddy as secretary.

Dr JULIAN HUXLEY said with what pleasure he had heard of the formation of this permanent organization. The Executive Board of Unesco, at its last meeting, anticipating that the Federation would be formed, had recommended that it should be accorded consultative status so that it could be represented at Unesco meetings and receive grants and so forth. In giving help to the new Federation Unesco had not acted entirely unselfishly because it knew that it could not get on in the many fields of its work unless it received help from such non governmental organizations.

Dr BROCK CHISHOLM, director-general of the World Health Organization, said also that the first World Health Assembly had instructed its Executive Board to take such action as it might be able to take within its financial capacity on the recommendations which might issue from the World Federation or from the Congress.

### Enlarged Concept of Mental Health

The Congress listened finally to two important statements summarizing the work of the Congress itself and of the International Preparatory Commission and the commissions in the various countries which had preceded it. Eighteen of these national commissions or discussion groups had presented written reports, and these were ably condensed by Mr LAWRENCE FRANK, director of the Caroline Zachry Institute of Human Development, New York. Professor J C FLUGEL, chairman of the Programme Committee of the Congress, in a further summary, said that the ambitious programme of the Congress had meant an enlargement of the usual conception of mental health.

"It has involved a new attitude on the part of the medical profession. Here I may allow myself a few words as a non-medical academic psychologist. I think it was H G Wells who said many years ago that psychologists had nothing to do with the mental ills of mankind. Who with a sick soul would go to the psychologists? It is the medical psychologists who have changed all that, and the methods with which we approach the problems of mental health in their new and wider significance are largely methods which have come from the field of medical psychology. But it is remarkable—a fact to which some non-medical psychologists have drawn attention—how completely our medical colleagues have overcome their natural scruples about the enlargement of their domain and the handing over of a portion of their province to others who were not thought previously to be concerned with these spheres. Health was regarded as the sphere of the doctor, not often of the teacher, certainly not of the psychologist, who was expected to restrict his work to the laboratory.

"But it has been largely through the work of the doctors that psychology has come into more intimate contact with ordinary human life. I wish to testify to the extraordinary generosity and grace with which the doctors among us have handed over a portion of their province and allocated some of their labours to another sphere. Transitions of this kind do not always occur with sympathy. I remember in my youth the objections of the philosophers to admitting that psychologists had any particular place that was not the intimate concern also of the philosopher. The philosophers in my day felt that they were competent to deal with all the problems of psychology. But medical psychologists have not taken that attitude. In the course of our discussions we have heard how mental health considerations must be borne in mind by a whole host of people to whom these notions previously were quite foreign."

Dr REES in closing the Congress, commented regretfully upon the absence of a Russian delegation. Such a delegation had been fully expected even until after the Congress had begun.

A programme was sent to the president of the Academy of Medicine in Moscow, and he would receive a copy of the proceedings in due course. With regard to the World Federation for Mental Health, one of the first acts of its Executive Board had been to request the twenty or more members of the International Preparatory Commission to become an advisory intra-professional committee for the Federation.

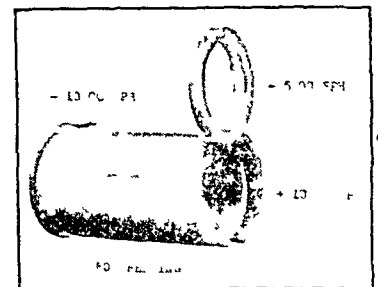
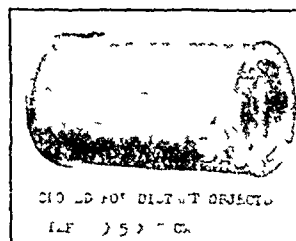
The President concluded his remarks with warm expressions of thanks to all those in various parts of the world who had helped to make this event so memorable and successful. Dr Rees himself received a great tribute of acclamation from the whole body of the delegates.

## Preparations and Appliances

### AN AID FOR DEFECTIVE DISTANCE AND NEAR VISION

Mr F W G SMITH, ophthalmic surgeon, Kent and Canterbury and Margate Hospitals, writes: This device, which should be used with the patient's correct distance glasses, unless emmetropic, was evolved to provide a simple aid for those persons usually elderly, who were unable to have the vision of their better eye improved beyond 6/60 or 6/36 owing to corneal, lens, or, particularly, retinal changes. I have not had much success with telescopic spectacles, their equivalent in contact lenses or other methods in old people, as senility and lack of concentration were contraindications in many cases, these conditions may apply to a lesser extent to the aid which is here described.

This instrument, which has the trade name of "dualocular," is used like a telescope and can be carried slung round the neck on a ribbon. It is made of light plastic material. Magnification is about  $\times 2\frac{1}{2}$ , and 6/60 vision may be improved to 6/24 or 6/18. For reading, the movable lens is swung out, print is



focused at about 9 in (22.5 cm). J1 is enlarged to J4. To obtain fuller magnification the eyepiece end can be held very near the print and the movable lens swung out. The eye should be about 12 in (30 cm) away to bring the object into focus. Additional illumination is required for this method.

The "dualocular" is made for me by Messrs R S J Barton and Partners, 27, Friar's Close, Whitstable, Kent, and the present price is £2 10s. Instructions are supplied, which include a warning that the aid should be used only by those who have had their eyes examined and that it should not be considered a cure for failing vision.

The Birmingham Executive Council has approved in principle a scheme for the establishment of a central telephone control for doctors. It is suggested that there should be an emergency call-sign and that anyone needing a doctor in a hurry would ring this number. If for any reason they were unable to get through to their own doctor, the operator in the control room would then find the nearest available doctor who could take the call. The views of the local medical committee and of the Ministry of Health on the proposal are to be obtained. The council accepted in principle recommendations for the association of groups of doctors with the maternity and child welfare services provided at clinics near their practices, and also for the association of district nurses, midwives, and health visitors with the groups of doctors. The council also recommended that general practitioners should have direct access to hospital pathological and x-ray departments, and this matter will be taken up with the regional hospital board and the board of governors of the teaching hospitals.



## Correspondence

### Organization of Consultants and Specialists

SIR—The information on the new move on the above subject contained in your leading article (Aug 14, p 343) and in the report of the first meeting of the new Central Consultants and Specialists Committee (*Supplement* p 81) will come as a surprise and shock to many specialists who have been thinking that as far as the B M A was concerned the manner of their representation had been settled at the Annual Representative Meeting last June. As this move to explore the prospect of collaboration with the Royal Colleges and Scottish Corporations, even to the extent of setting up a joint committee, to which, to some degree at least, the new Central C and S Committee would be subsidiary, has now been made public in the *Journal* and in the *Lancet* of Aug 7, it should be considered by the local and regional committees of specialists and it is necessary to make some comment on the subject.

Specialists will be surprised that any move at all has been made to discuss with the Colleges the formation of a joint committee. For the constitution of the new Consultants and Specialists Committee states that it will "consider and act upon all matters affecting those engaged in consulting and specialist practice," and will be autonomous. Further, it had been made clear that at least in the eyes of the Association it would be the only negotiating body for consultants and specialists. No one therefore would expect that the new committee would be made in any way subservient to any other body.

It must be stated that this move was not initiated by the new Central C and S Committee. When the committee was informed of the conference of the President and Chairman of Council of the Association with the Colleges it decided that further conference should only be exploratory of the possibilities of collaboration in the interests of specialists and further that reference must be made to the regional committees before any decision was taken.

Everyone wants to see ended if possible the present unhappy position of specialists, divided in their loyalties and representation and consequently weak in negotiation upon the terms and conditions of their employment in the National Health Service and upon other matters. It was for that reason that we have striven to set up a completely representative organization for all specialists based on the functional units of hospital staffs, with elected regional committees from which the majority of the central committee would be elected. We agreed to set up this organization through the B M A, first because that was clearly the only body with the resources available to allow us to be immediately and strongly represented, time being at present an important factor, and, secondly, because the specialists could in that way be represented through the same body as all other branches of the profession and the unity of the profession thus be preserved.

It is evident that most specialists have approved of this organization in preference to the proposal of Lord Moran for an *ad hoc* committee of the Colleges and the various special-practice associations. For they have seen in the latter merely a recrudescence of the old Consultant Services Committee, which was ineffective, and have understood that an *ad hoc* committee for the continuous representation of professional interests could not be as efficient or acceptable as one built up democratically from the periphery to the centre. They have also known that the special-practice associations, as for example the British Orthopaedic Association to which I belong, are not constituted for medico-political purposes but are purely scientific bodies. So also the Colleges are clearly academic and examining bodies undemocratic in their constitutions and in their Councils representative very largely only of the teaching members among specialists. There can be no doubt that despite their loyalty to the Colleges as academic institutions most specialists not only do not want the Presidents and Councils to intervene in medico-political affairs or to represent them in negotiation on terms and conditions of employment, but actually resent their attempts to do so because they have no means of keeping in touch with the rank and file. However desirable it may be, therefore, that

harmony shall exist between the B M A organization and those who control the Colleges it is unlikely that specialists will accept a position in which, through the existence of a joint committee, the authority of the Central Consultants and Specialists Committee to consider and act upon all matters concerning special practice might be impaired. On the other hand it appears obvious that the true functions of the Colleges are examining, research, and postgraduate education, as Lord Webb-Johnson has himself indicated (July 3, p 46). If a joint committee is set up it will be difficult to define its functions and powers and for it to operate without offending one or other of its constituents.

There is a danger that in trying to please everyone in this matter we shall please no one. Certainly if the authority of the Central Consultants and Specialists Committee is impaired, the specialists attached to the non-teaching hospitals will have to reconsider whether they should continue to be represented through it or should revert to and build up their own association as a Regional Hospital Staffs Association. For it is clear that while they have consented for the sake of harmony to equal representation on the Central Consultants and Specialists Committee with the representatives of the teaching hospitals (which of course they greatly exceed in numbers of their hospitals and personnel), they would be likely in a joint committee with the Colleges, the Councils of which are mainly composed of teachers, to find themselves in a minority of perhaps one in five or more. Unfortunately there have been and continue to be (*vide* the medical membership of the Central Health Services Council) many indications to the non-teaching specialists that they are to be assigned a minor place in status and in the councils of the Health Service. For that reason they formed their own association several years ago and they may return to that if they cannot feel sure of the protection of their interests in the B M A organization. If that should happen, that organization would fail by losing the greater part of its support.

As one who has taken some part in forming the new organization I hope that nothing will be done now to destroy it by weakening its authority. As a Fellow of one of the Colleges for many years I also want to see the Colleges remain true to their proper functions and in that way best maintain their dignity and influence—I am, etc.,

Bournemouth

N ROSS SMITH

### Post-pituitary Extract in Obstetrics

SIR—The method whereby posterior pituitary extract is given by a slow-drip intravenous infusion of a dilute solution, as advocated by Mr G W Theobald and his colleagues (July 17, p 123), is attractive so far as the treatment of uterine inertia is concerned. In the belief that it probably more closely resembles the physiological output of oxytocin by the pituitary, I have used a similar technique in a few cases during the last twelve months, and within the limits of a small experience I can confirm some of Mr Theobald's statements. Our procedure consisted in giving a stronger solution (one part of "pitocin" in 1,000 parts of 5% glucose saline), but at a slower rate (maximum 16 drops per minute and often less). The total dose only once exceeded 10 units of pitocin. The women treated were all suffering from long-standing uterine inefficiency which had failed to respond to the usual remedies, and all had been in labour for not less than 48 hours. The strength and frequency of uterine contractions were increased in proportion to the rate of the drip and could be controlled almost at will. The rapid response of the uterus to either speeding or slowing the rate of infusion appears to offer a degree of safety to mother and child which is lacking when single doses of oxytocin are given intramuscularly or subcutaneously.

In some cases of inertia the beneficial effect of the oxytocin drip is remarkable, but unfortunately the results are not always good. This is almost certainly because inertia varies in type and aetiology. The effect of the treatment is to enhance the activity of the uterus, but it does not apparently change the quality of the action. Thus, when the inertia is of the hyper-tonic type, or when a quiescent upper segment is associated with high tone and increased resistance in the lower segment and cervix, the efficiency of the uterus is not improved. The uterine contractions are increased but remain incoordinate, as evidenced by the patient's symptoms and by the failure of the cervix to dilate. Our observations to this effect appear to be

borne out by the account of Case 7 in Mr Theobald's article. Moreover, I am informed by Dr S R M Reynolds, who also has been using oxytocin by intravenous drip and recording the effects on three areas of the uterus simultaneously by means of the strain gauge multi-channel tokodynamometer," that his results indicate that posterior pituitary serves only to augment existing uterine motility and in certain cases results in increased activity of the middle zone of the uterus rather than improved expulsive contractions of the fundus, thus hindering instead of assisting the progress of labour.

Mr Theobald points out that an intravenous oxytocin drip does not take pride of place over analgesics and anti-spasmodics in the treatment of inertia, and it seems wise to add that even when these have failed it should not be given without first taking care to exclude as far as possible incoördinate uterine action. In this condition it is of no value and it may make matters worse, even to the extent of producing a contraction ring. Its real indication is the uterus which is hypotonic but whose polarity is not disturbed. Even then we have found that after prolonged treatment the uterus which initially responds well may become refractory and cease to react when the rate of the drip is increased. This is in keeping with a similar phenomenon which can be seen when intramuscular injections of posterior pituitary extract are repeated at frequent intervals—I am, etc.

Liverpool

T N A JEFFCOATE

### Treatment of Typhoid Carriers

SIR—The careful inquiry into the efficacy of penicillin and sulphathiazole on chronic typhoid carriers reported by Drs R M Fry, R E Jones, B Moore, M T Parker, and S Thomson (Aug 7, p 295) is particularly commendable for the strict criteria demanded before a cure was assumed. It is to be hoped that other forms of treatment will be examined with equal care before being offered to patients. In particular this should apply to surgical treatment, for it is possible that surgery may be more frequently advised now that the ineffectiveness of current chemotherapeutic methods has been demonstrated.

Attempts to cure the chronic typhoid carrier by removal of the gall-bladder presuppose that this organ contains the only focus of infection in the body. For this belief there is no pathological evidence. Animal experiments have revealed lesions in the wall of the gall-bladder, but these have not been observed in human cases. The bacilli certainly flourish within the bile in the gall-bladder and evidence of a mild cholecystitis is generally found, but no focus of bacilli has been found in the wall, indeed there is still much in favour of Gerbat's belief that the gall bladder merely acts as a human test-tube containing the bile culture medium in which the organisms flourish so readily. Furthermore, even if it could be established that there was a permanent focus in the gall-bladder, there is no way of establishing that there are not other foci, either primary or secondary, which would of course be uninfluenced by cholecystectomy. Thus Saphir *et al*<sup>1</sup> found that, although they could sterilize the bile (eight negative duodenal intubation specimens being their evidence for this), none the less faecal excretion of bacilli continued in sixteen out of twenty-one cases, this strongly suggested the presence of other foci either in the intestines, the bile ducts, or elsewhere. Indeed in Fry's series the reappearance of bacilli after apparent sterilization also raises this suspicion.

Despite these difficulties many authorities regard cholecystectomy as a certain cure. Many claims of successes have been made but subsequent investigation has shown that many were based on bacteriological criteria of cure which are now held to be invalid. Thus the cure rate of 75% quoted in the report of the Infectious Diseases Subcommittee of the Research and Clinical Committee of the Royal Medico-Psychological Association is based on unstated criteria of cure and upon work done at several different laboratories and hospitals. Again Browning *et al*<sup>2</sup> were forced to reject most of the reported cures as being invalid although three of their own cures were strictly tested. Furthermore there is a long unpublished list of failures reaching widely round the globe which, though they are unlikely to find their way into the medical press, would substantially dilute the percentage of claims made on the published series of very few cases. It is doubtful if much hope of permanent cure can

be offered to the chronic carrier by cholecystectomy, and it is hoped that in future it will only be advised after careful thought—e.g., in young patients with a short history (and therefore with more chance of the gall-bladder being the only focus) whose bile is persistently positive and who are incapable or unwilling to control their potential danger by other means.

Lastly, it is more than probable that before long an efficacious chemotherapeutic remedy will be discovered. In the meantime attention should be directed to the bedside, for it is often through careless initial surveillance that carriers escape. Anyone who has dealt with over two hundred cases of typhoid must be frightened by the realization that on the law of averages he should have discovered from four to ten carriers. But more important still is the possibility that chemotherapeutic remedies may be effective in the early stages of the carrier state, proof that these remedies have no beneficial effect in a series of carriers of between three and sixteen years' duration does not imply that they will have no effect if given in the early stages. Vigilant testing of stools should therefore continue with added zeal, and when a carrier is detected intensive treatment should be commenced at once with penicillin and sulphathiazole or with iodophenolphthalein.<sup>3</sup> Despite the inevitability of thus including in the treatment those convalescent carriers who might recover spontaneously, such a procedure might none the less preclude some chronic carriers from developing—I am, etc.,

Hadley Wood Herts

JAMES T HAROLD

### REFERENCES

- <sup>1</sup> *J Amer med Ass* 1942 118 964.
- <sup>2</sup> *J ment Sci* 1936 82 263.
- <sup>3</sup> *Chronic Enteric Carriers and Their Treatment* 1933 Spec Rep Ser med Res Coun No 179 Lond.

### The BBC and the NHS

SIR—It is a pity that a serious paper should publish a letter containing so many inaccuracies as that on "The BBC and the National Health Service" by Dr Ff Roberts (July 24, p 224). Since those of your readers who did not hear the broadcast may have received a very false impression I should appreciate the opportunity of making a few corrections.

1 Your correspondent writes, "We heard a mother's dread of the voluntary hospitals transformed into joyous confidence in the same hospitals nationalized. No such incident occurs in the programme (I write with the script before me). A mother certainly showed a certain amount of anxiety when the doctor told her her child should go into hospital. This is a natural reaction, since the layman connects a stay in hospital with serious illness. No comparison, however, was made between voluntary hospitals and nationalized hospitals until the question of expense came up, when it was pointed out that, whereas a charge used to be made according to the patient's financial status, now no payment is necessary."

2 Your correspondent writes, "The hero of the piece was a surgeon to him came a Mr Venables, intended to be a typical *nouveau riche*. He wanted to know whether he should remain a private patient or become a public patient." Mr Venables naturally went to his own general practitioner to discuss this question—not to a surgeon. This point, of course, is scarcely worth mentioning except that it illustrates the generally low standard of accuracy throughout the letter. Venables was portrayed as a reasonably sympathetic character—a man of shrewdness and common sense. He was not "intended to be a typical *nouveau riche*" (your correspondent, by the way, professes a curious omniscience with regard to my intentions, which he mentions several times). The conversation between Venables and his doctor was intended to be of interest to those people who are able to afford to remain private patients and therefore are faced with the problem of deciding whether it is worth the expense or not. It was pointed out that the private patient had certainly enjoyed considerable advantages over the panel patient in the past and that it appeared likely that he would continue to enjoy advantages over the national patient in the future, but perhaps not quite so many. Venables decides to remain a private patient. Your correspondent says that he shows his astuteness but comments that this was contrary to my intentions. Why should he think so? We are all free to choose our luxuries in accordance with our incomes and personal tastes. There is no question of either praise or blame.

3 Your correspondent writes, "Playing opposite to the hero was the villain, personified of course by the medical superintendent." I was somewhat mystified by this statement, since no medical superintendent appears as a character in the programme at all. A medical superintendent is, however, mentioned in one anecdote concerning a case of torticollis—an anecdote which happens to be true. Your correspondent writes, "The superintendent was for discharging her (the patient), but the hero nobly stood his ground, thereby risking

his career in the interests of humanity" Unfortunately, your correspondent has completely missed the point of the story, which he appears to think was told against the "bad old days" The opposite is the case The story is told by a physician who fears that the new Service will threaten the independence of medical opinion and action He tells of this clash with the medical superintendent of his hospital, pointing out that his refusal to comply with the medical superintendent's advice did not involve any risk for him, since he was in no way dependent on the medical superintendent for his livelihood He expresses a fear that similar independence might be costly in future

It is to be regretted that your correspondent did not take the precaution of checking his facts before making this venture into radio criticism—I am etc,

Broadcasting House  
London W1

NESTA PAIN

### Excretion of Antimony

SIR—With reference to your annotation (July 10, p 83) on this subject, pharmacologists elsewhere have confirmed the records<sup>1</sup> made in Egypt in 1931 and subsequently showing that half the amount of antimony injected may be recovered from the excreta within a month This would account for the re-appearance of ova in the excreta of patients undergoing the treatment with massive doses here in Natal with the sodium equivalent of tartar emetic as recommended in Southern Rhodesia It is unreasonable to rely on the mere absence of ova from the excreta as evidence of the destruction of the adult worms until they have had time to recover from the effects of the drug or have been demonstrated by post mortem examination

I was asked to examine a tobacco planter whose skin test had given a positive reaction for schistosomiasis in Southern Rhodesia As he showed no signs or symptoms of infection and his eosinophils were only 2.5% I did not consider that any treatment was indicated He stated that his natives refused to submit to the treatment adopted for a rapid cure since several of their colleagues had died from its effects—I am, etc,

Durban South Africa

F GORDON CAWSTON

### REFERENCE

<sup>1</sup> Khalil M *Arch Schiffs u Tropenhyg* 1931 35 106

### Diabetic Coma

SIR—I have read with great interest Professor R H Micks's article on diabetic coma (July 24, p 200) and Drs R D Lawrence and Wilfrid Oakley's letter on the same subject (Aug 7, p 310), and I should like to add one or two points to the discussion Treatment of diabetic coma must be directed towards remedying not only the metabolic derangements but also the concomitant biochemical changes and associated disturbances which occasionally culminate in sudden death

Dr Lawrence and Dr Oakley rightly stress the need for careful administration of insulin in the average case of pre coma, whereas the case of profound coma requires heroic treatment with very large and repeated doses of the quickly acting soluble insulin It must always be remembered that circulatory collapse is the most dangerous feature of diabetic coma, and the patient must be treated for shock—the maintenance of blood pressure being as important as in any other condition of shock Fluid and food by mouth should always be withheld, since they are dangerous at this stage The patient must be kept warm to prevent further heat loss, and aspiration of the gastric contents to prevent dilatation of the stomach with subsequent possible inhalation asphyxia—a definite cause of death in diabetic coma—should never be omitted Professor R H Micks draws attention to the importance of gastric aspiration in the management of diabetic coma

An intravenous saline drip, where necessary, to replace fluid loss, thereby correcting dehydration and the blood chemistry, is a very necessary part of the treatment of all cases of diabetic coma Professor Micks states that Root's statistics strongly support his claim that normal saline is the only intravenous injection needed in diabetic coma and that other authors have asserted that alkalinizing solutions are necessary or that plasma should be used Of the American authors Root and Joslin do not advocate alkalinizing solutions, while Russell M Wilder, of the Mayo Clinic, recommends the administration of alkali if the carbon dioxide combining power of the plasma is less than 20 volumes per 100 ml I believe that the decision to give or withhold alkalis depends on simple basic principles

The indication for the administration of alkali is marked hyperpnoea and if this symptom is present the administration

of alkali can be a life-saving measure In the average case of diabetic coma or pre-coma there is not the distressing hyperpnoea which is a feature of some cases of profound coma Where there is marked hyperpnoea, however, administration of alkali—25 g of sodium bicarbonate in 5% solution intravenously—should always be administered, as death from respiratory paralysis occurs in uncorrected severe diabetic acidosis through over-stimulation of the respiratory centre It is true that insulin in the presence of adequate glycogen will correct the acidosis and therefore the hyperpnoea, but this is a comparatively slow process Intravenous alkali, on the other hand although not preventing acidosis will rapidly remove the dangerous symptom of hyperpnoea The importance of aspiration asphyxia and respiratory failure due to marked hyperpnoea as causes of sudden death in diabetic coma have not received the prominence they merit and cannot be over-stressed

Although there is a difference of opinion as to whether glucose should be given during the treatment of diabetic coma, it is certainly wise to give glucose in those cases receiving large amounts of insulin, particularly after the first 6–12 hours, 1–2 g of glucose for each unit of insulin injected will guard against hypoglycaemia, which is a constant danger when repeated large doses of insulin are administered Therefore, if it is not practicable to perform frequent estimations of the blood sugar level glucose should always be given in order to guard against hypoglycaemia, except in the earliest stages of treatment when the blood-sugar level is always high—I am, etc

Maldstone Kent

GEORGE R W N LUNTZ

### Peritoneoscopy

SIR—I read with great interest the paper by Mr John Hosford on peritoneoscopy (Aug 14, p 348), but before the term becomes part and parcel of our medical vocabulary I should like to follow Rendle Short's example and offer "coelioscopy" as an alternative "Peritoneoscopy," in addition to being clumsy and cacophonous, would mean an instrument for viewing the peritoneal membrane and not necessarily the abdominal viscera The other term suggested in the article, "laparoscopy," being derived from λα-άρα the flank, is also a misnomer, as is "laparotomy", the only true laparotomy is a kidney incision

On the other hand, "coelioscopy" (or perhaps more correctly "coeliascopy")—a far neater word than the others—means the examination of the abdominal contents (κοιλία), which is the true purpose of the operation In general, I feel that more care should be taken with our vocabulary Had this occurred in the past we should have been spared many glaring errors I suppose it would be pedantic to quarrel with "appendicec tomy," but surely "hypophrenic" or "subdiaphragmatic" are preferable to the hybrid "subphrenic," and "proctoceles" to "rectoceles"?—I am, etc,

Guildford

A BARNESLEY

### Choosing a Career

SIR—It seems to me that in recent months we have devoted a great deal of attention to monetary considerations resulting from the passage of the Health Service Act The Spens Report has still further accentuated the financial aspects of medical work and appears to have justified the demand for raising the standards of direct payment in all clinical posts From the university point of view this has been followed by increases in the salaries of professors and lecturers in all faculties—medical and non-medical alike The young graduate on the road to specialism has perhaps come best out of the deal and if the younger generation of teachers in the preliminary subjects has been overlooked it broaches a question which demands an immediate answer

In my view, however, elements other than those of remuneration should have the attention of the potential doctor after he has, from about the time of his third year onwards surveyed the field of medical service His object should be that of selecting from this field the type of work which would allow him on retiring to look back with satisfaction on his life's journey They are, indeed, fortunate who can do this In our profession at the present time there is a wide range of choice open to candidates Given a certain standard of ability coupled with

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industry, energy and dexterity, and perhaps ambition, the student must be entitled to decide for himself in what direction his work might be expected to bring its own reward. In coming to a decision personal trends must be given due weight.

1 There are those whose chief thrill comes from research, in following out a line of thought by experiment and logical reasoning, hoping in the end to reach a worthwhile result. For them medicine provides an ever-widening horizon, each fresh discovery a stepping-stone to the next.

2 Others are thrilled by imparting instruction on established facts and possible theories to individuals or groups. We speak of the "born teachers," whose gifts both bring and bestow enjoyment.

3 Others still are attracted by the thrill of being the bearers of hope and confidence to the sick as they are found in the wards and out-patient departments of our hospitals. Valuable equipment for these is what, for want of a better term, we call clinical instinct, and for them there is again a wide choice among the many departments of clinical work, each with its own peculiar attraction.

It is my experience that all these qualities and ideals are seldom combined in a single individual, and at a time when money prizes are unlikely in the future to compare with those of the past, but where for every medical graduate a livelihood is assured, a young man or woman should be encouraged to follow that course in which the work itself would be a continuous joy, and from which he or she might be expected in the end to obtain the maximum of individual satisfaction. If I might be permitted to end on a personal note it would be one of thanks to an old teacher, the late Professor James Lindsay, who at a critical moment gave me advice which I pass on to those faced to-day with the entrancing and decisive problems of youth.—I am, etc.,

Belfast

S T IRWIN

### Prevention of Venereal Disease

SIR—The numerous correspondents in the *Journal* of July 31 (p 268 *et seq*) appear to have missed the essential points of Lord Horder's letter (July 17, p 171), and the simplest way to reply to the various issues raised in their letters is to restate the main heads of the campaign. The campaign of the NSPVD is directed towards the enlightenment of the public on the following matters:

1 Over a long period of years the abundantly proved fact that VD is easily preventable has been prevented from reaching the public, and in spite of lavish public expenditure on other methods VD has increased.

2 The Report of the Government-appointed Trevethin Committee settled once for all the scientific fact that VD is easily preventable. Abundant scientific evidence was laid before that committee, and this was confirmed by overwhelming evidence from myself and others as the result of wide experience in reducing VD in the Services. Dramatic reduction in VD has always followed the introduction of reasonably effective self-disinfection.

On the subject of practicability for the average person the Report says: "We see no reason to doubt that an intelligent man, if furnished with reasonable instructions, could in favourable conditions effectively disinfect himself." A study of the actual instructions will convince anyone that no high degree of intelligence is required. The process is so simple that "official skilled supervision" of the disinfection is obviously superfluous. Practical experience, moreover, has shown conclusively that civilians will not seek such assistance, and that in the case of the Services the introduction of supervision and the unnecessary elaboration of the procedure have been the chief causes of the apparent lack of success on account of evasion. Officially supervised disinfection never has been, and never will be, successful on account of the psychological factors involved.

3 The Trevethin Committee Report replies effectively to the allegation that knowledge about preventives would lead to increased promiscuity. On this subject the Report says: "It is urged by some that any system of disinfection would tend to increase the number of exposures and to raise the disease rate. We have received no evidence of facts in support of this view and we are inclined to think that those who hold it attach too much weight to the deterrent effect of the fear of the disease."

Conclusive evidence was supplied by myself and others that a campaign of prevention of self-disinfection in any area was often followed by a decrease in promiscuity because the instructions given furnished the plainest proof of the danger of infection.

4 Not only is the spread of this important knowledge prevented but if it does leak out the law prevents any practical application. Incredible as it may seem, it is actually illegal for a chemist to sell to any customer the necessary materials for prevention accompanied by instructions for use. This continues in spite of the fact that the Trevethin Report in 1923 recommended that the law should be altered. Not content with compulsory ignorance the obstructionists prevent any useful application of any leakage of information. Could fanaticism go further?—I am, etc.,

R A LYSTER

Chairman, National Society for the  
Prevention of Venereal Disease

London W 1

SIR,—Statistics can be used to prove most things, and there are statistics to prove that prophylaxis is useless in the prevention of venereal disease. One instance will serve. In a certain distinguished battalion in Delhi 18 men contracted hard chancres in one month. Inquiry proved that all these men had used the unit prophylactic ablution centre, and had stated so in the prescribed form which men who contracted VD had to complete. This would seem to prove that prophylaxis was useless. Investigation of the forms, however, showed that the men had all exposed themselves to infection at 10 p.m. on various evenings during the month, had each used the P.A. room 15–20 minutes later, and that each had reported at the medical inspection room at 8 a.m. on the morning following exposure with a hard chancre.

I took a close interest in the prevention of venereal disease during the eighteen and half years I spent in India, most of it as a hygiene officer, and I wish to say that I have seldom found a British soldier in hospital with VD who had not used the P.A.C., but also that I have never, after inquiry, found a soldier in hospital with VD who had used the prophylactic ablution centre at the proper time. The centre had been used after the disease showed itself. On my visits I always used to ask the P.A. room orderlies the same question, "How many men have you known getting VD who had used the P.A. room at the proper time?"—i.e., within an hour or so after exposure—and the answer was invariably the same, "None sir." Early washing with soap and water would probably prevent 99 cases out of a 100. The use of mercurial cream after washing would make it as near a certainty as makes no difference.

Owing to the circumstances prevailing in a British division in India during the war it was decided not to establish unit P.A. rooms. Instead, the likelihood of infection if they exposed themselves was impressed on all ranks, and also the value of thorough washing on return to their quarters, using their own soap and towel, and then applying mercurial cream. Steps were taken at the same time to see that prophylactic packets were available for all, easily and unobtrusively. The results fully justified these measures.—I am, etc.,

Public Health Branch  
Control Commission for Germany

W STRELLEY MARTIN

### Whooping-cough and Measles

SIR—In the spring of 1938 an epidemic of measles (morbili) coincided here with an epidemic of whooping-cough. Of 57 consecutive cases of measles seen by me, 55 were children and 2 were adults. Among the 55 children there were 46 cases of measles alone, 7 of measles developing during whooping-cough, and 2 of whooping-cough developing during measles.

Of the seven who had whooping-cough first and measles during its course all took a normal course without complications, and in two cases there was a suggestion that the whooping-cough was improved by the measles. Of the two with measles first and whooping-cough during its course one progressed to bronchopneumonia and the other was normal. Of the 46 cases of measles alone ten developed some complication or ran an abnormal course. Two had asthma at the height of the rash, never having had it before, one developed a persistent nasal catarrh, two developed erythema nodosum in the second and third weeks respectively with fever, one had joint and abdominal pains for four days before the rash came out and was unable to pass water during the third and fourth days of the rash, two had coughs persisting for more than 14 days from the commence-



ment of the rash, one had double otitis media, and one had a purpuric rash

From this small number of cases it would appear that measles developing during the course of whooping-cough does not necessarily add to the severity of either disease, but the same cannot be said of the converse Dr B L Hodge (Aug 7, p 312) drew attention to a similar double epidemic, and his observations would appear to confirm this view—I am, etc,

Redhill Surrey

L J BARFORD

### Fibrositis

SIR—I should like to take up cudgels with Dr James Cyriax over his article on fibrositis (July 31, p 251), as I feel he is showing indecent haste in interring this condition. The essence of his case is that symptoms commonly attributed to primary fibrositis are really caused by derangements of the spine, and to prove this he compares the symptoms with those of such conditions as lumbago and brachial neuritis due to disk lesions. From certain similarities he draws the conclusion that fibrositis represents the lesser degree of these and related conditions. In stressing the similarities he glosses over the differences.

Observations made on oneself may have an element of bias in them but as an occasional sufferer from both lumbago and fibrositis I have had opportunity to study both conditions at leisure. With regard to lumbago I am in entire agreement with Dr Cyriax. The onset, after what one might term postural indiscretions such as an afternoon's gardening, lifting heavy weights off the ground, etc., followed by diffuse aching pain in the lumbar region combined with inability to fully extend the back—the whole lasting several days or weeks—bears the hall mark of a spinal derangement.

Primary fibrositis, on the other hand, has a curious tendency to occur with changes of climate, but bears no relationship to exercise or posture. Subjectively its pain does not feel to be of the same quality as lumbago. It is a disease of tender spots each of an area so small that it can be accurately localized with the finger tip. It is not only confined to the shoulder girdle or the lumbo-sacral region, but, when extensive, tender spots are found over the insertions of the muscles and their bellies throughout the trunk limb, over the scalp and over the bricks of the metacarpals and phalanges—in places, indeed, where there is no muscle interposed between skin and bone. The condition is bilaterally symmetrical to an extreme degree and tender spots may be found in the territory of so many spinal nerve segments as to make one shudder for the integrity of one's vertebral column—should Dr Cyriax's theory prove right.

The response to treatment does not suggest a spinal lesion as marked and permanent relief may be obtained from massage and heat applied to the tender spots, and the condition will improve more gradually though nothing is done. The spine need not be touched to effect a cure, and one wonders if time may not be the chief therapeutic agent when spinal manipulation or traction is used.

Finally, as regards aetiology this may be under discussion but my own feeling is that the lesions lie in the fascial sheaths covering both muscular and bony structures, and that the muscle spasm which is such a feature of the condition is merely protective to avoid stretching a tender fascia—I am etc

London N 4

R G BENIANS

SIR—When Dr James Cyriax (July 31, p 251) calls primary fibrositis an imaginary disease he is in good company, but that fibrositis coming on for no apparent reason is always due to an articular lesion, as he states, seems open to doubt. I should like to quote the following case.

On Nov 2, 1946, a district midwife, aged 24 years, recently married, no children called at my house for advice regarding a neck stiffness which had developed two or three hours previously. On examination she had spasm of the upper margin of the left trapezius muscle, which was easily palpable and tender to touch. Obviously this was a true fibrositis, if the disease exists. Having some doubts about this, I made further inquiries. She admitted to having had a few colicky pains during the day, and on examination was found to be tender in the left fornix. A diagnosis of ruptured ectopic pregnancy was received by the patient with such incredulity as reflected

doubts on my sanity. However, the following day she had a laparotomy and was found by Mr. Theobald, who had seen her in consultation with me, to have a ruptured ovarian pregnancy, with free blood in the peritoneum. In this case the last menstrual period had started about 17 days before the illness and any faith in fibrositis on the doctor's part would have caused the diagnosis to be missed. But this was *not* an articular lesion, nor was there an apparent reason for the fibrositis—I am, etc,

Shipley

H S RUSSELL

SIR,—In his article on fibrositis (July 31, p 251) Dr J Cyriax has fallen upon a concept which has been promulgated in osteopathy for the last 70 years. The article, though condemning one aspect of the osteopathic theory, is essentially the theme of osteopaths for all these years—namely, that the spinal lesion is the cause of most local spinal and referred somatic pains.

The main difference now is that Dr Cyriax stresses the intervertebral disk as being the faulty structure, whereas osteopathy stresses the apophyseal joint as being the site where significant changes have occurred. The probable truth is that both are to blame, sometimes one, sometimes the other, and frequently both together. It is however not possible to tell which part of the spinal joint is the offending structure except by inference because, as Kellgren has shown, all deep pain is segmental in its manifestations.

With the advent of disk surgery and visible proof that prolapsed disks cause lumbago, sciatic pain, and brachial pain, the disk is now blamed for everything which happens to a spinal joint. But consider the pathology and the possible effect of manipulation. How can one manipulation, as suggested, normalize a torn cartilage? It might dislodge the offending piece from a sensitive structure, just as it is possible to manipulate a displaced cartilage in the knee and obtain relief straight away, but healing requires weeks. If one manipulation is effective, then the more rational explanation is that old adhesions in the capsule of the apophyseal joints have been snapped. The analogy of adhesions in a stiff knee is complete. One manipulation frequently cures especially if the adhesions are old and brittle.

The osteopathic type of manipulation, while making use of specific forced movements for the purpose of breaking adhesions, does at the same time use gentle articulation of all the joints in the area of the lesion with the object of increasing local circulation and restoring normality there. The osteopath advocates a series of gentle manipulations without anaesthesia and rhythmic traction is an important part of treatment. This probably assists in the healing of the intervertebral disk if and when it is damaged and explains much of the success of their method—I am etc,

London W 1

ALAN STODDARD

SIR—Dr James Cyriax's statement (July 31, p 251) that primary fibrositis is *imaginary* is rather startling. Does he think the following cases are due to intervertebral lesions and not primary fibrositis?

A male 72, has physical lesions due to fibrositis in both feet, calves thighs at brim of pelvis, around the spines of the vertebrae, in the thoracic walls, and also panniculitis (fibrosis of fat) at lower regions of thorax and around and between the breasts, also physical lesions in the neck and temporal regions, no sepsis found, also no rheumatoid arthritis nor osteoarthritis present. His posture and carriage are excellent. Fibrositis commenced at the age of 16.

A woman, 56 had pain in lower back for 20 years, and recently pain in the left lower abdomen. She had seen two physical medicine specialists, an orthopaedic surgeon, a consulting physician and received every imaginable treatment. She was found to have fibrosis of fat around the pelvis and hips and a mass of fibrosed fat in left lower abdomen. She received 19 treatments of deep massage and has remained free from pain for 2½ years. No sepsis, osteoarthritis or rheumatoid arthritis, nor the usual physical signs of fibrositis found.

Good fitting dentures suddenly become painful and are eased, and when this process has been repeated several times the dentures are ruined. In many cases it is due to fibrositis of the upper and lower jaws and can simply be remedied by deep massage a few times.

Does Dr Cyriax manipulate as a rule with or without a general anaesthetic? Surely it is very difficult to believe that any of these cases can be *due entirely* to intervertebral lesions. It should be mentioned that in the first case the fibrosed mass, already palpable, becomes bigger and more obvious when

there is pain in the anterior aspect of the thorax, and strangely enough a nitroglycerin tablet relieves the pain in, say, 30 seconds—I am, etc.,

London W 5

R HALSTEAD DIXON

### Use of Ring Pessaries

SIR—It is always a pleasure to read a broadside from Mr Mortimer Reddington (July 24, p 227), for although some of the shots may be wide, many undoubtedly score. It is certainly true that in the past far too many women have had ring pessaries fitted. When I was chief assistant of the department at St Bartholomew's Hospital it was the custom for these patients to come up one afternoon a week to have their rings changed by students who were undergoing their gynaecological training. They came in great numbers, but I suppose it was because in those days beds were few and the operation was not as safe as it is nowadays.

The ring pessary has, however, in my opinion certain definite uses. It can quite reasonably be advocated in the case of the young woman with descent of the vaginal walls immediately following childbirth where physiotherapeutic measures fail, but it is not fitted to support the tissues till involution has occurred. It is fitted to support the tissues until the baby is weaned and the mother can be operated upon. I think it is also of value to patients who have symptoms but no signs of prolapse. It should be used in those rare cases unfit for operation, and in those rarer cases where the patient refuses operation.

Now a word about the Hodge pessary condemned to be "put away altogether, and for ever." No splint will correct a deformed limb. The deformity must be corrected and the splint applied. If the retroversion is first corrected, then the Hodge will keep it so, provided it is long enough to reach from the posterior fornix to the vulva. I personally regard the Hodge pessary as invaluable in elucidating the cause of backache. I would never contemplate shortening the round ligaments for backache unless either the uterus could not be replaced or the patient's backache not dispersed by her wearing a ring for a short time—I am, etc.

Blackheath

KEITH VARTAN

### Foetus Papyraceus

SIR—The case of twin pregnancy with acute hydramnios treated by abdominal paracentesis (July 24, p 205) is most interesting and Dr R. W. Danziger is to be congratulated on the successful result. It is a pity, however, that more details were not furnished about the "blighted" twin which is simply described as a foetus papyraceus. The interest lies in the aetiology of this condition, which usually follows mechanical compression of the foetus after loss of its liquor amnii, the compression may be effected by the fellow twin itself, or more usually by its bag of waters, but in order to produce a foetus papyraceus the compressing force must be adequate to cause collapse of all body cavities, so that maceration may be arrested. Thus the development of a rigid thoracic cage and firm cranial vault would prevent this pathological sequence. An analogy may be drawn between this phenomenon and the preservation of botanical specimens by pressure between sheets of blotting paper, the process of vegetable tissue autolysis cannot be prevented when the structures concerned are too bulky to be dehydrated by compression.

It is generally considered that the development of acute and subacute hydramnios in association with uniovular twinning is due to uneven foetal demands from the common placenta, the interplacental vascular anastomoses ("third circulation") allow the more powerful circulation to withdraw an excess of fluid into one foetus resulting in some way in hydramnios for the larger and dehydration of the smaller twin. In most cases some sort of fluid balance is achieved, but rarely the smaller foetus may perish from fluid depletion, producing a dried, wrinkled specimen which does not undergo maceration and is not very much compressed. This is the mummified foetus, and many authorities fail to distinguish between it and the papyraceus.

In favour of a diagnosis of mummification in the case described is the fact that radiography some weeks after foetal death showed only failure of growth, with no unequivocal signs of compression. In addition the foetal size was considerably smaller than the period of gestation should produce suggesting

impairment of growth before foetal death. Additional evidence would be furnished by the presence of fluid in the affected amniotic sac, which is naturally absent with a foetus papyraceus, and complete infarction of that portion of the placenta supplying the morbid twin—I am, etc.,

Birmingham

W G MILLS

### Production of Rh Agglutinins

SIR—In the article by Drs George Discombe and H. O. Hughes (Aug 14, p 329) on the importance of transfusion as a cause of haemolytic disease, the paper by myself and others (*British Medical Journal* 1945, 1, 584) is quoted as having expressed the view that patients afflicted with certain diseases might be especially apt to produce antibodies to antigens which they themselves lacked. No such point of view was expressed in our article. The article concerned itself simply with a report of facts—namely, the truly colossal Rh agglutinin titre produced in response to multiple transfusions of Rh-positive blood, the comparative absence of symptoms in the incompatible transfusions, the technical pitfalls in the typing and compatibility tests, the ultimate outcome of the case, and a brief factual report on the necropsy findings. No opinion was expressed as to the relationship of the ready production of the Rh agglutinins to the patient's disease, nor was it even considered. I have personally never held or expressed the view that patients suffering from certain ailments might be especially apt to produce antibodies to antigens, especially the blood group antigens which they themselves lacked—I am, etc.,

Cardiff

R J DRUMMOND

### Independent Doctors

SIR—Your annotation on "Independent Doctors" (Aug 14, p 347) concludes pathetically by saying, "There would appear to be no reason why such a committee [separate organization for independent doctors] should not be set up in the B.M.A." The B.M.A. has, apparently, as short a memory as Mr Bevan. No doctor could avoid being shocked by the knavish way in which the B.M.A. deserted the sound stand it had taken (as a result of the strongly expressed views of the medical profession) when the appointed day drew near.

What is required by all doctors and especially independent doctors, is an active body rather than a talking body such as the B.M.A. If Lord Horder can supply this dire need good luck to him—I am, etc.,

Bretby Hall Burton on Trent

R LUNT

### Surgical Anatomy of the Parotid Gland

SIR—I was very surprised to see Mr Hamilton Bailey's article on this subject (July 31, p 245) and to find that he persists in writing in the same vein as in a similar article in the *Journal* of March 29, 1947 (p 404).

When I read the latter-mentioned article I carried out a series of dissections on the parotid region after injecting indian ink along the main parotid duct into the gland. To identify the small ducts within the gland I had to use the dissecting microscope. My findings with regard to the relation of gland to the facial nerve were entirely at variance with those of Mr Hamilton Bailey. I could not display a bilobed arrangement of the parotid with the facial nerve running between two lobes. To illustrate the relationship briefly, let me compare the facial nerve plexus to a trellis-work fence, with the parotid gland, like a creeper, growing from the direction of the buccal cavity and winding itself indiscriminately around the nerve and its branches. I communicated my findings to Mr Hamilton Bailey, previous to my reading a paper on the subject to a meeting of the Anatomical Society of Great Britain and Ireland in London in November, 1947.

I should like to comment on two other points in Mr Hamilton Bailey's article. First the size of the main parotid duct—surely it is larger than a fine hypodermic needle? During my investigation a year ago I could easily insert a hypodermic needle of a substantial calibre into the duct. Because I have not the specimens to hand I cannot say more than that the duct is definitely larger in diameter than that of a fine hypodermic needle and that observation is in formalin-hardened subjects where the tissues normally tend to shrink under the influence of

the preservative Secondly, with regard to the presence of the accessory parotid gland, I should like to know in how many cases he looked for this part of the gland The article leads us to believe that it is an infrequent occurrence I have no figures to quote, but it is my opinion that careful examination would reveal it in at least a reasonably large percentage of cases—I am, etc,

Aberdeen

JOHN MCKENZIE

### Medical Photography

SIR—With thirty-one years' experience as director of medical photography in a medical school in the USA, may I offer brief comment on the several views expressed on this subject in the *British Medical Journal*? There is a world of difference between the terms progress and expansion I like to think of the word progress to mean "to develop to a higher stage," while the word expansion impresses me as meaning an act or process of growing Surely none of us could belittle the contributions advancing knowledge of photography has made to the field of medicine Can we dismiss with a wave of a hand improved techniques and such innovations as colour photography, infra-red, ultra-violet, phase microphotography, and photography with polarized light?

As is true in other fields, the pace of medical photography was accelerated in wartime The value of visual aids in the training of specialists was recognized by all Hence it follows that many of these aids and methods will and should be applied during peacetime Medical schools cannot function properly without these visual aids By the same token hospitals to day must become conscious of their responsibilities from the educational standpoint to both the doctor and the nurse Photographic records of the progressive or regressive changes in the patient's condition are not only necessary but in many instances have proved invaluable, legally and otherwise Pathological conferences and staff meetings are welcome and well attended by hospital staff members when the material presented is supplemented with good lantern slides or photographs Does not a well-posed informative photograph convey more convincing evidence than the words necessary to describe the subject photographed? Can anyone paint as clearly with words?

Progress of medical research with its discriminating application must go on and will reach its ultimate aim Medical photography must keep pace with this progress The development of the medical photographic department should be commensurate with the practical needs of the institution involved A department such as is mentioned by Dr Ff Roberts (March 13, p 485) in the paragraph headed 'The Fetish of Perpetual Expansion' is not a fair example of what constitutes the average medical photographic department I cannot conceive of such an elaborate arrangement in the face of present needs unless it would be in conjunction with some huge medical centre of the future

It is difficult to state just what constitutes the ideal medical photographic department The nature and scope of the research carried on in the institution and the extent of the programme of the educational department will influence the selection of the personnel and equipment and the planning of space Unreasonable demands upon the photographic department by staff members can be controlled I think we will find that the committee in control of policy, economy, and efficiency would exercise the same good judgment in the establishment and maintenance of a medical photographic department that it would manifest in other matters concerning the institution Medical photography cannot be denied and will go on contributing its share for the benefit of health It shall go forward parallel with progress in the field of medicine and medical research, regardless of the tone of ridicule permeating some of the expressions appearing in the *British Medical Journal*—I am, etc,

Marquette University School of Medicine  
Milwaukee Wisconsin

LEO C MASSOPUST

### Colonial Medical Service

SIR—I am entirely in agreement with the suggestions made by your correspondent "Imperialist" (Aug 7, p 314) As a native of British Guiana I can refer to the vital statistics and health conditions in this colony In my opinion British Guiana is one of the most unhealthy places within the Empire I base my conclusion on the following facts British Guiana has a higher birth rate than the United Kingdom, but the infant mortality rate is also much higher than in Great Britain Between 1835 and 1941, 333,803 immigrants were introduced

into the colony The total population in 1945 was 373,598 This means that over a period of 110 years the population had increased by only 11% Compare this with the 100% increase of population in Great Britain during the same period, despite, two world wars

Plantation hospitals catering for thousands do not have resident doctors Plantation areas do not have antenatal and child-welfare clinics, nor is there a midwifery service in these areas The majority of the population have to depend on unqualified persons employed in these places for the diagnosis and treatment of their diseases Women on the plantations have to bear their children without midwives or even pseudo midwives, and there have been instances of childbearing in the sugar-cane fields Children have to grow up in an entirely unhealthy and insanitary environment, without adequate nutrition

The Hon Cecil Clementi, a former Colonial Secretary of British Guiana, described the position adequately in the two following sentences, "Improved sanitation is the paramount need of the colony to-day," and, "The most pressing duty of the Government at the present time is to protect the health and lives of the existing population and to see that instead of the death rate exceeding the birth rate, as has too often been recorded in the vital statistics of British Guiana, there is a steady natural increment"—I am, etc,

GUIANESE

\*\* This correspondence is now closed—ED *BMJ*

### POINTS FROM LETTERS

#### Nurses' Examination

Dr W EDGE (Salford, Lancs) writes Dr J H Weir (July 10, p 109) is quite right, the examiners often have no idea of the difficulties of nurses in digesting even the present syllabus, and there is no excuse for embarrassing them with completely irrelevant questions Hospitals have enough trouble in securing and teaching student nurses The lists of examiners should be overhauled Only teachers should be asked to examine nurses

#### Medical Illustrators

Miss ZITA M STEAD (19, York Avenue, East Sheen, London SW 14) writes I have received a letter from the Association of Medical Illustrators of America This association was formed in order to raise and guarantee a high standard of work from its members, and each member must be adequately trained and actively engaged in medical illustration The committee of the association would like to establish liaison with British artists, since they feel we could be of mutual help in many ways They therefore extend a warm invitation to all medical illustrators in the British Isles who are interested in this idea and would like to get in touch with them The treasurer's name and address is Elizabeth Brodel, the Lyng in Hospital 530, East 70th Street, New York, 21 I feel sure such an association would do much to improve the standard of medical illustration in this country, and I should be glad if any medical artist who is interested would please write to me

#### Smoking and Diet

Dr NEVIL LEYTON (London, W 1) writes During the war when most nervous systems were under stress increase in smoking was explained by its soothing effect But the habit has remained and one wonders why it has never been connected with post-war diet Reduction of fats from 75 g to under 40 g per day means that every one feels hungry sooner Smoking often relieves this sensation but the mechanism is not clear The same result may be achieved by the administration of amphetamine This substance and nicotine have similar properties in that they both cause an increase in gastric secretion and also raise the blood pressure, though just why either of these should reduce appetite is not obvious All the same, if the Minister of Food could supply more fats perhaps the demand for cigarettes would drop to pre-war proportions

#### Treatment of Pneumonia

Dr N WYNN WILLIAMS (Bedford) writes I agree with Dr Malcolm Tate (Aug 14, p 356) that all patients who have recently suffered from pneumonia should have a chest x-ray film taken However, his attention should be drawn to the fact that any modern tuberculosis dispensary (now usually and deliberately called chest clinic) will be only too willing to arrange such an x-ray examination for him Many cases of this type are referred to my clinic, and a considerable number of cases of pulmonary tuberculosis and other organic disease are diagnosed in this way We need not wait for health centres

## Obituary

### THOMAS GWYNNE MAITLAND, M.D., D.Phil

Dr Thomas Gwynne Maitland died suddenly at his home in Cheshire on Aug 10. He was medical superintendent of the Cunard White Star Company for twenty years. Born at Merthyr Tydfil in 1875, he was educated at University College School and at the Universities of Edinburgh, Manchester, and Paris. He graduated M.B., Ch.B. at Edinburgh University in 1907, and obtained his M.D. with distinction in 1908. He became a doctor of philosophy of Manchester University in 1911. His early experience was varied and unusual. At one time or other he was demonstrator in physiology at Manchester University, editor of the *Manchester Medical School Gazette*, lecturer in physiology at the Universities of Wales and Birmingham, honorary physician to Walsall General Hospital, lecturer on psychology at the Birmingham Midland Institute, and director of the typhus colony in Serbia during the first world war as a lieutenant-colonel in the Serbian Army. He contributed numerous papers to medical and psychological journals, and published in 1918 his *Examination of the Basis of Personality*. In 1920 he joined the Cunard Company and in 1926 was appointed its medical superintendent, a post for which he was pre-eminently suited by his rich experience and by natural aptitude and high technical ability. He retired in September, 1946.

From the beginning of his entry into this branch of occupational health his aim was to improve the lot of the merchant seaman, and the outstanding contribution to this end made by the Cunard White Star Company during recent years, with its resulting effect on conditions in the Merchant Navy as a whole, is due in great measure to Dr Maitland's personal influence. His interest took him beyond the sea and its peculiar hazards, however, and the allied problem of industrial disablement with its economic and social repercussions soon became to him an issue of the first magnitude. In this field his influence behind the scenes was great. It is little known, for instance, that he was one of those initially responsible for the setting up of the B.M.A. Committee on Fractures, whose report in 1935 heralded a new era in orthopaedic and accident surgery, that he was an international authority on workmen's compensation, or that he was a powerful influence in the formation of the policy of the Birmingham Accident Hospital several years before it opened in 1941. One keen ambition of his was to see founded an accident hospital in Liverpool, and to this end plans were continually in his mind. As far back as 1935 his conception of rehabilitation and his clear view of the need for new and comprehensive legislation as the only means of solving issues bound up with resettlement and workmen's compensation were well in advance of contemporary medical and sociological thought.

Dr Maitland had an unusual capacity for making and retaining friendships. To him this was no easy matter, but, his mind made up, he was a friend for life. He gave much. Behind the apparent physical frailty was a high courage, an obvious integrity, and a deep, consuming energy based on a passionate desire to help the underdog. He was modest to a fault and abhorred publicity. As a host he was beyond compare a supreme cosmopolitan. But perhaps his most appealing asset was his sense of humour, combined with an uncanny ability to debunk the pedant. It was not in him to suffer fools gladly, but he was essentially a man of gentleness and much understanding. To those whose privilege it was to come within his circle of friends his death means an irreplaceable loss. Medicine can ill afford to lose its philosophers, and Dr Maitland truly was one of them in high degree. His contribution to the welfare of seamen and disabled workers throughout the country acknowledged too little during his life largely because of his own wish now demands nothing less than the fullest recognition.—D.S.

Dr FRANCIS SUTHERLAND who died at his home in Edinburgh on Aug 14 at an untimely age was an unusual personality with experience of different sides of medical life. He graduated M.B., Ch.B. at Edinburgh in 1917 and took the D.P.H. three years later. His first appointment was concerned with

the investigation of an obscure outbreak of typhus which had occurred in Raasay, off the Isle of Skye. He was next appointed assistant county medical officer of health for that part of Inverness-shire which includes Skye, Harris, North and South Uist and Barra, perhaps the most difficult and thankless post in Great Britain. For ten years he travelled to and fro across the Minch in small steamers, inspected school-children, dealt with the inertia of Hebridean authorities, and struggled with the petty round of nuisances and small epidemics for which there was no hospital accommodation, no health-visiting, and no hygienic routine. In these difficult circumstances Francis Sutherland maintained a lofty standard of official procedure. He knew the law, he knew what was correct, and, using a typewriter, he constituted himself a one-man public health department and kept a voluminous correspondence unsurpassed by many who have a trained clerical staff. After a similar though less insular appointment in Ross-shire Sutherland decided to enter the field in which his father, Dr John F. Sutherland, had preceded him, that of administrative psychiatry. He opened a small residential clinic at Staines. But when the post which his father had held at the Scottish Board of Control fell vacant, Francis Sutherland took the opportunity then offered him, and in 1936 he became deputy commissioner of the Board of Control for Scotland. This sphere of work, which exactly suited his temperament, so that once again he was journeying through the Highlands, occupied the last twelve years of his life. His broad figure in plus fours, cap, and a bow tie, became well known in Highland cottages and hotels. He always used great formality of language, indeed he spoke to patients—wards of the Board of Control—as physicians did a generation ago before modern slang was part of professional relationships. But he was always smiling, courteous, and helpful, and his human kindness showed itself to the last word of his official report. There was quality and style in all he did, and he never hurried. Never ignored details, never allowed himself to be put off. When he had finished, the case was complete and unanswerable. In the evenings few could relax better, or tell more humorous stories about Scottish ministers, or quote classical poetry and prose with more point. Whenever he could, with Mrs Sutherland who survives him, he took a holiday on the Continent that was a sort of exploration, since beforehand in his usual thorough style he had studied the geography and the language. In this way he penetrated as far as the North Cape and studied the coast of Spain and Portugal. When he returned he had many good tales to tell. He was an unusual man who lived conscientiously and did his work unobtrusively, and, though he was not prominent in medicine his life expressed our best traditions.—H.W.

Dr HENRY RICHARD BELCHER HICKMAN, who died on July 8 at his home in Flax Bourton, Somerset was born on April 11, 1866 in London. His father Dr William Hickman, J.P. was physician-in-ordinary to H.R.H. the Duke of Saxe-Coburg. Henry Hickman was educated at Westminster School, Christ Church, Oxford, and St George's Hospital. He graduated at Oxford in 1894, and took the diplomas of M.R.C.S., L.R.C.P. in the same year. After working for some time in the pathological department at St George's he devoted himself to eye work, becoming a clinical assistant of the Royal Westminster Ophthalmic Hospital and ophthalmic surgeon at the Marylebone General Dispensary. He was one of the pioneers of school medical inspection in London, and for a time was assistant school medical officer under the Buckinghamshire County Council. In 1920 he came to Bristol University as lecturer in physiology and held this appointment until 1932. Dr Hickman was interested in wireless telegraphy from its earliest beginnings and had worked with Marconi. In 1911 he carried out some of the first tests on anti-dazzle headlights for motor-cars. He was a keen photographer and delighted in colour photography. During his years at Oxford he was a first-class rifle shot and shot for his University against Cambridge. He was also an ardent Freemason and a past master of St Vincent Lodge (1404), Bristol. He married Miss Margaret Kate Thompson and they had two children, a son, who died in childhood, and a daughter, Dr Rowena Margaret Hickman, who is now practising medicine in Somerset. To his widow and daughter we offer our deep sympathy.—J.A.N.

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the preservative Secondly, with regard to the presence of the accessory parotid gland, I should like to know in how many cases he looked for this part of the gland The article leads us to believe that it is an infrequent occurrence I have no figures to quote, but it is my opinion that careful examination would reveal it in at least a reasonably large percentage of cases—I am, etc,

Aberdeen

JOHN MCKENZIE

### Medical Photography

SIR—With thirty-one years' experience as director of medical photography in a medical school in the USA, may I offer brief comment on the several views expressed on this subject in the *British Medical Journal*? There is a world of difference between the terms progress and expansion I like to think of the word progress to mean "to develop to a higher stage," while the word expansion impresses me as meaning an act or process of growing Surely none of us could belittle the contributions advancing knowledge of photography has made to the field of medicine Can we dismiss with a wave of a hand improved techniques and such innovations as colour photography, infra-red, ultra-violet, phase microphotography, and photography with polarized light?

As is true in other fields, the pace of medical photography was accelerated in wartime The value of visual aids in the training of specialists was recognized by all Hence it follows that many of these aids and methods will and should be applied during peacetime Medical schools cannot function properly without these visual aids By the same token hospitals to day must become conscious of their responsibilities from the educational standpoint to both the doctor and the nurse Photographic records of the progressive or regressive changes in the patient's condition are not only necessary but in many instances have proved invaluable, legally and otherwise Pathological conferences and staff meetings are welcome and well attended by hospital staff members when the material presented is supplemented with good lantern slides or photographs Does not a well-posed informative photograph convey more convincing evidence than the words necessary to describe the subject photographed? Can anyone paint as clearly with words?

Progress of medical research with its discriminating application must go on and will reach its ultimate aim Medical photography must keep pace with this progress The development of the medical photographic department should be commensurate with the practical needs of the institution involved A department such as is mentioned by Dr Ff Roberts (March 13, p 485) in the paragraph headed 'The Fetish of Perpetual Expansion' is not a fair example of what constitutes the average medical photographic department I cannot conceive of such an elaborate arrangement in the face of present needs unless it would be in conjunction with some huge medical centre of the future

It is difficult to state just what constitutes the ideal medical photographic department The nature and scope of the research carried on in the institution and the extent of the programme of the educational department will influence the selection of the personnel and equipment and the planning of space Unreasonable demands upon the photographic department by staff members can be controlled I think we will find that the committee in control of policy, economy, and efficiency would exercise the same good judgment in the establishment and maintenance of a medical photographic department that it would manifest in other matters concerning the institution Medical photography cannot be denied and will go on contributing its share for the benefit of health It shall go forward parallel with progress in the field of medicine and medical research, regardless of the tone of ridicule permeating some of the expressions appearing in the *British Medical Journal*—I am, etc,

Marquette University School of Medicine  
Milwaukee Wisconsin

LEO C MASSOPUST

### Colonial Medical Service

SIR—I am entirely in agreement with the suggestions made by your correspondent "Imperialist" (Aug 7, p 314) As a native of British Guiana I can refer to the vital statistics and health conditions in this colony In my opinion British Guiana is one of the most unhealthy places within the Empire I base my conclusion on the following facts British Guiana has a higher birth rate than the United Kingdom, but the infant mortality rate is also much higher than in Great Britain Between 1835 and 1941, 333,803 immigrants were introduced

into the colony The total population in 1945 was 373,598 This means that over a period of 110 years the population had increased by only 11% Compare this with the 100% increase of population in Great Britain during the same period, despite, two world wars

Plantation hospitals catering for thousands do not have resident doctors Plantation areas do not have antenatal and child-welfare clinics, nor is there a midwifery service in these areas The majority of the population have to depend on unqualified persons employed in these places for the diagnosis and treatment of their diseases Women on the plantations have to bear their children without midwives or even pseudo midwives, and there have been instances of childbearing in the sugar cane fields Children have to grow up in an entirely unhealthy and insanitary environment, without adequate nutrition

The Hon Cecil Clementi, a former Colonial Secretary of British Guiana, described the position adequately in the two following sentences, "Improved sanitation is the paramount need of the colony to-day," and, "The most pressing duty of the Government at the present time is to protect the health and lives of the existing population and to see that instead of the death rate exceeding the birth rate, as has too often been recorded in the vital statistics of British Guiana, there is a steady, natural increment"—I am, etc,

GUIANESE

\* \* This correspondence is now closed—ED, *BMJ*

## POINTS FROM LETTERS

### Nurses' Examination

Dr W EDGE (Salford, Lancs) writes Dr J H Weir (July 10, p 109) is quite right, the examiners often have no idea of the difficulties of nurses in digesting even the present syllabus, and there is no excuse for embarrassing them with completely irrelevant questions Hospitals have enough trouble in securing and teaching student nurses The lists of examiners should be overhauled Only teachers should be asked to examine nurses

### Medical Illustrators

MISS ZITA M STEAD (19, York Avenue, East Sheen, London, SW 14) writes I have received a letter from the Association of Medical Illustrators of America This association was formed in order to raise and guarantee a high standard of work from its members, and each member must be adequately trained and actively engaged in medical illustration The committee of the association would like to establish liaison with British artists, since they feel we could be of mutual help in many ways They therefore extend a warm invitation to all medical illustrators in the British Isles who are interested in this idea and would like to get in touch with them The treasurer's name and address is Elizabeth Brodel, the Lying in Hospital, 530, East 70th Street, New York, 21 I feel sure such an association would do much to improve the standard of medical illustration in this country, and I should be glad if any medical artist who is interested would please write to me

### Smoking and Diet

Dr NEVIL LEYTON (London, W 1) writes During the war when most nervous systems were under stress increase in smoking was explained by its soothing effect But the habit has remained and one wonders why it has never been connected with post-war diet Reduction of fats from 75 g to under 40 g per day means that every one feels hungry sooner Smoking often relieves this sensation, but the mechanism is not clear The same result may be achieved by the administration of amphetamine This substance and nicotine have similar properties in that they both cause an increase in gastric secretion and also raise the blood pressure, though just why either of these should reduce appetite is not obvious All the same, if the Minister of Food could supply more fats perhaps the demand for cigarettes would drop to pre war proportions

### Treatment of Pneumonia

Dr N WYNN-WILLIAMS (Bedford) writes I agree with Dr Malcolm Tate (Aug 14, p 356) that all patients who have recently suffered from pneumonia should have a chest x-ray film taken However, his attention should be drawn to the fact that any modern tuberculosis dispensary (now usually and deliberately called chest clinic) will be only too willing to arrange such an x-ray examination for him Many cases of this type are referred to my clinic, and a considerable number of cases of pulmonary tuberculosis and other organic disease are diagnosed in this way We need not wait for health centres



## Obituary

### THOMAS GWYNNE MAITLAND, M.D., D.Phil.

Dr Thomas Gwynne Maitland died suddenly at his home in Cheshire on Aug 10. He was medical superintendent of the Cunard White Star Company for twenty years. Born at Merthyr Tydfil in 1875 he was educated at University College School and at the Universities of Edinburgh, Manchester and Paris. He graduated M.B., Ch.B. at Edinburgh University in 1907, and obtained his M.D. with distinction in 1908. He became a doctor of philosophy of Manchester University in 1911. His early experience was varied and unusual. At one time or other he was demonstrator in physiology at Manchester University, editor of the *Manchester Medical School Gazette*, lecturer in physiology at the Universities of Wales and Birmingham, honorary physician to Walsall General Hospital, lecturer on psychology at the Birmingham Midland Institute, and director of the typhus colony in Serbia during the first world war as a lieutenant-colonel in the Serbian Army. He contributed numerous papers to medical and psychological journals and published in 1918 his *Examination of the Basis of Personality*. In 1920 he joined the Cunard Company and in 1926 was appointed its medical superintendent, a post for which he was pre-eminently suited by his rich experience and by natural aptitude and high technical ability. He retired in September 1946.

From the beginning of his entry into this branch of occupational health his aim was to improve the lot of the merchant seaman, and the outstanding contribution to this end made by the Cunard White Star Company during recent years, with its resulting effect on conditions in the Merchant Navy as a whole, is due in great measure to Dr Maitland's personal influence. His interest took him beyond the sea and its peculiar hazards, however, and the allied problem of industrial disablement with its economic and social repercussions soon became to him an issue of the first magnitude. In this field his influence behind the scenes was great. It is little known for instance that he was one of those initially responsible for the setting up of the B.M.A. Committee on Fractures, whose report in 1935 heralded a new era in orthopaedic and accident surgery, that he was an international authority on workmen's compensation, or that he was a powerful influence in the formation of the policy of the Birmingham Accident Hospital several years before it opened in 1941. One keen ambition of his was to see founded an accident hospital in Liverpool, and to this end plans were continually in his mind. As far back as 1935 his conception of rehabilitation and his clear view of the need for new and comprehensive legislation as the only means of solving issues bound up with resettlement and workmen's compensation were well in advance of contemporary medical and sociological thought.

Dr Maitland had an unusual capacity for making and retaining friendships. To him this was no easy matter, but his mind made up, he was a friend for life. He gave much. Behind the apparent physical frailty was a high courage, an obvious integrity and a deep, consuming energy based on a passionate desire to help the underdog. He was modest to a fault and abhorred publicity. As a host he was beyond compare, a supreme cosmopolitan. But perhaps his most appealing asset was his sense of humour, combined with an uncanny ability to debunk the pedant. It was not in him to suffer fools gladly, but he was essentially a man of gentleness and much understanding. To those whose privilege it was to come within his circle of friends his death means an irreparable loss. Medicine can ill afford to lose its philosophers, and Dr Maitland truly was one of them in high degree. His contribution to the welfare of seamen and disabled workers throughout the country, acknowledged too little during his life largely because of his own wish, now demands nothing less than the fullest recognition.—D.S.

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the investigation of an obscure outbreak of typhus which had occurred in Kars on the Isle of Skye. He was next appointed assistant county medical officer of health for that part of Inverness shire which includes Skye, Harris, North and South Uist and Barra, perhaps the most difficult and thankless post in Great Britain. For ten years he travelled to and fro across the Minch in small steamers, inspected school children, dealt with the inertia of Hebridean authorities, and struggled with the petty round of nuisances and small epidemics for which there was no hospital accommodation, no health visiting, and no hygienic routine. In these difficult circumstances Francis Sutherland maintained a lofty standard of official procedure. He knew the law, he knew what was correct and using a typewriter he constituted himself a one man public health department and kept a voluminous correspondence unsurpassed by many who have a trained clerical staff. After a similar though less insular appointment in Ross-shire Sutherland decided to enter the field in which his father Dr John F. Sutherland had preceded him, that of administrative psychiatry. He opened a small residential clinic at Staines. But when the post which his father had held at the Scottish Board of Control fell vacant Francis Sutherland took the opportunity then offered him, and in 1936 he became deputy commissioner of the Board of Control for Scotland. This sphere of work which exactly suited his temperament so that once again he was journeying through the Highlands occupied the last twelve years of his life. His frontier here in plus fours, cap and bow tie became well known in Highland cottages and hotels. He always used great courtesy of language indeed he spoke to patients—wards of the Board of Control—as physicians did a generation ago, before modern slang was part of professional relationships. But he was always smiling, courteous and helpful and his human kindness showed itself to the last word of his official report. There was quality and style in all he did and he never hurried, never ignored details, never allowed himself to be put off. When he had finished the case was complete and unanswerable. In the evenings few could relax better or tell more humorous stories about Scottish ministers or quote classical poetry and prose with more point. Whenever he could with Mrs Sutherland who survives him he took a holiday on the Continent that was a sort of exploration since beforehand in his usual thorough style he had studied the geography and the language. In this way he penetrated as far as the North Cape and studied the coast of Spain and Portugal. When he returned he had many good tales to tell. He was an unusual man who lived conscientiously and did his work unobtrusively and though he was not prominent in medicine his life expressed our best traditions.—H.W.

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spending eighteen months in various resident posts in the Liverpool Royal Infirmary and City Hospital, Dr Wright obtained his MSc in 1914, and a few months later the DPH. The years 1914 to 1919 were devoted to war service, first for a few months in the Army, then as a temporary surgeon-lieutenant in the Royal Navy. Much of his time was spent as resident medical officer to the Royal Naval College, Osborne. Immediately following demobilization in 1919 he became assistant port medical officer to the Liverpool port sanitary authority, a post which he held until June, 1920, when he was appointed to the medical staff of the Lancashire County Council, on which he served until his death. Whatever Stanley Wright did he did with all his heart, whether it was in connexion with his professional work or in the realm of sport, in which he excelled. His successes in academic life were paralleled on the rugby football field and later on the golf course, where he played from scratch and represented his county. His leisure moments he devoted to literature and the appreciation of music. Representative of the very best type of medical man, courteous in approach, skilful in ministrations, and of an unfailing human kindness, he will not be forgotten by his friends and colleagues, or by the folk among whom he worked for so many years in Haydock and Prescot. He is survived by his widow and a daughter.

Dr HENRY DOYLE BRICE died at the home of his younger daughter in Dewsbury on Aug 7, at the age of 74, after a long and distressing illness. Born in the Channel Islands, he first qualified as a chemist, which enabled him to pay his way through his medical training. He was a student of Westminster Hospital, and won the Frederick Bird medal in midwifery and qualified MRCS, LRCP in 1900. He started his medical career as a general practitioner in Chelsea, and was soon appointed medical officer to the district and out-patient department of Chelsea Infirmary, medical officer to the Chelsea Distress Committee, and a lecturer in midwifery under the Midwives Board. These appointments he held until he moved to Dukinfield, Cheshire, in 1908, where he proceeded to build up a large practice. Dr Brice was appointed assistant radiologist to the Ashton-under-Lyne and District Infirmary in 1919. His work in general practice gave him an insight into the needs of the poor, and in an endeavour to improve their lot in life he consented to be nominated as a candidate for the Dukinfield borough council. He was elected in 1922 and served on the council for 26 years, becoming an alderman in 1939 and acting as mayor of the town in 1932. Dr Brice was also elected to the Cheshire County Council in 1925, and later became a county alderman. On both borough and county councils he interested himself particularly in housing and in maternity work. Dr Brice was always an active member of the British Medical Association, and he was chairman of the Hyde Division for over ten years. He married in 1904, and his wife, formerly Miss Judson, helped him in all his work until she died in 1938. He leaves two daughters and a son, all members of the medical profession.

## Medico-Legal

### MENINGITIS FOLLOWING SPINAL ANAESTHESIA

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

In April, 1947, the High Court awarded damages of £12,000 against the Portsmouth Corporation to a young man who contracted meningitis after a spinal injection of "nupercaine" and was left with permanent paralysis of both legs and incontinence of urine.<sup>1</sup> Actions against the practitioners concerned failed. The corporation appealed, and counsel maintained that the trial judge, Mr Justice Birkett, had disregarded evidence that the infection with *Ps. pyocyanea* could have been caused in spite of all proper precautions to prevent it.

Lord Justice Bucknill, giving the judgment of the Court of Appeal,<sup>2</sup> said that there was sufficient evidence that the patient's injury was directly due to an injection of "nupercaine" into his spinal canal. This had introduced a bacillus which had caused the meningitis, and the cause of the disease was negligence and breach of duty by the corporation's servants in failing to carry out proper aseptic precautions. There was no satisfactory evidence that the syringe had been sterilized in accordance with the usual practice obtaining in the hospital in 1944. The appeal was therefore dismissed.

<sup>1</sup> *British Medical Journal* 1947 1 667

<sup>2</sup> *Evening News* Portsmouth March 24 1948

## Universities and Colleges

### UNIVERSITY OF OXFORD

In a Congregation held on July 31 the following degrees were conferred

DM—G I M Swyer  
MCh—G O Jelly  
BM—R A Bruce J P Horder, W G H Leslie M C Manifold D Razzak  
C G A Thomas H W James A W Lindsay M G M Venables W H Taylor D P Winstanley, N S C Gent F D Kelsey J R Sudbury, F J C Roe L Bagratuni G E S Jones, D R Richard Katharine M S Ainley Walker Barbara E Porritt \*D F Magee, \*H Ellis \*J E Cotes, \*P D Wall \*P Harrison Hall \*M A Peyman \*J Swithinbank \*B L Day, \*J N Mickleth  
\* In absence

### UNIVERSITY OF LONDON

Sir Francis Fraser, Director of the British Postgraduate Medical Federation, has been reappointed Deputy Vice-Chancellor for 1948-9.

On the occasion of the Congress of the Universities of the Empire, held at Oxford from July 19 to 23, the honorary degree of LL D was conferred on James Bertram Collip, CBE, FRS, Professor of Medical Research and Dean of the Faculty of Medicine at the University of Western Ontario, among others, at a ceremony held at Senate House, London, W C, on July 17.

The following members of the medical profession have been appointed representatives of the University on the governing bodies of the institutions indicated in parentheses: Sir Archibald Gray and Mr J B Hunter (British Postgraduate Medical Federation, and, for the first year, School of Pharmacy), Dr D H Brinton (Charing Cross Hospital Medical School), Professor S J Cowell and Professor Esther M Killick (King's College of Household and Social Science), Dr A E Clark-Kennedy (Queen Mary College), Mr J B Hunter (Royal Free Hospital School of Medicine), and Professor J M Mackintosh (Slough Industrial Health Service, Ltd).

The following have been recognized as teachers of the University in the subjects indicated in parentheses: *St Bartholomew's Hospital Medical College* Dr R Bodley Scott (Medicine) *St Mary's Hospital Medical School* Dr M H E Hulbert (Radiology) *London Hospital Medical College* Dr J H T Challis (Anaesthetics), Mr C A Keogh (Oto-rhino-laryngology), Mr W A Law (Orthopaedics), Dr H B May (Pathology), Mr R C Percival (Obstetrics and Gynaecology) *St Thomas's Hospital Medical School* Mr R B K Rickford (Obstetrics and Gynaecology) *Charing Cross Hospital Medical School* Dr H K Ashworth (Anaesthetics), Dr A Dooyne C Bell (Children's Diseases), Dr F A Elliott (Medicine), Dr D P King (Clinical Pathology) *Westminster Hospital Medical School* Mr F A d'Abreu (Surgery), Dr C J Garvey (Medicine) *University College Hospital Medical School* Dr H A Burt (Physical Medicine) *King's College Hospital Medical School* Mr S G Clayton (Obstetrics and Gynaecology), Mr Ralph Cocker, M B, Ch B, FDS (Dental Surgery), Dr A C Cunliffe (Bacteriology), Dr R D Lawrence and Dr S Oram (Medicine), Dr D I Williams (Venereal Diseases), Mr A J Heriot (Surgery, probationary) *Maudsley Hospital* Dr E W Anderson (Psychiatry).

The Diploma in Medical Radiology has been replaced by a Diploma in Medical Radiology (Radiodiagnosis) and a Diploma in Medical Radiology (Therapy). The regulations for these diplomas have been approved and copies may be obtained from the Academic Registrar of the University at Senate House, London, W C 1.

The Worcester Royal Infirmary has been recognized for the purposes of the Diploma in Clinical Pathology for a period of five years from September, 1948.

### UNIVERSITY OF LEEDS

Professor James W McLeod, FRS, Brotherton Professor of Bacteriology at Leeds University since 1922, has been appointed Dean of the Medical Faculty of the University in succession to Professor M J Stewart, who is retiring owing to the pressure of other work.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

Sir Hugh Cairns, Nuffield Professor of Surgery in the University of Oxford, left this country on Aug 3 to visit the principal medical centres in South Africa as the first Arthur Sims Travelling Professor. He will deliver lectures, make contact with leading scientists, and take part in research and postgraduate teaching. Sir Hugh Cairns arrived at Johannesburg on Aug 13, at Durban on Aug 27, and is due at Capetown on Sept 1. He recently returned from a somewhat similar trip to Australia and New Zealand.

It is confidently hoped that the institution of this travelling professorship will not only do much to stimulate the development of medical science for the benefit of mankind but that it will also prove a further valuable link between the nations of the Commonwealth.

## Medical News

### Alvarenga Prize

In recognition of his studies on sludged blood the College of Physicians of Philadelphia awarded on July 14 the Alvarenga Prize for 1948 to Melvin H. Knisely, M.D., of the University of Chicago. The Alvarenga Prize was established by the will of Pedro Francisco da Costa Alvarenga, of Lisbon, Portugal, an Associate Fellow of the College of Physicians of Philadelphia, "to be awarded annually by the College of Physicians on each anniversary of the death of the testator, July 14, 1883." The College usually makes this award for outstanding work and invites the recipient to deliver an Alvarenga Lecture before the College.

### Foreign Medical Scholarships

Scholarships for study abroad have been awarded to five post graduate medical students through the British Council. The Belgian Government has awarded a four months' scholarship in tropical medicine to Dr. H. F. Lyon (University of Edinburgh), and another in dermatology to Dr. R. P. Wain (University of Leeds). The Government of Sweden and the Swedish Institute are the donors of a further two four month scholarships in surgery and medicine, these have been awarded respectively to Dr. C. Dafoe (Queen's University, Ontario) and Dr. J. Scott Baker (University of London). Miss L. Hodgson (University of Leeds) is the recipient of a nine months scholarship in ophthalmology awarded by the Netherlands Government. The British Council has this year been asked by the governments or universities of nine foreign countries to obtain candidates and make recommendations for some 40 scholarships. Successful candidates are selected as the result of recommendations made by the British Council's Universities Advisory Committee to the country or university concerned.

### Quarantine Measure Rescinded

The following Quarantine Notification, No. 15 of 1948, dated July 1, has been issued by the Director, Shanghai Quarantine Service. In accordance with the decision of the WHO Expert Committee on International Epidemic Control on April 17, 1948, and Expert Committee on Quarantine on Oct. 16, 1947, in regard to rescinding of vaccination against plague or typhus as an international quarantine measure, the public is hereby notified that travellers arriving at or departing from plague or typhus infected ports are not required to produce evidence of vaccination against these diseases.

### Boards of Governors

Since the publication of the names of the members of the Boards of Governors of Teaching Hospitals (London) in our issue of June 26 (p. 1250), the Ministry of Health has announced that Sir T. Drummond Shiels has been appointed to the Board of the Hammer Smith, West London, and St. Mark's Hospitals.

### Enzyme Study Award

Dr. Albert L. Lehninger, assistant professor of biochemistry at the University of Chicago, has received the \$1,000 Paul-Lewis Laboratories award in enzyme chemistry for his work on the chemistry and metabolism of the fatty acids.

### Dentists in the Service

The Ministry of Health states that up to Aug. 7 the number of dentists in England and Wales who had entered the National Health Service was 6,654, out of an estimated total of about 10,000 dentists in general practice.

### Waste Straw

Under this heading last week (p. 406) we published a note to the effect that Professor S. Zuckerman, of Birmingham University, had been appointed head of a Government committee to find a use for waste straw. This information was taken from a report in the Press which we now learn is quite inaccurate.

### New School for Spastics

A special school for the reception of children suffering from spastic paralysis is to be opened in Edinburgh next month by the Scottish Council for the Care of Spastics. The house which is to be used was bought recently by the Scottish Branch of the British Red Cross Society.

### Hospital Contributory Schemes

Up to July 1 thirty hospital contributory schemes have notified the British Hospitals Contributory Schemes Association that they will continue to operate for the provision of benefits ancillary and additional to those provided under the National Health Service Act.

### Diphtheria Antitoxin

Emergency stocks of diphtheria antitoxin were in the past commonly held by local authorities' health departments. The power to provide antitoxin was repealed by the National Health Service Act. A few pharmacists hold stocks, but their number is insufficient for all medical practitioners to be able to obtain antitoxin quickly in emergency. Hospitals for infectious diseases also hold stocks, but they are not always conveniently accessible, and the Minister of Health is therefore arranging with boards of governors and hospital management committees for a small stock of antitoxin to be held at a convenient general hospital in any centre of population which does not include a readily accessible hospital for infectious diseases. Executive councils will be notified by the regional hospital boards of the places where the antitoxin will be available.

### Hospital Equipment Standards Advisory Committee

The first report of the Hospital Equipment Standards Advisory Committee of the British Standards Institution gives the history of the formation of the Committee, its terms of reference, and a list of the organizations that are represented upon it. The Committee was formed early in 1947 to investigate the need and to make recommendations for the preparation of British Standards for articles of hospital equipment. The report contains an indication of the subjects under consideration, together with notes regarding future activity. It can be obtained from the British Standards Institution Sales Department, 24, Victoria Street, S.W. 1, price 6d, post free.

## COMING EVENTS

### Association of Medical Records Officers

Week end training courses for records officers will be held at Cardiff Royal Infirmary, for the Welsh Region, on Sept. 4 and 5, and at the Royal Free Hospital, Gray's Inn Road, London, W.C., for the North-West Metropolitan Region, on Sept. 11 and 12. Interested hospitals in these regions should write to the records officer at the hospital concerned.

### London County Medical Society

A meeting of the London County Medical Society will be held at Joyce Green Hospital, Dartford, Kent, on Thursday, Sept. 9, at 3 p.m.

## APPOINTMENTS

DEWELL MARY W. Temporary Medical Officer to Prudhoe-on-Tyne District Northumberland.

MAYES JOYCE B. M., Assistant Medical Officer of Health for West Suffolk County Council and Assistant School Medical Officer and District Medical Officer of Health for Sudbury Borough, Hadleigh and Melford Rural Districts.

ROYAL NORTHERN HOSPITAL Holloway, London N.—Physician to Neurological Department E. C. O. Jewell, M.D., M.R.C.P., D.P.M. Physicians to Psychiatric Department B. Buckley Sharp, M.D., M.R.C.P., D.P.M. W. Lindsey Neustatter, M.D., M.R.C.P.

TELLING MAXWELL, D.M., M.R.C.P. Honorary Assistant Physician General Infirmary at Leeds.

THORBURN A. L. M.D., D.P.H. Full time Divisional Medical Officer, School Medical Officer and District Medical Officer for Nantwich Cfe hire.

## BIRTHS, MARRIAGES, AND DEATHS

### BIRTH

Price—On Aug. 9, 1948, to Barbara, wife of Dr. A. E. Kingsley Price of 36 St. John Hill, Bath, a son.

### MARRIAGES

Boyle—Smith—On Aug. 19, 1948, at South Bank, Middlesbrough, Philip Terence Boyle, M.B., B.Chir., of Linton, Wetherby, to Dorothy Smith of South Bank, Middlesbrough.

Thomas—Kemp—On June 19, 1948, at St. Margaret's Church, Warrnambool, Trevor Meyrick Thomas, M.Chir., F.R.C.S., son of the late Dr. and Mrs. J. E. Thomas of Bangor, to Judith Margaret, youngest daughter of the late Dr. J. H. Kemp of Horsham, and of Mrs. Kemp.

### DEATHS

Bell—On Aug. 13, 1948, at Ploverfield, Ben Rhydding, Yorks, John James Bell, F.R.C.S.I., F.R.C.S.E.

Billings—On July 30, 1948, at Rocky Bank, Norton Road, Bournemouth, Alfred Meares Billings, L.R.C.P., S.E., L.R.F.P., S.Glas.

Forrester—On Aug. 13, 1948, in Ireland, Archibald Thomas William Forrester, M.D.

Hayes—Recently, Francis Xavier Kendall Hayes, L.R.C.P., S.E., L.R.F.P., S.Glas.

Hood—On Aug. 16, 1948, at Howe Hill, Acomb Road, York, Noel Lockwood Hood, M.D., aged 77.

Hunter—Recently, Samuel Robert Hunter, M.D.

Jameson—Recently, James Conway Jameson, M.B., C.M.E., D.P.H.

McCauley—Recently, at Ashdown, Omagh Co. Tyrone, James Edward McCauley, M.B., B.Chir., aged 20.

Nesbitt—Recently, at Allesbury Road, Dublin, George Edward Nesbitt, M.D., F.R.C.P.I., aged 66.

O Byrne—Recently, Conor O Byrne, M.B., B.Ch.

Sankarallil—On June 22, 1948, Essau Jymshed Sankarallil, M.D., D.P.H., of Trinidad, B.W.I.

Welsh—Recently, William John Warnock, Welsh, M.B., Ch.B.

Willett—Recently, James Hayward Willett, M.D., F.R.C.O.G.

Wilson—On Aug. 13, 1948, at Old Bennington, Vermont, U.S.A., John Gordon Wilson, M.B., C.M., aged 89.

No 32

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug 7

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) Scotland (d) Eire (e) Northern Ireland  
Deaths recorded under each infectious disease in England and Wales (including London)  
(b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland  
A dash — denotes no cases, a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	40	2	20	3	—	66	6	32	2	3
Diphtheria Deaths	107	13	28	6	—	138	9	48	10	8
Dysentery Deaths	111	12	30	—	—	78	10	16	—	—
Encephalitis lethargica acute Deaths	—	—	2	—	—	1	—	—	—	—
Erysipelas Deaths	—	—	24	4	—	—	20	4	2	—
Infective enteritis or diarrhoea under 2 years Deaths	23	3	8	43	1	61	5	17	47	3
Measles* Deaths†	6,879	430	52	46	42	5,488	303	52	185	4
Ophthalmia neonatorum Deaths	44	5	11	—	—	66	4	14	—	—
Paratyphoid fever Deaths	47	3	(B)	—	—	7	2	(B)	1	(B)
Pneumonia influenzal Deaths (from influenza)‡	363	26	1	2	1	225	12	1	1	3
Pneumonia primary Deaths	6	2	—	—	—	3	—	1	—	1
Polio encephalitis acute Deaths	116	17	113	21	6	9	128	18	3	—
Poliomyelitis acute Deaths§	5	1	—	—	—	56	9	1	—	—
Puerperal fever Deaths	38	3	4	2	5	568	84	93	6	33
Puerperal pyrexia   Deaths	—	—	10	—	—	1	16	—	—	—
Relapsing fever Deaths	135	10	7	—	—	103	6	11	—	—
Scarlet fever Deaths†	—	—	—	—	—	1	1	—	—	—
Smallpox Deaths	848	49	134	29	21	680	61	114	18	19
Typhoid fever Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever Deaths	10	—	—	4	—	9	—	1	1	4
Whooping cough* Deaths	—	—	—	—	—	—	—	—	—	—
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	3,185	263	11	79	12	1,508	156	51	52	3
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	6	41	40	9	295	44	64	13	15	—
Live births Annual rate per 1 000 persons living	3,586	584	517	84	3,603	562	475	143	89	—
Stillbirths Rate per 1 000 total births (including stillborn)	7,586	1242	939	242	8,385	1347	1096	465	246	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only  
† Deaths from measles and scarlet fever for England and Wales (London (administrative county) will no longer be published  
‡ Includes primary form for England and Wales, London (administrative county) and Northern Ireland  
§ The number of deaths from poliomyelitis and polio encephalitis for England and Wales (London (administrative county) will no longer be published)  
|| Includes deaths from puerperal fever and Eire  
The return received ended Aug 7 has not been received

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis

Preliminary figures of notifications of poliomyelitis for the week ended Aug 21 suggest that the final figures for that week are likely to be 70 to 75 as against a level of 35 to 40 for the last few weeks. A seasonal rise was to be expected and has often occurred in past years at about this time. It will be recalled that last year the rise began very much earlier, in the week ended June 7, 1947.

## Discussion of Table

In England and Wales there were 1,332 fewer notifications of measles than in the previous week, and decreases were also reported for scarlet fever 481, whooping-cough 124, and diphtheria 18. The notifications of dysentery numbered 111, an increase of 34 on the week ending July 31.

The largest falls in the notifications of measles during the week occurred in Lancashire 166, Warwickshire 151, Surrey 84, and Kent 81. Very few counties reported increases, the largest were Hertfordshire 38, Cornwall 37, and Cumberland 35.

The decline in the incidence of scarlet fever was fairly general, the greatest fall was reported in the West Riding of Yorkshire, where 65 fewer notifications were made than in the previous week. The greatest changes in the notifications of whooping-cough were decreases of 58 in Cheshire, 36 in Sussex, and 35 in Gloucestershire and there were increases of 38 in Leicestershire and 24 in Derbyshire and Durham.

Cheshire and Lancashire reported 12 and 8 fewer cases of diphtheria, respectively, other fluctuations in the notifications of this disease were relatively unimportant.

The increase in the notifications of dysentery arose mainly from the experience of Warwickshire and Lancashire, 29 and 37 notifications were made, respectively, representing increases on the previous week of 22 and 26. Of the 29 notifications in Warwickshire, 27 were reported from Warwick R.D., while of the 37 cases reported from Lancashire, Preston C.B. was responsible for 23, Liverpool C.B. for 6, and Lancaster M.B. for 5. Notifications of paratyphoid fever numbered 47, of which 27 were reported from Eastbourne C.B.

There were 38 notifications of acute poliomyelitis during the week in the country as a whole. Of the county boroughs only Bristol and Birmingham reported more than one case each had 2. The following counties had more than one notification each: West Riding of Yorkshire 4, Lancashire, London and Warwickshire 3 each, Durham, Essex, Gloucester, Kent, Middlesex, Oxfordshire, Surrey, and Wiltshire 2 each.

In Scotland there were 74 fewer notifications of scarlet fever, but apart from this, changes from the previous week were slight.

In Eire a decrease in the number of notifications was reported for measles 41 and scarlet fever 35. There were 43 cases of infective enteritis or diarrhoea under 2 years of age, an increase of 25 largely attributable to Dublin, where there were 16 more notifications than in the previous week.

In Northern Ireland the notifications of measles fell by 17.

## Week Ending August 14

The notifications of infectious diseases in England and Wales during the week included scarlet fever 774, whooping cough 3,458, diphtheria 106, measles 5,897, acute pneumonia 282, cerebrospinal fever 38, acute poliomyelitis 37, dysentery 107, paratyphoid 19, and typhoid 8.

In the Report of the Departmental Committee on Greater London Water Supplies (London H.M.S.O. Price 3s 6d) attention is drawn to the serious danger of water shortage in London if consumption continues to rise. The committee considers that a full and exhaustive inquiry should be made urgently into water resources and prospective demands throughout the area. Simultaneously plans should be prepared for a new major source of supply, which the report states will undoubtedly be needed in the not very distant future. The committee were of the opinion that it is in the interests of public health that the consumption of water should increase (due regard being paid to the avoidance of waste), and they estimate that the eventual daily consumption per head may be 60 gallons in the Metropolitan Water Board's area and 50 gallons in the surrounding area. There were differences of opinion about the best method of administering London's water supply. Two members of the committee (including the chairman) considered that a single all-purpose authority, with full executive powers over both supply and distribution, should be established. On the other hand, three members, while agreeing that a central water authority to control all sources of supply in the area should be appointed, suggested in addition the establishment of four independent joint water boards for the distribution of water. The area suggested by the Metropolitan Water Board is suitable for administration by a single authority has a population of over 10,000,000 people and is at present served by 64 independent water undertakings.

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LITERATURE AND SAMPLES ON REQUEST

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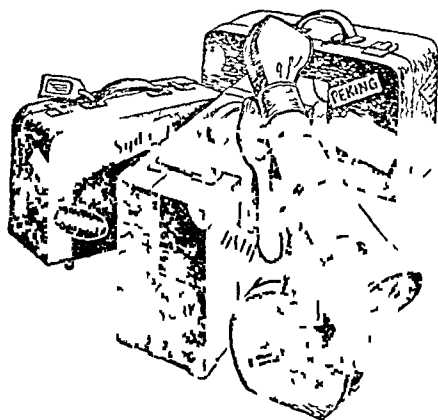
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## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Low Back Strain

**Q**—What is the pathology of low back strain?

**A**—The two expressions "lumbago" and "low back strain" are often used synonymously by the clinician. Low back strain implies that a strain or sprain of the muscles, ligaments, or joints of the lumbo-sacral region has occurred. The strain may be due to (1) a single injury or repeated minor traumata, (2) mechanical defects and insufficiencies, which make this part of the spine less capable of standing up to normal activities—e.g., congenital anatomical abnormalities (spondylolysis, spondylolisthesis, sacralization of the transverse processes of the fifth lumbar vertebra), and (3) structural changes following such varied conditions as fractures, scoliosis, protrusion of intervertebral disk, or osteoarthritis. The term is thus used to describe a large group of conditions of a mechanical and structural nature involving (a) muscles (sacrospinalis and gluteal muscles and their covering fasciae, when adhesions and contractures have followed inflammation) and ligaments (of the intervertebral and sacro-iliac joints), (b) intervertebral disk injuries, and (c) joint injuries other than b—e.g., strains and sprains of the facet articulations and sacro-iliac and lumbo-sacral joints.

It will be seen, therefore, that low back strain is a very general term describing pain in the lumbo-sacral region. It should be appreciated that there are many other causes of lumbo-sacral pain, which can briefly be covered under the headings "infective," "neoplastic," and "visceral."

### Treatment of Jaundice

**Q**—What is the modern treatment for catarrhal and infective jaundice with special emphasis on the diet? Are magnesium sulphate and a low-fat diet necessary or not?

**A**—The "modern" treatment of infective jaundice is simple in essence: it is to allow the patient to rest in bed until he has recovered. Recovery is complete and rapid in about 95% of cases, in about 0.3% acute necrosis of the liver proves rapidly fatal, and in not more than 5% the hepatitis passes into a sub-acute or chronic phase, often leaving a permanently damaged liver. There is little evidence that treatment affects the issue in mild cases. A low fat diet was once *de rigueur*. On theoretical grounds high protein and high carbohydrate intake is desirable, it seems as satisfactory, however, to follow the time-honoured precept that "a little of what you fancy does you good." Difficulties arise when prolonged anorexia and vomiting reduce consumption, in such cases the parenteral administration of fluids with hydrolysed proteins and a supplement of vitamins may be necessary. Similar measures are required in acute necrosis. Rest is all-important, precocious exertion can cause relapse, and it seems probable that alcohol may do the same. It is wise to keep the patient in bed until bilirubin has disappeared from the urine and for exercise to be greatly limited until urobilinogenuria is no longer present. No drugs are specifically indicated.

### Toxicity of Dioxane

**Q**—In my laboratory we have recently started using dioxane for the dehydration etc. of histological specimens. How great is the risk of toxicity from dioxane: how can we best avoid it and what symptoms and signs should we look for? Why is the method not more popular?

**A**—Dioxane is a poison, not only when ingested but also when inhaled. Recorded cases are few in number, but the symptoms of mild poisoning by inhalation appear to be those of "stomach trouble"—anorexia, nausea, and vomiting. Long exposure to dioxane vapour in low concentrations or short exposure to high concentrations will cause liver necrosis and

haemorrhagic necrosis of the kidneys, likely to prove fatal in about a week after the onset of severe symptoms. The dangerous effects of dioxane vapour are more likely to be produced under industrial conditions than in the laboratory. If dioxane is used in laboratory processes, however, proper precautions should be adopted, and the staff should be warned of the potential dangers. Barbe (*Guy's Hosp Rep* 1934, 84, 267) has reported five fatal cases. The chief reason why the method is not more used is that it makes the tissues very brittle, so that some (in particular thyroid) become quite intractable. The speed of the dioxane process is its greatest attraction, but this can be equalled by the acetone-xylo process, which does not make the tissues brittle. In several large laboratories the method has been abandoned for this reason.

### Acroparaesthesia

**Q**—Is there any recent development in the treatment of acroparaesthesia? I have in mind a busy housewife aged 45, whose hands are often in water. Since January she has had numbness of the hands and fingers. There is no pain, tingling, pallor, or cyanosis and no loss of sensitivity to heat and cold, pin-prick or vibration. For about a fortnight there was a similar sensation of numbness affecting other parts of the body after a bath. The reflexes are normal. Her general health is good: the heart and blood pressure are normal, digestion is good, menses are still regular and normal, and she does not get chilblains. Since May the numbness has almost cleared, leaving a curious sensation of extreme dryness, which she describes as very unpleasant when using her hands. During the warm weather this has improved, leaving only the finger tips affected.

**A**—Acroparaesthesia is a symptom, and treatment depends upon the cause; there is no particular treatment for the symptom as such. In a woman at the menopause the problem demands general and careful overhaul. While an endocrine or functional nervous condition is quite possibly responsible, care must be taken to exclude a nutritional, circulatory, or organic nervous cause, and this may not be apparent without prolonged observation. From the history, temperature would seem to be an exciting factor, and it is just possible that the symptoms are indicative of an incipient dermatitis, perhaps due to household irritants, or to allergic sensitivity to the primula or other plants.

### Pruritus Vulvae and Ani

**Q**—How would you treat severe pruritus vulvae and ani in a woman aged 56? She had the menopause at 47 and the pruritus started a year later. The anus is badly torn and fissured from scratching. Itching is unbearable during the day and disturbs sleep at night. She has many symptoms of late menopause—flushes, fatigue, depression, etc. There is a slight amount of sugar in the urine. Treatment by oestrogens has given only temporary relief. Is it dangerous to continue such treatment over a long period?

**A**—The treatment of pruritus vulvae and ani is unsatisfactory unless a cause can be found. The onset of the menopausal atrophy may well have made matters worse, even if it has not caused the trouble. The response to oestrogens is striking, but, as is to be expected, the effect passes off when treatment is discontinued. Complete investigation should be carried out in the hope of finding a cause. In the first place glycosuria, though it is not due to diabetes, cannot be dismissed. It sometimes favours the development of a fungous infection with intense pruritus. Other investigations should include examination of vaginal swabs for fungus and protozoal infections, a full blood count to exclude any form of anaemia, and a fractional test meal to exclude achlorhydria. If the latter is found the administration of hydrochloric acid regularly often has a dramatic effect. If a cause is not found, empirical treatment with large doses of vitamins A, B, and C in turn should be tried, also cod-liver oil applications to the vulva. Frequent warm baths or radiant heat seem to help sometimes, possibly by increasing the blood supply. The continued administration of oestrogens for long periods is not advisable, apart from any other possible disadvantage it will cause uterine haemorrhage. A carefully controlled course, with a gradual reduction in dose, extending over about two months might be tried.



**Cinchophen and Neocinchophen**

**Q**—How does the toxicity of neocinchophen or allied drugs compare with that of cinchophen? In my experience cinchophen causes digestive upset in a small percentage of patients and giant urticaria in a still smaller percentage. In over 20 years using cinchophen fairly freely but given only on three days a week for three weeks I have seen only two cases of giant urticaria and have had perhaps half a dozen patients complain of gastric disturbance.

**A**—Several observations have been made on the comparative toxicity of cinchophen and neocinchophen. Furth and Edel (*J Pharmacol* 1935, 53, 105) found that the daily administration of 0.2 g of cinchophen per kg to rats caused a loss of about 20% of body weight in eight days, whereas three times as much neocinchophen was required to produce the same effect. Barbour and Gilman (*J Pharmacol*, 1935 55, 400) stated that neocinchophen ('tolysin') is far less toxic to rats than cinchophen, which accords with the extreme paucity of clinical evidence of tolysin toxicity. The lower toxicity was not found to be due to a smaller absorption of neocinchophen. Davis (*Amer J med Sci*, 1932, 184, 555) concluded that the superiority of neocinchophen for general clinical use could be fairly assumed from the evidence in the literature. However, in 1941 the Council of Pharmacy and Chemistry of the American Medical Association (*J Amer med Ass* 1941, 117, 1182) stated:

There is no satisfactory evidence on which to base an estimate of the relative dangers in the use of cinchophen and neocinchophen in equally effective doses.

**Toxic Hepatitis**

**Q**—Is it possible to distinguish clinically or by any other method between the jaundice due to the administration of arsenicals in the treatment of syphilis and the jaundice due to a syringe-transmitted virus?

**A**—Both the jaundice due to arsenicals given during the treatment of syphilis and the jaundice due to a syringe-transmitted virus are forms of toxic hepatitis. There is no certain pathological or biochemical means of differentiating the two conditions, but the incubation period of jaundice due to a syringe-transmitted virus is usually from 80 to 110 days, whereas a toxic hepatitis is due to arsenic, if such a thing actually exists, might come on at any time during a course of arsenical drugs. A patient who is receiving antisyphilitic treatment may be incubating infective hepatitis, the incubation period of which is from 21 to 35 days.

**Retching and Vomiting**

**Q**—I understand that vomiting from cerebral or nervous causes occurs without retching. Is it true that vomiting without any suspicion of retching cannot occur from organic lesions of the stomach? In other words is the absence of retching a valuable sign against organic disease of the stomach in a case in which there has been erratic and variable vomiting over a period of six or more months? Can such vomiting in an adult occur from habit?

**A**—It is clear that vomiting or 'bringing up and ejecting the contents of the stomach by the mouth' (OED), depends on the integrated action of numerous muscles and is a complex act controlled by the central nervous system whether the exciting cause be some gastric irritant or increased intracranial pressure. Consequently the act of vomiting differs little whatever the cause, but the sensations accompanying the act may differ. It has been said that nausea is commonly absent in "cerebral" vomiting, though clinical experience shows that it is often present. The questioner omits to define his terms and thus his question is difficult to answer. To retch is defined by the OED as 'to hawk, to bring up phlegm, to make efforts to vomit, to throw up in vomiting'. If, as seems probable, by 'retching' is meant "making efforts to vomit," it is true that organic disease of the stomach causing vomiting is usually associated with retching, but the converse is not necessarily true. "Erratic and variable vomiting" continuing for six months without the appearance of unequivocal signs of organic disease raises a strong suspicion of hysteria, in this sense such vomiting can certainly occur from habit.

**Varicose Veins**

**Q**—All textbooks consulted give only sketchy details confined to Trendelenburg's test and contraindications for injection of varicose veins of the lower limbs. Can you describe (a) the various tests (b) what each test shows about the deep connexions and functioning of the veins and (c) the treatment indicated by each interpretation of each test?

**A**—The contraindications for injection are old age and general disease—e.g., diabetes—previous deep thrombosis, or bad history of recurring phlebitis. The various tests—Trendelenburg, Perthes, Ochsner, and Mahorner—are rather academic and not very important in deciding on the appropriate treatment. When the condition has developed beyond the stage where injection treatment is likely to be successful the usual procedure is to tie the varicose internal saphenous vein at its junction with the femoral vein and at the point where it crosses the internal malleolus, and to inject the vein while exposed in the wound with one of the sclerosing agents. For anaesthetized patients 20 ml of sodium chloride (30%) is suitable. If the external saphenous vein is at fault it is tied and injected in the popliteal space and in the sulcus behind the external malleolus. If a connexion with the deep veins seems to be persisting after this treatment, either just above or just below the knee, it would be wise to put in another ligature in the appropriate place.

**NOTES AND COMMENTS**

**Second Attack of Measles**—Dr W L YOUNG (Heywood, Lancs) writes: I was rather interested in the reply on the above subject ("Any Questions?" Aug 14, p 363). While I was of course aware that second attacks of measles were rare, I did not imagine that they were so uncommon as your reply seemed to suggest. In last year's epidemic I attended approximately 100 cases. This year there have been two of those who have had a second attack. In both instances the symptoms and signs were typical, and though there is this year a co existing epidemic of rubella I see no reason to doubt my diagnosis.

**Corrections**

In the report of a meeting of the Section of Surgery at the Annual Meeting of the B.M.A. on Friday, July 2 (*Journal* July 17, p 155), some of the figures quoted by Lieut Col W L Harnett (London) were wrongly recorded. In the first paragraph "only 53 patients" should read "only 83 patients". The first sentence of the second paragraph should read, "When the cases were subgrouped into stages there was a five year survival rate of 68.2% in Stage I, 43.6% in Stage II, 25.6% (not 59%) in Stage III with lymph node involvement, and 59% (not 25.6%) without it". The last sentence in the second paragraph should read, "One hundred and seventy five patients were treated by radium, with or without surgery, and 26.5% (not 63.4%) of these survived five years".

In the annotation "The Reflecting Microscope" which appeared in the *Journal* of Aug 7 (p 306) we referred to the work of "Dr R Brer, of the Department of Anatomy and Physiology at Oxford". There are of course separate Departments of Anatomy and Physiology at Oxford, and Dr Brer works in the Department of Human Anatomy.

In the leading article on "Streptomycin in Use" in the *Journal* of Aug 21 (p 391) we erred in stating that the M.R.C.'s Committee on Streptomycin decided 'to restrict the use of the drug to cases of tuberculous meningitis and military tuberculosis'. This should have read, 'The Committee decided to restrict tests at the outset to a few acute and usually fatal forms of the disease, including tuberculous meningitis in children and acute military tuberculosis'. The M.R.C.'s Streptomycin in Tuberculosis Trials Committee has since 1947 made a controlled investigation of the effects of streptomycin in pulmonary tuberculosis and it is hoped to publish the results of this work in the *British Medical Journal* this autumn.

All communications with regard to editorial business should be addressed to THE EDITOR BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON W.C.1. TELEPHONE: EUSTON 2111. Telegrams: "Britmed" ATLANTON, Westcent London. ORIGINAL ARTICLES AND other communications should be sent to the Editors. Publication are understood to be offered to the Authors desiring REPRINTS should communicate with B.M.A. House, Tavistock Square W.C.1 on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: Britmedads, Westcent London. MEMBERS SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. Telegrams: Medisecra, Westcent London. B.M.A. SCOTTISH OFFICE: 7 Drumshugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 28 1948

## LASSITUDE, COLDNESS, AND HAIR CHANGES FOLLOWING PREGNANCY, AND THEIR RESPONSE TO TREATMENT WITH THYROID EXTRACT\*

BY

H E W ROBERTON, MA, MD

It is common in Christchurch, New Zealand, to find mothers of young babies in a poor state of health and suffering from fatigue out of all proportion to the work they do. In almost every case there are also intense irritability, undue coldness, and dryness of the hair, usually with a tendency to abnormal loss of hair. Treatment with thyroid extract gives dramatic relief. Myxoedema, gain in weight, cracked voice, and loss of eyebrows are not found, but other symptoms of mild hypothyroidism (Warfield, 1930, Werner, 1942) are found in varying degrees. The usual descriptions apply to cases of hypothyroidism of menopausal age rather than the third decade. Young nulliparae have symptoms which appear to be identical with those found after pregnancy (Robertson, 1946).

On questioning 219 unselected patients with 483 pregnancies it was found that many had mild symptoms. In 114 cases the therapeutic test with thyroid extract confirmed the diagnosis.

For all pregnancies recorded the incidence was as follows: No symptoms of hypothyroidism, 225 (53%), doubtful symptoms, 54 (11%), mild symptoms, 127 (26%), severe symptoms, 47 (10%). Where the last pregnancy only is considered there were 13% with severe symptoms and 33% with mild symptoms.

### Case Histories

**Case 1**—A patient aged 22 had slight enlargement of the thyroid. She felt well after the first pregnancy. She was good-natured, always smiling, and justly proud of a fresh complexion and long silky fair hair. A year after the birth of the second baby she came "for a tonic," complaining of having been tired and nervy for the last 9 months. Her complexion was dull and muddy. Her hair was coarse, her clothing, which was unduly thick for warm weather, was untidy, and she had no smile. She confessed to being so irritable with her husband that it was a wonder he put up with her.

After 6 weeks' treatment with thyroid extract, 1 gr (65 mg) daily for 2 weeks and then  $\frac{1}{2}$  gr daily for 4 weeks, she regained her normal health and appearance. After this she stopped treatment and relapsed. During the 6 months of relapse she had not the energy to come for further prescriptions, and by the end of that time she was not on speaking terms with her husband. She then took thyroid regularly for 5 months, after which she was able to leave it off with out further relapse.

**Case 2**—This case was found on routine questioning after the second pregnancy. The patient, aged 36, said that she had felt well after the first pregnancy. When the second baby was 3 months old she began to feel tired and attributed this to the amount of work she had to do. She did not complain of the cold, but her husband reminded her that it was the first time that she had used a hot-water bottle all through the summer. She said that her hair was dry and lifeless, and had a tendency to come out. Normally placid, she complained of 'nerves,' and her husband, who had previously looked on her as the best-natured woman he had ever met, complained of her temper.

She returned to normal on  $\frac{1}{2}$  gr of thyroid six daily.

\*An abridged version of the paper awarded the Sir Charles Hastings Clinical Prize.

### Signs and Symptoms

The patients complain of being more tired than they should be in relation to the amount of work they are doing. They have to drive themselves, and become extremely irritable and depressed from fatigue. They are disappointed at being unable to enjoy looking after the baby, bewildered by their failure, and afraid of a future unhappy married life. They admit treating their husbands and children badly, and are afraid of losing their affection; they are also conscious of loss of looks. As a rule they go to sleep easily but have restless nights. Nightmares are a constant symptom. They always complain of feeling the cold more than previously. There is also intolerance of heat, which is apt to cause confusion in diagnosis.

Loss of hair from the head, but not from the body, is found in the more severe cases, the hair coming out at the roots. In all cases the hair becomes dry and straight and loses its lustre. This is due to lack of oil in the hair, and clears up within several weeks of beginning treatment. The pulse is normal or rapid, never unduly slow. Palpitations and effort syndrome are common. The skin of the face becomes greasy, with a tendency to acne, and a muddy tinge. The face has a slightly bloated appearance, and there is rarely slight puffiness of the ankles, but otherwise no oedema is found. Loss of weight up to a stone (6.3 kg) or two is usual in the more severe cases; gain is extremely rare. Dysmenorrhoea, sterility, and abortion are relatively common, and there is frequently enlargement of the thyroid at the time of the menses.

The basal metabolic rate is in the lower normal zone. In 22 cases there was variation from -32% to +20%, and 16 of these were in the zone -10% to +10%. Some of the patients were too nervous to attain a truly basal state as out-patients. The basal metabolic rate is unsatisfactory and even misleading in the diagnosis of the milder cases of hypothyroidism.

Symptoms may appear at any time from 1 to 12 months after parturition, usually within the first 4 months. Untreated patients may recover spontaneously any time after 9 months from parturition, or may not recover for some years. If there is a further pregnancy while the symptoms are still active those who show the "warmth of pregnancy" lose them at 4-5 months. The remainder, fortunately a minority, have increased severity of symptoms, or, if taking thyroid, require an increased dose. There is almost always a relapse after a subsequent pregnancy, and there is a tendency for the condition to become more severe after each successive pregnancy. Often symptoms do not appear until after the second or third.

### Treatment

Symptoms improve considerably or disappear on 1-4 gr (65-250 mg) daily of active dried thyroid extract. Improvement is definite within 3-4 weeks.

Thyroid extract provides substitution therapy while spontaneous cure takes place, and also appears to hasten spontaneous cure very considerably. Most patients can stop treatment without relapse after 4-6 months, but in others symptoms reappear within 2 months of stopping treatment.

### Relation to Goitre

Goitre is endemic in Christchurch. In this series the thyroid gland was invisible in 18% of the patients, visible on careful examination in 47%, obvious in 31%. The remaining 4% had suffered thyroidectomy.

The relationship of goitre to the severity of symptoms following pregnancy is shown in the following table

	Severity of Symptoms Following Last Pregnancy			
	Nil	Doubtful	Mild	Severe
Thyroid invisible	18 (47%)	5 (13%)	13 (34%)	2 (6%)
" small	43 (42%)	12 (12%)	32 (31%)	15 (15%)
" obvious	27 (40%)	9 (13%)	21 (31%)	11 (16%)
Thyroidectomy	0	0	3 (38%)	5 (62%)

There is a statistically significant difference ( $p < 0.01$ ) between the "invisible" and each of the two "visible" groups

Thyroidectomy almost always leads to hypothyroidism following pregnancy. Further cases of pregnancy following thyroidectomy collected since this table was prepared bring the number to 15. Of these only 2 failed to show symptoms after the first pregnancy. One of these developed severe symptoms after the second, the other has not become pregnant again.

Symptoms after pregnancy occur more frequently in patients who have shown active enlargement of the thyroid during pregnancy.

Body warmth is decreased in hypothyroidism, but the converse, that coldness is due to thyroid deficiency, does not hold. According to my observations thyroid extract in non-toxic doses is ineffective for chilblains in the absence of dry hair and lassitude. Women who are sensitive to cold before pregnancy have an increased tendency to hypothyroidism following pregnancy, as seen in the following table. The difference can be accounted for by a number of cases of already existing hypothyroidism.

	Symptoms Following Pregnancy			
	Nil	Doubtful	Mild	Severe
Normally warm	52 (51%)	15 (15%)	25 (25%)	9 (9%)
" cold	41 (36%)	12 (10%)	44 (38%)	18 (16%)

The difference is statistically significant ( $p < 0.01$ )

The average duration of lactation in cases showing symptoms of hypothyroidism is 3.9 months, in those without symptoms 4.1 months. The difference can be accounted for by unnatural weaning because the mother is tired. Weaning brings about no improvement in the symptoms.

### Discussion

The syndrome of lassitude, coldness, and hair changes following pregnancy has not been described previously. It appears to be a condition of very mild hypothyroidism. The normal basal metabolic rate readings raise some doubt about the hypothyroidism. They are, in fact, slightly lower as a group than the rates of others undergoing routine examination in Christchurch. Mazer and Goldstein (1932), Werner (1942), and Shelton (1941) mention the frequent occurrence of hypothyroidism in individual cases without a low B.M.R.

I have shown that there is an association with goitre, and a stronger one with thyroidectomy. The therapeutic test appears to confirm hypothyroidism. The remarkable finding is that the association with goitre is not more obvious, and that it needs statistical analysis to confirm it. In a group of women in which only 18% have no evidence of thyroid enlargement it is likely that there is some abnormality even in this 18%. It is also likely that many of the other 82% have a successful hyperplasia, providing a sufficient reserve of active tissue. Even after thyroidectomy there can be sufficient to allow the normal warmth of pregnancy.

There is a striking resemblance between these cases and Sheehan's cases of Simmonds's disease following post-partum necrosis of the anterior pituitary with mainly thyroid symptoms (Sheehan, 1939). However, in Sheehan's cases there was no lactation, there is a history of post-partum haemorrhage, and the symptoms are more or less permanent except that they are completely relieved by further pregnancy.

Until further evidence is forthcoming I would suggest that the most satisfactory explanation of the condition is that (1) the thyroid gland is defective to the extent of requiring strong pituitary stimulation, (2) the latter is given during pregnancy,

and withheld after pregnancy until the menstrual cycle is again established normally. In the more severe cases a vicious circle is set up, and a general endocrine disturbance remains which can be rectified with thyroid extract. Chapman and Higgins (1944) showed that thyroidectomy and iodine deficiency together affect the pituitary, so it is possible that iodine deficiency is another factor.

The almost certain occurrence after thyroidectomy is a very strong argument against promiscuous thyroidectomy in all cases of goitre, which, though nearly extinct in this part of the world, still has its advocates. The 15 cases of thyroidectomy quoted by no means all followed toxic goitre. At least two were suffering from hypothyroidism, mistaken for hyperthyroidism, at the time of the operation.

### Differential Diagnosis

Attempts at objective measures such as elasticity of the hair, thermopile measurements of skin temperatures, metabolic rates and so on are unsatisfactory. The therapeutic test was reliable when English-made thyroid extract was available, but less so now that it is necessary to use Australian extract. Even with the least unreliable brand it is often necessary to give two months' trial and larger dosage.

The most common error in diagnosis is that of mistaking the condition for toxic goitre. The patient with hyperthyroidism complains of 'nerves,' loss of weight, tachycardia, and, if questioned, intolerance of heat. There is tremor of the fingers and an enlarged thyroid gland. A low metabolic rate, it is said, does not altogether exclude toxic goitre, and in any case the failure of a nervous woman to relax and achieve basal conditions may easily give a false high reading. More careful questioning should disclose hair changes and sensitivity to cold.

The condition is easily mistaken at first sight for pulmonary tuberculosis, and when it fails to respond to thyroid extract it is necessary to exclude coexisting tuberculosis. The reliable symptoms are lassitude, coldness, and hair changes. In the absence of one of these thyroid extract is unlikely to give relief, while in the presence of all three it is almost certain to do so.

Though the condition as seen here is associated with endemic goitre, I have histories of two patients who developed it before leaving England. It is probable that, if looked for, it would be found in goitre-free countries in women who have undergone thyroidectomy and in families with a history of goitre.

### Summary

The syndrome of lassitude, coldness, and hair changes after pregnancy is associated with endemic goitre, and is usual when pregnancy follows thyroidectomy. It responds to treatment with thyroid extract.

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### PERMANENT APPOINTMENTS IN R A F

The Royal Air Force is short of officers on the permanent staff of the Medical and Dental Branches. Doctors and dentists who have left the Royal Air Force on release and who are interested in making a career in the Service are invited to apply for permanent appointments in the Medical and Dental Branches. Appointments will be made by interview, and selection will of course be subject to suitability of candidates. Applications should be addressed to the Air Ministry (M A I) Awdry House, Kingsway, London, W C 2. All suitable officers now serving on short service commissions are being considered for permanencies, and permanent commissions are being offered also to doctors and dentists who served in those branches during the war and who have now returned to civilian life.

## NATIONAL INSURANCE

### POSITION OF MEDICAL AND DENTAL PRACTITIONERS

*A number of doctors have been in doubt whether they should class themselves as employed or self-employed persons when completing the National Health Insurance Form CF 6. The Ministry of National Insurance has recently issued the following statement for the information of doctors and dentists*

The National Insurance scheme applies, with minor exceptions, to all persons in Great Britain who are over school-leaving age and under pension age. Insured persons are divided into three classes. Class 1, employed persons, Class 2, self-employed persons, and Class 3, non-employed persons. Employed persons are those who are gainfully employed under a contract of service. Self-employed persons are those who are otherwise gainfully occupied. Non-employed persons are those who do not fall into either of the other two classes. Employed persons are also insured under the Industrial Injuries scheme.

A medical or dental practitioner engaged in the ordinary professional work of attending patients is not normally employed under a contract of service and would therefore fall into Class 2 as a self-employed person. In order to establish that a practitioner who is thus engaged is employed under a contract of service it would be necessary to show that he was subject to direction and control in matters of detail as to the method of performance of his work. The relationship between a patient and his doctor or dentist is not of this character, and accordingly practitioners engaged only in private practice should regard themselves as self-employed persons—i.e., in Class 2. Similarly doctors and dentists on the lists of executive councils under the National Health Service will be insurable as self-employed persons in respect of their work in that capacity. The weekly contribution of self-employed persons is 6s 2d for a man and 5s 1d for a woman.

The National Insurance Act, however, enables statutory regulations to be made modifying the classification of insured persons where the circumstances or nature of an employment render it desirable. The effect of the regulations which have been made, as far as practitioners are concerned, is as follows.

Doctors or dentists who are engaged full time in a hospital or mental institution or a maternity or convalescent home (including any associated clinic or dispensary or out-patients department) are insurable as employed persons in Class 1 and also under the Industrial Injuries Scheme. The position is the same where the engagement is not for whole-time services but the duties normally occupy more than half the practitioner's time and he is paid on a salary basis.

Doctors or dentists, on whatever basis they are paid, who are engaged full time in employment under a public or local authority (e.g., as medical officers of health or assistant medical officers of health or in the school medical or dental services) are insurable in Class 1 as employed persons and under the Industrial Injuries Scheme. This also applies to the practitioner who works for more than one such authority if the duties in the aggregate occupy full time, and to the practitioner whose engagement is not for whole-time services but whose duties for the authority occupy more than half his time provided that he is paid on a salary basis.

Similarly doctors or dentists engaged by commercial firms or business organizations who are rewarded for their services by salary and who spend the whole or more than half their time on their duties for any one such employer are treated as employed persons under both schemes. An assistant or locum paid on a salary basis for duties occupying the whole or more than half his time is also insurable as an employed person.

The total combined national insurance and industrial injuries contribution for an employed person is 9s 1d a week for a man and 7s 1d for a woman of which the employee's share is respectively 4s 11d and 3s 10d.

Mr C E A Bedwell has been appointed, on the nomination of the Camberwell Hospitals Management Committee, by the South-East Metropolitan Regional Hospital Board to succeed the late Mr Harold Gibbons as chairman of the committee.

## PROCEDURE FOR CLAIMING COMPENSATION IN SCOTLAND

The Secretary of State for Scotland has announced that executive councils in Scotland will notify doctors taking part in the National Health Service of the procedure to be adopted in claiming compensation for loss of right to sell the goodwill of their practices. A sum of £66 millions is available for distribution to doctors in Great Britain to meet such claims. Oct 31, 1948, has been fixed as the last day for submitting claims, and only in special circumstances will a claim sent after that date, but before April 30, 1949, be admitted. It is important that claims should be made promptly, since it will not be possible to allocate the total amount of compensation available until a decision has been reached on all the claims submitted.

Under the National Health Service (Medical Practices Compensation) (Scotland) Regulations, 1948, compensation will normally be payable to doctors engaged as principals in general medical practice immediately before July 5, 1948, and whose names on that date were entered on the medical list of an executive council as practitioners undertaking to provide general medical services or maternity medical services under the new Health Act. Those doctors in the Highlands and Islands Service whose practices have not been bought and sold in the past are not affected.

Compensation will also be payable to doctors, or the personal representatives of doctors, who died or retired between Nov 5, 1946, and July 5, 1948, so long as no part of the goodwill of their practices has been sold. In general, each practice will be allocated a share of the total sum in proportion to the average gross yearly receipts of the last two accounting years before July 5. In the case of partnerships, the regulations leave the sharing of the practice compensation to be determined after a legal committee now considering this question have reported.

## INTERNATIONAL HOLIDAY EXCHANGES

In view of the growing number of inquiries regarding holiday exchanges that have been received from doctors in this country and on the Continent, the BMA proposed to the World Medical Association that active steps be taken to encourage the development of such international contacts. The suggestion was readily accepted by the WMA and each national medical association has now been invited to maintain a register of members who are prepared to offer hospitality for a holiday period. The names of members who would like to take part in the scheme will be submitted to the appropriate national associations.

The scheme is divided into two parts, the first being applicable to doctors and their wives and the second to the children of doctors who are old enough to appreciate and gain benefit from a holiday abroad.

During the past season the BMA has put several members in touch with doctors on the Continent and it is expected that interest in the exchanges will grow in the future. An appreciable interval may sometimes elapse before a suitable exchange can be effected and the Association is therefore anxious to lose no time in registering the names of doctors who might like to take part during the summer of 1949. Members wishing to make an exchange, either for themselves or for their children, are invited to communicate with the Secretary, giving relevant details. The Association cannot, of course, give any recommendation about the suitability of addresses obtained under this scheme, and the final decision to make an exchange must obviously rest with the doctors concerned.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar  
*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portlaid, Redditch (restricted to new appointments), Tyldesley

## Correspondence

### Compensation for Loss of Goodwill

SIR—I was interested in Dr T T Hardy's letter in regard to this subject (Aug 14, p 87), and think that it would only be just if ex-Service practitioners were allowed to claim as their basis of compensation the average of the last three financial years before their period of service plus a betterment factor.

As in Dr Hardy's case, I returned to a single-handed private practice, which had to be rebuilt from the ground. The loss of income during the war years and the need for building up one's practice were accepted as a war sacrifice. However, if we are to receive also a reduced sum in compensation as a result, in addition to our accepted loss, it will leave a very great feeling of dissatisfaction among ex-Service doctors. Nor will it help in the recruitment of young medical officers into the reconstituted Territorial Army if they feel their interests are likely to be ignored in a similar way.

The note from the Secretary of the B M A is not a sufficient explanation. Our case should not be judged by a committee, like claimants for outdoor relief. It should be granted to us as a right that the basis of our compensation should be taken as the average of the three financial years just before service plus a betterment factor. This was thought to be the basis throughout the time of discussions.

If this anomaly is not corrected, then we ex-Service general practitioners will feel that our negotiators have let us down. I feel that if both the Minister of Health and the Minister for War were aware of the facts the necessary amendments to the regulations would speedily be made—I am, etc.,

Newcastle upon Tyne 2

H B PORTEOUS

\*\* A statement by the Ministry of Health on this subject was published in the *Supplement* last week (p 89)—ED B M J

### Pharmaceutical Services for All

SIR—Here is a problem. Mrs A does not wish to leave Dr B, who has attended her for very many years. Dr B does not wish to join the NHS, but prefers to retain his freedom. Under the Act Mrs A is still entitled to hospital services, but as Dr B has not the NHS prescription forms she is unable to obtain the chemist's services for which she is taxed. Again, the old retired practitioner who can still prescribe for his wife is also denied the prescription forms for his own use. The only remedy for these difficulties is for the prescription forms to be available to *all* registered practitioners.

Perhaps these, together with all the other important details of administration, will be borne in mind by the Negotiating Committee—I am, etc.,

London NW 3

LEWIS G GLOVER

### Reflections on Superannuation

SIR—I was interested to read the remarks of the Secretary of the British Medical Association in reply to my letter (Aug 7, p 79). I appreciate that the difference between the percentage rates of superannuation between general practitioners and local government medical officers is somewhat counteracted by the differing periods of remuneration on which the percentage is calculated, but I still consider that the general practitioner has been treated favourably as compared with the majority of local government medical officers, my view being largely based upon certain conclusions to which I have come after a close examination of the tables provided in the Spens Report.

By a close analysis of the tables in the Report it appears that on 1939 incomes (augmented as suggested on p 12 of the Report) the average annual income during 40 years' G P service over that whole section of the profession was £1,232. In 40 years' contributory service, therefore, the total income of the average practitioner would have been £49,305 giving an average pension of £740. This may be compared with (1) the minimum pension of £770 receivable by a medical officer of health of a county council (population 600,000), or (2) a pension of £750 receivable by a deputy medical officer of health of a county borough (population 800,000), if that deputy had been paid 25% above the minimum scale for the last three years of his service.

But while these comparisons appear reasonable they are quite fallacious, how can one possibly compare the *average* pension payable to a general practitioner with the pension payable to the highest grades of medical officers of health? There are many qualified whole-time workers in the public health service who are not, nor cannot expect to become, medical officers of health of authorities as large as those quoted above, nor is the average medical officer of health, I imagine, receiving 25% above the minimum scale when he retires. It is for this reason that I still hold that the average general practitioner has received more favourable consideration than the average local government medical officer in respect of retiring pensions—I am, etc.,

Worthing Sussex

HAROLD LEESON

### Independence of Medicine

SIR—I have read the spate of dissatisfied letters in the *British Medical Journal* this week with interest. They are coming in even earlier than I expected. I can only urge the writers, and all others who come under the "lower than vermin" category, to signify their approval of Lord Horder's proposed organization. This is an organization to maintain the independence of Medicine. I will gladly post the necessary forms off to anyone interested. Lord Horder never wavered, like some of the ditherers on our Council, but was consistent throughout the controversy. His opinion of the Minister of Health and his purposes which should have been patent to anyone, is now being proved only too true a forecast—I am, etc.,

Hampstead

H V DEARIN

### Recruitment of Young Practitioners

SIR—I am at an entire loss to understand how the recent action of the Minister of Health, taken on the advice of the Medical Priority Committee, can have been so complacently accepted by the profession—with but one protest from Dr Nicolas Malleon (*Supplement* July 3, p 27). Surely there are still some other doctors who remember the value of their house appointments? Even during the war the Service medical departments insisted on a minimum of six months' postgraduate experience, which, with few exceptions, meant tenure of an "A" post and this was clearly regarded as the very minimum amount of postgraduate experience acceptable for a doctor in independent practice. At the end of an "A" post the young practitioner is beginning to acquire confidence in himself and in his own decisions, and a further six months in a "B2" post, at least, is essential as was recognized by the Goodenough Committee, to consolidate that confidence and to fit him for the responsibility of making decisions which cannot be rapidly "vetted" by his seniors, which he must be able to do as soon as he leaves the sheltered environment of a hospital, even in the Services. That extra six months does far more than double his postgraduate experience, and yet because of an arbitrary decision all those students who were unfortunate enough to qualify at the end of 1947 or beginning of 1948 are not to be allowed to take a "B2" post, and if they are so unfortunate as to be nearly 26 they are not even to be allowed to take an "A" post.

In his Parliamentary answer to Sir Ernest Graham Little reported in your issue of July 3 (p 55), the Minister said that he was fully aware of the implications of this decision. If this is so, it means that the implications have been explained to him by his professional advisers, yet surely such a decision could not have been taken in peacetime if his advisers had really given him an accurate picture of the value of the first year of postgraduate experience.

How has this shortage suddenly arisen? No reason is given yet there can have been no sudden decrease in the numbers of doctors qualifying—certainly a proportion of them will be ex-Servicemen not subject to further compulsory service, but the needs of the Services must also be diminishing. Why cannot at least a reasonable and factual explanation have been given for this decision? There will be no point in suggesting that further postgraduate experience can be obtained by these doctors when they have left the Services, because any recently demobilized doctor can tell how difficult it is to get a resident hospital appointment, even if he can afford to do so. More over there is no mention of any special compensatory arrangements which might have been made in order to make it easier for this group to get further experience on demobilization.

The present arrangements are to be reviewed towards the end of the year, and then, if there is no protest from the profession, and the demands of the Services remain the same and the scheme has proved administratively convenient, it may be retained. If, however, this "temporary" scheme is abolished, what will have been gained? One "six months' quota" of doctors will have been added to the Services, and will have had their whole future careers prejudiced, so important is the immediate postgraduate period.

Surely a more reasonable compromise could have been reached by altering the demands of the Services—e.g., as regards medical standards and the greater employment of women, as suggested by Dr Malleison—and, as this is "an expected deficiency," by stretching out the demobilization programme. A few months' extra service at the end of two years or more would certainly do less harm to a career than the missing of an opportunity of a "B2" post. I would certainly do an extra six months service in order to enable another doctor to take a "B2" post as I was able to do myself, and I feel sure that many others feel the same—I am, etc.,

SURGEON LIEUTENANT -

### Rural Practice

SIR—With reference to Dr T. Smallhorn's letter (Aug. 7, p. 78), the only machinery in the new NHS for levelling out the difference in remuneration between urban and rural practices is the mileage fund. In making final arrangements for the distribution of this fund the Minister of Health should be made to understand clearly that this fund will have to cover more than merely the cost of running a car. It must certainly include an allowance for telephone expenses and an adjustment of the time-distance factor.

As Dr Smallhorn points out, the rural practitioner may have to work very much harder with 3,000 patients on his list than the town doctor with 4,000. If the adjustments covered by the mileage fund are not sufficient, the remuneration, and later the pension, of the rural practitioner will be lower than that of the town doctor, and in consequence the standard of rural practice will deteriorate. It is of greatest importance to the new service that there should not be an actual or an apparent inferiority in being a rural practitioner.

The negotiators should see to it that the mileage fund is adequate to meet these added requirements. Also the unit value of the greater distances—say over 3-4 miles—should be stepped up. This would help to adjust the time-distance factor—I am, etc.,

Metheringham, Lincoln

E. WRIGHT

### Certification under the Health Service

SIR—I was hoping that under the new Health Service there would be an end to much ridiculous and unnecessary certification, especially as the Government appointed a committee by a surprising coincidence presided over by an old school-fellow of mine, to investigate the question.

Very frequently I have patients who come to me with fractures of arms or legs. I send them, with a note to hospital, where the casualty officer takes on the responsibility of their treatment, and more often or not the resident responsible does not communicate with me. The injured limb is encased in plaster-of-Paris and after attending the hospital two or three times—probably by ambulance, for which I am required by the patient to give a certificate each time he goes—he is told to come again in three or four weeks. During this period he usually expects a weekly certificate. On these certificates I am asked to state that I have examined the patient on the day of issuing the certificate. The patient may live several miles from the bus route. Visiting him may entail a journey for me of anything up to sixteen miles. Obviously if his limb is encased in plaster-of-Paris it is impossible for me "to examine" him in any ordinary meaning of the word, unless I remove the plaster case, which would be unnecessary and detrimental to his condition. It is also obviously unnecessary that I should examine him or issue certificates at such short intervals. When a man has a fracture or an abdominal operation it should be possible to issue certificates from the beginning at much longer intervals.

Some years ago I used to attend a man living in an isolated cottage at the top of a hill. Visiting him involved a journey of some miles and climbing up a very steep and often slippery path. The only reason he was incapable of work was that one of his lower limbs had been amputated. For many years I was required to visit him (at monthly intervals) in order to be able to state that I had examined him, and that he was still incapable of work, but as far as I could judge there was no likelihood of his lower limb growing again.

At one time, about fifteen years ago, in order to comply with the certification regulations, I was regularly visiting (at monthly intervals) some twelve to fifteen chronic patients whose physical condition was stable and did not require any treatment. Apparently the absurdities under the old N.H.I. Act are being perpetuated in the new Health Service.

On the new certificate book there is printed "The date of fitness to resume work must not be later than the third day after the date of the certificate. In any other case the doctor should see the insured person again before giving a Final Certificate." Why? In many cases this involves a totally unnecessary piece of work for the doctor and perhaps an unnecessary waste of time and expenditure on fares for the patient.

Still a further rule, wasting doctors' and patients' time with no benefit to either, is the necessity for making out a fresh prescription for every bottle of medicine. Probably more people come because of coughs than for any other complaint. Most people seem to manage to consume a pint of medicine before they recover from their cough. Some require rather more, some considerably less. If I prescribe, say, an 8-oz (227-ml) bottle the patient probably attends three times at my surgery. If I give pint bottles probably a great deal of medicine is wasted.

If we could stamp our prescriptions "To be repeated not more than three times" much time and medicine would be saved—I am, etc.,

Rainham Kent

W. U. DESMOND LONGFORD

### The Young Specialist

SIR—May I, as one involved in the matter, be permitted to sketch the purely practical history of a specialist as visualized by the Spens Report? He qualifies at the age of 25 (due to conscription). He then takes his first house job. What is his salary? The Spens Report does not even admit his existence and commences with the man already one year qualified (Grade 3). Presumably our embryo specialist will continue to receive £120 per annum "plus full residential emoluments."

At 26 years old his existence is recognized, *mirabile dictu*. He achieves Grade 3—salary £600 per annum non-resident. Two points now arise. (1) Is there such a job, and, if there is, how many? (2) If he continues as a resident, presumably he will lose £200 per annum for the "full residential emoluments." The lucky man is earning about £400—not much more than he earned in "the wicked past."

At 27 years old his salary is £700 per annum (Grade 2), less emoluments, leaving £500 less tax. What if our hero was sufficiently foolish as to have married and to have the temerity to want to start a family?

At 29 years old his salary is £900 per annum (Grade 1) gross. Presumably by now, somewhere in his life cycle, he has obtained a higher degree and has incurred the attendant expense of fees for the examination and special courses, and possibly unpaid time off for study. There is usually no financial aid. If he achieves this at 28, he is one year under the "allowed age." The Spens Report suggests 29 years as the youngest for Grade 1 status. This brings us then to the implication that age is the important factor. How like the Colonial Medical Service and the Army, and how wrong!

Let us compare our intrepid hero, who is now a "specialist" at 28-29 years of age and earning £900 per annum, with the man who entered general practice aged 26 years. By the Minister's own contention he should be earning £1,300 per annum at least. I am not concerned with the increased cost of living that is mentioned in the preamble of the Spens Report. We are all in the same boat here.

These sordid facts admittedly ignore the consolations of unlimited zeal. But they are worth discussing precisely because



the Spens Report was put forward as a practical remedy for a problem it clearly inferred—viz, that it is at present a practical impossibility to achieve consultant status without private means on merit alone. Gladly conceding that the Report represents some improvement on the present impasse in the matter, one can hardly describe it as an inviting proposition to "Ability without Means," even assuming an ideal system of appointments on merit.

No matter how much we love our work—and even the loudest grumbler would not change—there is no excuse for taking advantage of our moral senses and obligations. After all, doctoring is our method of providing for our families—I am, etc.,

London W 8

JOHN Z GARSON

### Free Bottles

SIR—Under the National Health Scheme bottles and containers are supplied free. The chemist is paid 2½d a bottle. Suppose the average number of bottles prescribed per doctor per day for six days a week is twenty, and if 30,000 doctors join the Service, then the annual cost is £1,950,000. The weekly reward to a doctor for his services per patient is only slightly more than the cost of an empty medicine bottle. Perhaps later on kind Mr Bevan might award us an addition to our pay equal to the cost of one more empty bottle a week?—I am, etc.,

Brasted Kent.

T A WESTON

### Remuneration of G P s for Hospital Work

SIR—Good luck to the Haywards Heath doctors, whose letter appeared in the *Supplement* of Aug 14 (p 84). Let them stress not the time factor merely but the quality of their work. Let them point out that the skill needed in the cottage hospitals of England, which cater for the minor maladies of our people, may be as great as that which emanates from Harley Street and often more useful. But the central problem of the moment is how to discover, encourage, and suitably reward this most exacting work of our profession—I am, etc.,

Buxted Sussex

W R E HARRISON

### SUPPLEMENTARY AND STANDARD PETROL

Most members already receive supplementary petrol allowances, but it is important that they should apply for the standard ration, which was reintroduced on June 1, since it will be deducted from their supplementary allocation in the next rationing period. To enable motorists in this position to save sufficient coupons from the current standard ration book to be used after Nov 30 in place of the deducted portion of the supplementary allowance, standard coupons will be valid for the following periods:

Coupons marked	Valid for use between
First month	June 1, 1948, and Nov 30, 1948
Second month	June 1, 1948, and Dec 31, 1948
Third month	June 1, 1948, and Jan 31, 1949
Fourth month	June 1, 1948, and Feb 28, 1949
Fifth month	June 1, 1948, and March 31, 1949
Sixth month	June 1, 1948, and April 30, 1949

From Dec 1 onwards no deduction for the standard ration will be made in arrears, and the following table shows the method to be followed by regional petroleum officers in the interim period in adjusting supplementary allocations. For the purpose of illustration it is assumed that the supplementary allocation is 6 gallons per month—i.e., 36 gallons for the 6 monthly rationing period. The effect of deductions for different periods of validity is indicated, the standard ration being taken as 3 gallons per month.

Start of Rationing Period	Previous Supplementary Allowance	Deduction for Standard		Supplementary Issue	Standard Ration Issued	Petrol Issued for the Current Period	From Previous Standard	Total Petrol Available
		In Arrear	In Advance					
Aug 1	36	6	18	12	18	30	+ 6	36
Sept 1	36	9	18	9	18	27	+ 9	36
Oct 1	36	12	18	6	18	24	+ 12	36
Nov 1	36	15	18	3	18	21	+ 15	36
Dec 1	36	Nil	18	18	18	36	+ Nil	36

## H M. Forces Appointments

### ROYAL ARMY MEDICAL CORPS

Majors E Bennett and S G Walker, retired and re employed, late R A M C, have been restored to the ranks of Lieutenant Colonel and Colonel, respectively, on ceasing to be re employed.

Major G M Robertshaw has retired receiving a gratuity and has been granted the honorary rank of Lieutenant Colonel. Captain (War Substantive Major) H O P McSheehy, M C, to be Major.

*Short Service Commissions*—Captain L H Pimm has retired on account of disability and has been granted the honorary rank of Captain. Captain D E Marmion, from T A, to be Captain. Captain W L Sanders from Emergency Commission to be Captain. Lieutenant A H B Rydon, from Emergency Commission, to be Lieutenant.

### REGULAR ARMY RESERVE OF OFFICERS

#### ROYAL ARMY MEDICAL CORPS

Majors C H G Penny and C J H Sharp, M C, having exceeded the age limit of liability to recall, have ceased to belong to the Reserve of Officers.

### TERRITORIAL ARMY

#### ROYAL ARMY MEDICAL CORPS

Captain (War Substantive Major) J M Lees to be Major. Captain K C Hutchin to be Major. Captain W J Atkinson to be acting Major. Lieutenant G E Parker, D S O, to be Captain, and has been granted the acting rank of Lieutenant-Colonel. Lieutenants G L Broderick, J H Orr, and J R McBoyle to be Captains. R T G Craig to be Lieutenant.

### ROYAL AIR FORCE

D W I Thomas to be Squadron Leader. Flight Lieutenant J K McCabe to be Squadron Leader. R A Armstrong to be Flight Lieutenant. To be Flying Officers (Temporary): D R Bowen, J S Conway, K E Cooper, F G Cumming, O W Davies, R L Edwards, G S Foster, A A Garven, M L Montagnon, W S Peart, R M McK Pratt, K J Robinson, R G H Salkeld, R H Satchell, J H Shore, B Taylor, C Taylor, A D Thom, E J Trimmer, D G Wells, and K F Wood.

### ROYAL AIR FORCE VOLUNTEER RESERVE

Squadron Leader D N Parfitt has resigned his commission. Flying Officer D V Cashman to be Flight Lieutenant.

### INDIAN MEDICAL SERVICE

Major General A H Harty C I E, has retired. Colonel Sir David Clyde C I E, has retired. Lieutenant Colonels A J D Souza, M C P D Chopra, K V Ramana Rao, and J Chandra, O B E, have retired, with the honorary rank of Colonel. Lieutenant-Colonels N J U Mather, J S Galvin, W D B Reid, R C Wite and M Taylor, O B E, have retired. Major (War Substantive Lieutenant Colonel) G S N Hughes, D S O, has retired with the honorary rank of Colonel. Majors A W Sampey, R R Prosser, T A Cunningham, D R Hanbury, F J O'Dowd, D S O, and G J H Maud have retired with the honorary rank of Lieutenant Colonel. Major L M Kelly, M B E, has retired. Captains (War Substantive Majors) D F Eastcott and P W Kent have retired and have been granted the honorary rank of Lieutenant Colonel. Captain G B Pigott has retired and has been granted the honorary rank of Major.

### COLONIAL MEDICAL SERVICE

The following appointments have been announced: A D J Farquharson, M R C S, Medical Officer, Nigeria; P F Jackson M B, Medical Officer, Uganda; W C D Lovett, M D, Medical Officer, British Somaliland; A S Moodie, M B, B Ch, Medical Officer, Hong Kong; J M Sword M B Ch B, Medical Officer, Nyasaland; F R Roberts L R C S L R F P S, Medical Officer, Gold Coast; M Sugar, M D F R C S, and D W A M Degazon F R C S, Medical Officers (Specialists), Jamaica; H H Waznah M B, Lady Medical Officer, Gold Coast; A Bearblock F R C S; W G Evans, M B, W E Holmes, M B D P H, D T M & H, and G H Lowe M B, D P H, Superscale Medical and Health Officers Grade B, Federation of Malaya; R H Bland O B E, M D, M R C P I, Senior Leprosy Officer, Nigeria; S W Cooper, F R C S, D T M & H, and J S McGregor, M D, M Sc, F R C S, D T M & H, Surgeon Specialists, Gold Coast; G E J Porter M R C S, Medical Officer, Gambia; C R C Rainsford M D, D T M, Senior Medical Officer, Uganda; B A S Russell, M D, F R C P, D T M & H, Physician Specialist, Gold Coast; E A Struthers, M B, D P H, D T M & H, Deputy Director of Medical Services, Federation of Malaya; N Kerr, M B, Medical Officer, Bahamas.

# BRITISH MEDICAL JOURNAL

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## ACCIDENT AND OPPORTUNISM IN MEDICAL RESEARCH\*

BY

Sir HENRY DALE, OM, GBE, FRCP, FRS

My title speaks of accident and opportunism, and it hardly requires to be said that the two must go together if accident is to have any value, if it, indeed, is to be anything but a hindrance to research of any kind. Perhaps it is one of the important qualifications for success in research that a man should know by the subconscious reasoning which we call instinctive judgment whether what appears to be an accident, a phenomenon presenting itself quite unexpectedly, is just a nuisance, the result of some trivial error, so that the further study of it will lead to nothing but waste of time and energy, or whether on the other hand it offers a possible clue to some new discovery of real importance which ought to be followed even at the cost, perhaps, of a diversion from the original objective. The same idea has often been expressed by saying that accidents fruitful in discovery happen only to those who deserve them—to those, we may say, in whom a natural aptitude has been reinforced by stored and ripened experience, so that a trained alertness, which does not distract the attention or weaken its concentration on the chosen objective, holds the mind ready to pounce on an unexpected opportunity. If we were called upon to construct a scale of values for the different kinds of scientific research we might feel bound to accord the highest rank to the kind of investigation which can be systematically planned in advance, such as one which sets out to interpret by mathematical analysis a set of astronomical or physical data, but accidents of the useful kind have sometimes been effective even in attracting and, as it were, refocusing the attention of some of the greatest of mathematical theorists. You will remember how Archimedes, the greatest mathematician of his own and one of the greatest, I suppose, of all ages, found the clue not only to the solution of the practical problem concerning the adulteration of the gold used for the king's crown but to one of the fundamental laws of hydrostatics in a sufficiently commonplace accident—the overflowing of his bath when he lowered his body into the water. Some nineteen centuries later the young Isaac Newton driven home to Woolsthorpe from Cambridge by the arrival here of the plague, had been directing his astonishing powers to an attempt to discover a cause for the orbital motion of the moon round the earth and of the planets round the sun. Remembering later those years when he was yet only 23 to 24 years old, he wrote of himself: "I was in the prime of my age for invention and minded mathematics and philosophy more than at any time since" and on that alert and receptive mind the sight of an apple falling from a tree in the Woolsthorpe garden acts like a trigger, and it comes to him in a flash that the

gravity which pulls the apple to earth is holding the moon in its orbit, and he plunges into the calculations which, when some 20 years later they were given to the world in the *Principia* were so completely to reshape men's ideas of the universe.

I could find other examples, if we required them, of the way in which theoretical and experimental investigators in the fields of pure physics and chemistry have on occasion been able to take advantage of accidental observations to make great new advances in their various special fields. Accident certainly played some part, though probably not so great a part as popular rumour has sometimes suggested, in those great discoveries a little over half a century ago of the x rays by Röntgen and of the radioactivity of uranium by Becquerel which together contributed so much to the launching of physics into its new era. Certainly they did not belong to the same class as the discoveries which most people were expecting to arise from the natural and straightforward development of the physical knowledge of the day. I have a very clear recollection of the interest which they aroused when the news of them first came to Cambridge in my second and third undergraduate years.

Röntgen's discovery of the x rays with their remarkable penetrating properties, enabling them to pass freely through flesh and to cast shadows of the bones on a fluorescent screen, was first made known here by reports in the daily press, and I well remember a friend of some seniority telling me that he had been at a dinner party at which this reported marvel had been the prevailing subject of conversation, of which the general tone was to ridicule it as a piece of journalistic nonsense, until the only member of the party whose knowledge and judgment gave him a real title to an opinion, J. J. Thomson, broke into the babble of sceptical merriment with a strongly expressed conviction that the report would prove to be true, so far from being nonsense, it was the kind of discovery which he would expect somebody to be making soon. And then in the following year, at a meeting of the undergraduates' Natural Science Club, my contemporary, R. J. Strutt (the late Lord Rayleigh), gave us an account of Becquerel's then new discovery that salts of uranium were continuously emitting a mysterious radiation to which a photographic plate was sensitive, and I well remember the sceptical protest of one of us who was later to become world-famous in theoretical physics and astronomy. "Why, Strutt," said he, "if this story of Becquerel's were true it would violate the law of the conservation of energy!" Such a reaction may well seem strange in these days, when the senior schoolboy can tell you about Einstein's theory of the convertibility of matter into energy and its realization in the atomic bomb. But it represented then a quite reasonable orthodoxy, and

\*Being the Popular Lecture delivered on July 2 at the Annual Meeting of the British Medical Association, Cambridge, 1948.

I like to remember the enterprising spirit of Strutt's rejoinder "Well, all I can say is, 'so much the worse for the law of the conservation of energy,' because I am quite sure that Becquerel is a trustworthy observer" And, of course, none of us had then any inkling of the enormous expansion of knowledge for which discoveries such as these were to provide the points of origin, or of the whole armoury of physical resources which would thus be brought to the service of medicine This is even now receiving a reinforcement of yet unmeasured magnitude from the forward leap which knowledge in nuclear physics has made in these recent years, and on the uses of which so much of the world's hopes and so much of its fears are now centred

### Medical Research

The mention of such applications to the service of medicine brings me at last to the subject of my paper—the part played by accident and opportunism in medical research, which is the field of scientific activity of which I can speak from some personal experience, and the one which we may regard as specially appropriate to this occasion Medical research as we know it to-day has spread its tentacles widely, and there is hardly any branch of experimental science now which may not find itself seized and pressed into the service, constrained to contribute from some angle, either directly or from a distance, to the scientific basis of modern medical knowledge and practice That, however, is a very recent development, modern medical research as an experimental science, or a varied group of experimental scientific disciplines, had not begun a hundred years ago, and was only just beginning to get really under way at the beginning of the present century Yet medical knowledge was making important advances at the end of the eighteenth and in the first half of the nineteenth century at the hands of the great physicians of those days, who used to the full the opportunities which they encountered by accident in their practice, enabling them to observe the regular recurrence of symptoms and conditions which others had passed unnoticed Thus the immunity from smallpox of those who had infected their hands with the cow-pox appears to have been a matter of common belief with the dairymaids and other country folk among whom Edward Jenner practised in Gloucestershire None of the other medical men of the neighbourhood, however, had observed the fact, much less recognized its significance, they even threatened, jestingly we may hope, to expel Jenner from their Convivio-Medical Club if he continued to bore them with such nonsense So he waited for many years, accumulating data as accident gave him opportunity, until at length in 1796 he followed the advice given long before by his friend John Hunter and tried the experiment, inoculating a boy with cow-pox and, when that had passed, proving him to be completely refractory to inoculation with smallpox Jenner, then, in the light of later developments may be regarded as having found already, long in advance of his time, the bridge between the method which waits for opportunities of observation to be provided by nature and encountered by accident and that which puts a possibility to deliberate test under the critical and controlled conditions of experiment And I propose now to bring to your special notice a few out of a large number of possible instances of the way in which the use of opportunity provided by accident has made contributions, some of them of the very highest importance, to the progress of medical knowledge by research even in its more recent and still flourishing experimental period

This revolutionary change in the methods of advancing medical knowledge began, as I have suggested, in the second half of the nineteenth century, and if anybody was asked to name the important factors of its beginning and its

promotion he could not fail to give to the work and the discoveries of Louis Pasteur, and to the whole science of bacteriology which grew out of them, a leading place among these factors Everybody knows that it is to the discoveries of Pasteur that we can trace the first clear recognition of living and self-multiplying micro-organisms, yeasts and bacteria, as responsible for the familiar processes of fermentation and putrefaction, and then for diseases transmitted by infection and contagion I do not think, however, that it is so generally known that accident—a whole series, indeed, of accidental and extraneous circumstances—played a very prominent part in engaging and focusing Pasteur's attention for the remainder of his life on studies which were widely divergent from the line of his original scientific interests and activities For Pasteur began his scientific career as a mineralogist and a crystallographer His first great discovery concerned the crystallography of the two isomeric forms of tartaric acid and revealed their true relation to racemic acid It was he who discovered that the two forms which in solution rotate the plane of polarized light in opposite directions have crystals with forms related to one another as that of an unsymmetrical object is related to its image in a mirror—a discovery as fundamental to organic chemistry as to crystallography, and one which might well, one thinks, have occupied the rest of his life in its direct development But a mould, a *Penicillium*, grew by accident on his solution containing both the forms of a tartrate, and Pasteur found that, as it grew, it selectively used and destroyed only the form producing right-handed rotation of the plane of a polarized beam, so that the left-rotating tartrate remained And then, with his mind thus rendered alert to the new idea of a selective fermentation as due to the action of living and multiplying organisms, Pasteur was given additional stimulus and opportunity in that direction by his appointment to a chair of chemistry at Lille, where practical problems of fermentation in the local distilling industry were waiting for his ripening genius to begin the great clarification And soon his success led to appeals to him to investigate the causes of the variable results encountered in the fermentative production of vinegar and in the brewing of beer, and he was summoned then to deal with the diseases of wine in his own native countryside, and in every case he was able to identify and to separate the micro-organisms responsible for the desired fermentation and to show the way to eliminate those which diverted it harmfully And then, of course, his success with the diseases of wine involved him in insistent pleas that he would direct his researches to the elimination of the infectious disease known as "pébrine" from silkworms And thus the train was laid for the great revolution in the pathology and eventually in the treatment of infectious diseases through the further work of Pasteur himself and his immediate pupils in Paris, of Koch in Germany, of Lister in this country, and of all the great host of their disciples and followers throughout the world, right down to the present day, who have caught and carried forward the flame first kindled from the interest of a man of genius in the crystallography of the tartaric acids and in the accidentally observed effect of a mould which grew on them

### Beginning of Endocrinology

As another leading factor in the great change which has come over the whole aspect of medical knowledge and research we should certainly mention the rise of experimental physiology and, later, of biochemistry And among the special fields of investigation in the general domain of these, which have had a specially direct influence on knowledge of diseases and their treatment, we might well mention those concerned with the hormones and the vitamins And here again, if we look at the beginnings of experimental

activity in both these fields, we shall find the exploitation of happy accident playing a part of real importance

The real beginning of scientific endocrinology, the study of the internal secretions or hormones, may be found, I suppose, in the brilliant use which great English physicians of the middle of the nineteenth century made of their opportunities, presented by accident, for accurate observations at the bedside and in the post-mortem room when Thomas Addison described the malady known by his name and recognized its regular association with destructive disease of the suprarenal gland, and when William Gull described myxoedema as a kind of adult cretinism and traced it to atrophy of the thyroid gland. But nobody in 1889 had any idea that the much commoner disease diabetes mellitus had any connexion with the defect of a gland or the lack of an internal secretion. In that year Professor von Mering, of Strasbourg, asked his assistant professor, Minkowski, to remove the pancreas from a dog by operation in order that they might study the absorption of fat from the intestine in the absence of that gland. So, purely by accident, it was discovered that the dog without a pancreas showed an abnormal hunger and thirst and passed large volumes of urine, which Minkowski found to be loaded with glucose. Naturally he turned aside to investigate the condition more closely, and point by point he found it to correspond with a severe diabetes mellitus as this had long been known in the human patients whom it afflicted. But more than thirty years were to pass before this discovery was made fully effective for medical practice by the determined enterprise of two young Canadians, Banting and Best, who, after many experienced investigators had failed, demonstrated the possibility of preparing the missing hormone, insulin, from the pancreas and therewith changed completely the prospect of the sufferer from diabetes. More than that, I think that it cannot be doubted that the stimulus due to Banting and Best's success was an important factor in the astonishing advance which research began at once and continues still to achieve over this whole field of knowledge of the endocrine glands and their hormones. Let me mention just one item. But a few years ago the disease known as pernicious anaemia, or sometimes as Addison's anaemia, was as completely beyond the reach of effective remedy as diabetes had earlier been, when a team of physicians in Boston (Mass.) discovered that a hormone could be prepared from the liver by the use of which the prospect of the sufferer from pernicious anaemia has been transformed as completely as that of the sufferer from diabetes by insulin. The senior member of that Boston team, Professor Minot, is himself a sufferer from diabetes, and insulin had come just in time to save him from a premature death and to fit him to take a leading part in the discovery which is now saving others from pernicious anaemia. Is it fanciful, then, to find in Minkowski's enlightened use of the opportunity which accident offered him in 1889 the real starting-point for work which has now led to the effective treatment of more than one disease regarded till a few years ago as beyond any hope of remedy?

#### Nutrition and Biochemistry

There has been a good deal of discussion, in an entirely friendly spirit, concerning the real starting point of the researches which led to the recognition of the vitamins and thus to the specific and effective treatment or prevention of a number of other formerly mysterious diseases now known to be due to the lack of one or another of these trace-constituents of a normal diet. There is one accidental observation used to remarkable purpose by the late Sir Frederick Gowland Hopkins which must, I think, be regarded as the first link in a chain of discoveries by which that great investigator was led to his first recognition

of the factors which we have come to call the vitamins. One student in Hopkins's early advanced class at Cambridge, the late John Mellanby, who was long afterwards the distinguished occupant of the Oxford Chair of Physiology in succession to Sherrington, was curiously unable to obtain the colour reaction for proteins which a certain Adamkiewicz had described, and Hopkins himself found that with the particular bottle of acetic acid on Mellanby's shelf it was indeed unobtainable, though that from all the other bottles in the laboratory gave it readily. He did not put the matter aside as one of those queer anomalies and content himself with telling Mellanby to borrow the reagent from his neighbour, he recognized, with his remarkable instinct, that here was something of potential importance, and with the assistance of another member of the class, S. W. Cole, he immediately began the investigation which led them to the discovery that the reaction was due to glyoxylic acid, which almost all specimens of acetic acid contain as an impurity. Then, with a more effective reagent, they were able to isolate the constituent of proteins giving this and another well-known colour reaction and to identify it as a new amino-acid, tryptophane. And then Hopkins undertook experiments to determine the degree to which each of the different amino-acids which had then been identified, tryptophane among them, was a necessary constituent of a diet for maintenance and growth, and thus he was led further to the discovery that young rats could not grow, or even maintain their weight on food made up from all the known constituents of a complete diet in abundance if these had been elaborately purified. So it was made clear that there were unknown factors of a normal diet, minute in quantity but essential to make the food adequate in quality for normal nutrition, and biochemistry was launched upon what soon became a world-wide expedition of research, still in progress, in pursuit of the vitamins.

Many of you, I think, will have heard of "Ringer's solution"—a watery solution of salts in carefully adjusted proportions with which the late Dr Sidney Ringer was able to maintain the heart removed from the body of a dead frog in vigorously beating activity for hours. Ringer was a physician to University College Hospital, and, in such time as he could spare from his practice, one of the pioneers of pharmacological research in this country. In his early experiments he had found that a solution containing only pure sodium chloride, common salt, in the proportion in which it is present in the serum of frog's blood would keep the beat of the heart in action only for a short time, after which it weakened and soon stopped. And then suddenly the picture changed: apparently the same pure salt solution would now maintain the heart in vigorous activity for many hours. Ringer was puzzled, and thought for a time that the difference must be due to a change in the behaviour of the frog's heart with the season of the year—until he discovered what had really happened. Being busy with other duties, he had trusted the preparation of his solutions to his laboratory boy, one Fielder, and as Fielder himself whom I knew as an ageing man, explained to me, he didn't see the point of spending all that time distilling water for Dr Ringer, who wouldn't notice any difference if the salt solution was made up with water straight out of the tap. But, as we have seen, Ringer did notice the difference, and when he discovered what had happened he did not merely become angry and insist on having distilled water for his saline solution, he took full advantage of the opportunity which accident had thus offered him and soon discovered that water from the tap supplied then to North London by the New River Company, contained just the right small proportion of calcium ions to make a physiologically balanced solution with his pure sodium chloride, and when, guided by

further analysis, he had also added the correct small proportion of a potassium salt, Ringer's solution was complete, and with the later modifications which Locke, Tyrode and others introduced to make it suitable for the tissues of other animals it has become an essential reagent for everyday use in an immense range of medical and biological research procedures

### Adrenaline and Acetylcholine

Some fifteen years later another observation, also of far-reaching effect on the progress of physiology, was made in the same laboratory at University College in circumstances which, if not entirely accidental, had at least something of that character. Dr George Oliver, a physician of Harrogate, employed his winter leisure in experiments on his family, using apparatus of his own devising for clinical measurements. In one such experiment he was applying an instrument for measuring the thickness of the radial artery, and, having given his young son, who deserves a special memorial, an injection of an extract of the suprarenal gland, prepared from material supplied by the local butcher, Oliver thought that he detected a contraction or, according to some who have transmitted the story, an expansion of the radial artery. Whichever it was, he went up to London to tell Professor Schafer what he thought he had observed, and found him engaged in an experiment in which the blood pressure of a dog was being recorded, found him, not unnaturally, incredulous about Oliver's story and very impatient at the interruption. But Oliver was in no hurry, and urged only that a dose of his suprarenal extract, which he produced from his pocket, should be injected into a vein when Schafer's own experiment was finished. And so, just to convince Oliver that it was all nonsense, Schafer gave the injection, and then stood amazed to see the mercury mounting in the arterial manometer till the recording float was lifted almost out of the distal limb.

Thus the extremely active substance formed in one part of the suprarenal gland, and known as adrenaline, was discovered. And in due course there came to light the curious correspondence between the effects produced by this potent substance and those produced by nerves of the so-called sympathetic system, and Professor T. R. Elliott, then a postgraduate research student in Cambridge, was led to make the brilliant suggestion that these sympathetic nerves produce their effects by liberating small quantities of adrenaline at the points where they end in contact with muscle fibres and gland cells. Some ten years later it came to my notice by sheer accident that a particular extract of the drug known as ergot of rye exhibited a curious and very potent type of activity. With the co-operation of my chemical colleague at the time, Dr Ewins, the substance responsible was isolated from the ergot extract and identified as the acetic-ester of the base choline, acetylcholine. And when the actions of this came to be examined in detail they showed as suggestive a correspondence to the effects of other nerves as those of adrenaline had shown to the effects of the sympathetic nerves in particular. At that time there was no reason at all to believe that acetylcholine was a natural constituent of the animal and human body, but my late colleague, Dr Dudley, and I found it there some 15 years later, again by accident, when we were looking for something else. And meanwhile my friend of many years, Professor Otto Loewi, then of Graz but now in New York, by experiments of a most elegant simplicity had directly demonstrated, in confirmation of Elliott's much earlier suggestion, that impulses passing down the fibres of different nerves to the frog's heart do in fact produce their effects by liberating at the junctions of the nerve with the muscle fibres one or the other of two substances, and these two

substances were found to be identical with adrenaline and acetylcholine in all the properties for which they could be tested. And further developments, in which I have again taken a part, entitle me to believe that even at this moment impulses passing down nerve fibres are liberating tiny charges of acetylcholine where these fibres end in the muscles of my tongue, my lips, my larynx, and my diaphragm and are throwing these into the complicated and varying patterns of speech, which, I hope, contrives none the less to be reasonably articulate.

### Histamine and Penicillin

The intimacy of direct experience may to some extent justify this mention of incidents involving my own activities alongside the examples of the far-reaching importance of the part which accident may play in medical research which I have cited earlier. If further excuse is needed, I may plead that the function of acetylcholine as a transmitter of nervous effects figured prominently in a discussion meeting held here yesterday in one of the scientific sections of the British Medical Association. There is even something of the nature of an accident in the fact that this morning another of the sections had a discussion on a novel group of remedies called "Antihistamine substances", for histamine is another base which came to my notice by accident, some 40 years ago, as accounting for the special activity of another kind of extract from the same curious drug, ergot of rye. When histamine had thus been isolated and identified by my late colleague, Professor George Barger, it proved to have an action reproducing most of the symptoms characteristic of an "anaphylactic" or "allergic" reaction—a type of reaction which will be familiar to most of you in the special forms of hay-fever, nettle-rash, and some forms of asthma. Then I had another stroke of luck. I was studying a rather weak activity of a similar kind which fresh blood serum exhibited when it was applied to strips of involuntary muscle taken from a dead guinea-pig, and I suddenly encountered a strip of this tissue from one particular guinea-pig which responded with a contraction of peculiar violence when it was treated with a mere trace of horse serum, though it behaved quite normally in the presence of blood serum from other animals—cat, dog, rabbit, sheep, or man. And it occurred to me that many guinea-pigs in that laboratory were used for testing the strength of antitoxic horse serum, and that an economically minded colleague might have provided me with a survivor from such a test. The verification of that suspicion gave us a new idea about the meaning of the anaphylactic or allergic condition, but it took many years more, and a great deal of work in many laboratories in different countries before we were able to establish the fact that histamine is a natural constituent of most cells of the living body which is normally held harmless and inactive in their interior but is released, so as to produce its characteristic effects if the living cells come into contact with some substance from a plant or animal—grass pollen, scurf from a skin, and so forth—to which they have become abnormally sensitive or allergic. And now, here in Cambridge, only this morning we have been discussing the action of "antihistamines"—substances for which it is claimed that they relieve the symptoms by preventing the action of histamine when this is set free by the effect on allergic cells of the substances for which they have acquired a specific sensitiveness.

There is one more example which I must mention, even if only because it will certainly, and most properly, be already in the minds of many of you—the discovery of penicillin. The contamination of a bacterial culture growing upon a plate of solid nutritive medium by the spore of a mould falling on it while the cover is removed for examination must be a frequent and usually no more than a mildly



annoying incident of bacteriological practice. It was the chance coincidence of three conditions which made its occurrence on a particular plate in 1929 the starting point of a discovery of first-rate importance. (1) The contaminating spore was that of one particular mould species, *Penicillium notatum*, (2) the culture on the plate was that of a staphylococcus, susceptible to the restraining effect of an antibacterial agent which this mould produced, and (3), most important of all, the worker concerned was Professor Alexander Fleming, with the eye of a medical naturalist, alert to detect the unusual phenomenon of a kind of halo round the spot where the mould colony grew, free from colonies of the staphylococcus which grew abundantly over the rest of the plate. Sir Alexander Fleming, as you know, picked off the mould colony and cultivated it in a broth, and found that the broth contained an antibacterial agent which he named penicillin. Then, as happened with Minkowski and the pancreatic hormone, neither Fleming nor anyone else for some years could hold out any hope of the chemical isolation or even of a substantial purification of penicillin, to say nothing of its eventual production in a form and in a quantity enabling its therapeutic possibilities to be critically tested. Such a possibility had in fact been practically written off the account and almost forgotten until, like Banting and Best with insulin, Sir Howard Florey and his chemical collaborators took it up with determined energy and with brilliant and resourceful enterprise, and now the research chemists and the organized therapeutic industry of half the world have combined to exploit and develop this gift of an alert opportunism and to make it a practical reality for human need. And the chemists have isolated several penicillins, determined their constitutions, and even made one of them by synthesis. And this success has had value not merely for its own sake, it has opened up a most hopeful vista of other and perhaps equally important discoveries in the same field, streptomycin, chloromycetin, and others yet to come.

Of course there are plenty of other instances to be found of opportunity coming to an attentive worker in research through what we have to regard as chance or accident, and, apart from the many which could be collected, there must be innumerable cases which will never be recognized because no record of them has been preserved. I hope, however, that my choice of a subject and citation of examples will not bring me under the suspicion of suggesting that accident is the principal factor of success in research of any kind, or of medical research in particular. Accidents of the kind which we have been discussing do not, in fact happen to the merely fanciful speculator who waits on chance to provide him with inspiration. They come rather to him who, while continuously busy with the work of research, does not close his attention from matters outside this principal aim and immediate objective but keeps it alert to what unexpected observation may have to offer. I certainly do not believe that any research work of permanent value is done, or any discovery of importance soundly established without a great deal of hard systematic, and conscientious work.

Then I should not like to be misunderstood as suggesting that mankind would have been left in permanent ignorance of any of the items of scientific knowledge great and small which I have cited through default of the accidents which were in fact associated with their discovery. If Archimedes' bath had failed to overflow or the falling apple to catch Newton's attention the principles which they gave to the world would not have remained hidden for ever and probably not for long. We know in fact that Hooke, Wren and Halley were actually competing in speculation about an inverse-square law of gravity and the moon's orbit without being able to calculate the relation,

and that it was the news, indeed, of such an approach to its independent discovery which acted as a stimulus to Newton, leading him to publish at last what he had known in principle and worked upon intermittently for over 20 years. We cannot be so certain in other cases but it does not seem likely that the effects of removing the pancreas, or of injecting a suprarenal extract into a vein, would have remained very long unknown even if von Mering had not called on Minkowski to perform the one for another purpose, or if Oliver had not goaded a reluctant and sceptical Schafer into trying the other. Incidents of the kind which I have described may greatly advance the date of a discovery or may associate it with the name of a particular investigator, but I do not believe that they will ever produce discoveries which would not eventually be made without them. They may provide, however, touches of high-light in the varied landscape of science, of decoration to its solid building, or of light relief to the more serious drama of its normal and logical advancement. And if they have thus lent something of life and colour and everyday interest to an hour of talk about medical research they have helped me to achieve a large part of my intention.

## THE PROBLEMS OF CLINICAL RESEARCH

BY

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First-class clinical research has been and is being done by men busily engaged in practice. For examples in my own generation I think of J. W. Brown's work on congenital heart disease, Cookson on thyrotoxicosis, or Sheldon on haemochromatosis. In a delightful article called "Clinical Research with a Notebook" Alvarez (1946) has illustrated the good research work done by what he calls small-town doctors. The man in practice has the best opportunity of carrying out clinical research in depth, the intimate and prolonged study of people to learn what happens to individuals with certain constitutions or chronic diseases. If in the rest of this article I refer to clinical research by whole-time workers in hospitals or institutes it is not that I forget these facts but rather that I am addressing myself to those who wish to make clinical research their career or major interest and to those who should provide the facilities for them. I must ask to be excused, likewise, for quoting examples from the work of my own department.

Simon Flexner (1939) said that one of the essentials for successful clinical research was the power of the researcher to command his time for the patients, from whom the research problems are derived, and for the laboratory, in which those problems are investigated. No man in a busy practice can command his time, and for this reason great men like Richard Bright have found it impossible to continue clinical research when they have made a name in practice. The young man who wishes to engage in clinical research in this country should usually work whole-time in a hospital or a research institute. The opportunities for this type of employment have been greatly enlarged by the increased funds which are now at the disposal of the University Grants Committee and the Medical Research Council. Nevertheless, whereas medical practice may be regarded as a stairway, in which the opportunities do not diminish as a man advances in years, the academic and research



career will always be like a pyramid, with more room at the bottom than at the top

### A Recurrent Suggestion

Running through discussions on the new health service like a strand in a rope there is the recurrent suggestion that improved organization of medical care and the formation of regional boards will lead to better facilities for clinical research. One hopes this will be true, but there are reasons for not being too sanguine. There is an immediate danger that senior clinical research workers will be overwhelmed with administration and that juniors will be tempted away by the high salaries of young consultants. There will be obvious gains if notes are better codified and if we can register sickness as exactly as we can register the number of people in the country, their births, marriages, and deaths. The burden of filling in forms is so heavy, however, that I hope our statisticians will not try to do too much at once. A vast amount of time and labour can easily be spent on records, and research of this kind needs to be carefully planned and costed if it is to yield an adequate return. Democracy begins at the grass roots, and more willing co-operation will probably be obtained if the regions are given specific tasks, as in the notification of jaundice in Region IV during the war. This, however, is social medicine rather than clinical research in the ordinary sense.

There is likely to be increased concentration of cases in special centres, like the centres for head injuries, chest diseases, and gastric complaints which were started under the EMS in the war. On a short-term basis this undoubtedly leads to technical advances, particularly when physicians and surgeons work together on common problems, but it is like farming for cash crops and the output soon seems to dwindle. Moreover, the advances are almost entirely technological and self-limited, unless the centres are designed as research units, as Colebrook's burns unit and some of the malaria research units were. Pupils of mine who have worked in units which were primarily designed for research on a single disease have nevertheless spoken of their anxiety to get back to general medicine after a time to refresh their minds. Special clinics for asthma, rheumatism, and anaemia tend to develop a routine and research fades into the background. Just as the best farming is mixed farming, so the best clinical research is likely to be done in general hospitals, particularly those which are so fortunate as to be associated with university scientific departments. The chief stimulus to clinical research in the new health service will probably be the creation of more full-time specialists. Much has been done by such men under the old regime, as, for example, Avery Jones on gastro-duodenal ulceration, Banks on cerebrospinal fever, and Anderson and his colleagues on pneumonia.

How clinical research units or institutes should best be organized is still not settled. In university departments research must usually be combined with teaching. I have been convinced by my own experience, and that of other clinical researchers and whole-time teachers in this country and America, that it is not possible to research or teach on other people's patients and that whole-time academic workers and part-time consultants do not mix. I know that the rational answer is that the practising clinicians should "feed" the academicians, but owing to the loyalties and antagonisms which develop among groups of human beings this rational solution does not work. Whole-time and part-time clinicians are much better friends if they work in separate compartments. The clinical research workers must control their own group of patients. It is this necessity to

combine research with the treatment of patients which differentiates clinical research from all other forms of medical research and poses problems to which there are as yet no generally accepted answers.

### Size of the Research Unit

The first problem is how large a clinical research unit should be. Sir Thomas Lewis believed that the number of beds in a university department of medicine should be small—20 or 30. I worked for eight years with a department having only 21 beds, and I am sure Lewis was wrong. Lewis's own small research unit was superimposed on a much larger whole-time general medical unit, with which he worked in a particularly happy association. The total number of beds was in fact over 50. Lewis talked vaguely about a pool, but whereas one can pool ships and merchant seamen in wartime (even then there are complaints) one cannot shuttle patients about in this way. Our fellow countrymen are sensible of the needs of clinical teaching and research, but they will not tolerate the conception of patients as clinical material which can be moved hither and thither at our convenience. The physician who is in practice acquires obligations to his patients and their general practitioners which make it hardly possible for him to hand them over to the care of another. Yet without complete control clinical research may be frustrated. On the other hand, the conclusion of any research project such as the study of special diets in hepatitis or the treatment of rheumatoid arthritis by the induction of jaundice leaves a responsibility for a large number of chronically ill patients which cannot be summarily abrogated. Just as the practising physician cannot hand over cases for research without qualms, so the clinical research worker cannot expect his colleagues to look after patients he has tired of. Finally, senior clinical research assistants must have the opportunity at times of exercising major clinical responsibility. If they do not, they will move at an early age to another post. Constant changes of staff on this account crippled the research of the London University professorial units in the inter-war years. In the language of the cinema, the professor was degraded from director to continuity girl. All this means that the unit must contain four or five times as many beds as are theoretically necessary for research.

Latterly I have been working with a total of 45 beds in two units, unfortunately geographically separate, of 21 and 24 beds respectively. The smaller unit has been used for acute illnesses, complicated cases, and clinical research. The larger unit has been used for routine work, for cases requiring protracted treatment, and for neurology. There has been little undergraduate teaching. These 45 beds, with their associated out-patient and follow-up clinics, have provided the background for a staff of six senior colleagues and a further six juniors of registrar status. With such a staff it is possible for all members of the department to have short periods of concentrated clinical work and longer periods when they have adequate leisure for research. No one is ever responsible for the supervision of more than 21 beds but this is quite enough for one man to look after when investigation and research are being carried out at high pressure. We have plans for a unified department of 64 beds, and I believe that a unit of 50 to 100 beds, subdivided on functional lines and with a staff large enough to allow of alternation between research and routine clinical work, should provide the best solution of this difficult problem (Gardner and Witts, 1946).

The great danger in a unit of this size is the tendency to fritter. The world of medicine is so full of interesting and distracting things that we are tempted to diffuse our energies

over all of them instead of concentrating on one problem. It is this tendency which has made the words "clinical research" and "clinical pathology" an offence in the nostrils of the preclinicians, who regard us as expensive butterflies rather than worker bees. This is at bottom a difference of philosophies. One school teaches that every patient must be regarded as nature's experiment from which something new can be learned. All mysterious and bizarre cases, particularly if they affect the bones or the endocrines, are inevitably classified as professorial cases. The other school teaches that the clinical researcher must at all costs narrow his field of vision and draw an absolute distinction between research and the routine practice of medicine. I am sure that this is right. Once we give way to the temptation of following every interesting problem that presents itself at the bedside we shall be like the centipede counting its legs. In the ward one must constantly put a blind eye to the telescope. I am adamant on the rule that you can't research on all the diseases all the time.

### Training

The next question is that of training. The key word in clinical research is *clinical*. The clinical scientist must be a properly trained clinician or no hospital committee will give him charge of beds. Nothing is more disastrous than for a man to take up clinical research and find himself in the thirties without a proper label, recognized neither as clinician nor as scientist. In the United Kingdom the clinical label is the M.R.C.P., preferably taken three years after qualification, after say two years in house appointments and a year working for the M.D. From the beginning, therefore, the clinical researcher is handicapped in comparison with the researcher in the basic sciences, who can begin a research career immediately after qualification. But a clinical training will not make a man a researcher—in fact, in some ways it unfits him by encouraging a superficial, know-all attitude. A man cannot get far in clinical research to day without some special knowledge of experimental pathology or chemistry or physics or statistics. He must have another string to his bow. There is little doubt that at this stage of his career a man should spend a year in a non-clinical department, not merely to refresh his basic knowledge but even more to learn how problems can be isolated and how knowledge can be advanced by patient work and by learning to take one step after another. Technical equipment can be picked up by the way. What cannot be picked up is faith in the scientific method, in the value of experiment in the ability to master technical procedures, in the necessity to concentrate on one purpose. All this is so different from the atmosphere of a busy ward where many tasks must be carried out simultaneously and where judgments must be made and acted on immediately that it is hard for a man to acquire a real faith in the scientific method without a period of isolation from patients.

Clinical research is inevitably a compromise between the desire to practise medicine and the desire to advance knowledge. As such it makes the clinical researcher suspect to the practising physician as well as to the pure scientist. With some of my colleagues it is an article of faith that a clinical scientist cannot be a good doctor. This is really a rather foolish controversy but it is the sort of thing that happens when practising clinicians who are individualists work alongside clinical research workers who should be team workers. I will merely turn the argument and say that the clinical scientist need have no false shame about asking for advice whereas I have known honorary physicians who would have cut off their right hands rather than sign a request for consultation from a more expert colleague. The practising clinician should be superior in

manual dexterity, though the clinical scientist can, if he wishes, concentrate on one technique or operation. The only charge which requires an answer is that the clinical scientist studies diseases while the practising clinician treats patients. If research should lead to neglect of the patient as an individual, then indeed the head of the department would be open to serious criticism. A genuine affection for patients is a prerequisite for a man in such a position.

### Technical Problems

The technical problems of clinical research at the present time are those of research in general and of clinical research in particular. They depend partly on specialization of knowledge and partly on the need for workers, equipment, and buildings on a lavish scale. Within the narrow field of haematology there are now particular groups which talk a language that is almost incomprehensible to other haematologists. The workers on the rhesus factor, on blood coagulation, and on the macrocytic anaemias have each developed a body of data and hypotheses which needs a man's whole attention to keep up with. It is difficult if not impossible to make further progress in these subjects without a special knowledge of genetics, physics, or chemistry.

Here we meet one of the logical problems which face the clinical research worker who by luck or good management gets in on the ground floor, as it were, at the beginning of some new advance. Good examples in recent years are the effects of vitamin K and dicoumarol on blood coagulation, and the rhesus factor. As soon as a new idea like this is out of the bag the laboratories of the world, particularly its western hemisphere, are after it like a pack of hounds. The pace of advance is breath-taking. Pretty soon our clinical scientist must decide whether he is going to dedicate his life to a single pursuit, as Price-Jones dedicated himself to the measurement of red cell diameters and Ponder to their lysis, or whether he is going to remain the unspecialized researcher. This is a difficult and an individual decision. My own view is that just as the key word in clinical research is *clinical* so the proper contribution of the clinical scientist is that of the *holist*. Once research gets down to fundamental problems of chemical structure or enzymology or radioactivity it is probably better handed over to people trained primarily in those subjects. At this level the clinical research worker may act as one member of a team, but he can rarely get far under his own power.

What is quite certain is that it is unwise for the man with a clinical training to start researching in a rapidly moving subject unless he really does get in on the ground floor. It is different, of course, if the entry to the subject is restricted by shortage of supplies, as in the case of penicillin and streptomycin, and he is one of the favoured ones who is asked for clinical trials. I have known a number of promising men who have had a good line of their own and yet have never been able to resist the fatal attraction of new discoveries and have fluttered off to them like moths to a candle. The usual result is a repetitive article in one of the journals, not infrequently there is a coldness on the part of the original discoverer, and sooner or later people, remembering his own particular subject, begin to ask, "I wonder why X never got on with so-and-so" he seemed to have the ball at his feet a few years ago."

### The Law of Diminishing Returns

It is difficult to see any end to research in the basic sciences, certainly the sky is no longer the limit. The field of clinical observation, however, is subject to the law of diminishing returns. The descriptions of the signs,

symptoms, and morbid anatomical appearances of disease made in the first fifty years of the nineteenth century were more numerous and striking than those which have been made in the twentieth. Apart from coronary thrombosis and subarachnoid haemorrhage, it is difficult to think of any important diseases which have been discovered with the unaided senses at the bedside and the necropsy table in our generation. It is still possible to paint fresh pictures of disease in the tropics and in industry, but so far as ordinary clinical work is concerned the methods of Bright and Addison have yielded their harvest and only a few ears like temporal arteritis and bronchial adenoma remain for the gleaners. The recent advance has come from the application of the techniques of microbiology, chemistry, and physics. As a general rule it is unwise for the whole-time clinical research worker to take up projects which demand personal supervision of large numbers of patients. That kind of work is much better done by the full-time specialist (Avery Jones, 1948). Just as the full-time specialist cannot afford to get too far away from the bedside, so the academic physician or clinical scientist cannot afford to be too long away from the laboratory.

For clinical research to be profitable it must follow the sequence of observation, hypothesis, experiment. Experiment may be carried out in man or animals. The difference between the clinical scientist and the experimental pathologist in the use of animal experiment is hard to define, but it is nevertheless real. It depends on the fact that the clinical scientist is in close contact with patients and therefore tends to use animal experiment, and indeed all other scientific techniques, for the solution of immediate problems. Just as medicine is the mother of the sciences, so to-day those sciences are continually making fresh contributions to the support of medicine. There is a never-ending task in adapting new techniques and discoveries to the solution of clinical problems. The application of induced radioactivity and radar to the study of disease in man is the latest example of this process.

### Experiment in Man

As new drugs are discovered they require trial in man, and the same applies to techniques as diverse as the punch card and the electro-encephalogram. Pharmacological experiment in man has given us new substitutes for morphine and new treatments for insomnia, epilepsy, and migraine. Similar studies may well lead us to the control of other common mental ills such as anxiety and impotence, depression and brooding. There is much to be done in psychiatry, genetics, social and industrial medicine, and demography. Many forms of rheumatism, and some aspects of the allergic and the psychosomatic diseases, can at present be studied only in the human subject. Our lack of progress in the control of these diseases and of mental disorders in general nevertheless emphasizes the difficulty of studying disease in man without the aid of animal experiment. How easy it is to aver that mental ideas or states can be converted into physical disease processes as they can be converted into phobias or hysterical paralyses, but how difficult it is to prove it or to demonstrate the mechanism! This is certainly a field which no one but the clinical researcher can enter at the present moment. The reason work has not got much beyond the descriptive or speculative stage is because of its extraordinary difficulty. Nevertheless, the work of Selye on the alarm reaction, Wolff and Wolf on pain, Lewis on urticaria, and Macfarlane on fibrinolysis does suggest some methods of attack.

Deliberate experiment in man is a relatively recent development, and I should like to say something about the

ethical problem. I have had practical experience of therapeutic trials in pernicious anaemia, of exposure of human volunteers to TNT and to mepacrine, and of the induction of infective hepatitis in man. Each of these experiences has occasionally caused the most lively apprehension. There is no evidence that anyone died or became permanently ill as a result of the numerous successful transmutations of jaundice to human volunteers during the war, yet this method of approach has for all intents and purposes been abandoned. It is not just that the volunteer is sometimes an unstable person who may swing violently from co-operation to antagonism: the plain fact is that few researchers would willingly inoculate themselves with jaundice, and it is an absolute rule of clinical research that one should never do to others what one would not do to oneself. Once break this rule and one is on the slippery slope that led so many Nazis to the abyss. Moreover, it is a moot point whether a healthy citizen is within his legal rights in volunteering for a dangerous experiment, any more than he has a right to bequeath his body. Certainly, the complications as regards inquests and sickness and life insurance are formidable. For all these reasons dangerous experiments on healthy researchers or volunteers are rarely wise in peacetime.

Therapeutic trials and investigations on sick people are on a different footing, for every treatment is an experiment and every potent remedy is dangerous. Nevertheless, here also one must stick to the rule of doing as one would be done by. All of us know surgeons, physicians, and investigators who have got a reputation for ruthlessness. This was never a good thing, and it is probable that it will be anathema in the new health service and under the present egalitarian regime. Even such relatively safe procedures as the deliberate provocation of attacks of angina or epilepsy, or the study of the failing heart by catheterization and angiography, have come in for lively criticism. The only justification for experiments on patients is that the information cannot be obtained from animals and that it is likely to be of benefit to the patient and his fellow-sufferers.

Mackenzie and Lewis both held that the study of symptoms in man would be as profitable as the study of physical signs and post-mortem appearances in the nineteenth century. So far it has proved unproductive. Indeed, I believe that they did English clinical science something of a disservice, and that the great weakness of our clinical research, in surgery even more than in medicine, is its failure to turn instinctively to animal experiment. The work of Himsworth on hepatitis or of my own co-workers on macrocytic anaemia is the type of procedure we should encourage. The problem, a clinical problem, arises in the ward and it is studied under simplified conditions in the experimental animal. Perhaps at this point I should confess my opinion that clinical science is essentially an applied science and therefore clinical research should be practical. Too great a concentration on the human subject leads to work which may be elegant but which gives a poor return for the talent and effort devoted to it. Much of the work which has been done on renal function and on the peripheral circulation in man seems to me to come into this category. One feels *a priori* that this is not the right approach to the prevention and treatment of nephritis or vascular disease.

The happy warrior, of course, is the man who, like Adrian, is equally at home with human or animal experiment and who uses each for the purpose for which it is most appropriate. So let me make it clear that I am not trying to advise the clinical researcher to work on animals rather than men, but that I am emphasizing the importance of the experimental method. In the address I have previously quoted, which was given on the foundation of the Nuffield

Clinical Chairs in Oxford, Flexner said that the key to achievement lies in the laboratory. It is not merely that the laboratory contains instruments of precision and that work can be carried out on animals, but the laboratory implies experiment. Above all, laboratory experiment means that fixed times and days are consecrated to research, and there is not the same danger of allowing research to be swamped by routine or to be relegated to the evening hours when the real work of the day has been done, as so often happens in clinical research.

### Conclusion

The power to command one's time—that is the root of the matter. Unless clinical research is strongly buttressed by the laboratory and the experimental method it may be swept away and submerged by the oncoming tide of hospital organization. I am prepared to interpret the concept of the experimental method broadly, and I accept the view that there may be valuable psychological and sociological techniques which differ from the classical methods of experiment. All I wish to emphasize is the need of time and space for the pursuit of knowledge in the field of clinical medicine. The university clinical departments were diverted from research to teaching after the first world war, and there is a real risk that they may be diverted to regional organization after the second. If the new health service makes excessive demands on the universities for technical and administrative help clinical research will suffer. There are too many people in influential positions in this country who act as if they believe that clinical research is useful as an intelligence test to decide whether a man is energetic and clever enough to be appointed to a chair or the staff of a hospital, but that it should not engage his time thereafter. The fact that a single clinical scientist like Colebrook can do more for the relief of suffering in obstetrical and surgical emergencies than a hundred practising specialists or administrators makes little impression. What one misses in the United Kingdom, in contrast to the United States, is an abiding faith in clinical research as the most important business in which a hospital can be engaged. Until that belief becomes more widespread we may have an efficient apparatus for the treatment of disease by orthodox methods, but we shall never in the literal sense of the words have a health service.

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The Council of the Faculty of Ophthalmologists has reported that the Ophthalmic Subcommittee of the Negotiating Committee met representatives of the Ministry of Health on two occasions to consider the fees for the testing of sight under the Supplementary Service. As a result of these negotiations the Ministry agreed to the payment of £1 11s 6d per case, on the condition that the work would be carried out on premises and with equipment provided by the ophthalmic medical practitioner. The question of general-practitioner ophthalmologists caused some difficulty, and the fee was fixed on the understanding that not less than 95% of the work would be carried out by ophthalmologists of specialist status. The Ministry agreed that specialist status should include any doctor who held an ophthalmic diploma, even though he might be engaged in general practice. The remuneration of medical officers carrying out refractions in hospital has also been considered by the council, which has reiterated its opinion that the Supplementary Service should not be carried out in hospital, and has agreed that remuneration for refraction work in hospital should be on a sessional rate, based on the Spens Report. It has been decided to take the matter up with the Ministry of Health, together with various other points, including the establishment of the ophthalmic subcommittees of the regional boards, the position of the dispensing opticians in hospitals, and the employment of refracting opticians in hospitals.

## MEDICAL RESEARCH IN THE LABORATORY

BY

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In attempting to present a picture of medical research in the laboratory as it is understood to-day it is very difficult to define the limits of the field. There was a time not so very long ago when an institute for laboratory medical research could be considered reasonably complete if there were adequate representation within it of pharmacology, pathology, and bacteriology. Now, on the other hand, we are approaching, if indeed we have not already reached, a state of affairs in which any sort of scientific discipline may be called upon to contribute to the solution of a medical problem.

The trend of development may be illustrated by what has happened at the National Institute for Medical Research. The Medical Research Council has always taken the broadest view of the range of activities which should be embraced by medical research. Nevertheless, when the National Institute for Medical Research was opened in 1920, with the avowed intention that it should house the principal scientific activities of the Council, only three groups of experimental laboratories were set up: these were laboratories for physiology and pharmacology, pathology and bacteriology, and applied physiology.

It is true that from the first the scope of the activities included under these headings was very wide. Within the division of physiology and pharmacology, for instance, the work ranged from synthetic organic chemistry to pure physiology. Nevertheless, the picture was a very different one from that presented by the National Institute for Medical Research to-day, in which most branches of scientific work are represented and in which more and more importance is attached to those branches which at first sight have the least immediate contact with practical medicine.

The great developments which have taken place in the laboratory branches of medical research during the past thirty years, and which are reflected in the history of institutions such as the National Institute for Medical Research, are of course the result of development in branches of natural science other than those earlier recognized as being of direct importance to medicine, and of the growing realization of the closeness with which these other branches impinge upon medical and biological problems. It is within the period mentioned that biochemistry has emerged from its origin as a branch of physiology and has come to occupy its present status as an independent scientific discipline; it is also within this period, and particularly within the last few years of it, that the applications of various branches of physics to biological and medical research work have shown themselves to be of such outstanding importance.

It is notorious that the medical student often tends to doubt the importance and indeed the necessity for the instruction in the so-called basic sciences which he receives in the early part of his training. It remains difficult for the qualified medical man, unless he happens also to have been a serious student of some branch of science, to realize how closely dependent on scientific research work are the advances in practical medicine which are of immediate interest to him. It may therefore be worth while to reflect briefly on this question and to recall some examples of the way in which medicine is assisted by scientific work in the laboratory.

### Searching for New Chemotherapeutic Agents

Sometimes of course the application of science to medicine is so obvious and direct that it requires no emphasis or explanation. The production by an organic chemist of a useful new drug or of a new chemotherapeutic remedy is immediately recognized as a valuable contribution. But let it be remembered that the idea leading up to the synthesis of the new drug may well have been developed from the results of prolonged pharmacological research, and that this research in its turn was based on knowledge derived from experimental work in pure physiology. Let it be remembered also that advances in chemotherapy, at least in so far as synthetic compounds are concerned, depend on the progress of the science of organic chemistry itself. Moreover, although a new chemotherapeutic discovery may often seem to be a matter of luck, the process by which it has been arrived at is in all probability not so empirical as at first appears. Use is made more and more by chemists engaged in chemotherapeutic research of the great body of knowledge that has been built up in the past, and of the generalizations relating chemical constitution to biological and chemotherapeutic activity which emerge from this knowledge.

In this connexion we may go a step further and remind ourselves that biochemistry has also its contribution to make to chemotherapy and pharmacology. The conception of specific inhibition of biological reactions was first evolved and illustrated by Quastel and his co-workers by studies of the biochemical properties of simple enzyme systems. Applied by Woods and Fildes to the metabolic processes of micro-organisms, this idea has formed the basis of a reasonable theory of chemotherapeutic action. It offers a satisfactory explanation of the mode of action of the sulphonamides, and it points the way to a systematic method of searching for new chemotherapeutic agents. The full potentialities of the theory of specific inhibition have not yet been realized, there can be little doubt, however, that this biochemical discovery will prove to be one of the most important bases of further advance in chemotherapy and indeed in many other branches of medical research.

### Hormones, Vitamins, and Enzymes

In a similar way advances in endocrine therapy can be securely established only on a basis of biochemical investigation. Apart altogether from the obvious application of biochemical technique to the isolation of hormones in a state of purity, and the application of organic chemistry to the explanation of their chemical constitution and ultimately to their synthesis, theoretical biochemical considerations have led to many developments which would not otherwise have occurred. The discovery of the synthetic oestrogens, for example, which are of such therapeutic importance, had its origin in considerations of the relation of chemical structure to a certain type of biological action. The antithyroid drugs of the thiouracil type, which have revolutionized the medical treatment of hyperthyroidism, owe their discovery to the observation of a new type of goitrogenic action in experimental animals and to the skilful analysis of this observation on the basis of previously acquired physiological and biochemical knowledge.

Much the same considerations apply to work on vitamins. Whilst the existence of vitamins can be revealed and their general biological properties can be studied to a considerable extent by relatively simple methods, no real investigation of their mode of action in the body is possible until the pure substances are available, and they can only be made available by biochemical experiment. Moreover, the application of organic chemistry to the synthesis of vitamins, which has put them in the hands of physicians in large

amounts, has proved to be of therapeutic importance in several instances where intensive administration of a single vitamin has been found useful.

A further illustration of the direct importance to medical research of fundamental biochemical work is to be found in recent studies of isolated enzyme systems. These studies have revealed hitherto unknown biochemical reactions such as transmethylation, and in doing so have explained the real reason for the long-known fact that certain amino acids are essential, thus influencing dietetic theory and practice. They have produced much new knowledge of the chemical energetics of muscular contraction, on which must rest any satisfactory explanation of muscular fatigue. They are even approaching a demonstration of the interaction of hormones and enzymes which may lead not only to a great biological generalization but to much improved understanding of some types of metabolic disease.

In all these fields of biochemical work, therefore, investigations which are at first sight of purely academic interest prove not only to be essential to the proper and logical development of medical knowledge but are in reality quite closely connected with such development.

### Proteins and Viruses

To turn to quite a different subject, one of the major advances of recent years on the physical side of biochemistry has been the development of methods of study of the physical properties of proteins. Outstanding among these advances have been the application of the ultra-centrifuge of Svedberg to the determination of molecular size and molecular weight of proteins, and the use of the quantitative electrophoretic methods of Tiselius to define their electrochemical and other physical properties. Here again are two important pieces of scientific work which certainly do not appear to have much bearing on medicine. And yet it is largely on the information which has been gained by these techniques that the work of Cohn on the fractionation of blood proteins depends. The significance of this work for practical medicine needs no emphasis, one has only to think of its bearing on problems of blood transfusion and of the practical use that can be made of many of the separated proteins, such as the  $\gamma$ -globulin, which is a source of concentrated antibodies, and the fibrinogen, which, in the form of fibrin foam, provides a valuable haemostatic agent. Incidentally the very fact that the antibodies were to be looked for in a certain fraction of the serum globulins was discovered with the aid of the refined technique of electrophoresis.

The ultra-centrifuge has also found an important application in research work on viruses, its use has yielded valuable information in confirmation and extension of other physical methods, such as membrane filtration, concerning the size of different infective agents of this type.

Mention of viruses brings to mind another important development of physical technique—namely, the application of new optical methods and of the electron microscope to the study of microscopic and submicroscopic objects. Ultra-violet microscopy, which has been largely developed in direct connexion with medical research, offers a considerable extension to the range of the ordinary microscope, and recent research is making possible the use of ultra-violet microscopy for the examination of living material. Perhaps even more important for the study of living cells is the technique of phase contrast microscopy, which is now under active development, with its astonishing power of revealing fine structure. For the smallest objects of all we have the electron microscope with a resolving power of a different order from that of any optical method, the use of this instrument, employing the metal shadowing technique combined with special methods of preparation of the



material to be examined, such as supersonic dispersal, is indeed placing the morphology of viruses on a new plane

### Isotopes

The physical technique which is attracting most attention at the present time in respect of its applications to medical and biological research is of course the use of isotopes radioactive and stable, these isotopes form ideal indicators or tracers for following the course of biochemical reactions in the living body. In spite of the large amount of work on the subject which has been and is being published, the use of this technique in biology and medicine is really in its infancy. So far the tendency has been to use it for the obvious problems to which it gives an easy solution in the natural desire to reap as large a harvest of results as possible in the minimum time. Even so a considerable amount of valuable information has been acquired, there can be little doubt that, as the newness of the method wears off and more serious thought is given to its potentialities, it will be more and more employed, as it ought to be, for the solution of problems which can be attacked by no other method with any reasonable prospect of success.

### Other Branches

It may appear from what has been said so far that this article is heavily biased towards chemistry and physics, and that it is leading to the conclusion that all major advances in medical research in the laboratory are to be expected from the application of these two branches of science. Such a conclusion would of course be manifestly absurd, and no suggestion of the kind is intended. Great and important advances have also been made and continue to be made in the biological branches of laboratory research in medicine. We may think for instance of the development of the technique of tissue culture—a great discovery even if it has not yet yielded results of the importance that was first expected from it—and of new techniques such as the cultivation of viruses in developing eggs, which has been both of theoretical and practical importance.

Again, we may recall work in different branches of immunology, the prophylaxis of infective disease has been revolutionized by the laboratory research which led to the development of such immunizing agents as diphtheria and tetanus toxoids, the biological work which has been done in the laboratory on micro-organisms including viruses lies at the very root of problems of epidemiology, new knowledge of normal serological phenomena has been revealed, such as the existence of hitherto unrecognized blood groups, and in connexion particularly with the latter the importance of genetics in the natural history of disease has become more than ever manifest.

In pathology new knowledge has been obtained by experimental methods of the fundamental nature of the processes of inflammation as well as of the special pathology of many diseases. The scientific basis of pharmacology has been strengthened by the fundamental work which has been done on the mechanism of the transmission of nerve impulses. It would be possible to multiply instances of this kind, but it is surely unnecessary to say more in order to emphasize that the biological branches of medical research in the laboratory flourish and continue to play their full part.

Nevertheless there can be no doubt that the progress of biological work of all kinds is becoming more and more dependent on the techniques of chemistry and physics. Nor is it at all likely that this tendency, which is recognized by most biologists, will grow less. The experimental pathologist must not only have an understanding of the biochemical processes of normal tissues but he must be able himself to use, or to call in a collaborator to use, the appropriate biochemical technique to study the deviations

of these processes. The bacteriologist must be acquainted with the biochemical make-up and behaviour of the organisms which he studies. The virus research worker will not get far unless he has at his disposal all the modern physical and optical methods for the study of small objects. The immunologist needs the help of the protein chemist in the interpretation of his serological observations and in the practical application of his results to the production of useful therapeutic sera or prophylactic agents. The biochemist and the endocrinologist need the support, on the one hand, of the organic chemist for the purification and the synthesis of the compounds which are important to them and, on the other hand, of the physicist for techniques which will enable them to study the dynamics of processes as they actually occur in the living organism under normal and pathological conditions. In short no worker in any branch of laboratory medical research can now be independent. On the contrary, as the whole subject becomes more complex and as its ramifications increase he must increasingly lean on his colleagues in all the other branches.

### Some Pertinent Questions

If what has been said can be taken as giving a reasonable picture of medical research work in the laboratory as it is to-day, what are the implications? What are the probable developments? What opportunities does this type of work offer? Finally, what sort of men and women are needed to further its objects?

The first and fundamental point is that there is no place in a medical research laboratory for anyone who is not interested in scientific work for its own sake. It is true that the medical research worker cannot be as free from pre-occupation with the ultimate practical outcome of his efforts as can the worker in a university scientific laboratory, on the other hand, it is disastrous for him always to be thinking in terms of immediate applications. Once a general line of work has been selected the method of attack should be as free as possible, and there should be no hesitation in starting far back in what appears to be the chain of events leading to the phenomenon which requires explanation.

At the same time, while real interest in scientific work is the primary qualification for a medical research worker, there is very little limitation of the range of scientific activity within the field as a whole. Enough has already been said to make it clear that it is difficult to find a branch of scientific effort which cannot in some way contribute to the solution of medical problems.

This means that medical research offers the widest possible opportunities, and that these opportunities are open to medical and non-medical men alike. At the present time, for instance, the scientific staff of the National Institute for Medical Research is largely composed of men and women not qualified in medicine, and many non-medical workers are engaged in medical research in the universities. Ideally it would clearly be better for all medical research workers to have the background of a medical education. In practice this object cannot be achieved so long as it remains unusual for medically qualified men and women to devote sufficient time to the study of a scientific subject such as chemistry or physics to be able to carry out serious research work in it.

The system which has been adopted for this reason, and which has been shown by experience to work reasonably well, can remain satisfactory only so long as the chemists, physicists, and non-medical biologists who are engaged in medical research remain in close contact with medical men, and so long as they will use this contact to acquaint themselves with the important problems and to learn to understand and appreciate the mode of thought of their medical colleagues. It is at the same time most desirable for the



furtherance of medical research in the laboratory that more medical men should choose to devote themselves to this branch of their profession

It follows from what has been said that there is now little hope for success in medical research which is carried out in isolation. An almost essential condition is that such work should be done either in a university where good contacts are available with allied departments or in a research institute which is large enough to contain representatives of all the relevant branches of science. In this country this condition can now fortunately be fulfilled. The problems awaiting solution in the medical research laboratory are many and varied, and it is certain that no kind of work can bring greater intellectual satisfaction to those whose interest lies in science and who desire to help the advance of medicine

## THE STRUCTURE AND FUNCTIONS OF THE MEDICAL RESEARCH COUNCIL

BY

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This account of the Medical Research Council—the British Government organization for promoting medical research—has been prepared, by request, for the guidance of those undergraduate and postgraduate students in medicine and kindred subjects who may wish to consider a research career, or at least to undertake a period of research as an incident in the course of some other form of professional activity. Before discussing constitutional and administrative details it may be helpful to summarize the opportunities offered by the Council to the would-be research worker by indicating, first, the range of its interests and activities and, secondly, the forms of support to the individual worker which it is prepared to give in suitable cases.

In the first place it should be emphasized that, although research into the nature and causes of disease and into improved methods for its prevention, diagnosis, and treatment naturally forms an extremely important part of the Council's programme, that programme is of very much wider scope. It deals also with the fundamental sciences of medicine—physiology, biochemistry, biophysics, genetics, and the like, with problems of nutrition and of the maintenance of general human well-being, mental as well as physical, and with the normal and abnormal physiological and psychological reactions of the human being to his work and environment. It may deal, indeed, with almost any question involving the human factor.

The chief forms of support to individual workers provided by the Council are (1) permanent or temporary staff appointments, (2) temporary research grants to independent investigators, (3) travelling and research fellowships, and (4) studentships for training in research methods. Each of these will be discussed under the appropriate heading below.

### History and Constitution

The coming into force of the National Health Service Act, 1946, provides a not unsuitable occasion to review the history and constitution of the Medical Research Council, for the Council, as at present constituted, is the functional successor of the former Medical Research Committee, which was itself a child of the National Health Insurance Act of 1911. That Committee was appointed in 1913 under the National Health Insurance Joint Commission to administer funds provided for research into tubercu-

losis and other diseases affecting the insured population. It had scarcely had time to embark upon its programme, however, before the outbreak of the 1914–18 war caused it to divert most of its attention and resources to the study of problems of urgent military importance. Co-operating closely with the Army Medical Service, it was able to promote an active programme of studies on such diverse subjects as wound shock and wound infection, cerebrospinal fever, amoebic dysentery, and schistosomiasis, which gave many results of permanent value. That the activities of the present Medical Research Council during the second world war were even more varied and many times more extensive may be gathered from the Council's Report for the years 1939–45, which was reviewed in the *British Medical Journal* of May 15, 1948 (p. 942).

With the passage of the Act of 1919 which set up the Ministry of Health there was a fundamental change in the administrative arrangements for the promotion of British government-aided medical research, one of the provisions of the Act being to transfer responsibility for continuing the work of the Medical Research Committee to a specially appointed Committee of the Privy Council. In 1920, accordingly, the former Medical Research Committee was reconstituted as the Medical Research Council under the statutory authority of the new Committee of Privy Council for Medical Research, the Council was granted a Royal Charter of incorporation, and the funds for its work were thereafter provided direct by the Treasury in the form of a grant-in-aid approved yearly by Parliament—an arrangement which has persisted since. The Committee of Privy Council for Medical Research consists of the Lord President, as Chairman, and of the Ministers in charge of the principal State departments concerned with questions of public health in the United Kingdom and in the Empire overseas, the Minister of Health is its Vice-Chairman and the Secretary of the Medical Research Council is *ex officio* its Secretary. The Lord President is the Minister responsible to Parliament for the Council's work.

It will be realized from what has been said that the Medical Research Council, although a Government organization financed from public funds, is not constitutionally a Government department. In fact as will be shown later, it is a nearly autonomous body predominantly of scientists, which enjoys full discretionary liberty in discharging its duties within wide terms of reference, its sphere of action in promoting medical research being unrestricted by rigid territorial or departmental limitations of function. The Council naturally maintains close touch with the several Government departments among which responsibility for public health is divided, and an important part of its programme consists in investigations of problems referred by the Ministry of Health and other departments for advice. It is able to collaborate freely on subjects of common interest with its sister research organizations—the Department of Scientific and Industrial Research and the Agricultural Research Council, both likewise under the Privy Council with the Lord President as their Minister. The Medical Research Council is also able to have direct relations with organizations in other countries having interests similar to its own—for instance, with the Rockefeller Foundation of New York, which has given much help to the Council's programme in many different ways over a long period of years. In administering the public funds entrusted to it the Council is not merely an advisory body but has full executive control.

### Membership

There are nowadays twelve members of the Medical Research Council—three lay and nine scientific. They are appointed by the Committee of Privy Council for Medical

Research, and they retire in turn at regular intervals. Of those appointed for general rather than scientific qualifications one at least must be a member of the House of Lords and one a member of the House of Commons. The nine scientific members are chosen to represent different branches of curative and preventive medicine and the fundamental sciences on which these are based, they are appointed by the Privy Council Committee after consultation with the President of the Royal Society, as representing independent scientific opinion in the country, and with the existing Council.

Scientific members who have served for the normal period of four years are not eligible for immediate reappointment, but the aim is always to ensure that the Council's scientific membership comprises a body of distinguished experts with first-hand experience of research in clinical medicine and surgery and in the more important of the basic sciences, as well as in some of the specialties of medicine. The Council appoints its own Secretary and its other administrative and scientific staff. The present Secretary is Sir Edward Mellanby, G B E, K C B, F R S.

#### Advisory Committees

The fact that the individual scientific members serve for only a limited period helps to give the Council flexibility of outlook and provides a useful variation in the range of technical interests directly represented by its members. Nevertheless, it is clearly impossible for the nine scientific members at any given time to possess detailed comprehensive knowledge of all the increasingly complex and specialized branches of medicine and allied subjects. To counter this difficulty, and to advise it in promoting research in particular aspects of medical science, the Council is assisted by a large number of expert technical committees which it appoints for the purpose. The terms of reference of these different committees cover a very wide range of topics, some of them are standing committees which assist the Council in the promotion of long-term inquiries over an extensive field, others are appointed on a short-term basis to organize research on a single problem or group of problems and are discharged on the completion of that task. Examples of the former are the Accessory Food Factors Committee and the Chemotherapy Committee and of the latter the two committees set up in 1946 to direct clinical trials of streptomycin in tuberculous and non-tuberculous conditions, respectively.

Two standing committees of special interest at present are the Committee on the Medical and Biological Aspects of Nuclear Physics and the Colonial Medical Research Committee, the latter appointed jointly by the Council and the Colonial Office to direct work on nutritional and other questions affecting the well-being of colonial peoples, including, of course, the study of tropical diseases. In promoting research on problems of industrial welfare and efficiency the Council is advised by its Industrial Health Research Board and by special committees on Occupational Medicine, Occupational Physiology, Occupational Psychology, Industrial Pulmonary Disease, etc. Members of the Council's advisory committees serve in a voluntary capacity, without payment. The Council meets about nine times a year, its committees as often as necessary.

#### Finance

The funds available for the work of the original Medical Research Committee in the year 1914 amounted to about £55,000, the Parliamentary grant-in-aid of the Medical Research Council for 1948-9 is £770,000, and additional provision from public funds for special non-recurrent expenditure brings the Council's budget for this year to over £1,000,000. At the outbreak of the 1939-45 war the

grant-in-aid was £195,000, and even by 1945-6 it had risen to only £295,000. The impressive increase in the size of the grant since then reflects not only the greatly increased cost of research but also a very wide extension of the Council's activities and commitments, for instance, the number of its research establishments was only sixteen in 1939, at present there are about forty. Important schemes of research now planned into some of the newer developments in radiotherapy for cancer—e.g., by the use of the synchrotron and cyclotron—must necessarily involve heavy non-recurrent expenditure on apparatus, for which Government authority has been obtained.

In augmentation of the public funds entrusted to it the Council is empowered by the terms of its Charter to accept charitable benefactions by gift or bequest for the support of medical research, some of these are used for the general programme, others are limited, by request of the donors, to work on specific subjects. The Council also from time to time receives grants from various public or semi-public bodies in aid of particular investigations. The cost of the Public Health Laboratory Service which the Council administers on behalf of the Ministry of Health (see below) is not a charge upon the research funds at its disposal but is provided separately.

#### Research Establishments

The Council's administrative headquarters are at 38, Old Queen Street, London, SW 1, and its central research laboratories comprise the National Institute for Medical Research, at present situated at Hampstead, and associated farm laboratories at Mill Hill, a special building where there is also nutritional research. The Institute at Hampstead—a former hospital, opened for its present purpose in 1920—has become inadequate for growing needs, and it is hoped within the next two years to transfer its work to a new and much more commodious building on the Council's land at Mill Hill, this was begun shortly before the 1939-45 war and is now being completed and equipped. Only laboratory research is done at the National Institute, the Council's programme of clinical investigations being carried out at other centres, as will be shown later. Nevertheless, though much of the research work at the Institute is necessarily of a fundamental nature, a substantial part of it has an immediate bearing on clinical problems, and numerous field studies in hospitals and elsewhere have been organized from the Institute. An instance is the new attack launched in 1946 on the aetiology of the common cold, which is being carried out in a special unit at the Harvard Hospital, Salisbury, maintained jointly by the Council and the Ministry of Health.

The research programme of the National Institute is a very wide one, divisible into the broad categories of physiology, pathology (including bacteriology, protistology, virus diseases, and immunology), pharmacology, chemotherapy, biochemistry, endocrinology, and physics in relation to biological research. Diseases recently under intensive study there have included influenza, malaria, and, during the recent war, the typhus fevers. A special responsibility of the Institute is to maintain standard preparations for the biological assay of certain drugs, hormones, vitamin preparations, and antitoxins, this is done both in fulfilment of statutory obligations of the Council in the United Kingdom and, in many instances, on behalf of the World Health Organization (formerly the Health Organization of the League of Nations). Sir Henry Dale, O M, G B E, F R S, was the first Director of the Institute, he was succeeded, on his retirement in 1942, by Dr C R Harington, F R S (now Sir Charles Harington).

It is obvious that in any comprehensive programme of medical research prominence must be given to the study

of problems of disease and injury as they are seen in patients—that is, to clinical investigations in hospital wards and out-patient departments. The Council has not established a special research hospital, deeming it preferable to take advantage of the available facilities and freer supply of clinical material at existing hospitals and the valuable opportunities to recruit and train new investigators which are provided by the day-to-day contact of research workers with undergraduate and postgraduate students at academic centres. In conformity with this policy it has for long maintained, wholly or in part, special units for clinical research at two London teaching hospitals and at the National Hospital for Nervous Diseases, Queen Square, London, W C 1. The oldest of these establishments is the Department for Clinical Research at University College Hospital, and it was here that the late Sir Thomas Lewis, F R S, carried out much of his famous work on diseases of the heart and blood vessels.

It has already been mentioned that the expansion of the Council's programme since the beginning of the recent war has led to a great increase in the number of its special research units. Many of these newer units have also been established primarily to study clinical problems, they include the Otological Research Unit at the National Hospital for Nervous Diseases, the Radiotherapeutic Research Unit at the Hammersmith Hospital, the Department for Research in Industrial Medicine at the London Hospital, the Industrial Medicine and Burns Research Units at the Birmingham Accident Hospital, the Pneumoconiosis Research Unit at Cardiff, the Department of Experimental Medicine at Cambridge, and the Clinical Chemotherapeutic and Clinical Endocrinology Research Units at Glasgow and Edinburgh, respectively. A Table listing the Council's chief existing research establishments other than the National Institute for Medical Research, at Hampstead, is given below.

The arrangement between the Council and the institution housing a particular research establishment varies from case to case, but the Council usually provides the medical and other scientific workers and the research expenses, the institution supplying accommodation and, in the case of the clinical units, the cost of feeding and nursing the patients. A statistical research unit has been an essential part of the Council's organization from the beginning of its work, the unit is housed in the Department of Medical Statistics at the London School of Hygiene and Tropical Medicine, the head of the Department, Professor A Bradford Hill, himself giving part-time service to the Council.

### Work Overseas

As an important ancillary to its programme within the United Kingdom the Council during the recent war dispatched a number of field research teams overseas to carry out intensive investigations of health problems affecting the armed Forces or the civilian populations of colonial territories. Before the war it had co-operated with other bodies in arranging a nutritional survey of Nyasaland, and it had awarded a number of fellowships to enable suitably qualified workers to undertake periods of field research on tropical diseases in various colonies. This type of collaboration with the Colonial Office has been greatly facilitated by the appointment of the joint Colonial Medical Research Committee, and by the setting up in 1944 of the Council's Human Nutrition Research Unit (see Table). Since then a number of members of the Unit and other workers for the Council have been sent to investigate health problems in overseas territories. An outstanding development of this kind has been the establishment in the Gambia of a Field Research Station with clinical facilities,

this, though supported from colonial development funds, is run in direct association with the Human Nutrition Research Unit in London, both being directed by Professor B S Platt, of the Council's staff.

Another overseas activity of the Council, also relating mainly to nutritional questions, was the formation of a temporary research unit at Wuppertal, as an annexe to the Department of Experimental Medicine at Cambridge under Professor R A McCance, its primary object was to study the effects and treatment of post-war malnutrition in the German population. A research mission of a different kind has been that sent by the Council to Cairo, by arrangement with the Egyptian Government, to investigate problems of schistosomiasis in areas where the disease is endemic.

### Research Staff

At the National Institute for Medical Research, at all the research centres listed in the Table, and at many others the Council employs a whole-time scientific staff, appointed on either a permanent or a temporary basis. There are at present about 300 members of the scientific staff, exclusive of technical assistants. Pensions for staff members on retirement are provided by insurance policies under the Federated Superannuation System for Universities.

In addition to those working in the Council's own research units, some members of the staff are attached to hospitals, university departments, or other independent research centres. Among the fields of study of these "external" members of the staff are problems of disease in children, nutrition, clinical bacteriology, tuberculosis, chemotherapy, and the biological effects of radiation.

### Research Grants

Although the greater part of the funds at the Council's disposal is devoted to the support of research by its own staff, an important fraction has always been expended annually in the form of temporary grants made in aid of approved researches by entirely independent investigators at universities, hospitals, and other institutions throughout the United Kingdom and, on occasion, overseas. These grants may be made variously for the personal support of the investigator on a whole-time or part-time footing, for the provision of scientific or technical assistance to senior investigators, or for research expenses. Grants made by the Council are usually awarded on an annual basis, and those made to workers for their personal support are not ordinarily renewable over a longer total period than three years. Where an application for a research grant comes within the field of interest of one of the Council's many expert committees the Council has the advice of the committee in considering it.

### Studentships and Fellowships

Reference has been made above to the advantages, from the point of view of the recruitment and training of new research workers in medical science, which are gained by the siting of most of the Council's clinical and other research establishments in teaching centres. As a further aid to recruitment the Council awards studentships for training in research methods to young graduates of special promise who are recommended for the purpose by the heads of the departments in which the training would be given. These studentships are tenable for a period of one year in the first instance, and are renewable up to a maximum of three years in all, subject to favourable reports from the supervisors of the studies, one of their chief objects is to make it possible for young men and women who otherwise might be prevented by economic factors from contemplating a research career to display their fitness for that type of work.

Apart from these training studentships, which are tenable in the United Kingdom, the Council awards certain travelling fellowships to enable suitably qualified British workers to undertake periods of study and research at centres abroad. It has for long acted as the agent in Great Britain of the Rockefeller Foundation of New York by awarding the travelling medical fellowships for British

latest of these Reports to be issued was that for 1938-9, but the series has been resumed with a six-year Report reviewing the Council's many activities during the war period, which was published a few months ago. Best known among the Council's several other series of publications are the green-covered *Special Reports*, of which more than 260 have been issued, on a diversity of medical subjects. Others

Table showing Principal Research Establishments of the Medical Research Council other than the National Institute for Medical Research (July 1948)

Subject	Establishment	Place	Present Director of Unit or Department or Head of Research Group
General medicine	Department of Clinical Research Clinical Research Unit	University College Hospital, London Guy's Hospital London	E E Pochin MD FRCP (post endowed by Rockefeller Foundation) R T Grant, OBE, MD MCRP FRS
Medicine (including nutritional and paediatric studies)	Department of Experimental Medicine	Cambridge University (with temporary field research unit at Wuppertal Germany)	Prof R A McCance, Ph D MD FRCP FRS
Diseases of the nervous system	Neurological Research Unit	National Hospital Queen Square London	E A Carmichael CBE M.B. FRCP
Problems of ear disease and deafness	Otological Research Unit	National Hospital Queen Square, London	C S Hallpike, MB FRCP FRCS
Problems of vision	Vision Research Unit	Central London Ophthalmic Institute Judd Street WC1	H Hartridge MD FRS
Treatment of cancer	Radiotherapeutic Research Unit	Hammersmith Hospital London	Miss C A P Wood MRCP DMRE (half time)
Industrial diseases and poisoning	Department for Research in Industrial Medicine	London Hospital	Donald Hunter, MD FRCP (part-time)
Industrial health hazards including injuries and skin diseases	Industrial Medicine Research Unit	Birmingham Accident Hospital	J R Squire, MB, MRC.P
Treatment of burns	Burns Research Unit	Birmingham Accident Hospital	" " "
Industrial pulmonary disease	Pneumoconiosis Research Unit	Llandough Hospital and other centres, Cardiff	C M Fletcher, MD, FRCP
Actions of drugs in man	Clinical Chemotherapeutic Research Unit	Glasgow University and Killearn Hospital	J Reid MD MRCP (part time)
Clinical aspects of endocrinology	Clinical Endocrinology Research Unit	Edinburgh University and Royal Infirmary	(At present directed by a Committee)
Nutrition	Nutrition Building Human Nutrition Research Unit	Mill Hill London National Hospital Queen Square London and London School of Hygiene and Tropical Medicine (with associated establishment in the Gambia)	Sir Edward Mellanby GBE KCB MD, Sc.D. FRCP FRS Prof B S Platt, CMG, MB Ph D
Nutrition (vitamin studies) (mainly vitamin studies)	Group for Research on Nutrition	Lister Institute of Preventive Medicine London	S S Zilva D Sc, Ph D F.R.I.C
Dental disease	Dunn Nutritional Laboratory	Cambridge University	L J Harris Sc.D Ph D FRIC
Bacterial chemistry	Dental Research Unit Bacterial Chemistry Research Unit	King's College Hospital London Lister Institute of Preventive Medicine London	J D King Ph D LDS Sir Paul Fildes OBE MB FRS
Cell metabolism	Group for Research in Chemical Microbiology Cell Metabolism Research Unit	School of Biochemistry Cambridge University Sheffield University	Miss M Stephenson Sc D, FRS Prof H A Krebs MD FRS (part time)
Problems of blood grouping	Blood Group Research Unit	Lister Institute of Preventive Medicine London	R R Race Ph D MRCS
Preparation of blood derivatives	Blood Products Research Unit	Lister Institute of Preventive Medicine London	A N Drury CBE MD FRS (Hon Director)
Problems of transfusion	Blood Transfusion Research Unit	Postgraduate Medical School of London	P L Mollison MD MRCP
Chemotherapy of malaria	Group for Research in Chemotherapy	Molteno Institute Cambridge University	Miss A Bishop, Sc D
Toxicology (with special reference to industry)	Toxicology Research Unit	Chemical Defence Experimental Station Porton	J M Barnes MB
Electromedical studies	Electromedical Research Unit	Ministry of Pensions Hospital Stoke Mandeville Bucks	R B Bourdillon CBE, MC, AFC, DM
Biophysics	Biophysics Research Unit	King's College London	Prof J T Randall D Sc FRS (Hon Director)
Medical problems of nuclear physics (including research on health hazards)	Radiobiological Research Unit	Atomic Energy Research Establishment Harwell	J F Loutit DM MRCP
Molecular structure of biological systems	Unit for Research on the Molecular Structure of Biological Systems	Cavendish Laboratory, Cambridge University	M F Perutz Ph D
Environmental physiology	Groups for Research in Industrial Physiology Research Unit on Climate and Working Efficiency	London School of Hygiene and Tropical Medicine Oxford University	(1) T Bedford D Sc Ph D (2) H C Weston FIES Prof W E Le Gros Clark D Sc FRCS FRS (Hon Director)
Occupational psychology	Applied Psychology Research Unit	Cambridge University	Prof Sir Frederic Bartlett CBE, M A, FRS (Hon Director)
Psychological and other human problems of the building industry	Group for Research in Industrial Psychology	Manchester and elsewhere	S Wyatt D Sc
Occupational psychiatry	Group for Research on the Building Industry Occupational Psychiatry Research Unit	Birkbeck College London Institute of Psychiatry Maudsley Hospital London	Prof C A Mace MA D Litt (Hon Director) Prof Aubrey J Lewis, MD FRCP (Hon Director)
Medical statistics	Statistical Research Unit	London School of Hygiene and Tropical Medicine	Prof A Bradford Hill, D Sc, Ph D (part time)
Social medicine	Social Medicine Research Unit	Central Middlesex County Hospital	J N Morris MRCP DPH DCH

workers generously provided by that body, and it has its own series of travelling and research fellowships in tuberculosis financed from a special benefaction in memory of Dorothy Temple Cross

### Publications

Before the war the Council had to submit to Parliament an *Annual Report* on its work, which was published, the

deserving special mention are the white *Memoranda* started in 1940 as *War Memoranda*, which are used to record the results of certain *ad hoc* investigations or to give up-to-date advice on practical problems of medicine based on the latest results of research. All the Council's own publications are printed and sold by His Majesty's Stationery Office. The results of the great majority of the investigations supported by the Council are, however, reported direct by the

workers concerned in papers contributed on their own initiative to medical and other scientific journals

### The Public Health Laboratory Service

Reference has already been made to the Public Health Laboratory Service, organized and administered by the Council for the Ministry of Health since 1939. An account of the history of the Service and of its work to date was given by Dr G S Wilson, the Director, in his Milroy Lectures published in the *British Medical Journal* of April 3 and 10, 1948 (pp 627 and 677). The original object of the Service was to augment the existing public health resources of the country in combating epidemics of infectious disease such as were likely to arise from the abnormal conditions of war, and to keep a constant watch for any suspected instance of "bacterial sabotage". While the Service did not, in the event, have any example of "bacterial sabotage" to contend with, it proved so notably successful in elucidating and restricting outbreaks of infectious disease and bacterial food-poisoning during the war that it has been extended since as the framework of an organization for carrying out nation-wide investigations of problems of public health and epidemiology. At the request of the Government the Council accordingly agreed to administer the peacetime Public Health Laboratory Service on behalf of the Ministry for an initial period of five years. Statutory authority for the Service is provided in the National Health Service Act of 1946.

### Discussion

It is often asked is enough money provided in this country for the needs of medical research? It would be both unwise and untruthful to answer that question in the affirmative, for it is certain that additional funds could always be effectively used to assist research on important health problems to which new clues may have been provided by recent discoveries and for which suitably trained investigators with good ideas and good facilities are available. On the other hand it would be wrong to suggest that the present Government and its predecessors have failed to meet the requests of the Medical Research Council for increased funds for the support even of very costly new work which the Council believes to be necessary and promising.

It is important to remember, moreover, that the grants-in-aid provided by Government for the work of the Medical Research Council comprise only part of the financial support available in the United Kingdom for the encouragement of medical research; there are, in addition, the very substantial resources of the universities and hospitals and of various independent foundations and institutions, of the latter the Nuffield Foundation, the Wellcome Foundation, the British Empire Cancer Campaign, and the Imperial Cancer Research Fund are four examples among many of different kinds. The promotion of medical research in Britain, therefore, is not a monopoly, and both State and private enterprise contribute largely to it. The Council by its constitution is able to collaborate at will with any other official or private body having similar objectives, and a not unimportant part of its function is to decide whether a given investigation proposed to it would be better supported by itself or by some other organization with a view to avoiding undesirable duplication of effort.

The popular belief that a solution to even the toughest disease problem could probably be obtained at short notice by suddenly diverting to it huge sums of money and large numbers of investigators at a time when its prevalence gives it prominence in the newspapers unfortunately has little foundation in experience. This million-pound-in-the-slot-machine principle very rarely applies in medical science.

Time and again it has happened, instead, that control of a particular disease has been gained not by the method of intensive direct attack but as an unexpected result of patient fundamental advances on a much broader front and often involving an entirely different research discipline. Consider, for example, the recent studies of antibiotics, which have made possible the successful treatment of a large number of infections that had stubbornly resisted direct attack upon themselves as single diseases. It is for this reason that benefactions for medical research are often more effective when they are available for use in any part of the medical field which expert opinion deems ripe for exploitation than when they are rigidly dedicated to research on one subject, though cancer research and tuberculosis research, with their manifold problems, are obvious exceptions to the generalization.

Experience has shown that once a really hopeful new approach to a problem has been opened, and the right men or women with the right ideas are available to follow it up, the necessary money to support their activities will generally be forthcoming either from public or private sources. It is the need to find a new approach rather than just to spend more money which too often limits the speed of progress.

In an article published elsewhere<sup>1</sup> I discuss some of the reasons why medical research must generally be opportunist and can rarely be subject to long-term "planning" save in very broad outline (as by the appointment of a research establishment under a suitable director who is given a wide mandate within which to develop the details of his programme). Sir Edward Mellanby made nearly the same point some years ago when he remarked that the policy of the Medical Research Council was "to have no policy but to find the right men and back them in every way possible". The setting up of the Council's research establishments has largely to be governed by this opportunist philosophy—it is a question not only of realizing the kinds of problem urgently needing to be solved but also of finding men or women with the right sort of outlook, imagination, and experience, and of choosing centres with the best available facilities for their studies. Not infrequently the proposal to set up a new establishment has been put up to the Council by the investigator who subsequently has been made director of the unit concerned, though in other cases the Council has taken the initiative in starting a unit under a director considered to be suitable.

Large as is the number of the Council's research establishments at present, a glance at the Table will suffice to show that they do not as yet by any means cover the whole vast field of medical science. More units are being set up as opportunity offers, and the number of members of the Council's research staff increases each year. To meet the growing needs of the future there will be a call for more and more trained investigators in medicine and the allied sciences, and I have tried to indicate the range of opportunities which the Medical Research Council offers for such training to persons with a bent for discovery. The remarkable recent advances in so many different parts of the field have made the prospects for medical research more hopeful now than at any previous time: the demand for new recruits to the skilled army of investigators is correspondingly great.

<sup>1</sup>*Brit med Bull* 1948, 5, 352

The average annual production of quinine in India in the last three years was about 85,000 lb per year. Approximately 145,000 lb of quinine were imported into India during the last two years. There is at present a central stock of about 120,000 lb of quinine and the question of maintaining an adequate reserve is being borne in mind. The existing cinchona plantations in India are owned mainly by the Governments of West Bengal and Madras, and they are making every effort to maintain and increase production.

## THE STATISTICIAN AND MEDICAL RESEARCH

BY

MAJOR GREENWOOD, DSc, FRCP, FRS

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Statistics is—or are—an old science (or art), but Francis Galton, Karl Pearson, and W F R Weldon discovered a new application of statistical method at the end of the nineteenth century, and in 1902 the biometricians, as they were called, established a journal of their own, *Biometrika*, now in its 35th volume. The first volume of *Biometrika* contains a paper of medical interest—on the influence of previous vaccination in cases of smallpox—and others followed. For some years, however, the influence of the new race of statisticians on the logical procedures of either pathologists or clinicians was small and largely confined to destructive criticism. Biometrician A B—the actual letters were usually K P—would fall upon a paper by Dr C D and show that Dr C D's conclusion that treatment X gave better results than treatment Y did not follow from his data, that there was no significant (then and now a terribly overworked word) difference between the means of his two series. Even when, as sometimes happened, the difference was significant, A B would argue that other differences between the two series than the method of treatment might account for the result.

At first both laboratory workers and clinicians simply ignored the biometricians or called them mere mathematicians, often thought by clinicians and some biologists, like Almroth Wright, to be an inferior race of mankind. As J J Thomson once said, if ignorance of mathematics is a virtue it is surely the easiest of virtues. However, the tide turned, in 1910 the Lister Institute appointed a medical statistician and the Medical Research Committee (now Council) appointed another in 1914. Many statisticians now well known would acknowledge how much they owe to the friendship and encouragement of Sir Charles Martin or Sir Walter Fletcher which brought them through times of depression and frustration.

The widespread activities of the Medical Research Council and of an associated research committee, now the Industrial Health Research Board, led to increasing utilization of statistical methods, even in clinical research. In 1921 a statistical research committee was formed to take part in the planning and control of industrial-medical inquiries. Four years later this committee's terms of reference were extended and it became the statistical committee of the Medical Research Council itself. In the succeeding 14 years this committee had a large part in bringing statistical methods to bear upon laboratory researches as well as upon those field or factory inquiries which admittedly involved statistical analysis.

Contemporaneously, new statistical methods were used in non-medical laboratory and field biology. Progress in this way in agricultural research was particularly great, because one of the most gifted of contemporary statisticians, Professor R A Fisher, was for several years head of the statistical department of the Rothamsted Experimental Station. His epoch-making additions to statistical technique, applicable far beyond the bounds of soil research, were naturally first used in agricultural trials.

Now the biometricians have triumphed, indeed, some people may be reminded of Macaulay's rhetoric, that the whigs endured everything that O'Connell should not "be less than a British subject. We never will suffer him to be more."

### Demand for Statisticians

One may say, broadly, that the demand for statisticians has increased for two reasons. The first is that statistical methods have become far more exact and searching—i.e., capable of reaching results in fields which even so recently as 50 years ago seemed closed to them. The next is that experiments are expensive in money and time, we want results as cheaply as possible and as quickly as possible. It is therefore important to squeeze the last drop of information out of an experiment—i.e., to plan it properly and to analyse the data in the most efficient way. Suppose the experiment is a clinical one, that we desire to test the values of two treatments—A and B. I think, before Professor Fisher taught us better, that we should have looked at it in the following way. If we had available, say, 120 patients we should give A to 40, B to 40, and leave another 40 untreated.

Our 120 patients are not test-tubes, they differ in many ways, some of these differences may be relevant to the success of treatment, hence one must have a technique for the assignment of patients to each of the three groups which does not weight one group unfairly with persons likely to respond more (or less) favourably than others to treatment. But a statistician would not now recommend three groups of 40, unless remedies A and B were known to be incompatible. If, for example, the treatments were two different techniques for removing a new growth, clearly to give a group of patients both treatments is nonsensical. But often A and B can be combined, if therefore we had four sets of three: (1) AB, (2) A, (3) B, (4) neither, and assigned 30 patients to each, then not only should we be able to test whether the combination of A with B were better than either, which the "pure" experiment did not permit, but we have lost nothing in stringency of comparison of single treatments, for we can not only compare A against the "pure" controls but AB against B, if we wish to assess the value of A alone. This is a simple example of the economy of factorial design, and illustrates the fallacy of isolating factors, a doctrine which, as Professor R A Fisher remarked, "seems to be more nearly related to expositions of elementary physical theory than to laboratory practice in any branch of research."

### The New Method

An example of the power of statistical methods in medical research is the assaying of drugs by biological tests. Up to comparatively recent times laboratory workers were apt to look on mice or guinea-pigs just as test-tubes of different sizes and ages. I think the first worker in England to allow statistically for the fact that, just as mice individually vary in weight, appetite, and temper, they vary in response to doses of toxins or drugs, was J W Trevan, who published an important paper in 1927. In 1933 J H Gaddum's Report to the Medical Research Council extended the new method, and between 1937 and 1943 J O Irwin, of the Medical Research Council's statistical staff, published several valuable papers. In America, from 1934 onwards, C I Bliss and his colleagues did much research into the theory and practice of the method.

D J Finney's recent book (*Probit Analysis*, Cambridge University Press, 1947) gives a clear account of this new and valuable technique. The fundamental idea is simple enough. We are interested in a drug which can be tested only by administering doses of it to samples of mice and noting how many die at each dosage. Common sense dictates the drawing of a graph of the percentages which die at each dosage plotted as ordinates against the dose, or some function of the dose, as abscissa. But we must take account of the variability of response and remember



that even if we use equal numbers of mice at each dosage the points on the graph are not equally well determined, because, for statistical reasons, the precision of the ordinate for 50% fatalities will be greater than for 10% or 90%. Trevan noted that taking for abscissae the logarithms of the doses gave better results than using the actual doses, and a further transformation reduced the problem to the fitting of a straight line, now, very efficient routine methods of assay are available. But to reach this has involved a good deal of mathematical-statistical analysis.

Lastly, statistical methods play an important part in applied psychology. The pioneer was Charles Spearman, who concluded that scores in intellectual tests—for instance, examination marks in French or chemistry—could be expressed in terms of two “factors”—a general factor measuring something common to all cognitive activities and a special factor peculiar to each activity. Later research has shown the problem to be more complex than it first seemed to be, but psychological testing has grown and extended from the cognitive to the conative aspects of the mind and therefore interests psychiatrists and medical psychologists as well as schoolmasters and Civil Service examiners. Sir Cyril Burt's treatise, *The Factors of the Mind* (University of London Press, Ltd, London, 1940), gives a critical review of what is now called “factor-analysis”. Here again the construction of an adequate arithmetical routine involved a good deal of difficult mathematical analysis.

I have said nothing of the importance of the simple statistical methods, already understood well enough 50 years ago, in clinical medicine. Professor J. A. Ryle in his recent book (see *Changing Disciplines*, particularly p. 104 *et seq.*, Oxford Medical Publications, 1948) has spoken of this with a clinical authority I lack.

### BMA Committee's Report

Perhaps the reader is satisfied of the importance of statistical methods in all medical research, and he is sure to know that in the present undergraduate medical curriculum statistics, like liturgy, civil engineering, or the use of the globes, has no place at all. Even from the professional point of view this is a pity, my quotation from Macaulay's speech was not made at random. The medically trained person, whether laboratory worker or clinician, can no longer afford to despise the statistician, who for many years to come will *not* be medically qualified. He must accept him as a colleague, and unless the “doctor” does have some knowledge of the elements of statistical method the colleague will become, in the eyes of the world—which is becoming statistical-minded—not the colleague but the leader. Yet, down to the publication of the BMA Curriculum Committee's report on *The Training of a Doctor* (Butterworth's Medical Publications, 1948), no authoritative body has faced the position.

This report differs from those published by the Stationery Office during the war on educational problems, medical or general, in two respects, it is written in the English language, not in jargon, and can be read with pleasure because it develops a plan logically, and artistically. The committee thinks that statistical method should have a place in the first year of medical study because statistical ideas have their part in shaping current views of the fundamental sciences—namely, physics, biology, and chemistry—it recommends a course of 10 lectures, with practical work, and sets out a very reasonable syllabus. The whole of the committee's remarks (paras 86–91 on pp. 28–9) seem to me excellent. If I criticize the proposal it is not from lack of sympathy with the enlightened spirit which inspired it. A

class of first-year medical students will consist of young men and women who for the most part have learned *and remembered* little more mathematics than what is covered by the ordinary school-leaving certificate, indeed, if some medical faculty boards have their way, and medical students are not required to take mathematics even up to this standard, the average mathematical level of the class may be even lower. It is quite true that the principles of statistical method can be taught, and efficiently taught, without any more technical knowledge of algebra than many of the class will have or could quickly acquire. But that requires more time and a far more efficient and experienced teacher than the instruction of pupils with a serious mathematical background.

I do not think formal lectures should bulk in the course of instruction. No doubt an introductory lecture might rouse the enthusiasm of the class, be good propaganda, if the teacher had the gift of persuasiveness, it might, however, be merely dull. I should say that the best way of teaching is informal, one should try to combine a demonstration with a practical class. The teacher might, for example, give a short talk, say 10 minutes, on the advantages and disadvantages of common averages, the mean, the median, and the mode, and how these are computed. The class should then follow the heuristic method of Mr. Squeers and at once work out examples for themselves. As every experienced speaker or teacher knows, “impromptu” speaking and “informal” teaching require much more preparation than a set speech or formal lecture. In our particular case, worked examples and instructions to students can be mimeographed and distributed, but the difficulties many intelligent people have with “sums” are infinite, and the teacher must have had a good deal of experience to be able to remove or alleviate the student's perplexities. I am a pure Cockney, and my experience as student and teacher is wholly confined to London. In London there are not now enough teachers of the necessary powers to go round the medical schools. This might not be an unmixed evil. Although a statistical laboratory is not so expensive to equip as a physiological laboratory, aids to computation, such as calculating machines, cost a good deal of money. To confine practical work in statistics to what can be done by brute force and a table of logarithms would be as wise (or as foolish) as to restrict experimental physiology to what could be done on oneself—or a fellow student—with one's wits and ten fingers. Two or three equipped departments might receive all the medical students in London in a regular rotation so that the classes were small.

But unless the committee can persuade members of the faculty board and of the boards of studies within the faculty of medicine that statistics is not an elegant extra but a fundamental discipline, not indeed demanding as much time as chemistry, physics, and biology, but still fundamental, its plan will not succeed. Nobody dislikes examinations more than I do, but unless “human nature” has changed a great deal in the last 50 years—perhaps it has—the average student will not take much trouble over subjects unremunerative in marks. I hope the committee will succeed, all its members are clinicians and, for sound psychological reasons, their opinions are weighty. I think I should find it as difficult to persuade the board of the faculty of medicine to take the committee's plan seriously as a cobbler would find it to persuade me to double my expenditure on boots.

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During 1947, 60% of fatal accidents and 38% of all accidents on building work reported to the Factory Inspectorate were on jobs not governed by the existing regulations for the safety and welfare of the workers. The Minister of Labour has therefore made new regulations under the Factories Act, 1937, to cover such cases.

## RESEARCH IN GENERAL PRACTICE

BY

WILLIAM N PICKLES, MD, MRCP

MOH Aysgarth Rural District Council

"I shall never have smallpox I shall never have an ugly pockmarked face," said an eighteenth-century milkmaid, with a proper pride in her youthful beauty "I've had cowpox, and girls who have had cowpox cannot take smallpox" That remark, made to or overheard by Jenner, is possibly a suitable beginning for this paper, as it foreshadowed an early and outstanding piece of research in general practice Jenner at that time was apprentice to a country doctor at Sudbury, in Gloucestershire, and found that this was a well-established belief in the county

Osler, whose historical accuracy in this matter has never been questioned, has many interesting things to say about smallpox "For centuries it had been a popular belief among farmer-folk that cowpox protected against smallpox. The notorious Duchess of Cleveland, replying to some joker who suggested she would lose her occupation if she was disfigured with smallpox, said she was not afraid of the disease, as she had had a disease which protected her against smallpox Jesty, a Dorsetshire farmer, had had cowpox, and in 1774 vaccinated successfully his wife and two children"

Jenner subsequently mentioned the subject to John Hunter, who in reply gave the famous advice "Do not think, but try, be patient, be accurate" In 1780 the idea was firmly fixed in Jenner's mind, but it was not until 1796 that he made his first experiment He extracted matter from the pustules on the hand of a dairy-maid, successfully inoculated a small boy, and six weeks later matter from a smallpox pustule produced no smallpox

Even to-day at rare intervals a country doctor sees these pustules on the hands of a milker I last saw a man with this condition five years ago He told me he had never been vaccinated "Well," I said, "that was not very wise of your parents, but you are well protected now"

Benjamin Waterhouse, of Harvard, with whom Jenner exchanged affectionate letters and presents but never met, carried on the work in the USA, and with a series of successful experiments was said to have fully justified the conclusion of the Board of Health—"cowpox is a complete security against the smallpox"

The impression one gains of Jenner is of a man who realized that well-founded traditions of the countryside are worthy of notice, and of his extreme patience "The picture is that of a likeable, clubbable fellow, who could sing a good song and turn a copy of verses, with a taste for natural history" (M Greenwood) He has been assailed with much criticism, and not least from Creighton, who could see no good in him, even to the extent of pouring scorn on his observations as a naturalist, his observations on the behaviour of the infant cuckoo in its foster-parents' nest being characterized as a "tissue of inconsistencies and absurdities"

Greenwood, from whose *Epidemics and Crowd Diseases* I have acquired these facts, says "A moving picture has been taken of a young cuckoo ejecting its foster-brother from the nest and photographs of young cuckoos conforming to Jenner's description of their structure have been exhibited at a meeting of a learned Society", so it would seem that in this instance Jenner was not the imaginative rascal of Creighton's showing A man who unhurriedly followed up a country belief and patiently waited to confirm it is worthy of our regard, and many will believe that

his labours were and still are the means of saving thousands of lives

## An Early Epidemiologist

When Jenner died in 1823 a boy of 12 was being brought up in the traditions of medical practice in the family home at North Tawton, Devon He was to achieve fame in his lifetime, and, like Jenner, became a Fellow of the Royal Society, but his views were described as peculiar, and he was almost completely forgotten until a very few years ago his memory was revived, mainly by Edwin Goodall

William Budd's *Typhoid Fever* is one of the treasures of the epidemiologist, and his cold reasoning is a pattern to all those who essay to study the natural history of disease He shows particularly the advantages of country practice in the study of these problems "How often have I seen in past days, in the single narrow chamber of the day labourer's cottage, the father in the coffin, the mother in the sick-bed in muttering delirium, and nothing to relieve the desolation of the children but the devotion of some poor neighbour who in too many cases paid the penalty of her kindness in becoming, herself, the victim of the same disorder"

William Budd was no armchair epidemiologist, as this passage shows, his contact with his patients was personal and vital and he himself had been a sufferer from this fever He points out his own peculiar advantages "In addition to the advantages enjoyed by country doctors generally, in the observation of such events, there were others peculiar to the position I then occupied Having been born and brought up in the village, I was personally acquainted with every inhabitant of it, and being, as a medical practitioner, in almost exclusive possession of the field, nearly everyone who fell ill, not only in the village itself but over a large area around it, came immediately under my care For tracing the part of personal intercourse in the propagation of disease, better outlook could not possibly be had" Thus step by step he shows us that typhoid fever, thought in his day to be due to vague insaniary influences, was unexplainable except by the conception of contagion from one patient, directly or indirectly, to another

But this is not all of William Budd, and, although at the time of writing the following he was a consulting physician in Bristol, one feels that it was his earlier experience in general practice which really inspired it

"The idea that phthisis is a self-propagated zymotic disease, and that all the leading phenomena of its distribution may be explained by supposing that it is disseminated through society by specific germs contained in the tuberculous matter cast off by persons already suffering from the disease, first came into my mind unbidden so to speak, while I was walking on the Observatory Hill at Clifton, in the second week of August, 1856 The close analogy between this disease and typhoid fever had often impressed itself upon me with great force while I was engaged in the study of the latter I now saw with a clearness which had never occurred to me before, that with exception of the qualifications necessary for its application to a chronic disease—for the most part of slow evolution and indefinite duration—the leading conclusion to which I had been led, respecting the propagation of the fever might be applied with the same strictness to phthisis also"

## A Great GP

I am choosing a trio of the greatest of our general practitioners to build up my story, and the next giant is a rugged Scot who was born in Scone in 1853

After James Mackenzie had become a partner in a practice already of high traditions in Burnley, he set out to make himself a better doctor, the idea of research never entering his head

'About 1883 or 1884' his biographer tells 'I resolved to begin a series of careful observations entirely for my own improvement, never dreaming of research, for I was under the prevalent belief that medical research could only be undertaken in a laboratory or, at least, in a hospital with all the appurtenances. I had recognized that when the patient had some physical sign and when disease had made considerable ravages in the body, a moderately accurate diagnosis could be made, but in the vast majority of patients there was no physical sign, or, if there was a physical sign, I was not sure of its relationship to the patient's ill-health.'

He goes on to show how he began by taking notes of all his patients and then decided to narrow it down to those whose signs, and above all symptoms, were connected with the heart, and that was where general practice came in there was continuity, and "he was waiting to see what would happen to men, women, and children who showed these symptoms," and he was able to wait.

It ill becomes me to criticize this great man whose life was as truly a success as a life could be, but I feel that he did make one mistake—that is, in leaving Burnley, and breaking this continuity—and that he himself realized this when he quietly withdrew himself from London to semi-retirement at St Andrews, where he regained something of the atmosphere of his general-practice days.

Every young doctor should read the life of this lovable man. It has been a source of inspiration to me, as it will be to hundreds of other general practitioners. It exasperated him to think that all the recognition that he received and all the honours that were heaped upon him were due to his *polygraph*—the very useful instrument he invented—and not to the principles underlying his work. In *The Beloved Physician* we learn most of what we want to know about research in general practice.

### A G P with a Hobby

There is one among the many GPs who have added to the sum of human knowledge whom I cannot pass over, and his work was not strictly medical. Many doctors have done outstanding research in fields other than medicine, and I myself have known at least two distinguished antiquarians whose medical work was of a very high standard in addition.

The man I have in mind was a capable general-practitioner-surgeon whose ability in this work was recognized by the Royal College of Surgeons by the award of the rare honour of its Fellowship as a member of over 20 years' standing. Muir Evans, of Beccles, in Suffolk, who died at the age of 80 in 1947, used to say that he gave nine-tenths of his life to his profession and the remaining tenth to his hobbies. His field biology was a collateral of his work as a doctor, and his researches, beginning with the poison glands of fish, were of a very high order. In a paper on the pituitary gland of the eel, published in this *Journal* (April 6, 1940), he traced the seasonal changes in this gland.

One feels that a man engaged in busy practice who could produce so much in one-tenth of his working day must have done much for his patients.

### A Word on Record-taking

Shortly those of us in general practice will receive a record envelope, similar to that we have become accustomed to for NHI patients. I cannot stress too strongly the benefit we shall all gain if notes on these are kept conscientiously and, let me add, briefly. Thoughtful records are at the root of all good clinical work.

Let these notes also be legible. Old-fashioned people consider careless illegible handwriting a form of bad manners, and notes written in this way are valueless and a

source of irritation often to those who write them. First of all a fine pen should be chosen and time taken over the procedure. The typewriter is a good get-out for the illegible writer, but I very much doubt whether it can be used in this instance, so I say to those whose education has not included calligraphy, buy a copybook and learn to write a neat legible hand.

### Research Through the New Health Service

I am sad that so little has been said lately on group practice in the new Health Service. In the opinion of many there was fresh hope for the efficiency of general practice in the suggestion that doctors should work not as detached individuals but in groups—and if any contemplation of research is present, work in groups is of the highest importance.

It is not easy to indicate particular lines of research, indeed, it is undesirable to interfere with individualism. Every man, or rather every group, should choose his or its own. The following is the sort of incident which would suggest an investigation to me.

Many years ago, in one of our villages, I saw a sad little procession approaching me. An old friend and a great village character was being brought home dead in a cart, surrounded by his sorrowing relations. He had died suddenly out in the fields. He had consulted me many times because he was the victim of an intolerable pain in one of his calves after quite a short walk. This disappeared quickly on resting (as he was bound to do), only to return on another attempt.

I was very young. I had heard of *intermittent claudication* (how much happier is Ryle's name for it—*angina cruris*), but this was the first time I had met it. This incident set me thinking. "Is it a true danger sign, ought I to have warned poor James's relatives? Are all people who suffer from this complaint candidates for being brought home dead in carts or, in other words, liable to sudden death, probably, as he was in the fields, after exertion?"

Such were the thoughts that came tumbling into my head that morning as I stood on the village green. If I understood rightly the nature of the complaint it seemed more than likely that such people would die suddenly. This, then, was my first example, and my later experience is not great, but the end has been nearly always the same. The last sufferer was a dear old lady who, dozing quietly on a Sunday afternoon, suddenly became aware that her cherished garden had been invaded by a flock of geese from the village. Jumping up in a rage to drive them out, she dropped down dead. This is the only instance I have known of *angina cruris* in a woman.

It is an important subject, and the pooled information of a number of GPs would answer such questions as I asked myself that tragic morning. A group of sound general practitioners in a northern city lately, I am told, made systematic observations on the different psychological types in their patients suffering from peptic ulcer, with remarkably consistent findings.

Dental caries has always been to me a reproach as well as a fascinating problem, and I should much like to see whether painting the teeth twice—once before and once after the second dentition—with a solution of sodium fluoride really does protect against decay as our American friends tell us. Let me suggest this as a problem for a Health Centre, where I hope the examination of school children will at some future date be conducted by the family doctor, the doctor who will attend the child if he is sick, and not by the efficient but impersonal official.

But the problems are legion, and I feel inclined to reverse the idea of Mackenzie's and to suggest that an attempt to add to medical knowledge by the investigation of particular problems would inevitably produce a better general practitioner and, incidentally, would not fail in its objective.

The point of view of the country doctor is largely epidemiological, and that in its widest sense. If he were to find a proportion of his young girl patients victims of enlargement of the thyroid gland it would be fitting of him to inquire into the local conditions and to attempt to find out if there were anything in these which might contribute to the knowledge of its causation. He might then suggest a more generous fish diet—fish is not a common article in the country diet—even if it came from the village shop in tins. He might suggest the use of iodized salt as a routine, or he might even persuade his local M.O.H. to add iodine to the water supply.

There are problems of heredity which are readily available—the hereditary nature of skin diseases such as psoriasis, of rheumatic heart disease, as well as more obvious hereditary diseases such as Huntington's chorea or Friedreich's ataxia, and conditions such as polydactyly. There are also many problems in the study of epidemic disease waiting to be solved.

Writers of textbooks on infectious disease are handicapped, and are too often bound to give approximations, say, in the length of incubation period and the duration of infectivity for want of definite information. Yet this information lies within the grasp of the country practitioner if he be interested and will give his mind to it.

In country places that short and only possible exposure which alone gives this accurate information can very often be traced in a way which is well-nigh an impossibility in a town, with the varied experience of the town dweller. Country doctors should all read William Budd's *Typhoid Fever* and realize in those pages how great are their opportunities and how much better and more interesting would be their work if the lead which lies close to hand were assiduously followed. Work of this sort in the field is a possibility in itself, but its value would be greatly enhanced should the practitioner form a close liaison with the director of a laboratory. This helpful co-operation is now possible, or will be possible to all in the future.

Lastly, there must be a bond between the general practitioner and the medical officer of health and the Health Services. May I plead with the M.O.H. to get to know all the general practitioners in his area and to be willing at all times to give them his help?

Research is not a matter of gusts of inspiration but the result of patient observation undertaken with no thought of self-advancement. "In the fields of observation chance favours only the mind which is prepared." So wrote Pasteur. May those of us in general practice see that our minds are thus prepared.

## MEDICAL EDUCATION IN THE UNITED STATES

BY

RAYMOND WHITEHEAD, D.Sc., M.D.

(From the Department of Pathology, University of Manchester)

From the British standpoint the study of American medical education is valuable chiefly because it throws into relief the characteristic features of our own system. Although they have much in common, the British and American systems of medical education each have many distinctive features. These are expressions of the different historical circumstances of the two nations, and the possibilities of directly transferring the methods of one country to the other are accordingly limited. Mutual influence is more likely to be fruitful, ideas and principles travel better than particular applications of them, and, if adopted, it is best that they should take forms suited to the national genius. It will be helpful first of all to describe the American institutions concerned in medical education.

### Colleges

The highest form of general education is given in colleges of liberal arts and sciences. These institutions have no British counterpart, they are neither schools nor universities but have features of both. Some colleges are independent, under a president, others form part of a university, when they are administered by a dean. There seems to be no essential difference between the independent and the university colleges. The primary purpose of a college is to give general education of an advanced type, but professional subjects such as engineering are sometimes taught, research work is not a normal function of a college even when it forms part of a university.

Students enter colleges as a rule at the age of 18 and follow a four-year course, receiving at its close the degree of Bachelor of Arts (A.B.) or Bachelor of Science (B.S.). The degree is obtained by accumulating a required number of credits. These are records of the satisfactory completion of a certain number of hours in a course, as shown by examinations conducted by the instructor who gives the course. Comprehensive examinations similar to those in British universities are unusual. The standard of the American college degree is probably about the same as that of a British pass degree. The difference between American college degrees and British university degrees with the same titles lies not so much in the standard as in the range of knowledge required, for American degrees this is usually wider and less directly vocational than that represented by a British B.A. or B.Sc.

### Universities

The typical American university consists of a college of the kind described above and a variable number of professional schools. The term faculty is used in two senses: first, in the abstract British sense of a main division of university work, particularly postgraduate work, and, secondly, to denote the staff ("the faculty" is exactly equivalent to "the teaching staff" in British usage). The college and each school are administered by deans, their powers are wide, resembling those of an English vice-chancellor, and the relation between a dean and the professors of his school is similar to that between the vice-chancellor and the senate of a modern English university. The chief officer of a university is the president, and the governing body a board of trustees—men of standing in

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A Clean Food Association has recently been formed in Caernarvonshire. It will have as its primary objects the safeguarding of the people's health and raising the hygienic standards of food production and handling. Representatives and officers of all the local sanitary authorities and of the county council, together with elected representatives of food production and handling organizations in the county, will be members of the Association. All restaurants, cafés, milk bars etc. will be encouraged to attain and maintain a prescribed standard of cleanliness and hygiene in the preparation and handling of food and to each establishment attaining the standard will be given an authorized certificate for display. Educational talks and film displays will be arranged for food handlers, and scientific information will be distributed to all those concerned. According to Dr D. E. Parry Pritchard, the County Medical Officer, Caernarvonshire is the first county in England and Wales to direct combined and co-operative efforts in this direction.

business or the professions. Each school manages its own affairs but is responsible to a central administration.

Students reading for higher degrees are known as "graduate students." Such students work in any building (college or professional school) with the necessary facilities, but all are deemed to belong to the "graduate school" of the university irrespective of their field of work. Although it has no buildings, the graduate school has a dean. Not all graduate students are research students, most of them read for the degrees of Master of Arts (A M) or Master of Science (M S). Training in research methods is usually given to candidates who have matriculated for the degree of Doctor of Philosophy (Ph D).

The professional schools often require their students to be college graduates. Work in such a school for a number of years leads to a professional degree, that of bachelor, except in medicine and related fields such as dentistry, in which it is a doctorate, originally the initial medical degree was M B, but this has virtually disappeared. Surgery and obstetrics are not recognized by special degrees.

The most important non-professional degree is the Ph D. This is awarded by the graduate school for work in any field of knowledge (including medicine) and is normally held by those teachers in medical schools who are not medically qualified. The Ph D can be obtained by three years' work after graduation as a bachelor at a college, but often four years are spent on it. The course consists partly in research work (on which a thesis is required) and partly in study similar in nature to an honours course for British undergraduates. The final examination is of a high standard and includes a searching oral test. The D Sc degree is normally awarded only *honoris causa*.

Some universities are private, being financed (apart from fees) by income from endowments, by gifts from private persons, or by grants from foundations, others are State or municipal institutions. Both types—the private and non-private—are organized on the same lines, and it is doubtful whether they differ in quality.

College and university students may live where they please. Many institutions have halls of residence known as "dormitories." Fraternities, which are student clubs and in many cases wealthy corporations, also maintain club-houses where the members may reside. The fraternities are often national organizations, and a single fraternity may maintain a house at each of many colleges and universities. Some fraternities are professional, their houses being reserved for students preparing for a specified profession. The corresponding organizations for women are known as sororities.

### Medical Schools

Until the chaotic state of medical education in the United States was revealed in a report prepared by Mr Abraham Flexner about forty years ago, many medical schools were notoriously inefficient. As a result of this report, about half the medical schools disappeared and standards were set up under the auspices of the American Medical Association and the Association of American Medical Colleges. The result is that the United States now possesses some of the best-designed and best-equipped medical schools in the world.

The first great American school, that of the Johns Hopkins University, Baltimore, was opened in 1893. The Johns Hopkins medical school is famous for many things, only three can be mentioned here. (1) it was the first American embodiment of the research spirit of nineteenth-century German medicine, (2) it set an example by requiring a high standard of general education in candidates for admission, and (3) it introduced, in 1914, the system of a

full-time teaching staff in the clinical branches of medicine, thus placing the whole of medicine on a university basis.

The full-time system is now an accepted principle of medical education in the United States and has recently become so familiar in this country that no description of it is necessary. It is, however, worth noting that, like the full-time clinicians, the full-time pathologists are primarily teachers and research workers rather than routinists. The routine pathology—necropsies and surgical histology—is done (under supervision) by young clinicians who also share in the teaching of students. This arrangement benefits all concerned: (1) the clinicians, who receive a valuable training in the correlation of signs and symptoms with structural changes, (2) the students, who are largely taught by men with up-to-date knowledge of the clinical branches of medicine, (3) the full-time pathologists, who have adequate time for research, and (4) the hospital staff, whose heavy demands can easily be met owing to the number of routinists available.

At the Johns Hopkins University the medical school and hospital occupy separate buildings, but modern opinion favours the union of school and hospital in a single building. For example, at Rochester, New York, where a medical school was opened in 1925, a single building houses the medical school, the university hospital, and the municipal hospital, which for all medical purposes form a single institution. The plan of a single building was adopted with the object of promoting the closest possible co-operation between all departments, clinical and non-clinical, in teaching and research. The plan has the further advantage that duplication of services is avoided—the whole institution is served by a single workshop, animal house, photographic department, and pathological laboratory.

American medical schools are inspected and graded by the American Medical Association, which indicates shortcomings privately to the schools concerned, the American Medical Association thus performs functions that in this country would be regarded as appropriate to an official body.

The Johns Hopkins medical school has in the course of time lost its unique distinction owing to the rise of other first-rate schools. How many schools may properly be so described is a matter of opinion, but there is general agreement among American medical teachers that about twelve schools now qualify.

### The Medical Curriculum

Pre-medical education is obtained in colleges. For prospective medical students the college course includes chemistry, physics, botany, zoology, English, and either French or German. In his final college year the student takes the scholastic aptitude test of the Association of American Medical Colleges. This is a test of (1) comprehension and retention of a previously unseen mass of facts, (2) visual memory, (3) memory for content of an anatomical diagram, (4) general information, (5) logical reasoning, (6) scientific vocabulary, and (7) understanding of printed material. The student's performance in this test, details of his standing in college, and reports from his science teachers are considered by the medical school and promising candidates are interviewed. On account of this careful selection most of the students admitted complete the course.

The medical course lasts four years, the first two being preclinical, the last two clinical. The subjects of study are substantially the same as in this country, but the systematic courses of instruction in pharmacology, pathology, and bacteriology are completed before clinical work is begun. Towards the end of the preclinical period



instruction in clinical methods is given. The clinical period is spent first in the wards, later in the out-patient departments. On completing his course the student receives as a rule the degree of M.D., which qualifies him for an internship (house appointment). The right to practise independently is obtained by passing one of the State examinations or the final of the National Board (roughly equivalent to the Conjoint Board). Many States require candidates for their examinations to have completed one year of internship.

### Methods of Teaching and Examining

The student's work is carefully planned and supervised. In most subjects there is one teacher to every three or four students. Each teacher forms an estimate of each student, taking into account character and personality as well as ability. These estimates may be expressed as marks—as many as half the possible marks in a professional subject may be reserved for teachers' estimates, only half being obtainable at the examination. For this reason examinations are less important than they are in this country.

One or more subjects are commonly studied intensively all day and every day until the ground has been covered, in this way anatomy may be finished in six months, histology in three. The study of clinical subjects is similarly concentrated, each major and minor subdivision receiving so many months or weeks according to its importance. Throughout his course the student may spend most of the day (8.30 a.m. to 10 p.m.) in the laboratories, lecture rooms, or wards and has less time for reading than the British student. One or two half-days a week throughout the course may be kept free for work of the student's own choice—research work or an optional course.

During the clinical period the student has access to patients at all hours of the day and night. The student is an indispensable member of a team—the normal work of the hospital could not be done without him.

The standard of knowledge attained varies with the subject. In anatomy it is not so high as in this country, probably owing to the relatively short time spent on it and the consequent necessity for high-speed dissection. In biochemistry, on the other hand, the standard is much higher, in physiology, pharmacology, pathology, and bacteriology it is about the same. In the clinical subjects the student has more responsibility for his patients and does more routine work than in this country, on the other hand his experience, especially of obstetrics and emergency work, is often narrower than the Englishman's. Venereology receives more attention and forensic medicine less. Medical history is taught in some schools, forming one of the optional courses.

Perhaps the most distinctive feature of American medical teaching is the clinical-pathological conference. This is a standard form of instruction that the student attends once a week throughout the clinical period. The details of procedure vary in different schools, but the general plan can be seen from the following example. The conference takes place in the post-mortem room and lasts exactly one hour (12 noon to 1 p.m.). It is attended by all the staff of the pathology department, the radiologists, many clinicians besides those directly concerned with the cases studied, and all students qualified to attend. Three or four cases are presented on unfixed material that has been kept in a refrigerator. The following topics are dealt with in the order named: (1) clinical history, (2) x-ray report and demonstration of films by a radiologist, (3) comments by clinicians of "honorary" status, (4) post-mortem findings by the pathologist who performed the necropsy, (5) comments by the professor of pathology, who then answers questions,

(6) formal description of the organs by the professor of pathology, (7) questions and general discussion. Criticism of the diagnosis and treatment is frank and free, and there is no respect of persons by either colleagues or students.

### Discussion

From the information given above it will be clear that the American system of medical education differs considerably from ours, and some of its main features will be briefly discussed.

The selection of medical students is a difficult problem and probably explains the introduction of the scholastic aptitude test. It should, however, be noted that this is only one of the various aids to prognosis, and that great importance is also attached to the interview.

The preclinical study of pharmacology, pathology, and bacteriology would not find favour with British teachers. An elementary knowledge of these subjects is necessary if the student is to profit by clinical instruction, the completion of the systematic courses in them before clinical work has begun is undesirable. This point may be illustrated with reference to pathology. The object of teaching pathology to medical students is to enable them to understand the changes in structure and function that occur in disease and so to interpret signs and symptoms accurately. The discussion of pathological phenomena that the student has not seen in patients is largely a waste of time, for this opinion there is ample evidence from the experience of dental students when they have been required to follow a pathology course designed for medical students. Under these conditions the dental students are often bewildered, and the pathological instruction conveys very little to them. The fact is, of course, that pathology and clinical medicine and surgery are not distinct subjects that can be profitably studied apart, but simply different approaches to a single problem—namely, the man who is ill. Ideally, pathological teaching should thus continue throughout the clinical period. In practice, however, this would mean overloading the final examination, and a sensible compromise is to hold the examination in pathology some time before the final in order to allow the student to concentrate on the clinical aspects of his work. If the intimate relation between pathology and clinical work be granted it follows that a pathology course for dental students should be specially designed, at least after the completion of the study of general pathology.

The high proportion of teachers to students in American schools makes it possible to give the students more individual attention than is practicable in this country and also puts at the student's disposal a wider range of interests and experience. The elaborate system of grading of the students by the teachers is probably a natural development made possible by the abundance of teachers.

The significance of examination results is not the same as in this country. The American student is judged on his knowledge, class work, and personality, the British student on his knowledge alone. A pass in a British examination means that the student has mastered the essentials of a subject, a pass in an American examination does not equally guarantee this, because a proportion of the marks may be awarded on grounds other than the demonstrated possession of knowledge.

The intensive system of teaching allows the student too little time for reading and rumination and denies him the relief of studying different subjects concurrently.

Clinical-pathological conferences are a valuable means of correlating clinical findings and pathological changes. They are valuable for students and even more so for clinicians and pathologists, who are thus regularly brought into



conference The conferences are most instructive when they relate to patients recently dead, since many of those attending will have seen the patient during life and will therefore have the problems of diagnosis and treatment vividly in mind, a conference on patients dead long ago is less instructive, despite the more complete documentation, including histological reports on material removed at necropsy Since the main object of a conference is the instruction of students, the cases should preferably illustrate the common diseases, and the conference should be conducted throughout with the student's limited experience in mind, difficult cases requiring specialized clinical or pathological knowledge would be best discussed at conferences for graduates only

### Summary

The institutions concerned in medical education in the United States are described and the education of the American medical student is described and compared with that of the British student

Medical education in America is conducted on the same general lines as in this country, and the subjects of study and their scope are substantially the same

The distinctive features of American teaching are (1) the sharp separation of non-clinical from clinical studies, (2) the high proportion of teachers to students, (3) the important place of the student in the hospital team, (4) the relative unimportance of examinations, (5) the intensive system of study, and (6) clinical-pathological conferences

One year of internship is a common prerequisite for independent practice

I am indebted for discussions to many medical teachers, British and American, and to British students who worked in American schools during the war I am grateful to Professor I L Kandel for expert advice on American education and to Professor S L Baker for reading the manuscript

## Nova et Vetera

### JOHN WILLIAMS AND THE EARLY HISTORY OF YELLOW FEVER

BY

G M FINDLAY, CBE, MD, FRCP

The early history of most diseases is lost in the mists of time This is not as a rule a matter of great importance, but in the case of yellow fever it would still be of considerable interest to know whether in historical times the infection had first passed from Africa to America or from America to Africa, or whether the evidence favours the view that the disease was present long before the coming of man, when Gondwanaland still included what is now South America and Africa If the yellow fever virus could colonize a new continent in the sixteenth or seventeenth century it might conceivably do so once again

One of the arguments which has always been used by those who favour the American origin of yellow fever has been that whereas the first recorded outbreak of the disease in the New World was in 1648 in Guadeloupe, Havana, and Yucatan (Du Tertre, 1667-71, López de Cogolludo, 1688), and almost certainly in 1647 in Barbados and St Christopher (Ligon, 1657, Scott, fl 1634-96, Winthrop, 1853), the first record of an outbreak in the Old World is not till 1778, when the Hessian, John Peter Schotte (1782), described yellow fever under the name of "synochus atrabiliosa" in St Louis de Senegal

An authentic record of yellow fever in Africa which considerably antedates Schotte has now been found This occurs in a pamphlet published by John Williams at Kingston, Jamaica The pamphlet is entitled "An Essay on the bilious or yellow fever of Jamaica" [Petet autem novum quoque consilium, non ab rebus latentibus (istae enim dubiae & incertae sunt) sed ab his, quae explorari possunt, id est, evidentibus Causis

A Corn Celsi Praef] Kingston Printed by William Daniell, Printer and Bookseller, at the New General Printing Office, the corner of Water Lane in King Street, near the Court House, 1750

This little work seems to have had only a limited circulation There is no copy in the British Museum, but one exists in the library of the University of Edinburgh and another in the Surgeon-General's Library in Washington\* The first edition was, however, reprinted in London in 1752 by T Waller, opposite Fetter Lane in Fleet Street, and was sold for the sum of two shillings Of this edition there are more examples, as for reasons which will be detailed it created some general interest Its significance, however, has been overlooked by those interested in the history of yellow fever The "Essay on the bilious or yellow fever" met with considerable criticism from Parker Bennet, a physician resident in Jamaica, who wrote 'An enquiry into the late Essay on the bilious fever' This inquiry stirred John Williams to a poetic flight in heroic couplets, after the manner of Mr Pope, in "An Epistle to the Honourable Charles Price, Esq," whereupon Bennet replied in 'A prose epistle to a poetic epistle writer' This in its turn was followed by "A letter to Doctor Bennet" from Williams with the motto 'The mouth of them that speak lies shall be stopped'—Psalms lxxiii 11 This letter could not have been published until after Nov 27, 1750, and was the last written communication between John Williams and Parker Bennet, for on Dec 29 they came to blows which, in the words of the anonymous editor of the 1752 reprint, 'terminated in the death of both' Before retelling this curious incident it is proposed to discuss the reference to yellow fever on the West Coast of Africa

### Yellow Fever in West Africa

Williams describes very accurately the symptoms of yellow fever as he knew it in Jamaica He then goes on, "I do not apprehend this fever is what we call a local disorder, for I have seen it upon the coast of Africa, and am well informed that in the River Benin they have a bilious or yellow fever acuter than what it was here, at the time of the expedition to Carthage, the persons seized with this fever dying there in less than twenty-four hours This disorder is generally brought on by suddenly cooling the body and checking perspiration after hard exercise in the heat of the sun for when sailors go to cut wood for the ship's use they are obliged to row several leagues against a current and then jump into the water to carry the wood on shore"

John Williams, it appears, had been a surgeon on a Guinea man, that is to say, a slave ship plying from Guinea to the West Indies, for Bennet twits him with having gained most of his experience in treating African negroes on the coast of Guinea Bennet, it may be noted, was an M D of Edinburgh, while Williams, who is always referred to by Bennet as "Mr Williams," states that he had acquired his experience "like honest and careful Swedenborg" and had "made himself acquainted with the diseases of the country never sacrificing his patient to any favourite hypothesis" That the assertion by Williams that he had seen yellow fever in Africa was not regarded as remarkable is seen from a statement by Bennet in his "Enquiry into the late Essay on the bilious fever" "We assure him," Bennet says, "that some of us have been in Africa, on board Guineamen, and in other islands of the West Indies as well as he, consequently we are equally entitled to write upon and cure the yellow fever Physic is a science not to be acquired by mere dint of natural parts"

There is no doubt that Williams actually described yellow fever According to him, "The distinguishing symptoms or diagnostics of this disorder are, besides what is common to fevers, great anxiety, heat and pain at the scrobiculum cordis, some degree of inflammation of the liver which frequently causes a jaundice, bilious vomiting or ejections, or both, some times an acute, sometimes a dense pain about the region of the liver, all manifest signs of inflammation Sometimes we find the right hypochondr tumified, frequently hard Many cannot bear pressure on the right side or to lie on the left From these symptoms to worse—strong and continued convulsions of the diaphragma, intercostal muscles and stomach, aeruginose

\*A microfilm of the first edition is now in the library of the British Medical Association

vomiting—then vomiting black adust blood, appearing like the grounds of coffee mixed with acrid unfinished bile, the juices of the stomach and pancreas both very sharp—bleeding from the emunctories or delirium or phrenzy general gangrene and death. These are indeed dreadful symptoms." This is by no means a poor description of yellow fever.

In many ways Williams was in advance of his times, for he distinguished quite clearly between yellow fever and the common bilious remittent. He notes, for instance, that the remittents described by Hippocrates were of a different kind from the yellow fever. "His bilious or yellow fevers were not so acute as ours, they terminating commonly in seven or nine days, sometimes in fourteen." In addition Williams seems to have recognized that he was dealing with something different from the common fever of Virginia. "In Jamaica a cooling regimen, solutive and diluting medicines succeed best and the disease soon arrives to its acme or state and consequently is soon determined. In Jamaica in this ardent fever I treat of, the strongest alexipharmics and sudorifics would bring on a delirium or phrenzy and destroy the patient. In Virginia we are to promote, at all events, the concoction of the febrile matter by the use of alexipharmics and sudorifics, although by these we translate that febrile matter to the brain and bring on a coma we must keep up the pulse until the crisis which generally happens on the seventh, ninth and sometimes the eleventh day. In Jamaica all we can do is little enough to suppress the fever. In Virginia nothing is so serviceable in the remissions as the Peruvian bark, or even in the height of the fever without regard to the exacerbations or remissions. In Jamaica the bark in all forms hath frequently been tried in the remissions but without success. Indeed it generally does much harm."

Williams was thus considerably in advance of Schotte, who still believed that the synochus atrabiliosa of Senegal was merely a more malignant form of remittent fever. Well on into the nineteenth century it was customary to classify deaths as from bilious remittent fever and malignant bilious remittent fever, and even as late as 1874 the *British Medical Journal's* "Own Correspondent" on the Gold Coast had difficulty in distinguishing between yellow fever and malaria. "The yellow fever on merchant ships," he says, "has been contracted in the Bights especially at Bonny where they lie for several days while steam tenders collect oil from the neighbouring rivers. The disease is really more a severe form of malarial remittent than true yellow fever but not a whit the less deadly."

Williams also had a fair idea of the pathology of yellow fever. "In subjects who died of this disorder the liver was increased in bulk and greatly inflamed on the concave parts large black spots appeared, which were mortified parts of that viscus. The gall bladder was frequently empty. The mesenteric veins in the intestines which all deliver their blood into one large trunk which constitutes the vena-porta were vastly turgid with blood and the whole intestinal tube appeared livid, the inner coat being covered with a gangrenous bloody slough, which when washed off, the mesenteric vessels appeared blackish and turgid with blood. If an inflammation happens in the liver an ardent fever with a jaundice must succeed." Many later writers entirely ignored the pathological condition of the liver and concentrated on the inflamed condition of the intestinal tube.

Williams's views on prognosis also appear quite modern.

If a jaundice comes on soon, it is bad, if with livid spots fatal. If the vomitings are incessant grow darker and the hiccup comes on, it is generally fatal. If the face is greatly flushed and the vessels on the tunica adnata turgid with blood with a concomitant phrenzy you might expect the patient's death in a very little time, especially if the skin is dry. The blood is dissolved to such a degree sometimes as to force its way thro the skin itself, or burst out from some small twig of an artery on the surface and this haemorrhage is so violent, it cannot easily be restrained. This was the case of Doctor Dwyer and of several others."

It was by his remarks on treatment apparently that Williams stirred the wrath of Dr Parker Bennet and by his assumption that newcomers who had learnt only the theory of medicine could not possibly know how best to treat yellow fever. These gentlemen argue. Williams says, "that by some occult venom contagion miasma or Je ne sais quoi the texture of the blood

is broke whence it is turned into a vapid and putrid mass, runs off through the glands therefore the blood is in the same state as in pestilential fevers and give sudorifics and what are called alexipharmics, as in the pestis, insisting the most likely means to save the patients is to keep open the skin. How pernicious must the theriacal draughts, given by some in the beginning of this fever, be. How destructive cardiacs, volatiles and all spirituous medicines. If they will have alexipharmics why do they not give fresh lime juice which is perhaps the greatest in the world? Lime juice so powerfully prevents the dissolution and fluxility of the juices that it is almost impossible to raise a salivation by mercury, if the patient suck limes plentifully at the same time. These medicines, commonly called alexipharmics, hurry on the inflammation to a gangrene. Lement purges and solutives cleanse the intestinal glands and promote perspiration internally." The word "alexipharmic," or "alexipharmac," it may be noted, came into use in France in the sixteenth century as a term for a substance to ward off the plague. It first appeared in English in 1605. Sir Thomas Browne (1646) in his *Pseudodoxia epidemica* states "The horn of a deer is alexipharmical." Other alexipharmics were lemon rind, marigolds, scordium, rue, and of course Berkeley's tar water.

It is not possible to say exactly when Williams saw yellow fever in Africa. From his own statement he wrote most of

An Essay on the bilious or yellow fever" in 1745 he mentions the hurricane in Jamaica in 1744 and the expedition to Carthage under Admiral Vernon ('old Grog') and Brigadier-General Wentworth which occurred in March, 1740-1. Williams considered that Bennet was a newcomer in 1750, although Bennet had been in Jamaica since 1746. It seems improbable that Williams would have scorned the views of newcomers in 1745 had he been in Jamaica only four or five years. Williams would therefore have been on board a Guineaman some time between 1730 and 1740, and his description of yellow fever in Africa must antedate that of Schotte by at least 40 years. Roderick Random, it may be remembered, served on a Guineaman after leaving the Navy, where he had acted as a surgeon's mate during the attack on Carthage. Actually Tobias Smollett was in Jamaica from 1741 to 1744 he married Ann Lascelles in 1747, the original of Narcissa in *Roderick Random* and a Jamaican heiress.

#### Parker Bennet and John Williams

Of John Williams no biographical details are available apart from those given in his three works: the "Essay," the "Epistle to the Honourable Charles Price," and the "letter to Dr Bennet." Of Parker Bennet it has been possible to find out a little more. The register of the Church of St Anthony, Montserrat, contains under the date Oct 25, 1725, the baptism of 'Parker son of Mr Edw<sup>d</sup> Bennet and Jane, his wife'."

In the list of graduates of Edinburgh for the year 1745 is the name of Parker Bennet ab Ins S Christoph. This explains his statement that "some of us have been in other islands of the West Indies." Bennet does not seem to have been in West Africa. There were, it may be noted, only two other doctors of medicine in that fateful year in Edinburgh, Ebenezer McFait, Scotobrit, and "Robertus Willan, Anglus." Parker Bennet's Thesis, or, as it was then called, his "Dissertatio Medica Inauguralis," was entitled "De Menstruis" and was dated June 18, 1745. It was printed in Edinburgh by W and T Ruddiman. Bennet's name was spelt on the title page "Bennett." His name spelt, however, with one t is found in a manuscript record book of scholars, masters, and apprentices now in the library of the University of Edinburgh. This book was apparently begun by Alexander Monro, primus. It gives no address for Bennet, but records that he had paid the fee of three guineas and that his master was Alexander Cunningham. Bennet must have graduated before he was 21 but there were then no regulations and an M A was often taken at the age of 15 or 16. Robert Hamilton, of King's Lynn, appears to have taken his M D in 1791 at the age of 17.

It is not necessary here to follow the gradually mounting tension shown by each succeeding production from the pens of John Williams and Parker Bennet, a progress from the retort courteous to the lie direct. One instance must suffice, Williams in his epistle to Charles Price (afterwards Sir

Charles Price, Bt, Speaker of the Jamaica House of Assembly) refers to "Bennet, whose trifling writings no point hit, That fop in learning and that fool in wit" Two accounts of the final episode have been found one in the *Gentleman's Magazine* for 1751, vol 31, p 136, and the other as an introduction to the literary remains of John Williams and Parker Bennet Both descriptions are anonymous but are probably by the same hand The second is entitled, "An authentic account of the death of the unfortunate doctor Williams and doctor Bennet of Kingston in Jamaica, on the 29th of December, 1750, caus'd by the following Papers" As it is short it may be given *in extenso*

"After a great deal of ill language they proceeded to blows, which caused challenges and acceptance, and the morning after doctor Bennet went arm'd with his sword and a brace of pistols to doctor Williams's door very early, and knocked him up, Williams saw from his window who it was, and what he had to expect, upon which he loaded his pistols with Goose, or Swan shot, and slinging his drawn sword by a ribband upon his wrist, came down, and opening the door, just sufficient to admit his hand with a pistol, poured a shot full into poor Bennet's breast, who had delivered his own arms to his boy, whilst he called Williams out, which when he had done, he continued to pursue Bennet, reeling to his boy, and wounded him with the other pistol in his knee Bennet by this time had gained his sword only, which was fastened so strongly in the scabbard, that with all his endeavours he could not draw it When Williams had fired his second pistol, Bennet turned upon him, thanked God he had power to be reveng'd, and whilst he endeavoured to release his imprison'd weapon, begged of God to invigorate him a few moments, but Williams then gave him a mortal thrust under his right arm, which pierced the lungs on both sides, having done this he was turning to run for it but that moment Bennet drew his sword, and made a pass at Williams, which entering under the right clavicle or collar bone, pierced the internal jugular vein, and finished its course in the shoulder blade, breaking off at the place of entrance, however, Williams run ten or fifteen yards and then fell, suffocated with his blood, and never spoke more The unfortunate Bennet survived him about four hours, and then expired, in the most agonizing pains imaginable,"

So ended the careers of "the eminent physicians," John Williams and Parker Bennet Williams has one title to fame in that in 1750 he first recognized that yellow fever was the same disease in the Old and New Worlds It was not till 1928 that his findings were conclusively confirmed by Theiler and Sellards

My thanks are due to Mr L W Sharp, Librarian to the University Library, Edinburgh, and to Mr S H Watkins for information and help in preparing this paper

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## Reviews

## PIONEERS OF SOCIAL MEDICINE

*Some British Pioneers of Social Medicine* By Major Greenwood, D Sc, F R C P, F R S University of London Heath Clark Lectures, 1946 delivered at the London School of Hygiene and Tropical Medicine (Pp 118 12s 6d.) London Geoffrey Cumberlege (Oxford University Press) 1948

"For many parts of nature can neither be invented with sufficient subtlety, nor demonstrated with sufficient perspicuity, nor accommodated unto use with sufficient dexterity, without the aid and intervening of the mathematics" Professor Major Greenwood confirms this statement of Francis Bacon (*Of the Proficiency and Advancement of Learning* Book II) in this delightful book which embodies the Heath Clark lectures delivered to the University of London in 1946, for vital statistics are the touchstone of public health and social medicine "I shall write more about 'sums' and less about laws than he [Simon] did," says the author in his introduction He has there fore selected for his purpose those pioneers who laid the foundation of scientific vital statistics, which in our own time he has done so much to develop

Though his FitzPatrick Lectures were on the history of medical statistics from Graunt to Farr, he alludes only briefly to the seventeenth-century pioneers and passes to the eighteenth century, by the end of which elementary statistical methods were practised widely, and the pioneers of that century—Howard, Lettsom, Percival, and Ferriar—based most of their arguments on statistical reasoning The next exemplar is Thomas Southwood Smith, "the most attractive of the pioneers as a human being" It matters little that Smith's epidemiological doctrine is now as obsolete as that of Galen It was Smith, with his colleagues Neil Arnott and James Phillips Kay, who demonstrated the evils of disease, poverty, insanitation, and ignorance Chadwick, Shaftesbury, and Morpeth fired the guns, but these medical pioneers supplied the ammunition There follows a well etched study of the autocratic Edwin Chadwick a reformer in a hurry, intolerant of public opinion Chadwick's statistics are open to criticism, less so the conclusions he drew from them in the cause of sanitary reform But by the time of William Farr, to whom two chapters of the book are devoted the foundations of national vital statistics were well and truly laid Farr made the dry bones of figures live by his gifts of literary exposition and showed how they pointed the way to practical methods of prevention, though Professor Greenwood does not think that he was so great as a pure epidemiologist as he was as a general vital statistician

In the study of John Simon he emphasizes that early scientific training benefited his official work, that he combined scientific research with the work of preventive medicine chose admirable and competent investigators, and that the Privy Council epoch (1858-72) was his golden age The last chapter of the book is on Florence Nightingale and Francis Galton The former pressed for statistical education the latter invented the calculus of correlations and other aids to statistical research In Appendix II "The Epidemiological Future," the author consoles us by observing that epidemics of acute infection, such as measles, have never "wiped out" nations or even cities This is a book to buy to read and to keep

ARTHUR S MACNALT

## TAR DERMATOSES

*Dermatoses among Gas and Tar Workers* By William David Jenkins J P, BA M R C S, L R C P (Pp 54, 19 illustrations 25s) Bristol John Wright and Sons 1948

This monograph published two and a half years after the death of the author, fills an important gap in industrial dermatology It is of value not only for the information that it imparts but because it reveals a research technique of a high order The lucid description of the processes and the hazards of the coal-gas and tar industry the careful classification of some 6,600 employees according to occupational environment the clear and painstaking account of the various lesions in relation to industrial history, and the compilation of the statistical data are all evidence of a clear mind and an acute power of observation

The work is divided roughly into three sections. The first is on the carbonization of coal and the distillation of tar, and the author exposes some of the mysteries associated with these complex chemical changes. In the second he gives a clinical survey of occupational dermatitis in the industry, and in the third describes the neoplasms resulting from contact with pitch, tar and allied products. He also gives sound practical advice about treatment and prophylaxis. It may be surprising to learn that contact with tar and pitch is not particularly conducive to the development of incapacitating dermatitis, but our own experience confirms this contention.

As with most first publications of this kind, it is not difficult to criticize. For example, we should like to have heard more of the aetiology of tar erythema and the chemical photosensitizers responsible for this temporary though painful reaction. Pitch and tar melanosis might have been discussed more fully, and also "shagreen skin". Moreover, though the account of papillomata and epitheliomata is full and comprehensive, the author does not mention the active carcinogen (3,4-benzpyrene) present in tar and pitch. No doubt these deficiencies (together with the provision of an index) would have been remedied but for the untimely decease of Dr Jenkins. The quarto-sized volume is attractively printed on art paper, and the photographs though not in colour, are clear and instructive. It will be welcomed by all who are interested in industrial medicine and dermatology.

PHILIP ROSS

### **PATHOLOGY IN THE TROPICS**

*Manuel de Pathologie Exotique*. By C. Mathis and R. Pons. (Pp. 642. Cloth covers 1,400 francs, paper covers 1,000 francs.) Paris: Presses Universitaires de France, 1948.

In the last ten years we have probably seen more important advances in the control of tropical diseases than in any other decade in history. It is therefore with considerable interest that one opens a new textbook of tropical medicine, more especially one which purports to consider "the most recent advances in aetiology and therapeutics". Unfortunately one cannot fail to be disappointed, for, although it is published in 1948, internal evidence shows that the greater part of the book must have been written when France was cut off from the outer world.

To mention a few of the more obvious omissions—the new antimalarial drugs paludrine, chloroquine, and nivaquine are dismissed in three lines in a footnote, the quinine treatment of malaria receives two pages. The only drawback to mepacrine is said to be the yellow discoloration of the skin. The use of pentamidine or in fact of any of the aromatic diamidines receives no mention in the account of the treatment of kala-azar or in that of the treatment and prevention of sleeping sickness. The only drugs mentioned for the treatment of amoebic dysentery are emetine hydrochloride, bismuth salicylate, neoarsphenamine, and acetarsol. Sulphones are not referred to for the treatment of leprosy. Penicillin finds no place in the treatment of tropical ulcer and yaws, and in the latter disease bismuth salts, which are the cheapest drugs for mass treatment, are recommended only when the spirochaetes are resistant to arsenicals. In the treatment of rickettsial infections *para*-aminobenzoic acid is unknown; it would be too much to expect an account of chloromycetin. Sulphonamides are not mentioned for the treatment of lymphogranuloma venereum. Even when the authors advise using penicillin as in the treatment of staphylococcal infections they recommend that it should be given intravenously or subcutaneously. In addition to the omissions from the sections on therapeutics there are many other failures to take notice of recent advances, and many errors. The authors do not even hint at the existence of exoerythrocytic forms of malarial parasites, though they give much attention to the life history of plasmodia. They dismiss DDT in two short paragraphs: fish are said to be preferable for destroying mosquito larvae. Neither Paris green nor gammexane seems to be known. No mention is made of recent work on black-water fever; instead we are told that it is especially prevalent in wooded valleys. The account of yellow fever is totally inadequate. The authors emphasize the highly debatable point that yellow fever attacked the Spaniards on the discovery of Haiti but give no account of any epidemic of yellow fever among African natives since that in the late twenties. The enormous

outbreak in the Sudan in 1940 is not mentioned, nor is the wide geographical extension of the disease to the east coast of Africa and as far south as Northern Rhodesia. The role of monkeys in maintaining infection is apparently unknown, and no mention is made of insect vectors other than *Aedes aegypti*. Under the heading of tissue culture the only reference is to the attempt by Haagen and Theiler (1932) to grow the neurotropic strain of the virus. The use of the virus 17D for immunization is dismissed in a few lines and is recommended only for children in whom it is recognized that the neurotropic strain causes dangerous reactions. Similar errors and omissions mar the chapter on rickettsial infections: neither Q fever nor rickettsialpox is mentioned. To continue to cite further examples would only be tedious. A short but useful account is given of cosmopolitan diseases in the French colonies, but curiously enough infective hepatitis is unnoticed and no reference is made to the frequency of cirrhosis or of primary carcinoma of the liver. Poliomyelitis is said to have been introduced between 1920 and 1925. Beriberi is the only deficiency disease to which attention is drawn despite the malnutrition widespread in many French African colonies.

The book is well printed and produced and has an index, but its contents, in view of the claim to discuss "the most recent advances in aetiology and therapeutics," can serve only to point the moral of many of the discussions at the recent Royal Society Conference on the dissemination of scientific knowledge.

G. M. FINDLAY

### **AMBULATORY SURGERY**

*Surgery of the Ambulatory Patient*. By L. Kraeer Ferguson, A.B., M.D., F.A.C.S. With a section on fractures by Louis Kaplan, A.B., M.D., F.A.C.S. Second edition. (Pp. 932, 645 figures. £3 12s.) Philadelphia and London: J. B. Lippincott Company.

When the first edition of this book appeared in 1942 it was welcomed in this *Journal* because it seemed to fill the gap which existed between the usual handbooks of minor surgery and the full surgical textbooks. We noted then that the adjective ambulatory had been interpreted liberally and suggested that some of the conditions described were rather more severe than those it was customary to treat in the out-patient departments in Britain. But the increasing shortage of in-patient accommodation may force us to change our habits and to extend our ambulatory treatment to the wider limits indicated in this book.

The second edition maintains the virtues of the first but has been brought up to date without increasing its size; it includes accounts of such important new topics as the use of penicillin and the sulphonamides, tendon suture, and lesions of the back. There is much information in these pages that one may search for in vain elsewhere, and the teaching is sound. Some omissions have been needed to make room for the new matter, for the most part they are unimportant. However, there is one of interest we could not help regretting although it has no practical application in this country—the intriguing story of the black widow spider. Having destroyed its smaller consort immediately after mating it lurks under the seats of privies awaiting an opportunity to inflict painful and even dangerous bites upon the perineal regions of those seated thereon. Are such cases no longer met with in the U.S.A.? Have the privies now been rendered safe for democracy? The author of this very useful and commendable book does not enlighten us on this point.

NORMAN C. LAKE

### **FOUNDATIONS OF HEALTH**

*The Foundations of Health in Childhood*. By Norman B. Capon, M.D., F.R.C.P. The Convocation Lecture, 1947, of the National Children's Home. (Pp. 76, 2s. 6d.) London: National Children's Home and Orphanage, Highbury Park, N.

Childhood is essentially the period of growth, and Professor Capon regards the attainment of optimum health in each organ and system—"wholeness of structure and function"—as essential to the foundation of health in childhood. He outlines influences which by operating during antenatal existence, birth, or infancy and childhood, may and do interfere with the realization of that aim.

Measures for establishing health in childhood must not be purely defensive or protective. The author discusses in simple terms a child's nutritional requirements, his needs for active

games and exercise under conditions favouring health and limiting the risks of accidents, and factors related to the elements of hygiene to conditions of environment, and to lessened risks of exposure to infection. If these received more attention the health of the nation's children would be on a surer foundation. He recognizes that there is no one solution to the many outstanding problems. Education for health in childhood must continue unabated. The conditions under which children live, learn, eat, sleep, and play must be improved regardless of the sociological and economic problems involved. A proper appreciation of the true values of life must be encouraged. It is significant that in the concluding chapter, on the attainment of optimum health, Professor Capon describes needs which, while they are not essential to the continuance of life, are of the deepest significance in promoting and maintaining optimum health in childhood. These needs are for home life, happiness, opportunities for physical, mental, and emotional development and the stimulus of good example.

This is an admirable book and should have a wide appeal. The author presents the needs of child health in simple and unbiased fashion. He depicts the child as one who should be enabled to attain optimum health in his own home. From first page to last the reader will appreciate how workers in the field of child health must pool their efforts if this ideal is to be attained. The tenor of Professor Capon's lecture cannot but encourage just that co-operation. Those who promoted the lectureship are to be congratulated on making this valuable address available in published form. Readable and modest in price, the book should be on the shelves of all family doctors, infant welfare and school medical officers, and social workers concerned with children.

W S CRAIG

### VOLUNTARY SOCIAL SERVICES

*Voluntary Social Services Since 1918* By Henry A. Mess *et al*  
Edited by Gertrude Williams. International Library of Sociology and Social Reconstruction (Pp 255 21s) London  
Kegan Paul Trench Trubner and Co 1947

The title of this book is slightly misleading, for there is a great deal of information in it about the voluntary services in the earlier part of the century. This is a fault in the right direction for it gives a deeper perspective. The reviewer came to the conclusion that the book is even more valuable for the inferences drawn from examining the various agencies than for the great volume of information given about them. Their number and variety are amazing. The late Henry Mess, who wrote much of the book and inspired his colleagues, finds no legal definition of a social service but suggests that it is "a benefit which is being conferred on those who are relatively less well off or relatively unprivileged in some way." The authors demonstrate that the work of voluntary agencies is shifting from the remedial, which is now mainly in the hands of the State, to the constructive. None of the ten contributors has any doubt that there will always be a place for voluntary workers. They pay generous tribute to their pioneer efforts, and the fact that many of them have, so to speak, dug their own graves is no reflection on their capacity, for "all voluntary organizations and all social services should aim at destroying the need for their existence. The main characteristic of such organizations is their flexibility which gives them the advantage when dealing with individuals. This flexibility is shown, too, when they come to co-operate with the State agency which has taken over their work, for it has tended to humanize the official body and make it more inclined to experiment."

The chapter by Henry Mess on "Social Service with the Unemployed" is exhilarating to read, it obviously came from the heart as well as from the pen of a man who had a unique experience of the experiments made during the black years of mass unemployment. He came to the conclusion that "the State can only embody the desires of contemporary Society. The Voluntary Association is not thus cabined and confined. Its proper task is always to give expression to the questing spirit of mankind."

The book can be cordially recommended not only as a mine of information but as a tonic for anyone who feels doubtful about the capacity of our people to rise to any emergency which requires kindness, initiative, and public spirit. It is not only war that can bring out these virtues. Mr Mess's chapter was an eye-opener to one of his readers.

ALFRED COX

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Feeding the Human Family* By F. Le Gros Clark, M.A.  
(Pp 125 7s 6d) London Sigma 1948

An account for the layman of food production and distribution

*Headache and Other Head Pain* By H. G. Wolff, M.D.  
(Pp 642 63s) London Geoffrey Cumberlege 1948

An analysis of the pathology and symptomatology of headache

*Pharmacology and Therapeutics in Nursing* By M. S. Dooley, M.D., A.B., and J. Rappaport, R.N., B.S. (Pp 444 22s 6d)  
London McGraw Hill 1948

A textbook for nurses

*Nursing in Diseases of the Eye, Ear, Nose and Throat* Edited by D. H. Webster, M.D., *et al* 8th ed (Pp 309 15s) London  
Saunders 1948

A textbook for nurses, with much new material in this edition

*Studies in Analytical Psychology* By G. Adler, Ph.D. (Pp 213 21s) London Routledge 1948

Studies based on the author's fifteen years' practice of analytical psychology

*Changing Disciplines* By J. A. Ryle, M.D. (Pp 122 12s 6d)  
London Geoffrey Cumberlege 1948

Lectures on the history, methods and motives of social pathology

*Nursing in Tuberculosis* By L. N. Cady, R.N. (Pp 481 20s)  
London Saunders 1948

For the qualified or student nurse

*Promotion from Primary to Secondary Education* By D. M. McIntosh, M.A., B.Sc., B.Ed., Ph.D., F.R.S.Ed. (Pp 151 1s)  
London University of London Press 1948

A summarized account of an investigation by Professor W. W. McClelland, of St Andrews University published under the title "Selection for Secondary Education"

*Clinical Laboratory Methods and Diagnosis* By R. B. H. Gradwohl, M.D., D.Sc., F.R.S.T.M. and H. 4th ed Vols I, II, and III (Pp 1,295, 2,284, and 864 540 00 for 3 vols) St Louis  
Mosby 1948

A textbook of laboratory procedures used in diagnosis this edition contains much new material

*The Radiology of Bones and Joints* By J. F. Brailsford, M.D. Ph.D., F.R.C.P., F.I.C.S. 4th ed (Pp 760 63s) London  
Churchill 1948

This edition contains revisions and additions

*Cardiography* By W. Evans, M.D., D.Sc., F.R.C.P. (Pp 132 25s) London Butterworth 1948

The author discusses electrocardiography and phonocardiography and includes many cardiograms

*Rural Health and Medical Care* By F. D. Mott, M.D., and M. I. Roemer, M.D., M.P.H. (Pp 608 39s) London McGraw Hill 1948

A study of the medical services in rural areas in the U.S.A.

*A Handbook of Ophthalmology* By H. Neame, F.R.C.S., and F. A. Williamson-Noble, F.R.C.S. 6th ed (Pp 336 21s)  
London Churchill 1948

Intended for students and general practitioners

*Emergency Surgery* Part II By Hamilton Bailey, F.R.C.S., F.A.C.S., F.I.C.S., F.R.S.Ed. 6th ed (Pp 388 21s) Bristol  
Wright 1948

This part is on surgery of the abdomen

*Procedure in Examination of the Lungs* By A. F. Kraetzer, M.D. 3rd ed (Pp 150 18s) London Geoffrey Cumberlege 1947

An introduction to the technique of examining the lungs for the student



## BRITISH MEDICAL JOURNAL

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## SCIENTIFIC MEDICINE IN BRITAIN TO-DAY

Sir Henry Dale is the acknowledged leader of scientific thought in medicine in these islands. His activities in research have ranged over an enormous field in nearly half a century of service. In the experimental approach to physiology, pathology, and pharmacology his genius is representative of the best British tradition. His lecture on accident and opportunism in medical research, which appears in our opening pages, is a notable introduction to the series of articles on research specially contributed to the present Educational Number.

Professor L. J. Wits writes on the problems of clinical research in the light of a rich personal experience. He emphasizes the need for the trainee investigator to spend at least a year in a non-clinical department—it might be in biochemistry under Sir Charles Harington, or possibly learning about statistics to make up for what Professor Major Greenwood might regard as a defect in his undergraduate education. In his wide-ranging discussion the place of physiology and the physiological outlook scarcely receive the emphasis they deserve. The change in medical thought in our generation from its concern with structure to concentration on function has thrown a flood of light on present problems and given us high hopes for the future. At the end of the last century the scientific basis of clinical medicine lay in morbid anatomy and pathology, and German medicine was predominant. British medical science did not take kindly to this emphasis on structural change or to the meticulous cataloguing needed for the pathological documentation of disease. Our genius lay rather in the study of the dynamics of living processes, then being pursued mainly in the laboratories of animal physiology. It will be recalled that Sir Henry Dale's senior and junior contemporaries at the beginning of this century included such men as Gaskell, Langley, Sherrington, Schafer, Fraser, Bayliss, Starling, Barcroft, Adrian, Hill, Haldane, Macleod, and Cushny. Fifty years ago clinical medicine was for the most part a subject separate from or unconnected with physiology. It was concerned with the natural history of disease so far as it could be recognized and classified by the patient's history and by the evidence of almost unaided eyes, ears, and hands. Then a great step forward was made when J. S. Haldane carried out his beautifully designed experiments on the control and regulation of respiration, using himself and his colleagues as experimental subjects. James Mackenzie, in his general practice in Burnley, at about the same time was carrying out his phenomenal single-handed feat of analysing cardiac irregularities with especial reference, as Dr W. N. Pickles emphasizes, to prognosis. Mackenzie's only technical help

came from a co-operative local watchmaker. He and Haldane established the possibility of accurate scientific observation on man in medicine and in physiology. It was with Mackenzie's powerful help that Thomas Lewis embarked on scientific medicine as a career. The application of scientific method at the bedside was pursued by Lewis almost in splendid isolation over a period of nearly 20 years, but gradually, between the two great wars, an increasing number of investigators found their inspiration in Lewis's example. He not only inculcated a strict scientific discipline in those who were personally associated with him, but he managed to secure the allocation of funds for direct scientific investigation of the problems of disease. This he effected through the Royal Society and the Medical Research Council, whose work is so clearly outlined elsewhere in this issue by Dr F. H. K. Green. Concurrently with these developments the University of London and medical schools in other parts of the country established whole-time professorial units to enable their staffs to pursue studies in medicine with the advancement of knowledge as a primary duty. These units, now widely distributed, are in spite of many difficulties live catalysts of inquiry in our medical schools. Of these developments and of the achievements of our research workers we can feel justly proud.

In the United States there has been a tremendous growth of scientific medicine along somewhat similar lines, but with the difference that far greater numbers are engaged in work of this character. What Dr Raymond Whitehead in his account of medical education in the United States refers to as an "abundance of teachers" is matched by a corresponding abundance of research workers. But the increased volume of work done in America is due not so much to larger numbers of whole-time university workers as to the spread of the spirit of scientific inquiry among consultants generally. The pace at which research is pursued in the United States is at times staggering, but quantity does sometimes overwhelm quality. A happy mean must be found between the rather casual attitude of some of our specialists to laboratory research and the highly competitive transatlantic drive to produce a paper a year.

Professor Wits is rightly concerned about the ethical problems of investigation in man, and draws a distinction between experiments on healthy volunteers and those therapeutic trials on patients which are often among the highest services that medicine as a science can render. Lewis himself and all who follow him insist that the sick man's interests must be paramount, and where research is pursued it must be accompanied by considerate kindness, forbearance, and sympathy with the patient. There are many who are by nature disinclined for detailed laboratory analysis of the physiological problems presented by disease but who are attracted by equally important studies of the influence of environmental conditions on the patient's health. This approach has grown to-day into social medicine, but social medicine and clinical science are collateral studies and in no sense mutually exclusive.

The way in which fundamental biological and biochemical research impinges on medicine is outlined in the article by Sir Charles Harington. In spite of Professor Wits's inclination towards animal experiment as an adjunct to clinical research, it is still the primary duty of the scientific clinician to study disease in man. There is no laboratory method of inducing diabetes, or for that matter



cirrhosis of the liver, which is *exactly* comparable to the clinical condition. At best we get only crude approximations. There should be a constant transference of questions from clinical medicine to the animal laboratory, whence ideas will return to the clinic, but the clinical investigator clearly cannot be as expert in the pursuit of pure biochemistry or experimental pathology as those who have specialized in such work.

The methods now available for the study of physiological reactions in living man in health and disease were undreamed of fifty years ago. We can now locate areas of functional activity in the brain, we can use radioactive iodine to evaluate the activity of the thyroid gland, we can measure the output of the heart, and all the activities of the lungs, we can outline the individual chambers of the heart by the injection of radio-opaque substances, and the newest electrocardiography permits an accurate location of areas of heart disease. Important parts of the alimentary tract and urinary tract can be viewed directly, blood flow in the liver, kidney, and brain can be estimated, and the functions of renal glomeruli and tubules can be analysed. Beyond this is the great realm of direct applicability of biochemistry, with the possibility of estimating an ever-increasing number of metabolic and endocrine functions. Medicine is now, in fact, a science in its own right, making use of almost all the techniques of the basic sciences. The methods are there, the problems are legion, and for the intelligent investigator the harvest of results will be rich. The future is in our hands, and there is no reason why the high tradition of research in British medicine should not be fully maintained under the altered conditions which since July 5 have changed the pattern of medical practice. The financial prospects for the keen young worker in clinical medicine were probably never more promising. It is widely agreed that the training of the clinical specialist should include a minimum period of a year in the acquisition of research discipline. This is a wise recognition of the need to establish habits of deep thought and scholarly reflection, a critical outlook on the flood of papers which pours from the medical press, and humility in the face of the unknown. But if the fundamental sciences on which medicine is based are to be well served by acute minds the universities must revise their conception of what a living wage for an educated man should be. University departments of physiology, pathology, pharmacology, anatomy, and biochemistry must be able to attract the medical graduate who has taken an honours degree in science, for it is in these departments that the fundamental discoveries will for the most part be made. The medical profession must press upon the universities the implications of the Spens recommendations for consultants and specialists.

By its very nature medicine must always make use of inductive reasoning—facts being collected and arranged until some general pattern is seen from which a tentative generalization may be made. Many of our generalizations are built in this somewhat insecure way, and as new facts make their appearance we tend to be unwilling to cast aside the old hypotheses that have served us well. It is only by careful and detailed consideration of stubborn facts that we can create new ideas. The ideas themselves must be subjected to constant testing by new techniques, constant revision, constant design of new experiments. This is the way in which the stream of knowledge is kept alive.

## INTERNATIONAL CAUSES OF DEATH

Research does not start of itself, and discoveries are rarely made accidentally. Some stimulus is required, and the need for research on a particular problem is often demonstrated in the first instance by the tabulation of classified statistics. In the field of preventive medicine this is almost a truism, but in therapeutics the part played by the patient collection of figures often goes unrecognized. This applies also to the work which has been done in the past on the compilation of nomenclatures and classifications of diseases.

The International List of Causes of Death, which has now undergone six decennial revisions, is still almost unknown outside public health offices. The new International List<sup>1</sup> now includes non-fatal diseases, minor ailments, and different kinds of injury, and the decisions of the first World Health Assembly about its use marks the beginning of a new era of morbidity statistics. The distinction between a nomenclature and a classification is not always understood. A nomenclature is concerned with what are believed to be the different entities of disease in the light of medical knowledge at the time of its compilation and with the most suitable names for them. Alternative less suitable, and out-of-date names for diseases find no place in it, nor do vague and ambiguous terms no matter how common their usage may be. A nomenclature represents an ideal which the medical profession is asked to aim at, but its absorption by the profession as a whole is a long process, and by the time it has been absorbed and adopted by the majority the nomenclature is already ripe for revision. Physicians and surgeons who are to-day writing medical certificates and records received their training at all periods throughout the past half-century, and the labels they have been accustomed to attach to varieties of illness will be only partially changed by the issue of a new nomenclature. A statistical classification of diseases, however, has to provide a place for every term and description of illness and injury which is being written on certificates and records now, whether it be good or bad, modern or effete. Furthermore, the grouping, while being as near to an ideal one as possible, has to be designed to give the greatest possible help to the present problems of preventive medicine and research. For these reasons a nomenclature will not serve the purpose of a statistical classification, and neither that of the Royal College of Physicians nor the Standard Classified Nomenclature of Logic was intended to do so.

At the time of the Paris Conference for the Fifth Revision of the International List in 1938 the need for a full classification of diseases and injuries for morbidity statistics was beginning to be felt, and the U.S. Government was asked to study the question in consultation with other nations interested. The outbreak of war made the preparation of such classifications imperative, and in this country as well as in the U.S.A. and Canada provisional classifications were prepared. The Medical Research Council's *Provisional Classification of Diseases and Injuries*, which started from a draft prepared by Stocks and Robb-Smith, was tried out for E.M.S. hospital records in 1943 and was published in 1944, the U.S. Public Health Service *Manual for Coding of Illness* was published about the same time. It was fortunate that each of these lists was built into the framework of the International List of Causes of Death, and that

<sup>1</sup> *International Statistical Classification of Diseases, Injuries and Causes of Death*. WHO IC/MS/I Rev 1, 1947. Geneva.

they all had sufficient resemblance to suggest that an international classification might be constructed to serve the purposes of both mortality and morbidity. Since 1940 cause-of-death statistics had been founded upon the underlying condition which eventually led to death, and there was no logical reason why conditions which did not prove fatal could not be classified on the same basis and with the same code numbers as those which did. The General Register Office agreed, therefore that an attempt ought to be made to compile such a classification. The U.S. Government then set up a Committee on Joint Causes of Death and at the end of 1945 invited representatives from Britain, Canada, and the League of Nations to discuss the problem of joint causes and the preparation of a classification applicable to morbidity. The latter task was given to a working party, including Stocks, Robb-Smith, and Biraud, which laboured for two months in Washington. Agreement was reached, and it was decided to submit the result for criticism by numerous medical organizations and specialists in the English-speaking countries with a view to offering it for the Sixth Revision of the International List due in 1948. In this country the Minister of Health appointed a committee with Sir Ernest Rock Carling as chairman to study the project and to prepare a tabular list of the principal conditions to be included in each category of the list. At Ottawa in March, 1947, the U.S. committee met again, reached agreement on the numerous amendments submitted, and presented the classification to an expert committee established for the purpose by the Interim Commission of the World Health Organization. That committee, with the Chief Medical Statistician of the General Register Office as its chairman, circulated the list to 70 Governments.

At a second session of the expert committee in Geneva the comments from some 40 nations were carefully considered and incorporated so far as possible. The finished product was again sent to Governments with an invitation to the International Conference for the Sixth Revision of the List of Causes of Death at Paris in April of this year. At that conference 29 nations were represented and the expert committee suggested that the Classification be adopted unanimously at the outset. Not only was that done but all the committee's recommendations for the use of the detailed and abbreviated lists were accepted in principle. The conference also accepted the proposal of the U.S. Committee on Joint Causes of Death that a form of death certificate enabling the certifier to decide which was the underlying cause (almost identical with that used by the General Register Office) should be recommended for international use, thus removing a serious source of discrepancy between the mortality statistics of different countries.

The First Assembly of the World Health Organization set the seal on all this work by accepting the recommendations of its expert committee and of the Paris Conference, and by deciding upon a set of international regulations for the use of the Classification for all purposes from 1950 onwards. In this country as well as in Canada and the U.S.A. its use for national morbidity statistics in 1949 is anticipated. The *International Manual*, which is being printed in Geneva in three languages, will contain a historical introduction, the detailed list of categories, each denoted by a three-figure code number, a tabular list of the principal included conditions with suggested (fourth figure) subdivisions of many of the categories, abbreviated lists for special purposes, the

recommended form of death certificate and rules for coding when more than one cause is stated upon it, and the international regulations. A second volume, now in preparation, will contain an alphabetical index of over 20,000 terms likely to occur on medical records of all kinds.

### THE DOYEN OF BRITISH OPHTHALMOLOGY

The September issue of the *British Journal of Ophthalmology* is a special number marking the eightieth birthday of Sir John Herbert Parsons. Fittingly the volume is a large one containing twenty-three articles by authors from many countries. Some of them are his friends and contemporaries, more of them are former students of his. In tribute to his many-sidedness there are three introductory appreciations, by Professor E. D. Adrian representing science and particularly physiology, by Professor J. van der Hoeve, of Holland, representing the International Council of Ophthalmology, and by Mr R. R. James as the senior editor of the *British Journal of Ophthalmology*.

There are few people in British medicine who can look back upon eighty years of life crowded with so many diverse interests and so replete with accomplishment. Most of us are content with one main activity whether it be clinical work, fundamental research, or public life. To few is vouchsafed the ability to be at the same time a leader in all three. During his long working life Sir John Parsons from the clinical point of view was the foremost ophthalmological consultant in this country and his reputation as a pathologist in his special field was exceeded by no one in any country of the world. He is still a recognized authority on the basic problems of natural science as they affect vision. During his most active period his advice and help were sought by the Government and by industry on all the varied problems in which vision is concerned. He served in the two world wars in 1914-18 in an active capacity as ophthalmological consultant to the Army, more recently in an advisory capacity for the Air Force. Sir John Parsons was the dominant figure in British ophthalmology for many years, organizing teaching, guiding research, and exerting a leading influence on questions of policy and in international ophthalmology he was a constant and acceptable British ambassador. To all these activities was added an exceptional literary output, and among a wealth of scientific and clinical papers three books of his will remain classics. His four-volume *Pathology of the Eye* published at the beginning of the century and still unsurpassed came first, his book on colour vision was first published in 1915, and is still the most masterly and unbiased analysis of a subject till then chaotic. Most important of the three his *Introduction to the Theory of Perception* appeared in 1927, and assembled the biological, psychological, and clinical materials of a complex problem, which has excited speculation since the time of Descartes, into a unitary philosophy, the importance of which is not yet fully appreciated.

It is good that Sir John's abilities, his constant efforts, and his great human qualities should have brought their reward in his lifetime. In his public work he was honoured by the State, and for his scientific work he was made a Fellow of the Royal Society. Every position of distinction and every prize that ophthalmology has to offer has been his, and his general medical interests were recognized when he was elected President of the Royal Society of Medicine. It is more important to remember, however, that he has moulded the thought and earned the gratitude and warm affection of more than one generation of ophthalmologists. On his eightieth birthday this feeling has found expression, through the Faculty of Ophthalmology and the Ophthalmological Society of the United Kingdom, in the presentation to him on Sept. 3 of his portrait in oils.

## THE THRESHOLD OF PRACTICE

The proposal that an intern year—or, more exactly, a period of clinical experience under supervision—be added to the curriculum before the newly qualified doctor goes out into independent practice is supposed to have been first put forward in the B M A Committee's report on Medical Education, published in 1934. From that time onwards the idea was certainly canvassed in many discussions, revealing a variety of opinion about the length of this consolidating period, the extent and nature of the supervision, whether registration should come before or after, and whether at the end of the year or whatever the period might be there should be an examination. Eventually the proposal came to rest in the Goodenough Report, one of the recommendations of which is that in future the entry upon independent practice shall be preceded by a compulsory period of approved and supervised clinical work. This was embodied in the draft Medical Bill submitted to the Minister of Health by the General Medical Council, and it was endorsed by the Curriculum Committee of the B M A, which reported this year, and which put forward suggestions on the best way in which the year could be used.

It was therefore a little interesting to come, quite by accident, upon an old article signed "C A"—a reference to a list of contributors shows that the author was the late Sir Clifford Allbutt—buried in the *Encyclopaedia and Dictionary of Education*, published in four volumes in 1922. Sir Clifford Allbutt's article is only a brief one, but in it he puts forward the proposal for the adoption in British medical education of a compulsory year, after qualification, of general and special practice undertaken "under supervision". It may be of course that Sir Clifford Allbutt was by no means the first to make the proposal. Some investigator may trace it far back in the history of medical education. But if it was Sir Clifford Allbutt it is another example of the foresight of one of the wisest of our modern scholar-physicians.

Allbutt, however, did not seem to contemplate, as do later advocates of the idea, that this period should be spent in hospital. Apparently he saw the newly qualified practitioner taking his extra year under the supervision of a private practitioner, general or special. In the hospital ward, he says, the student cannot learn the many little necessary and useful arts and devices of the successful family physician and the elegant prescriber. He refers to complaints in the correspondence columns of the medical journals of that time that the new assistant, a university man it might be, could not make up a popular cough mixture or suggest pleasant solace for testy old people. Such accomplishments, along with more fundamental teaching and experience no doubt, might be acquired in the extra year. The young practitioner would learn the secret of the doctor-patient relationship—something which cannot be learnt, or learnt as well, on institutional patients.

Another point of interest in that little article of Allbutt's, written a generation ago, is that he appears as an advocate of the one-portal system (though it is necessary to qualify and explain his advocacy). What impressed him was the unfortunate competition, though perhaps unacknowledged as such, between the Conjoint Boards and the universities. In his view the examination for the Conjoint diploma came into competition with the examination for qualifying university degrees, with unfortunate results for both. It meant that in such competition there were an unduly large number of rejections in the Conjoint. That holds good to-day, when the rejections are not far short of 50%, whereas in many of the universities they are more like 25%. At the same time the university degrees by

reverse competition are diminished, and there was a tendency, in Allbutt's opinion, to award them, not as marks of academic distinction but as little more than qualifications for practice, making them rank far below parallel degrees in other faculties. His remedy was the drastic one of proposing two orders of doctors. The one order would comprise the handy-men, well up in the ordinary standards of the day, dextrous in family practice, but making no profession of scientific learning. For these there might be one Conjoint examination. The others would be men who had gone through the longer course of the university, and whose education had been on larger scientific lines, and for such the universities would be able to expand their more liberal courses of study and bestow their degrees on candidates conversant with the larger conception and having a grasp of scientific methods. If Allbutt's idea of the supervised year looks like coming to pass, this other idea of his entailing a bisected profession, probably never had much chance of acceptance, and nowadays has less chance than ever.

## MEDICINE AS A WOMAN'S CAREER

Nearly eighty years ago five women, led by Sophia Jex Blake, tried to prevail on the Senate of the University of Edinburgh either to open to them courses of study in the University or to accept certificates for courses arranged for women separately. The University finally decided against the admission of women to degree examinations. A School of Medicine for Women was then founded in London, opening in 1874 with fourteen students, and two years later an Act was passed to remove restrictions on qualification for registration under the Medical Act on the ground of sex. In 1877 Sophia Jex-Blake and others took the final examinations and were placed on the *Medical Register* as licentiates of the College of Physicians, Dublin, having done their clinical work in London or abroad. In 1878 the London degrees were thrown open. Paris was years ahead of any British university in this readiness to examine women in the Faculty of Medicine, and Elizabeth Garrett Anderson took the M D degree there in 1870. The Society of Apothecaries had admitted her to its final examination in 1865, and she had passed it, but the Society subsequently altered its charter so as to prevent other women from following in these intrepid footsteps.

In the new National Health Service there is complete equality of status and opportunity for men and women doctors. Medical women hold responsible posts in the Government service, under the Regional Hospital Boards, and in the employment of local authorities. A recent pronouncement was made to the effect that the position of Chief Medical Officer to the General Post Office will in future be open to men and women alike, previously this post has been available for men only. The field of work in the Colonial Medical Service is increasing for women as well as for men. The women's medical service in India is now closing down. Another field to which many medical women have devoted themselves is missionary service.

The Medical Women's Federation (73, Bourne Way, Hayes, Bromley) is the only professional organization in Great Britain and Northern Ireland consisting solely of registered medical women. It includes twenty-three local associations and has a membership of 2,300. The Association of Medical Women—the forerunner of the present Federation—was founded in 1879. The Federation came into being in 1916. It endeavours to bring before the main body of the profession the special minority difficulties of medical women, and, when necessary, to press for the full application of the principle of equality which has for so long been conceded by the profession as a whole. It works

in close and friendly relationship with the British Medical Association, and strongly encourages more women to take an active part in the work and activities of local Divisions. The Federation is often approached by Government Departments and other bodies seeking the opinion of medical women.

The Federation holds that with equality of opportunity goes equality of sacrifice, and it deplores the Government decision to exclude women doctors from conscription to the medical services of the Crown. Women doctors can volunteer for commissions as specialists, but the Federation feels that they should be called up in the same way as their men colleagues.

### THE LISTER INSTITUTE

The report<sup>1</sup> for 1947-8 of the Governing Body of the Lister Institute of Preventive Medicine, the chairman of which is Sir Henry Dale, is a highly summarized account of work which is being carried on by a staff of about 40 in half a dozen departments. The Institute works in a number of divisions, concerned respectively with bacteriology, serology, and experimental pathology, with nutrition, with biochemistry and immunochemistry, with biophysics, and with the preparation and study of therapeutic sera, vaccine lymph, and bacterial vaccines. It also accommodates for the Medical Research Council the bacterial chemistry research unit, under the direction of Sir Paul Fildes, the national collection of type cultures, and the blood products research unit, and, for the Ministry of Health, the blood group reference laboratory. The blood products research unit during the year tested and prepared 20,000 bottles of dried human plasma for issue to hospitals, and produced 2,400 bottles of fibrinogen, 5,000 bottles of fibrin foam, and 500,000 units of thrombin for clinical use. The blood group reference laboratory examined 8,700 tubes and 3,500 bottles of serum for suitability for blood-grouping serum. Full Rh genotyping tests were carried out on 2,230 specimens of blood, and 1,070 specimens of serum were tested for anti-Rh and other abnormal antibodies. The national collection of type cultures has been reorganized, and a start has been made to bring the collection into line with the Medical Research Council's intention that only cultures of medical and veterinary interest should be maintained. The collection now consists of about 3,000 strains of bacteria, which are being checked for purity. About 200 new strains were added and over 8,000 cultures distributed during the year.

Much of the research work in the Institute is of a continuing character in which no conclusive results are to be expected in a particular year. Records of several of the investigations have appeared in the specialist journals, notably on the sequence of amino-acid residues, the production of stable potent preparations of penicillinase, the metabolism of nicotinamide and related compounds, the biochemistry of bacterial toxins, adsorption experiments with gramicidin and related substances, and electrophoresis in medical research. In connexion with this last investigation workers at the Institute have examined a group of sera from patients having different types of jaundice. It has been established that a small but definite fraction of the bilirubin migrates with the  $\alpha$ -globulin in addition to the bulk of the bilirubin which migrates with the albumin. It has been further demonstrated that the binding of the bilirubin by different plasma proteins bears no relation to the nature of the direct van den Bergh reaction. The distribution of plasma proteins in malnutrition has been determined on a large group of sera obtained from cases of malnutrition in Germany. This forms part of an extensive

general survey carried out under the auspices of the Department of Experimental Medicine at Cambridge.

One of the nutritional studies at the Institute has been an investigation of the effect of vitamin A—or, where it is unsuccessful, moderate doses of vitamin D—on the stomach. Human subjects with peptic ulceration diagnosed radiographically or who have pain without ulceration are being kept under observation. Patients have been obtained through the co-operation of the Post Office medical service—the completeness of the records and continuity of engagement makes the following up of employees relatively simple. Treatment with vitamin A has had no consistent effect on gastric acidity, but the results already obtained are said to confirm the claim of others that great benefit can be conferred in certain cases.

### CHILD HEALTH SERVICES

A survey of child health services in Berkshire, Buckinghamshire, and Oxfordshire has been prepared and published by the Regional Hospitals Council of the three counties<sup>1</sup>. The Council is part of the regional organization set up nearly ten years ago by the Nuffield Provincial Hospitals Trust, and the survey, which is a document of nearly 100 pages, appears under Trust auspices. Professor Alan Moncrieff, the chairman of the Child Services Committee (a committee fully representative of the medical and social services of the region), draws attention in the foreword to the need for a larger place in the medical curriculum for the medical care of children, since in the long run paediatrics can flourish only on a solid educational basis. Research also is needed not only into the fundamental causes of many disorders but also to discover the best means of educating handicapped children—children afflicted, for example, by muscular paralysis or defects of sight or of hearing. The common illnesses affecting the nose, throat, and ears of so many children also need co-ordinated investigation.

In the three counties an analysis made in 1945 showed that 59% of deaths in childhood (including stillbirths) occurred before the age of one month, 21% between one month and one year, and 20% between one year and fifteen years. Infections (particularly pneumonia) cause more than half the neonatal deaths after the third day, and since many of these are the result of obstetrical complications "it can be said that good maternal nutrition and good antenatal and obstetrical services are the principal factors in reducing stillbirth and neonatal rates." In the period from one to fifteen years the causes of death are more varied, but infections (tuberculosis now the principal) account for two-fifths of all deaths. The largest single cause of death in this age range is accidents, chiefly road accidents.

The report describes the present available and the ideal health services for children, and stresses the need for co-ordination between hospitals, medical officers of health, school medical officers, and general practitioners. One suggestion is for routine ward rounds or out-patient sessions by the paediatrician or his deputy, which general practitioners and medical officers could attend informally whenever they had the opportunity. The mental health of the children is considered in a special section of the report. In the area under review about 42,000 children may be expected to need some psychological or psychiatric observation, about half of these will require special tuition only, but some 12,000 will need mainly psychiatric as opposed to psychological help over varying periods of time, and to these must be added 7,000 children who need both psychiatric and psychological attention.

<sup>1</sup> Report of the Governing Body of the Lister Institute of Preventive Medicine, 1948. London.

<sup>1</sup> Obtainable from the Secretary, Nuffield Provincial Hospitals Trust, 12, Mecklenburgh Square, London WC1.

## AROUND THE SCHOOLS

## THE ANNUAL RECRUITMENT TO MEDICINE

The yearly additions to the *Medical Register* are once again increasing. Last year 2,787 names were added, an increase of 550 on the year before, and 500 above the average of the last twenty years, though rather below the average of the last five. In 1946 the number of new entries was the lowest for at least ten years—a reflection of the fall in student entries on the outbreak of war. Last year also the number of graduates from the British Empire overseas coming on to the Colonial List (410) was the highest on record. Only once before, in 1944, has this figure exceeded 300. The number from foreign countries (325) was nearly three times as high in 1947 as in 1946.

The total number of persons on the *Register* at the beginning of the present year was 77,929, being 14,500 higher than the average of the last twenty years. Twenty years ago the number of registered doctors was only about two-thirds of what it is now. The English registrations stand at 36,394, the Scottish at 20,634, the Irish at 10,233, and the Commonwealth at 6,409, this last including 813 "temporaries." The number in the Foreign List is 411, to which must be added 3,748 temporary foreign registrations—persons registered under the Defence Regulations, 1939, or the Polish Resettlement Act, 1947, sect. 5. As from February, 1946, no new registrations have been effected under the Defence Regulations, and sect. 5 of the Polish Act expired on Dec. 31.

The following table gives the position in respect of the *Medical Register* for the last ten years.

	Registered	Restored	Total	Removed owing to death or other reason	Number on <i>Register</i> on Dec. 31
1938	2,365	34	2,399	1,142	61,420
1939	2,968	49	3,017	1,027	63,360*
1940	2,384	37	2,421	1,102	64,679
1941	3,296	16	3,312	996	66,992
1942	3,556	7	3,563	1,127	69,428
1943	3,532	13	3,545	1,091	71,882
1944	2,971	11	2,982	1,218	73,646
1945	2,666	11	2,677	1,190	75,133
1946	2,237	14	2,251	1,092	76,292
1947	2,787	10	2,797	1,160	77,929

\*Figure adjusted in 1940

## The Student Entry

The number of medical students admitted to the schools during the academic year 1947-8 was 2,797. The table of student admissions for recent years is as follows:

1940-1	2,398	1944-5	2,612
1941-2	2,361	1945-6	2,610
1942-3	2,468	1946-7	2,553
1943-4	2,426	1947-8	2,797

## Passes and Rejections

The passes in medicine given by the licensing bodies in the United Kingdom in 1947 numbered 2,594, and the rejections totalled 1,396. In surgery the numbers of passes and rejections were respectively 2,439 and 1,670, and in midwifery 2,631 and 1,460. The English Conjoint Board examined 811 candidates in medicine, 965 in surgery, and 1,060 in midwifery. Next to this the largest numbers were examined by the University of London—726, 628, and 608 in the three subjects. The proportion of passes was highest in Manchester (90.3%), with 72 entries, and lowest in the Scottish Conjoint, being only 49.5% in surgery, with rather fewer than 200 entries.

In the examinations in anatomy and physiology London had the greatest number of entries (820), and the percentage of passes in the two subjects was 79.15 and 72.04 respectively. The percentage of passes in the English Conjoint was 54.7 and 60.8 for 475 and 473 entries. The percentage of passes in physiology in the Scottish and Irish Conjoint was as low as 45. In Cambridge, for an equivalent entry, it was 60.8% and in London 72%.

## The Forthcoming Academic Year

The applications of students for 1948-9 are reported by many of the schools to be well above the number which is regarded as the optimum. The most remarkable figures come from Edinburgh, where 1,400 applications for admission to the

Medical School were received this year, and only just upon 200 could be accepted for the first-year course in October. The Welsh National School of Medicine, which has increased its intake up to the limit of its accommodation, has available places for 60 to 65, and 350 men and women have applied. It must be remembered, of course, that many intending students make application to several schools. St. Bartholomew's Medical College mentions the pressure created by many equally eligible candidates whereby the total will be considerably in excess of the 100 to which it is desired to limit it. At Charing Cross, with an annual admission of 45, priority is given, as elsewhere, to ex-Service students, so that many intending students coming from school are unable to gain entry and have to take their period of national service before beginning professional study. Other London schools report:

St. Thomas's: Eighty admissions into the clinical period, four places in first year reserved for colonial students.

St. George's: Taking the maximum.

Middlesex: Applications from both men and women greatly exceed the number that can be admitted.

At Oxford the number of students is restricted by decree, for the coming year it has been fixed at 65, and ex-Service students are admitted above this number only if born before 1929. At Cambridge the school will again be filled to capacity, but the intake is limited to about 210 by reason of laboratory space. At Birmingham the expected entry is 110, and at Sheffield the limit is 60, which makes selection from many hundreds of applicants difficult. All "firm" applicants at Sheffield are interviewed by a Selection Committee. Sheffield is one of the centres chosen for a long-term investigation into selection methods which is being carried out by Professor Aubrey Lewis and his collaborators under the auspices of the Nuffield Foundation. The investigation is a test of tests, not of individuals.

At Manchester and Liverpool the limitation is to 100 new students per session, but the applications are greatly in excess of this number. At Leeds the expected entry is 75 out of approximately 400 applicants. Bristol takes 60 medical and 25 dental students. The expected entry at St. Andrews is 80, and the same figure obtains at University College Hospital, London. In the University of Dublin the number of students admitted for the study of the basic sciences is limited to 150, and of these not more than 90 will be admitted to the first medical year (anatomy and physiology). It is added that in view of the very large number of applications received there is no reason to doubt that the accommodation will be very fully taxed. At Durham about 60 students are expected to enter the first year, and between 20 and 30 more will be admitted to the second year. At Glasgow the expected entry is 240.

## Selection of Students

On the general subject of student selection, several of the Deans mention selection committees. On this we have an interesting note from Professor J. W. Bigger, Dean of the Faculty of Physic, Trinity College, Dublin:

"The pre-medical examination is used as a means of excluding from the Medical School students who do not show promise of completing the course. As this school is situated in Ireland we consider it our primary duty to supply medical education to suitable Irish candidates, whether they reside in the northern or southern part of the island. When their needs have been satisfied the places remaining are allocated to those living elsewhere. Admission to the classes of the pre-medical year is controlled by an admission committee consisting of the Dean, one other representative of the Medical School, and two representatives of the non-medical staff of Trinity College. This committee has complete powers of admitting to, or excluding from, the school. In general the admission committee allocates places to Irish applicants who have become eligible for admission by passing the entrance examination of Trinity College or some other examination recognized as equivalent. The essential subjects include English, mathematics, Latin, and another language. Only when this school or examination record renders it improbable that an Irish candidate would complete the course successfully is he refused admission. When the non-Irish applicants are considered the matter becomes more difficult. There were 775 applicants from outside Ireland for admission to the session 1947-8, of whom only 31 could be admitted.

"The first basis of rejection is non-eligibility because the examinations passed have not included the subjects essential for admission to Trinity College, particularly Latin. The maintenance of compulsory Latin in Trinity College has been a boon to the admission committee.



Even when the non-Latinists are excluded there remain far more applicants than places. At the moment no applicant from the U.S.A. is accepted, because it is believed that if an American fails to get into an American school there must be some good reason for this failure and that it is improbable he would do well with us.

"A quota system has been introduced as regards certain other countries so as to prevent the admission of too high a proportion of students from any one country. There is, for example, keen competition for the limited number of places available for applicants from West Africa. Selection is mainly on the basis of examination record and personal recommendation of teachers and others in a position to judge the potentialities of the applicants. There remain the large number of applicants from Great Britain. They, in common with all applicants, must submit a form of application, giving personal particulars, education record, etc., and supply a photograph. The competition for places among this group is so keen that the primary basis of selection is examination record. Preference is given to men rather than women because of the already high proportion of women in the school, to those with good Service records, to children of doctors, and to those recommended by our own graduates or other persons on whose opinion we rely. Finally, some attention is given to the photograph. We believe that a candidate who looks alert, clean, and carefully dressed is more likely to succeed than one displaying other characteristics. We do not interview any applicants. We are not convinced that a necessarily short interview is of more value than the examination record and a personal recommendation.

### Women Students

The Royal Free Hospital School of Medicine for Women, which was originally entirely a women's school, has had its first session as a co-educational one, and is slightly increasing its number of men students this year. The number of accepted students in 1948 is 87, being 74 for the first medical course, 11 for the second, and 2 for the clinical course, and 78 of the 87 are women. The students at present in the school number 461 women and 2 men. Here again the Interviewing Committee give special consideration to ex-Service men and women. The Royal Free Hospital group now consists of the hospital and its annexe, the former London Fever Hospital in Liverpool Road, the Elizabeth Garrett Anderson Hospital in Hampstead General Hospital, the Hampstead Children's Hospital, and the North-Western Fever Hospital.

At University College Hospital, with a total entry of 70 or 80, the number of women admitted in the future will be 14 instead of 12. At Charing Cross 20% of the vacancies are allocated to women, at St Mary's about 15%, at St Thomas's the same.

At Oxford, of the 65 entries for the coming year 10 will be reserved for women. Manchester, Liverpool, and Bristol allocate to women one fourth of the total places. At Sheffield all facilities in the Medical School are open to men and women alike, but the number of women entrants is subject to some limitation. In general, from 12 to 15 are admitted, the proportion during the war years was naturally somewhat larger. St Andrews accepts women up to approximately one-third of the total. In the University of Dublin no restriction has up to the present been enforced in the case of Irish women students, but, in view of the high proportion of women students in the school, men applicants from outside Ireland are given preference over women applicants from outside Ireland. Women students have equal eligibility in all faculties of the University of Wales. At Aberdeen 25% of the entrants are women. At Westminster Hospital, London, women clinical students entered the school last April for the first time in many years. Competition for entry among women candidates is exceptionally keen, and it is hoped to increase the numbers admitted. About 40 women students are taken annually at Glasgow. In the University of Durham vacancies allotted to women are about one in four.

### The Curriculum

Those responsible for the school curriculum deserve a certain amount of sympathy in view of the proposals for reform which have been showered upon them during recent years. They had hardly digested the report of the Goodenough Committee and the recommendations of the General Medical Council when they had presented to them the report of the Medical Curriculum Committee of the British Medical Association.\* The Dean of one Irish school writes, perhaps with a touch of exaspera-

tion, that in view of the long consideration given to the two earlier reports it is improbable that his committee will devote much time to the third. Nevertheless the third does present many new points of view. The Dean of St Bartholomew's writes that those parts of the B.M.A. report which affect the College as distinct from the University have been noted with interest, but so many of the suggestions made—as for example in the matter of selecting students—have already been the practice of the College for a considerable time that no specific action is contemplated. The Royal Free Hospital Medical School states that the report has not as yet been considered by any committee, but is being studied with great interest by members of the staff. At Manchester the report has been passed by the Curriculum Committee to the Faculty. At Liverpool a special committee of the Faculty has it under consideration. At Birmingham consideration has been given to the report and as a consequence the Faculty of Medicine has appointed a committee to review the whole of the curriculum. At Bristol it will be considered at the next meeting of the Medical Board.

Certain innovations in the curriculum are reported from various quarters. At University College Hospital, London, a period of senior medical clerkship is planned to take place shortly before the Final. At the London Hospital Medical College a tutorial system providing small groups of students with a first assistant tutor throughout the whole of their clinical course is proving exceptionally valuable. An introductory course designed to help students in the transition from pre-clinical to clinical studies continues to prove highly successful, and liaison with the near-by hospitals for midwifery has added to the number of beds available for teaching in this subject. At St Mary's Hospital the introductory course for the new clinical students has been widened to include the introduction of a number of special subjects.

At Liverpool innovations in the curriculum include the allocation of specific periods of time during clerkship and dressing for instruction in the administration of anaesthetics and for clinical pathology. At Bristol an introductory clinical course has been arranged to bridge the gap between pre-clinical and clinical studies. At Birmingham some modifications are to be made in the early part of the clinical curriculum. On completion of the introductory course students will in future be directed to medical clerkship or surgical dressing instead of, as at present, spending two of the three months of the long vacation attending a series of demonstrations designed to familiarize them with the broad outline of the activities of certain hospital departments.

In the Welsh National School of Medicine steps are being taken to revoke the requirement that candidates for degrees in medicine shall be graduates in arts or science and to adjust the curriculum accordingly. It is still desired that students should be encouraged to read for an honours degree in science before pursuing their clinical studies, but as this would involve at least another year's work it should not be obligatory. At Sheffield a further step has been taken in the transition from the old curriculum to the new. An introductory clinical course will be held in the April-June term for those who have passed the second M.B. in March, *ad hoc* arrangements have been made to meet the needs of students who fail in the second M.B., and also of the small but important group reading for the combined degrees of M.B., Ch.B., and B.Sc.(Hons.). All students before qualification have held resident appointments in medicine, surgery, midwifery, and paediatrics.

At Edinburgh from October next the course for the M.B., Ch.B., previously five years, will be extended to six. One difference is that the whole subject of anatomy will not be dealt with in the first-year course. The arrangement of the later years of the curriculum is still under consideration. At St Andrews also a six-year curriculum with implementation so far as possible of the recommendations of the Goodenough Committee has been introduced. Short-term developments at St Andrews include the appointment of whole-time clinical lecturers. At Aberdeen it is proposed to start in October a six-academic-year course, the first year to be spent on the pre-medical subjects of chemistry, physics, and biology. The rest of the course will follow closely that recommended by the General Medical Council and repeated in the report of the B.M.A. Committee. The only new development will be the establishment of a Chair of Biological Chemistry in the Faculties

\*The Training of a Doctor. London: Butterworth and Co (Publishers) Ltd. 7s 6d.



of Medicine and Science, and it is hoped that the first occupant of the chair will take up his duties at the beginning of the winter term. The curriculum at Glasgow is to be revised for 1949-50. In the University of Durham a change has been made in the second M.B., B.S. examination. Part I, held in March and after five terms' work, will consist of physiology only, and Part II, held in June, after six terms' work, will consist of anatomy, pharmacology, and pharmacy. The regulation will take effect from March next.

In the School of Physic of Trinity College, Dublin, the complete course extends to six years, made up of one year of pre-medical and five years of medical study. It is hoped in Dublin in the near future to establish a department of social medicine, but this cannot be done until accommodation for the department is available in the Moyné Institute of Preventive Medicine, which it is hoped will be ready for occupation in 1951.

A revised curriculum introduced last year at Westminster Hospital Medical School has proved its worth, and further changes are being considered. As a result of the new Act the school becomes autonomous, but its links with its parent hospital will be strengthened rather than weakened under the new system. Plans for expansion have been proposed, since existing resources for teaching pathology will soon be severely taxed. There are already enough beds for the clinical instruction of the present numbers. It is hoped eventually to create a 1,000-bed teaching centre in the area bounded by St John's Gardens and Vincent Square, which are five minutes walk apart. A pre-clinical school for 150 students is contemplated. Valuable experience of emergency cases is expected from closer integration with St Stephen's Hospital, Fulham. Closer linkage with child-welfare centres in the district will ensure that students obtain instruction not only in children's diseases but in child health as a whole. The number of undergraduate students at Westminster is rapidly increasing and will reach 165 by next April.

#### The Older Universities

All students entering the Medical School at Oxford in future will be required to take the second public examination as before the war. The course normally adopted to satisfy this regulation is that of the Final Honour School of Animal Physiology, which takes up one year after passing the anatomy and physiology examination for the B.M. degree. The newly established clinical school allows students to qualify at Radcliffe as an alternative to transfer to a teaching hospital elsewhere. A students club has been opened in Osler House, offering social facilities and sleeping accommodation for those on duty at the hospital. This social, administrative, and teaching centre will be completed by a lecture-room and a class-room which are soon to be constructed in an adjoining building.

It should be noted that at Oxford the various colleges put forward the names of students whom they wish to be admitted to the Medical School, and preliminary acceptance by a college is essential for any prospective medical student. Each of the colleges, whether for men or women, has a 'society,' and there is one non-collegiate society on each side. All inquiries should be addressed to the head of the society—principal, president, master, rector, as the case may be—and not to the secretary of the Medical School, and the prospective student is advised to make application well in advance of his or her eighteenth birthday.

At Cambridge it is proposed to establish a school of veterinary medicine, and during the preclinical period medical and veterinary students will work together in the basic subjects which are common to both professions. The post of Professor of Animal Pathology has been revived. If the proposal for a complete veterinary school for Cambridge is accepted, the new venture should be of mutual benefit to both medicine and veterinary medicine. The natural sciences tripos, in which the sciences ancillary to medicine are considered from a wider and more disinterested point of view and the student is allowed to interpret his study on larger lines—always the great and abiding advantage which Cambridge offers—will include instruction by the Professor of Animal Pathology. The first step has been taken towards a university department of paediatrics by the appointment of a paediatrician to the staff of Addenbrooke's. A department of human oecology has been set up, with the appointment of a reader. The University Health Service, under which prophylactic examinations, including mass radiography,

will be carried out, will be ready to work to full capacity on the new intake in October.

#### Developments in London Undergraduate Schools

Long-term developments at certain London schools still concern rebuilding to make good war damage. Middlesex Hospital during the past year has completed its reconstruction, every bed is now in use, and students have the advantage of attending the wards and out-patient departments of the Central Middlesex Hospital, Willesden. Middlesex has made an arrangement with the North-Eastern Fever Hospital by which its students are resident for three weeks. An overall plan has been approved at St Bartholomew's for the whole preclinical unit, and opportunity has been taken to incorporate resident quarters while replacing pre-existing departments. At University College Hospital the short-term development plan consists of the addition of some 300 beds by the taking over of St Pancras Hospital. These include wards for the chronic sick, a modern obstetric block, and mental observation wards. The Hospital for Tropical Diseases is now part of University College Hospital, and will continue to provide clinical material for postgraduate teaching.

At Charing Cross the reopening of the anatomy and physiology departments last October has proved of great value. The students have successfully completed the first part of the course leading to the second M.B. examination, which will take place next March. The facilities of the hospital and school are reserved for the full-time undergraduates, and no courses for postgraduates are provided. As a result of the National Health Service Act the school is now separately incorporated from the hospital, but the close association between the two parts of the institution will be preserved by the interchange of members between the controlling authorities—namely, the School Council and the Board of Governors of the hospital. Planning for the new medical centre at Harrow continues to make good progress. A hospital will be erected there to accommodate 1,000 patients and a school with an annual entry of 100 medical and 50 dental students.

The London Hospital has increased its beds during the year to just upon 700. The redecoration of the Medical College, with complete renovation of the museum, and a new bacteriological department in the hospital have provided additional facilities for medical students. An annexe of 208 beds is still maintained at Brentwood, where students attend special courses and demonstrations, particularly in tuberculous disease of the chest.

At King's College Hospital Medical School, which provides the clinical instruction for students reading for the medical degrees of Oxford, Cambridge, and London, the present session has seen the establishment of two university chairs in the department of pathology—a chair of morbid anatomy and a chair of chemical pathology. A sub-department of bacteriology has also been established. The Borland Scholarship for Women, value £500, has been founded, and will be awarded for the first time in 1949. A Wiltshire Memorial Research Scholarship and a Legg Memorial-Lecture have been established to commemorate two former members of the staff of the hospital and school. As from July 5 the school became incorporated under its own charter, and a new Academic Board will aid the Dean and the directors of clinical studies in effecting a gradual modification of the curriculum to bring it into line with the latest recommendations of the Goodenough and the B.M.A. reports. In view of the impossibility of enlarging the hospital for some years to come, arrangements have been made for the use of medical beds for teaching purposes in a near-by regional hospital. Plans have, however, been made to enlarge the Medical Research Council's dental research unit. It should be added that the preclinical studies are taken at King's College, Strand, and applicants are interviewed jointly by a committee representing the College and the Medical School. This committee includes a layman and a non-medical member of the teaching staff.

#### Schools Outside London

The main development at Bristol during the year has been the provision of studies and laboratories for the two whole time clinical departments of medicine and surgery in the building of the Royal Hospital and adjacent to the respective wards. At Sheffield plans have been produced for the rebuilding both

of the Medical School and of the teaching hospitals, but it is still impossible to say when a start will be made. It is expected that Sheffield, with the sympathy of the city and other bodies concerned, will establish a whole-time chair of social and industrial medicine in the near future. Co-operation between city and university in another sphere has resulted in the establishment of a university department of forensic medicine, under the charge of Dr Gilbert Forbes, police surgeon to the city with the title of part-time senior lecturer. The establishment of full-time chairs of obstetrics and gynaecology and of psychiatry is in contemplation. Developments in the hospital sphere of interest in Sheffield, though not directly concerning the university, include the appointment of a clinical artist, the establishment of a department of medical photography, and the intended opening during the next year of a school of physiotherapy.

At Birmingham, where the difficulties caused by doubling the entry of students have proved formidable, considerable progress has nevertheless been made with the new developments in the Medical School. A second chair of anatomy has been created and a further innovation has been made by the appointment of two professors of pathology—one in experimental pathology and the other in morbid anatomy. The first chair of anatomy and the chairs of physiology and medicine have been named after former distinguished members of the Medical School—Sands Cox, Bowman, and William Withering respectively. Following the practice of the older universities, whereby an outstanding individual is elected to a chair specially created for him, part-time professorships have been created in therapeutics and gastroenterology, the latter the only one of its kind in the British Isles.

The regulations for higher degrees (M.D. and Ch.M.) at Birmingham have been amended, and the main emphasis will in future be on a thesis based either on original research or on the application of scientific methods to medicine or surgery. The regulations for the award of the M.D. degree in State medicine have been withdrawn and the degree abolished. The regulations for the degree of Ph.D. of the Faculty of Medicine have also been amended. Lectureships in operative surgery, vaccination, and applied anatomy have been abolished. The course in the last subject is to be under the direction of the department of anatomy in collaboration with the head of the clinical departments.

Under the National Health Act a 'teaching hospital' has been formed in Birmingham and includes the names of those hospitals at which the teaching of dentistry and the four major subjects of the curriculum has up to now been carried out. This 'teaching hospital' will be administered by a board of governors, on which there will be a strong university representation.

In the Welsh National School of Medicine the inclusion in the teaching group at Cardiff of the former municipal hospital at Llandough will help so far as the clinical period is concerned. As a long term policy, plans are being prepared for a 1,000 bed teaching hospital together with a new medical school.

## POSTGRADUATE TRAINING FACILITIES

### THE LONDON SCHOOL AND INSTITUTES

The British Postgraduate Medical Federation, to whose Director, Sir Francis Fraser, we are indebted for up-to-date information, is now a school of the University of London, and the Postgraduate Medical School at Hammersmith and the Institute of Psychiatry have been recognized by the University as federated institutes. A number of the other institutes in London await inspection by the Senate before they also receive similar status. All the institutes now provide clinical instruction of a high standard, though some of them, owing to lack of accommodation, are unable as yet to provide the facilities for research necessary for them to give education of advanced university level.

Last year advantage was taken of clinical facilities at certain municipal hospitals. This arrangement has now ceased, but the Central Office of the Federation hopes to make direct use not only of these hospitals but also of many others under the Regional Boards for the postgraduate education both of specialists and of general practitioners. For this purpose a

Regional Adviser in postgraduate medical education is being appointed by the Federation, on behalf of the University, to each of the four metropolitan regions. Three of these posts have already been filled, no appointment has yet been made to the north-western region.

The duties of these regional advisers will be to carry out the policy of the University and the Federation in arranging postgraduate education, to act as liaison between practitioners in the region, the medical schools and teaching hospitals, the regional board, and the hospital management committees, to assist the undergraduate schools in finding for their graduates suitable house-officer appointments in non-teaching hospitals, to assist all medical schools in finding for postgraduates suitable appointments in non-teaching hospitals, and to arrange for general practitioners and public health officers of the region clinical assistantships in near-by hospital centres, regular clinical meetings, short courses, and longer or more intensive general refresher courses.

It is planned, by the way, to organize refresher courses on the same lines as in the past for general practitioners. Financial assistance was given to insurance practitioners on certain conditions in respect of their attendance at specially arranged courses. The Ministry of Health is now drawing up regulations which are expected to include grants for National Health Service practitioners. The Act provides that the Minister may enter into arrangements with universities and schools for the provision of courses which practitioners may attend and may make payments towards the cost of providing such courses and the expenses of practitioners attending them.

The Federation and the three Royal Colleges in London have set up a joint board to effect co-operation in providing for postgraduates and to prevent overlapping. Sir John Anderson has agreed to be chairman, and the board will consist of two representatives of each of the Royal Colleges and of the governing body of the Federation. Among the matters to which the joint board will give its attention will be

- (1) Provision of advanced courses in the basic sciences
- (2) Opportunities for intending specialists to supplement responsible hospital appointments and practical clinical work by courses of lectures and demonstrations, etc.
- (3) Access to clinical material for those attending lectures and demonstrations
- (4) Revision courses for established specialists
- (5) Postgraduate training in special subjects for graduates other than those intending to specialize in those subjects
- (6) Co-ordination of lecture provision
- (7) Procedure for enabling selected graduates from overseas to obtain suitable hospital appointments
- (8) Expert advice and guidance for graduates seeking education and training in the specialties

The address of the Federation is 2, Gordon Square, W.C.1

### The Hammersmith School

For the following notes on the Postgraduate Medical School, Ducane Road, Shepherd's Bush, which is an institute of the Federation and has been a school of the University of London since its inception in 1935, we are indebted to Dr Charles Newman, the Dean.

The teaching in the clinical departments consists of bedside teaching, reinforced with lectures, clinico-pathological conferences, radiological and post-mortem demonstrations, and attendance at operations. The full programme of organized teaching is carried on in ten-week periods, corresponding to the University of London terms. During the vacations the staff is engaged in research work and the higher education of selected students, but organized teaching ceases, and other arrangements are made for those students who are not selected to remain at the school. Short-term students desiring two or more terms of concentrated instruction are therefore advised to book in October or January so as to avoid including the long vacation in their stay. House appointments are usually made from among students, and facilities are provided for senior students who wish to carry out original research under the Director.

About 60 students can be accommodated in the department of medicine, and resident appointments are available for about 20. A similar number can also be accommodated in the department of surgery, which provides training for general surgeons but instruction in orthopaedics, otolaryngology, and urology is included. Teaching is so organized as to be continued from

out-patient departments through the wards and operating theatres to follow-up clinics. Students do not themselves perform operations. There are at present no facilities for work in preparation for the primary FRCS examination.

The department of obstetrics and gynaecology is now joined with the combined school of Queen Charlotte's and Chelsea Hospitals to form a provisional Institute of Obstetrics and Gynaecology. It is therefore able to provide students with an increase in teaching facilities. The department at the Postgraduate School provides teaching in the antenatal and post-natal clinics and in the sterility clinic, as well as in the wards and operating theatres, and, in addition, lectures and conferences in term time. The department at Queen Charlotte's provides full scope for teaching in obstetrics, and the department at Chelsea provides more extensive teaching in gynaecology and gynaecological endocrinology than has hitherto been possible at this school.

The department of pathology is organized in four main sections: (1) morbid anatomy and histology, (2) bacteriology, (3) haematology and clinical pathology, and (4) biochemistry, and instruction is adapted to the requirements of the course for the diploma in clinical pathology of the University of London. The course lasts for one year, starting in October. There are twenty places available in this course, and selection from them is made in June. Fortnightly and six-monthly courses in practical anaesthetics are also given. In the department of radiology teaching is based on the requirements for the diploma in medical radiology.

### The Specialist Institutes

The Institute of Cardiology (National Heart Hospital, Westminster Street, W 1)—Six appointments of registrar type are available per annum for physicians in training as cardiologists. Training includes clinical cardiology, radiology of the heart, electrocardiography, and research. General physicians may enrol for full- or part-time instruction for one term of approximately three months. There are three terms annually, starting in January, May, and October.

The Institute of Child Health (Hospital for Sick Children, Great Ormond Street, WC 1, and Hammersmith Hospital)—Teaching in every aspect of child health is provided, including instruction on the newborn and premature infant. Three terms each of three months' duration, starting in January, May and September.

The Institute of Dermatology (St John's Hospital for Diseases of the Skin)—Clinical teaching in out-patient department twice daily, also facilities for study and tuition in the pathological laboratory.

The Institute of Diseases of the Chest (Brompton Hospital)—Teaching primarily by means of hospital practice, students enrolling for three months or more in approximately a half-time course of instruction.

The Institute of Laryngology and Otology (Royal National Throat, Nose, and Ear Hospital, Gray's Inn Road, and Golden Square, WC 1)—A comprehensive full-time course lasting 20 weeks and designed to cover the whole field of the specialty is held twice a year, starting in January and July. A part-time advanced revision course, lasting for ten to twelve weeks, suitable for students preparing for the higher qualifications, is held twice yearly approximately from February to May and from September to November.

The Institute of Neurology (National Hospital for Nervous Diseases, Queen Square, WC 1)—The teaching is mainly by attendance on the hospital practice, and there are three terms annually. More advanced students are appointed as clinical clerks in the wards or attached to special departments and the research laboratories. In addition to this, two ten-weeks courses, which are whole-time, are held in the autumn and spring terms.

The Institute of Ophthalmology (Moorfields, Westminster, and Central Eye Hospitals)—In addition to the teaching by means of hospital practice, a routine lecture and tutorial course lasting four or five months, is held twice a year, beginning in March and October. Part I consists of anatomy, embryology, histology, physiology, optics, and elementary clinical instruction. Part II comprises bacteriology, pathology, operative surgery, medical ophthalmology, and all aspects of ophthalmic disease.

The Institute of Orthopaedics (Royal National Orthopaedic Hospital, Great Portland Street, W 1)—The practice of both the central hospital and the country branch at Stanmore is open to postgraduate students. In addition to the hospital practice a comprehensive basic course of six months' duration consisting of lectures and demonstrations begins in October.

The Institute of Psychiatry (Maudsley Hospital, Denmark Hill, SE 5)—Training normally covers a period of two to three years after adequate experience elsewhere in general medicine, and is based on responsible hospital duties under supervision. Regular series of lectures and demonstrations by experts in various fields relevant to psychiatry are given throughout each of the university terms.

The Institute of Urology (St Peter's and St Paul's Hospitals, Henrietta Street, WC 2)—Three courses of fourteen weeks' duration are held annually, beginning in January, April, and September. These include systematic lectures covering the whole subject of urology, out-patient sessions, ward visits, operation sessions, and tutorial demonstrations.

An Institute of Dental Surgery, a dental counterpart to the Institutes of Child Health, etc., has just been set up at the Eastman Clinic. As already noted, an Institute of Obstetrics and Gynaecology is now being formed, combining the department at the Postgraduate Medical School and the combined School of Queen Charlotte's and Chelsea Hospitals. It will start work as an Institute next month.

### Facilities in Other University Centres

The following is a not exhaustive list of courses of postgraduate instruction held regularly at universities other than London. All are full-time courses except those of neurology at Birmingham, psychiatry at Manchester and the 12 months course for the DPH in the University of Wales which are part-time.

Subject	University	Duration	Starts
Anaesthetics	Bristol	2 weeks	April and Oct
	Oxford	2	Mar and Sept
Bacteriology	Manchester	9 months	Oct
Industrial health	Birmingham	4 weeks	Each univ term
	Edinburgh	9 months	Oct
	Glasgow	9	
	Manchester	9	
Medicine (general)	Edinburgh	12 weeks	April and Oct
	Glasgow	8	
Neurology	Birmingham	2 months	Continuous during univ terms
Obstetrics and gynaecology	Glasgow	3 weeks	May and Nov
Ophthalmology	Birmingham	6 months	Jan and July
Orthopaedic surgery	Liverpool	15	Oct
Physical medicine	Bristol	5	Sept
Psychiatry	Edinburgh	10 weeks	Oct
	Leeds	5	
Public health	Aberdeen	3 terms	
	Birmingham	9 months	
	Bristol	9	
	Durham	9	
	Edinburgh	9	
	Glasgow	9	
	Leeds	9	
	Liverpool	9	
	Manchester	9	
	St Andrews	9	
	Wales*	3	
		12	Jan
Radiodiagnosis	Birmingham	18	Oct (alternate years)
	Bristol	18	Oct
	Edinburgh	18	
	Glasgow	18	April and Oct
	Liverpool	2 years	Oct
	Manchester	18 months	April
	Sheffield	18	Oct
	Wales	18	
Radiotherapy	Birmingham	2 years	Oct (alternate years)
	Bristol	2	Oct
	Edinburgh	2	
	Glasgow	2	April and Oct
	Liverpool	2	Oct
	Manchester	2	April
	Sheffield	2	Oct
Surgery (general)	Edinburgh	5 months	Mar and Oct
	Glasgow	8 weeks	April and Oct
Tropical medicine	Liverpool	9 months	Oct
	Edinburgh	2 terms	
Tuberculosis	Liverpool	4 months	Jan and Sept
	Wales	6	Jan

\* For CPH (Wales), preliminary to DPH

### Other Postgraduate Arrangements

The West London Hospital Medical School which during the past eleven years has accepted undergraduate students for the clinical part of the medical curriculum, is now, after

prolonged negotiation with the University of London, shortly to join the British Postgraduate Federation, in which its future work will be the training of specialists in general medicine and general surgery. With this in view the hospital has been grouped with the Hammersmith and St Mark's Hospitals as one of the designated teaching hospitals under the National Health Service Act. For the time being the West London Hospital Medical School and the British Postgraduate Medical School will operate independently, but the West London will not accept any undergraduate students after October. So far as can be foreseen, it will be possible to admit a small number of postgraduate students in the summer of 1949 and to replace an undergraduate by a postgraduate community entirely by 1952.

At Cambridge the School of Postgraduate Teaching and Clinical Research is well on its way. A successful innovation has been the establishment of trainee posts in the clinical pathology department of Addenbrooke's Hospital. These posts which carry a "living wage," offer two years' training in all aspects of clinical pathology, post-mortem work, histology, and chemical pathology.

Postgraduate teaching in the University of Liverpool offers full-time courses for the degrees of Ch M, M Ch Orth, and M Rad, granted by the University, and for the diplomas of D P H and D T M & H, the latter in conjunction with the Liverpool School of Tropical Medicine. These courses are also suitable for candidates studying for the F R C S and D M R E examinations. There is a new full time course in anaesthesia lasting one year, commencing in October, and a course throughout the academic year for postgraduate students proceeding to the degree of M D, which is usually attended by candidates for the M R C P. A part-time course of obstetrics and gynaecology is held throughout the academic year, beginning in October, and a short intensive course in paediatrics lasting three weeks and suitable for candidates studying for the Diploma in Child Health is held once or twice a year. The course in radio-diagnosis lasts two years, not eighteen months as formerly.

At Leeds a feature of postgraduate work is weekly clinical meetings for general practitioners and clinical week-ends at intervals on special subjects. A 14 days refresher course for general practitioners is planned. A postgraduate committee is in charge of these activities and of the Ministry of Health scheme for demobilized medical officers. Middlesex Hospital, London, holds one course a year for the primary Fellowship examination of the Royal College of Surgeons. It also provides special courses for graduates for the diplomas in medical radiology, both diagnostic and therapeutic.

The Faculty of Radiologists (45, Lincoln's Inn Fields, WC 2) offers a Fellowship (F F R) to medical graduates of five years' standing who have spent at least one year in general clinical work at an approved hospital, hold a radiological diploma, and have practised radiology exclusively for at least two years subsequent to obtaining that diploma. Candidates are required to pass an examination and submit a thesis. Those holding higher qualifications may be exempted from examinations in general medicine, surgery, or pathology. Full particulars may be obtained from the Warden.

Apart from London, Edinburgh has probably more postgraduate courses than any other centre. These include general medicine and surgery, industrial health, psychiatry, etc. Particulars from the Director, Postgraduate Board for Medicine, Edinburgh. In Dublin, with the co-operation of the ten teaching hospitals, the Royal College of Surgeons in Ireland has arranged a postgraduate course in surgery.

### The Royal Colleges

The Royal College of Physicians of London holds a series of lectures for postgraduates on advanced clinical subjects. The lecturers are specially distinguished in their respective fields, and are drawn from the provinces as well as London. The audience for these lectures, which are given four times a week and will be continued apart from vacations, is limited to 200. A short full time intensive course in paediatrics is also given. Details can be obtained from the Registrar of the Royal College, Pall Mall East, SW 1.

The Royal College of Surgeons of England (Lincoln's Inn Fields, WC 2) has instituted a number of postgraduate courses in various subjects—surgery, anaesthetics, dental surgery and

anatomy, applied physiology, and pathology. The programme of lectures on general, oral, and dental surgery includes 34 during the month of September alone. Lectures on surgery to be delivered at the College during October number 12, each by a different lecturer. In the same month 45 lectures on anaesthetics are to be given—three daily—and a series of tutorials in anaesthetics will be held during the same period. From October to December 72 lectures in anatomy, applied physiology, pathology, and pharmacology have been arranged. From January, 1949, there will be residential accommodation available within the College for postgraduate students. Many lectures are also given at the other Royal Colleges and Corporations.

The Royal Cancer Hospital (Free) (Fulham Road, SW 3) offers facilities to postgraduates for the study of cancer. Courses of instruction extending over a period of two years are given for candidates preparing for the diploma in medical radiology. In addition short courses of instruction are given in radiotherapy extending over periods from two weeks to two months. Facilities are offered to postgraduates to attend the out-patient department, wards, and operation theatres, courses of lectures in the diagnosis and treatment of cancer are also arranged. Appointments as honorary clinical assistant are available for suitable candidates. Courses of instruction are given in clinical and operative surgery for postgraduates preparing for the final F R C S examination. The department of pathology participates in this course and also in the course of the D M R examinations, and individual postgraduates are accepted, when possible, for special tuition and research work. The Chester Beatty Research Institute is exclusively devoted to experimental investigations on cancer, and facilities are provided for suitably qualified workers studying for a higher degree.

At Middlesex Hospital special courses are provided for graduates for the diplomas in medical radiology, both diagnostic and therapeutic. One course a year is held for the primary F R C S examination.

For many years the Fellowship of Postgraduate Medicine (1, Wimpole Street, W 1) has administered a bureau providing general information on postgraduate work and arranging courses of instruction at hospitals. Practitioners from overseas visiting London can be advised as to postgraduate facilities by the Empire Medical Advisory Bureau, recently set up by the B M A at Tavistock Square.

## ENTRANCE INTO MEDICAL TRAINING

### Students' Registration

Every candidate for registration as a medical student must, by regulation of the General Medical Council, produce evidence that he has attained the age of 17 and has passed an approved examination in general education and, in addition, an examination in elementary physics or chemistry conducted or recognized by one of the licensing bodies. He is required to have passed in English, a language other than English, elementary mathematics, and an additional subject or subjects, such as history, geography, physical science, natural science, and Latin or some other language recognized by the university for the purpose. Subject to this condition, the General Medical Council recognizes responses of Oxford University, the previous examination of Cambridge, the matriculation examinations of other universities of England and Wales, and the equivalent examinations of the Scottish and Irish universities, also all examinations accepted by one or more of the universities or other bodies as equivalent, for the purpose of entrance or matriculation, to their own. These include the school and higher school certificate examinations of the Oxford Delegacy for local examinations, the Cambridge local examinations, the examinations of other universities, and the leaving certificate examination of the Scottish Education Department. The examinations of Colonial universities which are similarly accepted by one or more British universities for the purpose of matriculation will also be recognized. The final examinations for degrees in art and science of any home or Dominion university are also recognized.

### Deferment

The Ministry of Labour and National Service has directed that preference for admission to medical schools should be

given to those who have served in the armed Forces or have been engaged in approved war work. By regulation deferment is granted only to male students born between Oct 1, 1929, and July 31, 1930 (both dates inclusive), who have been selected by the joint recruiting board of the appropriate university. Joint recruiting boards will be unable to consider applications from men in this age group who intend to enter the university after October, 1948. The above statement is made on the assumption that the regulations of the Ministry of Labour will remain the same as those for students in the previous age group—that is, Oct 1, 1928, to Sept 30, 1929.

Any male student born between Aug 1, 1930, and July 31, 1931, who at the time of his registration under the National Health Service Acts is in residence at a university or has been provisionally accepted for admission, should apply to the appropriate joint recruiting board for provisional deferment as soon as possible after registration. If he is granted deferment he will be called up on completion of his course, when he will serve in a medical capacity. Applications for deferment have to be made in duplicate to the secretary of the University Joint Recruiting Board on Form Misc 20, to be obtained from the school, and forwarded by the date fixed by the Ministry of Labour.

### The Student at Oxford

It may be useful to follow the course of a student at Oxford. To attend the course he must be a member of the University, and for this purpose he must be accepted by one of the collegiate or non-collegiate societies already referred to (p 486) and must pass or be exempted from the University entrance examinations, responses, in which Latin is normally compulsory. There is, however, some relaxation of the responses requirements for those who have spent not less than six months on approved war service. Owing to the limited number of places in the Medical School a prospective student, after he has been accepted as a candidate for admission by a college, must be considered and accepted by the University committee set up to select the students who are to make up the quota of 65 for the given year.

After having got over this hurdle he is eligible to go into residence and is qualified for admission into the Medical School, and therefore for deferment of military service—subject to satisfactory periodical reports on his progress—by the joint recruiting board. Before beginning work for the first B.M. examination, however, he must pass certain preliminary examinations in natural science—subject 4 (biology), or subject 3 (chemistry), or subject 5 (physics and chemistry). These preliminary examinations can be taken either from school or after the student has gone into residence at Oxford.

The subjects for the first B.M. are organic chemistry, human anatomy, biochemistry, and physiology. The course in the first of these is open to students who have passed the preliminary examinations in physics and chemistry—in other words, it can be pursued by those who still have to pass biology. About two clear years are required for the study of human anatomy, biochemistry, and physiology, and the student must pass these subjects simultaneously in the examination at the end of the course. By statute no one can take the B.M., B.Ch. degree unless he has first taken a B.A. degree, the course usually chosen for this being the Final Honour School of Animal Physiology. Candidates who take subject 5 (physics and chemistry) as one of the preliminary examinations for admission to the Final Honour School of Animal Physiology must reach the higher standard in both physics and chemistry.

The student next prepares for the second B.M., in which the subjects are pharmacology and principles of therapeutics, general pathology and bacteriology, forensic medicine and public health, special and clinical pathology, medicine, surgery, and midwifery. Most students, even those not intending to do their clinical work at Oxford, find it convenient to take the courses in general pathology and bacteriology, and pharmacology and principles of therapeutics, at the University. Students who carry out their clinical work at Oxford must complete the courses in these subjects before entering the clinical school at Radcliffe Infirmary. The clinical course extends over a period of approximately thirty-three months. Unless a candidate is already a registered medical practitioner the examination in medicine, surgery, and midwifery cannot

usually be taken until the eighteenth term from university matriculation.

All the universities, following the results of examination, confer qualifying bachelor degrees in medicine and surgery. The abbreviations are B.M., B.Ch. Oxford, M.B., B.Chir., Cambridge, M.B., B.S., Durham and London, M.B., Ch.B., other English and Scottish universities, M.B., B.Ch., University of Wales, Queen's University, Belfast, and National University of Ireland. The baccalaureate in medicine and surgery and the licence in medicine and surgery of the University of Durham both admit primarily to the *Register*.

### The English Conjoint

The qualifying diplomas L.R.C.P. Lond., M.R.C.S. Eng. were taken by about one fifth of those who qualified last year. Candidates are examined by the Examining Board in England of the Royal Colleges (Examination Hall, Queen Square, W.C.1). Three examinations have to be passed: a pre-medical examination, a first examination in anatomy, physiology, pharmacology, and materia medica, and a final examination in pathology and bacteriology, medicine, surgery, midwifery, and gynaecology. Candidates are required to complete the medical curriculum extending over not less than fifty-four months of study at recognized medical schools and hospitals, and to pass the professional examinations in accordance with the regulations after passing any two parts of the pre-medical examination. The Board does not itself conduct the preliminary examination in general education but recognizes a number of matriculation examinations and school-leaving certificates.

The examinations of the Board are conducted four times a year, and candidates are required to give notice to the secretary of the Board twenty-one days before the examination. The first medical examination is in two parts: (1) anatomy and physiology, written, oral, and practical, and (2) pharmacology and materia medica, oral only. In the final examination, medicine, surgery, and midwifery and gynaecology are written, clinical, practical, and oral, pathology is written and oral only, and may not be taken alone as the last part of the examination. Candidates who produce evidence of not less than twenty-four months' recognized clinical study subsequent to passing in anatomy and physiology are admissible to any one part only of the examination, on the completion of twenty-seven months' study they are admissible to one or two further parts, or to three parts if presenting themselves for the first time. Candidates may not enter for the first part of the examination until they have completed thirty months' clinical study.

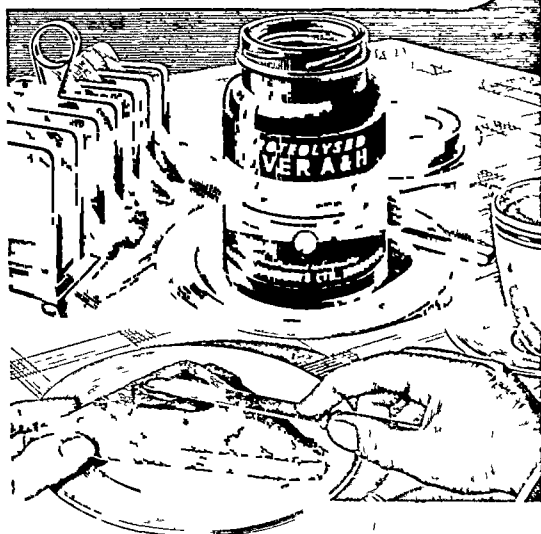
Before admission to the final examination candidates must show that they are at least 21 years of age and must produce evidence (1) of having attended certain specified courses at a recognized medical school and hospital, (2) of general out-patient and in-patient attendance at a hospital during thirty months, six months' medical clinical clerkship, six months' surgical dressership, and three months' gynaecological clerkship, (3) of attendance at five labours by a teacher or member of the staff of an approved hospital and of having subsequently conducted fifteen other labours, (4) of having received instruction in children's diseases and the care of infants, and in the eye, throat, nose, and ear, and skin departments of general hospitals or at special hospitals, and (5) of having received instruction in venereal diseases, radiology, and vaccination, and of having attended courses, including clinical demonstrations, at a fever and at a mental hospital.

### The Scottish and the Irish Conjoint

The Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow have made arrangements by which, after one series of examinations, held in Edinburgh or in Glasgow or in both Universities, students may obtain diplomas of the three co-operating bodies (L.R.C.P., L.R.C.S. Ed., L.R.F.P. & S. Glas). Each of these corporations grants its single diploma after examination but the single diploma does not confer the right to qualifying registration, it is only a qualification additional to those already on the *Register*. The course of professional study embraces a certified period of not less than five academic years in the last three of which clinical subjects must be studied. The first examination embraces physics, chemistry, and biology, the



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cystine	0.3%	1.0%
methionine	0.5%	1.6%
threonine	1.2%	4.0%
leucine	2.1%	7.0%
isoleucine	1.3%	4.3%
valine	1.6%	5.3%

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second anatomy and embryology and physiology, biochemistry and biophysics, the third pathology, materia medica, and pharmacology. The final examination consists of two parts: the first part forensic medicine and public health and the second part medicine, surgery and obstetrics and gynaecology. All candidates at the final examination must also produce certificates of efficiency in the practice of vaccination from a Government teacher in the United Kingdom. Candidates for the Scottish Conjoint may work at any of the medical schools of Great Britain and Ireland. Details may be obtained from the Registrar, 18, Nicolson Street, Edinburgh 8.

The Conjoint Board of the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland issues a joint licence in medicine, surgery and midwifery (MRCPI&LM, MRCSI&LM) and accepts candidates from most of the medical schools at home and overseas. Regulations are obtainable from the secretary of the Conjoint Board, Royal College of Surgeons, St. Stephen's Green, Dublin.

### Other Diplomas

The Society of Apothecaries of London (Apothecaries Hall, Black Friars Lane, EC4) grants the diploma of Licentiate in Medicine and Surgery (L.M.S.S.A. Lond.) to candidates who pass in the primary examination, which is held quarterly, and the final examination, which is held monthly except in September. The minimum period of study is normally five years.

The Apothecaries Hall of Ireland (95 Merrion Square, Dublin) grants L.A.H. Dubl. to those passing the three professional examinations.

Diplomas in medicine and surgery registrable in the Colonial List are those granted by the Universities of Sydney, Queensland, Adelaide and Melbourne, Ceylon Medical College, University of Hong Kong, Royal University of Malta, Newfoundland Medical Board, University of New Zealand, Universities of South Africa, Capetown, and the Witwatersrand and the King Edward VII College of Medicine, Singapore. Under certain conditions diplomas of colleges in Canada are registrable, also with some exceptions, and subject to certain diplomas of the Universities of India and the University of Rangoon.

### Higher Qualifications

All universities confer on graduates holding a bachelors degree the higher qualification of Doctor of Medicine or Master of Surgery. Durham offers Doctor of Surgery and Liverpool Master of Orthopaedic Surgery (M.Ch.Orth.). The Irish universities offer the degree of Master of Obstetrics (M.A.O.). The requirements of the universities vary, and particulars should be obtained from the one selected. To obtain the D.M. of Oxford a thesis satisfactory to the Board of the Faculty must be presented; the degree of M.Ch. is conferred on the result of an examination.

The Royal College of Physicians of London confers its Membership (M.R.C.P.) by examination. The pass examination for Membership consists of a written examination in the form of a paper on questions of medical anatomy, pathology, principles of medicine, a paper on questions on the practice of medicine, including the principles of public health and on psychological medicine, a clinical examination in the clinical wards of a hospital, and oral examinations.

The Royal College of Surgeons of England grants its Fellowship (F.R.C.S. Eng.) to those who pass its primary and final Fellowship examinations. The primary examination, partly written and partly oral, is held in January and July, and the final examination, partly written, partly practical, and partly oral, and including the examination of patients, is held in May and November. Until Jan 1, 1949, candidates for the examination in general surgery may be admitted to the final examination on producing a certificate of not less than six consecutive months in a resident post in charge of general surgical patients in the wards of a recognized general hospital.

### A Fellowship in Dental Surgery

The 1948 edition of the *Dentists Register* is the first to include the Fellowship in Dental Surgery of the Royal College of Surgeons of England as an additional qualification. Dr. E. W.

Lish, chairman of the Dental Board addressing the Board recently said:

The institution of this Fellowship is a most welcome landmark in the association of the Royal College with dental surgery—an association which first achieved practical expression when the Licence in Dental Surgery was instituted a long ago in 1859. That the Royal College should have decided to award their Fellowship with all the honour and prestige which attaches to that distinction to dental surgeons who are not graduates or diplomates in general medicine provided that they can give evidence of advanced knowledge in anatomy, physiology and pathology as well as in the practice of clinical dentistry, may well prove to have far-reaching effects on dental education.

It is generally agreed that training in medicine provides a most liberal and valuable background for the practice of dentistry, but it has been realized for some time that the increasing complexity of the course of study in general medicine coupled with the rapid evolution of dental science and practice had rendered it hardly feasible for a student to achieve the double qualification. No longer, however, the difficulty may be regarded since it is possible for a post-graduate student to obtain the Fellowship in Dental Surgery of the Royal College of Surgeons by demonstrating himself in the clinical practice of his own specialty after he has devoted full time to that particular aspect of general and medical science up to when that practice degree is obtained. The medical school and the science school will remain an indispensable part of the background for the student who intends to make a career in the academic world of dentistry or in research, but the clinical practical and technical aspects will be more attracted by the course of study for the new Fellowship. In this way he will be practicing his own specialty while he pursues his studies; the increased knowledge he acquires will be directly related to his clinical work. He will reach his goal in a shorter time, and the pressure on the medical school will be appreciably relieved.

For this diploma (F.D.S.R.C.S. Eng.) candidates are required to pass a primary and a final examination.

Membership of the Royal College of Obstetricians and Gynaecologists (M.R.C.O.G.) may be applied for by medical graduates who have been registered or eligible for registration for at least three years. The Fellowship (F.R.C.O.G.) is reserved to members who are considered to have advanced the science and art of obstetrics and gynaecology. The address of the College is 58, Queen Anne Street, W.1.

The Royal College of Physicians of Edinburgh (20, Queen Street, Edinburgh 2) examines for Membership four times a year. Only a person who has been for at least three years a Member can be elected to the Fellowship; every proposal for election to which must be signed by four Fellows.

Changes have been made recently in the laws relating to the Fellowship by examination of the Royal College of Surgeons of Edinburgh (Surgeons Hall, 18, Nicolson Street, Edinburgh). The examination consists of two parts: the first consisting of a written paper and an oral examination in anatomy and physiology and in pathology and bacteriology, and the second consisting of a written paper, a clinical or practical examination, and an oral examination on the principles and practice of surgery and on an optional subject chosen by the candidate from the following: surgical pathology and operative surgery, laryngology, otology and rhinology, obstetrics and gynaecology, and ophthalmology.

### New Fellowship Regulations of Royal Faculty

The Royal Faculty of Physicians and Surgeons of Glasgow grants a Fellowship *qua* physician and *qua* surgeon, and regulations in substitution for the present regulations come into effect on June 1 next.

Candidates for the Fellowship *qua* physician must have been medically qualified for not less than three years and must have been engaged during one of those years in full-time clinical work in a recognized hospital, and have spent two other post-graduate years in medical work approved by the Faculty. The examination consists of written and oral examinations in the principles of medicine and therapeutics and the practice of medicine and medical pathology, and a clinical examination.

For the Fellowship *qua* surgeon candidates must be medically qualified and pass a primary examination and a final. The primary examination comprises written and oral examinations in anatomy and physiology and in pathology and bacteriology. To be admitted to the final examination candidates must have been medically qualified for not less than three years and produce evidence that they have been engaged since qualification for a period of one year in full-time clinical work in a hospital.

approved by the Council and a further two years in the study of surgery or its allied sciences. The final examination consists of written and oral examinations in surgery and in surgical anatomy and surgical pathology, and a clinical examination. Alternatively, candidates may submit themselves for examination in obstetrics and gynaecology, or ophthalmology, or otorhino laryngology, the final examination to consist of a written, an oral, and a clinical examination in the special subject and in such medicine and surgery as is related to the special subject. The address of the Royal Faculty is 242, St Vincent Street Glasgow, C 2.

The Royal College of Physicians of Ireland (6, Kildare Street Dublin) grants Membership on the result of an examination taken in two parts: the first part being in general medicine and pathology, and the second in one of eight special subjects.

Two examinations—primary and final—are also required for the Fellowship of the Royal College of Surgeons in Ireland (St Stephen's Green, Dublin). The first is in anatomy, physiology, and pathology, and the second in surgery. A one year course for the primary starts in October each year and lasts three terms. There is also a postgraduate course in surgery arranged by the College with the co-operation of ten Dublin teaching hospitals.

The Society of Apothecaries of London conducts the examination of Master of Midwifery (M M S A), embracing anaesthetics, care, midwifery, and infant welfare and their relation to hygiene and preventive medicine. The examination, which is written, oral, and clinical, is held in May and November.

## THE COST OF MEDICAL EDUCATION

The fees charged at medical schools are not on any uniform basis. One estimate of the average cost of training, over six years, including books and instruments, is between £320 and £360, but tuition fees tend to rise, and so do examination fees in some instances. The figure named would cover the first M B in the case of degree students and the pre-medical examination in the case of students reading for the Conjoint.

Some detailed figures are given in the latest prospectus of the Leeds School of Medicine, which show an approximate total cost of the medical course for the M B, Ch B degree as £405 10s. This is made up as follows:

	£	s	d
Examination for matriculation and registration fee	4	0	0
Composition fee (paid by instalments)	265	0	0
Maternity hostel fee	35	15	0
Examination fees	18	0	0
Books, instruments, etc	75	15	0
Graduation and Convocation fee	7	0	0

The composition fees, which include Union fees, are payable at the beginning of each of the sessions from the first to the fifth in sums of £50, and at the beginning of the sixth, £15. This fee of £265 for the medical course if paid in one sum at the beginning is reduced by £10. All students are required to go into residence at the university maternity hostel for a period of approximately twelve weeks, and the fee is £35 15s for a single room. The approximate cost of instruments and books which the student must purchase during his course is considered to be as follows: 1st year, £18, 2nd year, £21, 3rd year, £14, 4th year, £5, 5th year, £2, 6th year, £2. On admission to the degree the graduate is required to pay a fee of £7 to entitle him to registration as a member of Convocation and to have his name inscribed on the parliamentary register on attaining the qualifying age.

There are of course innumerable awards—scholarships, bursaries, and the like—to assist and encourage the student. To take Edinburgh alone, some 50 entrance bursaries are tenable in the Faculty of Medicine, and there is a much larger list of fellowships, scholarships, and prizes for which students are eligible. In the Faculty of Medical Sciences, University College, London, there are six scholarships (value £200 each) awarded annually, known as the anatomy and physiology (B Sc degree) scholarships, tenable for one session immediately following the second M B.

The taking of higher qualifications involves further fees. The fee payable for admission to the primary examination for the Fellowship of the Royal College of Surgeons of England is

8 guineas, and to the final examination, 15 guineas. In addition, before the diploma is granted, Members of the College (those holding the L R C P, M R C S) pay 10 guineas and other candidates 30 guineas.

By the new rules of the Royal College of Surgeons of Edinburgh a candidate for the Fellowship pays an examination fee of 10 guineas for Part I and 20 guineas for Part II. After having passed in both parts of the examination he lodges a petition for his name to be placed for election as a Fellow and pays 25 guineas to the College funds. The fee paid by a candidate in the Membership examination of the Royal College of Physicians of Edinburgh is 35 guineas, when raised to the rank of Fellow he pays 38 guineas, exclusive of stamp duty. Under the new regulations shortly coming into force for the Fellowship *qua* physician and *qua* surgeon of the Royal Faculty of Physicians and Surgeons of Glasgow the fee for admission to the examination for Fellowship *qua* physician is 15 guineas, and the fee payable on admission to the Fellowship is 35 guineas. For the Fellowship *qua* surgeon the fee for admission to the primary examination is 8 guineas, to the final examination 15 guineas, and to the Fellowship 30 guineas.

Fees for special diplomas vary greatly. For the Diploma in Anaesthetics (R C P Lond, R C S Eng), the examination for which is now in two parts, the fee for admission to each part is 6 guineas, and 5 guineas is also payable before the diploma can be granted. In Edinburgh the fee for the primary examination for the D P H is 6 guineas, and for the final examination 10 guineas, for the D T M & H of the Incorporated Liverpool School of Tropical Medicine the fee for admission to the examination is 6 guineas and for the diploma 3 guineas. The class fees for the D P H in Edinburgh are 16 guineas for the primary course (one term) and 32 guineas for the final course (two terms). For the course in tropical medicine and hygiene at Liverpool the fee is 40 guineas.

## MILITARY SERVICE AND OTHER SERVICES OVERSEAS

### Training for Army Posts

Civilian doctors and released medical officers who have held a non-permanent commission in the R A M C during the emergency and were released before Oct 24, 1947, will be considered for appointment to short service Regular Army commissions in the R A M C for a period of eight years, the first four years of which will be on the Active List and the remainder on the Regular Army Reserve of officers. Civilian doctors will have direct appointment in the rank of lieutenant, and released medical officers, in certain conditions, in the rank of captain. Candidates must be not normally over 30 years of age, British subjects whose parents were British, and registered under the Medical Acts. During the last fifteen months of their service on the Active List they will be considered for appointment to a Regular Army commission, and if they do not want or are not selected for such commission they will receive, at the end of their four years short service on the Active List, a gratuity of £600. Conditions of service and forms of application can be obtained from the Assistant Director-General, Army Medical Services (A M D 1) 38, Hyde Park Gate, S W 7.

On the nomination of the Central Medical War Committee (B M A House, London) doctors are appointed to emergency commissions in the rank of lieutenant. During their service they can apply for a short service Regular Army commission and be subsequently considered for a permanent commission under the conditions stated above.

Officers commissioned in the R A M C may receive their post graduate service training at the Royal Army Medical College, Millbank, S W 1. Here a senior officers' course is held twice yearly. Formerly courses were also held for junior officers, but these are in abeyance for the time being. The senior officers' course is divided into three parts. The first consists of tropical medicine and entomology, military surgery, pathology, military hygiene, and psychiatry. The second consists of clinical instruction in medicine and surgery at London teaching hospitals and in specific fevers at the Brook Hospital, Woolwich. At the end of the first and second parts examinations are held, and there after officers are selected for training in the specialist subject for which they are best qualified or show aptitude. The third

part thus consists of specialist subjects to be undertaken by such officers as have qualified for further study in the preceding part of the course.

The instruction in tropical medicine at the College includes a course of lectures and clinical demonstrations, instruction in entomology is also given. The modern military surgery taught includes general and regional. Surgery of tropical diseases has its place in the syllabus, and stress is laid on the influence of tropical diseases on the management of surgical conditions in the soldier, both at home and abroad. The facilities offered by a small but very adequate department of anatomy, together with an excellent library of reference works and journals, are of great value to officers under instruction.

In the teaching of pathology the syllabus of lectures is designed to cover the subjects taught in the classes of tropical medicine, surgery, and hygiene. Specialists in pathology receive their first six months' training at the College except for the performance of necropsies. The syllabus includes separate courses of lectures and practical instruction in bacteriology in its widest sense, serology, haematology, biochemistry, histology and histopathology, protozoology, and helminthology. For selected officers a further six months training in a chosen branch of their subject is arranged with various civil institutions. The pathology department also maintains the Army tumour registry, in which specimens of all tumours occurring in Army personnel, with reports as to their nature and histology, are maintained for future reference.

The hygiene department of the College in addition to the teaching of hygiene, has facilities for the carrying out of research of importance to the Army from the hygiene point of view. Well-equipped laboratories of adequate capacity exist for instruction in hygiene laboratory work of all kinds. There is also a well organized hygiene museum. The College is now recognized as a teaching institution for the CPH and the DPH awarded by the Conjoint Board and officers taking a specialist course in hygiene have the opportunity of taking the DPH and the DTM&H, for which most of the instruction is given at the College.

The course in psychiatry consists of lectures partly on clinical psychiatry and psychopathology and partly on the applications of psychological principles to morale, discipline, personnel selection, and other purely military matters. There are also demonstrations on clinical cases held at Brinsford and Sutton Hospitals, and demonstrations of selection tests by a personnel selection officer. The school of radiology in the College affords ample material for teaching radiological diagnosis to officers taking the course.

There is no need of the reminder that military medicine is the pioneer in the preventive field. The most important movements in preventive medicine during the eighteenth century, alike in Great Britain and other countries, were initiated by military and naval surgeons.

### The Colonial Medical Service

The Colonial Medical Service offers an interesting career and provides exceptional opportunities for applying medical science in all its branches in territories which are undergoing rapid development. Medical officers are usually appointed in the first instance for general duties, which require all round ability and a balanced outlook on both preventive and curative medicine. There are also openings for doctors who hold the DPH or who have had previous experience in health work. In addition ample scope exists for research and field investigation, and officers who possess special interests and aptitude are encouraged to obtain such higher qualifications as will enhance their value to the Service. Appointments to the super-scale posts in the administrative and specialist grades are invariably made by promotion of officers in the Service who possess the necessary qualifications and experience. Full details regarding conditions and terms of service may be obtained on application to the Director of Recruitment (Colonial Service), Colonial Office Sanctuary Buildings, Great Smith Street, London, SW 1.

A limited number of research studentships were instituted in January, 1947, by the Secretary of State for the Colonies for graduates in medicine and cognate sciences who desire by this means to prepare themselves for research work in tropical medicine and related subjects. A graduate awarded a studentship is eligible for a maintenance allowance, assessed

according to personal circumstances. The maximum rates of allowance are £300 per annum at the Universities of Oxford, Cambridge, and London, and £260 per annum at other universities in the United Kingdom. The allowance is free of income tax. A studentship is normally awarded for a period of two years, subject to a satisfactory report at the end of the first year's work from the supervisor nominated by the Colonial Medical Research Committee.

Salaries, cost-of-living allowances, etc., in the Colonial Service differ very considerably from colony to colony. The East African and Far Eastern salary scales are still in process of adjustment.

### Medical Missions

To medical men and women with a sense of vocation medical missionary service offers great opportunities. In China Christian missions have given the country a medical profession. In India and Pakistan they have helped to maintain high ethical and professional standards. In Africa they have pioneered rural health services and the training of subordinate staff. For undergraduates intending missionary service hostels are available in London and Edinburgh, also various scholarships. With regard to postgraduate studies at least eighteen months or two year appointments are advised for all and special diplomas or higher degrees for some. Some societies in addition require special missionary training. Offers for life service are expected but short terms are considered. Terms may be of from two to six years according to country or climate, with opportunities for postgraduate study during furloughs. Salary is on a missionary subsistence basis with allowances free passages and quarters and pension provision. There are schools for missionaries' children at home and in many of the fields.

Applications from students or qualified men and women should be made either to the secretary of one of the denominational or interdenominational missionary societies or through the local branch of the Student Christian Movement or the Interuniversity Fellowship, or to the Chairman of the Medical Advisory Board of the Conference of British Missionary Societies, Edinburgh House 2, Eaton Gate, SW 1.

### ORGANIZATIONS TO JOIN

The newly qualified practitioner should immediately take steps after registration to join the British Medical Association and one of the defence organizations. Even if he is not in independent practice, but in a salaried position, perhaps in the service of a public authority, he will do well, by joining one or other defence society, to protect himself against the medico-legal hazards which even the most careful practitioner may encounter.

The Medical Protection Society (long known as the "London and Counties") (Victory House, Leicester Square, WC 2) has a membership of or approaching 25,000. During the past year it has gained over 1,500 new members. Membership is open to any registered medical or dental practitioner. This Society was the first to afford indemnity against adverse costs and damages, the first also to afford unlimited indemnity.

The Medical Defence Union (49, Bedford Square, WC 1) is the oldest medical defence organization in the country. It has over 32,000 members and has expended, since its inception, more than £323,795 in fighting and settling cases on behalf of its members. In 1947 the cases conducted by the Union numbered in all 1,586.

The Medical and Dental Defence Union of Scotland (113, St. Vincent Street, Glasgow, C 2) has a membership of some 6,000.

The annual subscription of all these societies is £1, with an entrance fee of 10s.

### The British Medical Association

The British Medical Association with which the Canadian Medical Association and the Medical Association of South Africa are affiliated, has a membership of about 58,000. In the United Kingdom three fourths of the members of the working profession are in the B.M.A. Members are elected by the Council of the Branch in the area in which they reside or if not resident in a Branch area (for example, serving with H.M. Forces), by the Central Council. The privileges of membership include participation in all activities of the Association.

ocal and central, in its government and the formulation of its policy, the receipt weekly of the *British Medical Journal* and its *Supplement*, the use of the houses of the Association (Tavistock Square, London, WC1, and 7, Drumsheugh Gardens, Edinburgh), and the help of the central staff in professional matters. The Association awards a number of prizes for research and the encouragement of important work. Six prizes, each of the value of £25, are awarded annually to medical students for essays submitted in open competition on a national basis, and £150 has been allocated for the award of regional essay prizes to medical students based on the four regions of the British Medical Students Association. The Association also has certain research scholarships which are awarded for a period of twelve months to accord with the academic year.

One of the latest developments in the Association is the establishment of an Empire Medical Advisory Bureau to assist members of the profession coming to this country from the Dominions and Colonies for postgraduate instruction and other purposes. The Bureau, now opened at B M A House, provides a personal advisory service to visiting practitioners, and one of its principal objects is to make available the fullest information regarding facilities for postgraduate study and, where necessary, to provide the required contacts and introductions.

The ordinary subscription to the B M A for members resident in Great Britain and Northern Ireland is 3 guineas but newly qualified practitioners are admitted to membership within two years of registration on a subscription of 1½ guineas, which continues until the end of the fourth year after registration, and the subscription is 2 guineas for members of not less than forty years' standing, for members of not less than ten years' standing who are retired from practice and for members not engaged in practice who are engaged whole-time in teaching or in research as distinct from routine laboratory work.

#### The Students' Association

The British Medical Students Association was founded in 1941 to promote the interests of medical students. It provides a method of communication between medical students of the various schools and regions and between British and foreign students. It publishes a journal, and has issued a catalogue of medical films. It has organized a number of clinical conferences in university centres, and its greatest and most successful effort in this direction was its organization of an International Medical Students Conference which took place, over a period of almost three weeks, successively in London and at Oxford and Birmingham, in July. The B M S A was ably represented on the Curriculum Committee of the British Medical Association which recently reported, and tributes were paid in the Council of the B M A to the value of the contribution made by its representatives. It holds an annual meeting in London usually extending over three days, and depends on local enthusiasm for its activities in the various schools. Recently it has created a new category of membership for qualified men and women, so that students who leave the student ranks on qualification need not necessarily feel themselves cut off from the student body. The offices of the Association are at B M A House, Tavistock Square, WC1.

### SPECIAL DIPLOMAS

#### Diploma in Public Health

The Diploma in Public Health (DPH) of the Conjoint Boards and the various universities is registrable with the General Medical Council. The preliminary and final examinations for the DPH under the English Conjoint Board are normally conducted twice yearly—in June and December—and candidates must give notice to the secretary of the Examining Board Examination Hall, Queen Square WC1, twenty-one days before the examination takes place and must furnish the necessary certificates. In Edinburgh University the final examination is held in July and October.

The preliminary examination includes written and oral examinations in the history of public health, the functions of central and local authorities, social security, international health organizations, nature and sources of information bearing on the health of the people, causal agents of infection and their sources of control, influence of environment on physical and

mental health, physical education, influence of heredity on health, and principles of health education. The final examination includes written examinations in physiology and biochemistry, food and nutrition as applied to public health, bacteriology, parasitology, and medical entomology as applied to epidemiology, mass aspects of disease, sanitation, etc., statistical data and methods, the law relating to public health, mental health services, occupational health, and a number of other subjects, also a clinical examination in infectious diseases and an oral examination in infectious diseases, epidemiology, and general and special hospital administration.

The London School of Hygiene and Tropical Medicine (Keppel Street, WC1) arranges courses for the DPH designed primarily for those who intend to enter the public health service in this country as medical officers of health. The course lasts one academic year of nine months. Examination for the certificate is held at the end of three months.

The Royal Institute of Public Health and Hygiene (28, Portland Place, W1) arranges courses of lectures and laboratory instruction by qualified teaching staff. Students completing the course are entitled to enter for examinations for the diploma of the universities and corporations.

#### Diploma in Tropical Medicine and Hygiene

The Diploma in Tropical Medicine and Hygiene of Liverpool University (D T M & H) has been combined in that form since 1946. Originally there were two separate diplomas. The diploma in tropical medicine was obtained at Liverpool by 978 candidates between 1904 and 1946, and since then the combined diploma has been obtained by 71. The examination is held in January or February and in April or May. The Incorporated Liverpool School of Tropical Medicine furnishes a course for the diploma twice yearly, each course lasting about five months. The examination consists of one paper on tropical medicine, one on pathology including bacteriology, one on parasitology, one on entomology, one on tropical hygiene, and one on sanitary engineering and tropical hygiene, and practical and oral examinations on the first four of these subjects.

#### Diploma in Industrial Health

For the Diploma in Industrial Health of the Royal College of Physicians of London and the Royal College of Surgeons of England (DIH, R C P Lond, R C S Eng) candidates are admissible to Part I of the examination twenty-four months after having passed the qualifying examination in medicine. Both parts of the examination are taken in June and December unless otherwise ordered. Exemption from Part I may be obtained by those who hold a certificate in public health. The subjects in Part I are the same as in the preliminary examination for the DPH. The final examination consists of written papers and oral examinations on (1) the structure of industry, (2) international organizations concerned with public health and the law of industry, (3) industrial psychology, (4) surgery—rehabilitation and (5) medicine and surgery, dermatology, and ophthalmology applied to industry.

Candidates should note the possibility of additional expense for travel and maintenance, because attendance at factories and mines is required in the final course, and the places selected may be in various parts of the country. The same holds good for those taking the Diploma in Public Health, who are required as part of the final course to attend at the department of medical officer of health.

The Society of Apothecaries of London holds an examination in industrial health, embracing the history and legislation relating to the subject, occupational diseases, industrial environment, the practice of industrial medicine, and clinical medicine and surgery as applied to industry.

The Royal Institute of Public Health and Hygiene arranges courses for this diploma, and the practical instruction includes visits to industrial establishments, rehabilitation and retraining centres, and works' surgeries, and attendance at a skin and an ophthalmic clinic and at the accident department of a hospital.

#### Diplomas in Radiodiagnosis and Radiotherapy

Diplomas in this subject are granted by a number of bodies including the English Conjoint. For the Edinburgh diplomas (D M R D Ed and D M R T Ed) a written examination is held in June and September and the final in September and March.

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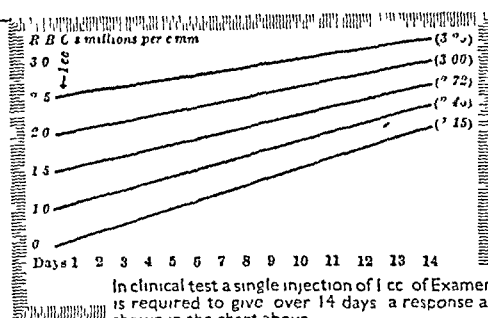
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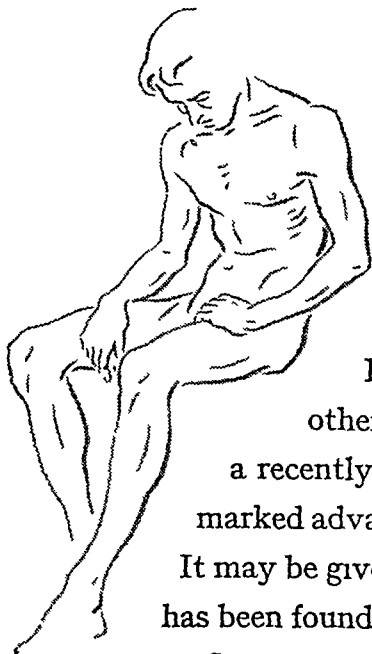
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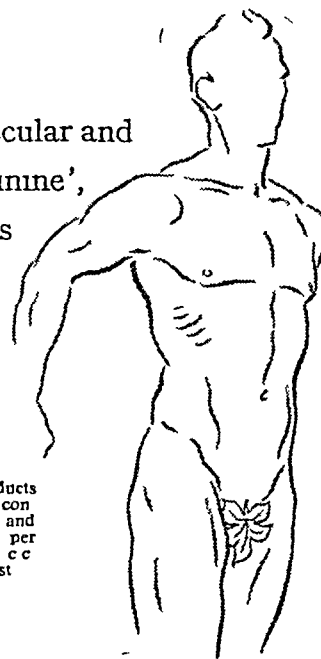
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### Diplomas in Psychiatry

The English Conjoint and several of the universities have Diplomas in Psychological Medicine. A course for the DPM is normally held at Maudsley Hospital (Denmark Hill, SE 5) in the early months of the year. The Conjoint Board in Ireland also has a DPM. The Diploma in Psychiatry of the University of Edinburgh (D Psych Ed) requires candidates entering for the examination to have spent a period of three years in a duly proportioned training in approved hospitals, clinics, laboratories, and other institutions—eighteen months' whole-time appointment in a mental hospital or psychiatric clinic, six months whole-time work in a neurological hospital or in the neurological department of a general hospital, six months' training in child psychiatry, including a three months' appointment on the staff of an institution for mental defectives, three months' training in psychology, and three months in the special study of psychiatry or neurology. Candidates can take these different periods in any order they prefer.

### Other Diplomas

The above are only examples of the special diplomas granted by the various bodies, and for full information the programmes and prospectuses of the bodies must be consulted. The University of Oxford grants a Diploma in Ophthalmology, the University of London a Diploma in Clinical Pathology, the University of Liverpool the degree of Master of Surgical Orthopaedics. The Conjoint Board in Ireland has Diplomas in Ophthalmic Medicine and Surgery and in Anaesthetics. A Diploma in Anaesthetics is also granted by the English Conjoint (DA RCP Lond, RCS Eng). The examination for this is in two parts, the first part comprising physiology, pharmacology, and clinical pathology, with special reference to anaesthesia and analgesia and anatomy as it applies to these subjects, and the second part, anaesthesia and analgesia including pre-operative and post-operative treatment and clinical medicine and surgery in so far as it concerns anaesthesia. The English Conjoint also offers Diplomas in Laryngology and Otology, in Ophthalmic Medicine and Surgery, in Child Health, and in Physical Medicine.

## COURSES IN PSYCHIATRY

The National Association for Mental Health (39, Queen Anne Street W1) arranges training courses in certain aspects of psychiatry, mainly child psychiatry and mental deficiency. For the last seventeen years Fellowships have been given to enable qualified psychiatrists to obtain special training in child guidance at a recognized training clinic. Preliminary qualifications for the award of a Fellowship are the DPM, or equivalent experience in the psychoses, psychoneuroses and mental defect. Fellowships are tenable at a number of training clinics in England and Scotland. The usual course of training covers twelve months half-time. The course of training is recognized as a suitable qualification for the medical directorship of an education authority's child guidance clinic.

The Tavistock Clinic (2 Perumont Street W1) has specialized as a centre for the out-patient treatment of children and adults suffering from psychiatric disability. The educational programme includes courses for psychologists and social workers as well as doctors. The twelve month half-time course for psychiatrists specializing in child psychiatry is organized jointly with the National Association for Mental Health. The number of students accepted for these courses is strictly limited.

The Institute of Psycho-Analysis (96 Gloucester Place W1) is a postgraduate course lasting about four years in psycho-analysis and technique. It includes a personal analysis and theoretical lectures and seminars and clinical work under supervision. The Institute does not set out to teach all aspects

of psychiatry, and general psychiatric experience must be obtained at other clinics and hospitals. Completion of the course to the satisfaction of the training committee qualifies for election as an associate member of the British Psycho-Analytic Society.

## ENTRANCE UPON PRACTICE

The majority of those who qualify will find their way into general practice, probably beginning as assistants. A much smaller number will be found in who-e-time posts in hospitals or in the public health service. A smaller number again will become consultants and specialists. The recent Spens Report traced the evolution of the specialist. After holding one or more house appointments he devotes himself to intensive academic study with a view to securing a higher qualification in medicine or surgery, and also with a view to obtaining, about four years after registration, a post which may be variously described as registrar or senior registrar, assistant or chief assistant, for which a higher qualification is normally required. In such a post he is given more and more responsibility, and on completion of his tenure he is ready for appointment to the staff of a hospital, when he will be recognized as having full specialist status. The Spens Committee, by the way, was impressed by the drastic selection to which aspiring specialists are subject, at every stage there is some elimination.

It is not necessary to recapitulate the conditions which the National Health Service imposes on a career in any of these branches of the profession. A summary of such conditions as affecting general practitioners, consultants and specialists, and public health medical officers was set out in the *Supplement* of June 19 (p 176), and an earlier statement on the remuneration of general practitioners was published in the *Journal* of June 5 (p 1096). The Report of the Spens Committee on the Remuneration of Consultants and Specialists, whose recommendations the Government has agreed to accept, was published in June and reproduced in the *Journal* of June 12 (p 1146).

With regard to public health medical officers, the remuneration and conditions of those in the service of local authorities are now under consideration in the light of the Spens Report. Pending the operation of permanent new scales, the recently revised 'Askwith' memorandum will continue to have effect. The Council of the British Medical Association is urging upon the Government and local health authorities that the salaries of medical officers of health should be adjusted in the light of the Spens Report. Indeed, it is the intention of the Council that every type of medical remuneration shall be brought into line with the two Spens Reports (general practitioner and specialist), this will apply not only to the public health service but to the Colonial Medical Service and to the medical services in the Armed Forces of the Crown. During the past year the Council has made certain recommendations for the remuneration of whole time and part-time medical officers employed in industry. These were set out in the *Supplement* of June 19 (p 179).

### Remuneration of Medical Teachers

One point of some importance is mentioned by the secretary of the University of Aberdeen in reply to the usual inquiries about the work of the Medical School in the next session. He says that the report of the Spens Committee has caused some anxiety. There is no difficulty in the case of clinical professors, because the who-e-time salary for such posts is already well known, but great difficulties arise so far as whole-time lecturers in the various clinical departments are concerned. According to the Spens Report they should be receiving something like double what they are receiving at the present time. A still greater difficulty for the university occurs owing to the position of professors and lecturers in the medical scientific departments. It is pretty clear from the history of medical progress during the last fifty years that this has come mainly from the laboratory scientific department, and very little from the clinical side. The university therefore, regards it as a very serious matter that the holders of chairs and lectureships in medical scientific departments should be paid on a very much lower scale than those in the clinical departments, and is already taking steps to see what can be done to remedy the matter.

The Spens Committee expressed itself as doubtful whether it would be possible to secure the best men for teaching unless a higher total remuneration was offered

## THE PUBLIC HEALTH SERVICE

The public health service has been more widely affected by the changes resulting from the National Health Service Act than perhaps the rest of the profession realize. Hospitals have been transferred to the Regional Hospital Boards, and maternity and child welfare services from the relatively large number of we fare authorities, including non county boroughs and urban and rural districts, to the local health authorities under the Act—namely, about 150 county borough and county councils. Tuberculosis officers, hitherto employed by local authorities, are now mainly officers of the Regional Boards, though a method of joint appointment whereby they are still employed for part of their time by local health authorities for domiciliary and after-care work is being widely adopted.

Under the pyramidal structure which has always obtained in the public health service the number of chief posts has been relatively small in comparison with the total number of practitioners in the service. The effect of the Act has been to make the number of major posts still smaller, although a number of new types of post are being created. It is too early as yet to say what will be the ultimate shape of the service. Professor J. M. Mackintosh, in last year's Educational Number (Sept 6, 1947, p. 368), suggested that the loss of hospital services would be an ultimate benefit to the medical officer of health, as it would release him for his more proper duties in the promotion of health, with a return of direct interest in environmental services, especially housing. From the point of view of the medical graduate the public health service at the moment may not appear to offer a very promising career, but it is hoped that forthcoming negotiations on remuneration and conditions of service will result in prospects no worse than those for the general practitioner and the specialist.

The Ministry of Health estimate of the number of practitioners in public health in 1944 gave a total of about 2,000 in whole-time local authority appointments (excluding those in hospitals) in England and Wales. The number is not likely to have altered materially. About 200 whole-time tuberculosis officers have been transferred to the Regional Hospital Boards but other departments have increased their strength since the war.

### The New Entrant

The new entrant into public health work usually begins as assistant medical officer doing maternity and child welfare or school medical work or both. The future tendency will be for such medical officers to specialize more directly either on the obstetrical or child-health side and to have opportunities of keeping up clinical knowledge by interchange arrangements with hospitals or by clinical assistantships. For these appointments the DPH is not essential, and the Society of Medical Officers of Health has suggested that special experience in maternity or children's hospitals and the acquirement of some specialist diploma such as the DCH may in fact be more useful than the DPH itself. The Society, however, considers that a Certificate in Public Health, which can be acquired as the first part in the DPH curriculum, should be regarded as a basic qualification for anyone entering the public health service.

Above assistant medical officer level there are a number of senior posts defined in the Askwith Memorandum as "medical officers in charge of departments," which carry a higher rate of salary. These posts are, or should be, sufficiently well remunerated to make a career for those who do not aspire to the chief administrative posts as MOH or deputy MOH. For these two grades the DPH is a statutory necessity, and the course can be taken at two schools in London or at ten centres in the rest of Great Britain. Thus the public health service will still provide an interesting career for a man or woman interested in the preventive side of medicine in the acquisition of knowledge of factors which affect the health of the people, and in the promotion of positive health.

For the above statement we are indebted to Mr G. L. C. Elliston, M.A., executive secretary of the Society of Medical Officers of Health.

## Correspondence

### Mental Health

SIR—One cannot help regretting that the recent International Congress on Mental Health, dominated as it was by the psychologists, could not have been more representative of the other social sciences, particularly education. Criticisms were made of teachers—criticisms which it should be said in all fairness could be made against members of other professions—and there was no one to point out that it is not the teaching profession but the educational system which must be revolutionized. There is, I think, little doubt that teachers will remain as they are so long as the educational system remains as it is.

Our upbringing and education, in the home and in the school, can largely obliterate or develop such psychic forces as guilt and aggression, which the Congress considered in relation to world peace. If parents had a greater knowledge of their own physical and psychological make-up it would improve their methods of training their children and if enlightened teaching along these lines were to be continued in the schools during the formative years one cannot help feeling that eventually there would be little need for specialists in psychology. So far as the schools alone are concerned training in human relationships should play a far larger part than it does to-day. Greater freedom of individual expression—an outlet for thought energy and word energy—is certainly as important, and far more important for later life, than the outlet for physical energy provided, for instance, by the traditional school games. It would be well to remember that the team spirit is of value only if it is not obliterated by the competitive spirit, with all its potentialities for developing and perpetuating aggression.

In short, there are many ways in which a drastically reformed educational system could contribute to mental health. In this endeavour the aid of psychologists would be invaluable. Until such a project is undertaken, however, there is little that individual teachers can do. Meanwhile one feels that the medical profession, which was prominently represented among the speakers at the Congress, would make a more positive contribution to human progress if it put its own house in order in the first instance. In the light of the general acceptance to day of the psychosomatic conception of medicine, the curricula and the whole method of training students in the medical schools are glaringly outmoded and inadequate. They continue to turn out doctors who have not only little knowledge of psychology but a positive antagonism towards it, and who feel that only one part of the individual is important and relevant—the body.

All illnesses, even if they are not technically psychosomatic, certainly include superimposed mental disturbances. If a person is ill he is totally ill, and there must be twofold treatment—for the condition and for the person with the condition. The danger of too narrow specialization—of failure to take the broad view—is always with us. With our present knowledge of the pervasive interaction of body and mind it is imperative that the G.P. should have a reasonable degree of psychological knowledge.

It would be well for members of the medical profession—in particular, the psychologists—to ask themselves where they are going. Do they want to supplant the teachers, politicians, statesmen, and sociologists? Would it not be better for them to concentrate on improving their own service to the individual and, through him, to the community? Meanwhile they should not try to give the lay public the impression that they alone have panaceas for all the world's problems. A profound knowledge of psychology is not restricted to those trained in it, as many classical and contemporary authors have shown. On the other hand, even the most highly trained psychologist might be nonplussed at confronting thirty or forty unruly, perhaps antagonistic, children in a hopelessly inadequate classroom. One cannot end without a word of praise for the excellent way in which the Congress was organized—I am, etc.



went to bed, but his wife was awakened by his stertorous breathing in the night and found that she could not rouse the patient. The doctor was again called and thinking that he had relapsed into coma, gave him a further 40 units Z P I. This time he did not come round and was sent into hospital.

On admission the patient was restless, with a peculiar to and fro conjugate roving of the eyes, each excursion taking about five seconds. The breath was free from acetone and the urine contained neither sugar nor ace one. The blood sugar estimated about 12 hours after the last injection of insulin was 28 mg % Glucose (6%) was given rapidly by intravenous drip, amounting to 2.8 litres, but the patient did not recover consciousness. Necropsy showed that the cause of the initial collapse was coronary occlusion.

It is possible that the diagnostic blunder made here weighed the balances against the patient recovering from his heart attack by so depleting the blood of sugar for a number of hours that irreversible changes were produced in the central nervous system—I am, etc.,

Edinburgh

D STEWART McLAREN

### "Mushroom" Poisoning due to *Amanita Phalloides*

SIR—The following quotation is from Dr Paul White's book (1945) on diseases of the heart "The mushroom *Amanita phalloides* has been reported to have been the probable cause of temporary right bundle branch block (Hyman 1928)." Dr David Lewes (Aug 21 p 383) also refers to Hyman's report in his article on poisoning due to this fungus.

I do not think that Hyman's patients were suffering from poisoning by *Amanita phalloides*. The course of their illness as he described it was as follows. Three hours after ingestion the four people fell ill with violent abdominal pains, nausea, and vomiting, and two of them had diarrhoea. In one there was an agonizing frontal headache, vertigo and blinding flashes of green light. After eight hours the abdominal signs in this case had completely disappeared, but he then became stuporose and could be roused only with difficulty. Ten hours after taking the fungus the cardiac irregularity was noticed. Hyman says that a specimen of the mushroom gave the typical silver-spoon reaction. After intravenous administration of glucose for thirty hours the patients were fit for transfer and after a few days they were quite well.

The short incubation period, the benign course, the rapid return to normal health (and, I suspect, the "typical silver-spoon reaction"), all speak against *Amanita phalloides* as having been responsible for the symptoms and the heart block. Indeed, there is nothing to suggest that this fungus had been taken. It is a pity that Hyman's statement is beginning to be taken seriously and apparently without any critical appreciation of the clear report he gives of the clinical condition of his patients.

This is the way that myths arise, and I trust that this one will be scotched before it is copied by even more authors. The only mistake made by Hyman was in identifying as *Amanita phalloides* the fungus which made his patients ill. It would be interesting if Dr J Ramsbottom would give his opinion on this matter—I am, etc.,

Bristol

J A R BICKFORD

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### Gangrene after Scorpion Sting

SIR—In his report of a case of gangrene after scorpion sting Dr M Y Ansari (Aug 21, p 388) infers that it is a very rare condition. Actually it is not uncommon. A scorpion often stings the same victim several times. I have several times seen a young adult with three or four circular marks on the back due to putting on a shirt with a scorpion concealed in the inner folds of the garment. The circular marks are often 7–8 cm in diameter, the first a black disk of dead skin and subcutaneous inflammation, the second a much inflamed plaque with a central necrotic area about 5 mm in diameter, the third a reddened and swollen circular disk of skin, with no necrosis, the fourth may be just an erythematous area with a circular margin a good deal smaller than any of the earlier lesions. Before the second world war we used anti-scorpion serum made by a German firm, but I think such a serum is now manu-

factured in this country. The remedy must be used soon after the patient has been stung. Dr A H Mohammed (*Lancet* 1942, 2, 364) describes the preparation of anti scorpion serum. He advises the simultaneous administration of atropine and ergotoxine. Young children can be killed by a scorpion sting, for them the anti scorpion serum is essential—I am, etc.,

Lipping Essex

FRANK MARSH

### Repair of Indirect Inguinal Hernia

SIR—It is refreshing to read a letter like that of Mr Frank Forty (July 31, p 268) which gets away from anatomical and physiological theories and faces the fact that in the hands of experienced surgeons the bulk of "recurrences" are not recurrences at all but new and direct herniae at the inner end of the inguinal canal.

Mr Forty meets this challenge in one way, I in another, but at least we both appreciate two essential points: (1) the importance of exposing the pubic spine and the passage of the crucial first stitch through the dense fibrous structures attached to it, and (2) the importance of relaxing the conjoined tendon so that it is not sutured to the inguinal ligament under tension. If these points are attended to it will be found that the actual percentage of "recurrent" herniae is diminished to a very low figure. Similar results should be recorded by those who claim that a new hypothesis is of fundamental significance—I am, etc.,

Liverpool

JOHN T MORRISON

### Use and Abuse of Tonsillectomy

SIR—I endorse Mr T B Layton's statement (Aug 7, p 310) that the profession as a whole should reconsider its approach to tonsillectomy. But it would be disastrous to leave the decision to the parents. Anybody with experience in school tonsil clinics knows that parents who bring their children very often say,

"I want my child's tonsils removed," and are more than displeased when told that tonsillectomy is not advised. The point however I should like to emphasize is that far too many tonsils are being removed where all that is required is simple adenoidectomy. This is where a clear differential diagnosis must and can be made. Although complete removal of adenoids with out damage to the eustachian tube and the pharyngeal mucosa is a much more difficult and skilful operation to perform, it is of course a smaller surgical intervention from the patient's point of view and less liable to complications. Unless there is definite pus in the tonsils and there is tonsillar adenitis present all the benefit from the operation called "Ts and Ads" is derived from the removal of adenoids. I see on an average 800 to 900 patients a year in my capacity of aurist to the Ealing Borough Council, and over a number of years I have practised adenoidectomy only where the tonsils were not obviously infected, with very rare exceptions I have not been obliged to do a subsequent tonsillectomy. I appeal for careful, and complete adenoidectomy without removal of tonsils in every case—I am, etc.,

London W 1

ARTHUR MILLER

### Prevention of Venereal Diseases

SIR—I have read with great interest the replies to Lord Horder's letter (July 17, p 171) on the prevention of venereal disease. One fact seems to stand out clearly, and it is this—that the crux of the whole matter is the efficacy of prophylactic measures and the extent of their efficacy. This is clearly admitted in the letter of Dr E W Assinder (July 31, p 269). If it can be shown that such measures are in a free degree effective there can be no doubt that it is the plain duty of the State and medical profession to disseminate the knowledge of these and provide facilities for their adoption.

I ask myself and I should like to ask the writers of some of their letters, this question: If prophylaxis could be shown to be 100% effective would they still be against it? I cannot help thinking that the moral side would outweigh the social and humanitarian aspects. I would agree with Dr G L Russell (p 268) that VD is not only a medical and social problem but also a human one, but I do not think it is to any great extent a moral one. It is because it is a human problem that all the teaching of the churches has failed to bring about St Paul's ideal that a man should be "the husband of one wife blameless"—*Natuiam expellas furca tamen usque recurrit*.

Illicit sexual intercourse is probably as widespread to day as it ever was. The incidence of V D among our troops in Germany was 185 per thousand. We must suppose that unless every case or most cases of illicit intercourse resulted in infection the incidence of promiscuous sexual relations must have been much higher than this. We must therefore conclude that a very large proportion of Service men are promiscuous, and I doubt if all the exhortations of C O's and padres will much reduce this. How far is this a moral question? Morality must always be a relative matter, conditioned by the religious, social, and economic structure of a people. There is no absolute morality, no code laid down by an external law-giver. Probably the only absolutely moral people were, before the missionaries got there, some of the races of the Pacific Islands where sexual intercourse was looked on as an absolutely natural function, and where there was no law in this respect, except some taboos, and therefore no sin.

It would be of great interest to know whether, if Dr R C Webster (p 269) has found rubber and chemicals inadequate to protect the hands from infective discharges, he has discovered other means, or if he has had to abstain from such contacts—a difficult matter for a syphilologist. I am by no means advocating indiscriminate sexual relations in our society as now constituted, but I do maintain that the question of V D will only be obscured if tackled from its doubtful moral rather than its sound economic social and human side—I am etc.,

Taynuilt Argyll

P F CHAPMAN  
Col I M S (Ret)

SIR—The problems of venereal disease and its prevention are of paramount concern to military authorities, and, while it is not claimed that the solution applied in Egypt during the recent war is applicable to all countries, yet as it was so successful then it is worthy of mention.

In the early part of 1942 venereal disease was a serious cause of hospitalization of troops, producing more admissions than battle casualties. 52% of the V D cases contracted their disease in the controlled brothels of Cairo. After an investigation into this problem in March, 1942, I suggested that all the brothels in Cairo be put out of bounds, that various counter-attractions such as swimming-pools, cinemas, and sporting events be supplied, and that prophylactic ablution centres (P A C) be decentralized and taken out of the control of the military police.

This proposal met with vigorous opposition from many quarters, including medical, owing to the widespread opinion, as held by Dr W B Laing (Aug 21, p 400), that "legalized and controlled prostitution as was carried out until recently in France is the only sure method of V D control." My argument was that this control gives false security and encourages men to take risks. Thanks to the support of Brigadiers A Chrystal, the Area Commander, A E Richmond, then D D H, and R Lees, the adviser in venereal diseases, the opposition was overcome and the brothels were put out of bounds in October, 1942.

As I remained in Egypt until June, 1945, I was able to observe the results of this measure. To summarize, it was found among the British troops that (1) The number of exposures to infection as judged by the attendances at P A C's fell to one-tenth of the pre-closure figures. (2) The incidence of V D expressed as a ratio per 100 000 ration-strength (including leave personnel) dropped to one-quarter of the former figure. (3) Cairo was held responsible for only 17% of M E F venereal disease instead of over half. (4) The general conduct, morals, and morale of the troops in this area so improved that on the eve of his departure from Egypt Brigadier Chrystal stated that the closure of the brothels was well worth while for this improvement alone, even if the V D rate had remained unaltered, which of course it had not.

Dr Laing suggested in his recent letter that the termination of legalized and controlled prostitution in France has led to an increase in V D. This is a most controversial statement, for there are several other factors which may account for the increased incidence—I am etc.,

Bechley Bluffs

A MICHAEL CRITCHLEY  
Late A.D.H. Cairo Area M.E.F.

SIR—As a medical student and also as a Christian I am disturbed by the letter of Dr W B Laing (Aug. 21, p 400) on the subject of the prevention of venereal disease. I would say that the practical solution of the problem of the spread and

control of such diseases is more difficult and involves wider considerations than almost any other group of infectious diseases. Having made this general statement I would like to refute the ideas of Dr Laing that the Church is responsible with the State for "driving sex into back streets and sordid lodgings," an outlook which "favours the spread of V D" and helps to "transform sexual experience from something beautiful into something ugly and shameful." Such crooked thinking is dangerous, but in one who presumably has an influence in the local community it is a shocking revelation—I am etc.,

Manchester 20

P WHITE

SIR—It is regrettable that the ancient error as to the value of controlled prostitution should be again brought forward by Dr W B Laing (Aug 21, p 400). Since even a venereologist cannot exclude syphilis and/or gonorrhoea in a woman without several months' observations and tests, the futility of cursory examinations is obvious. Controlled brothels were out of bounds in several cities during the recent war: this was not on moral grounds, but as a protection against infection. It is a curious fact that in written controversy on the prophylaxis of venereal disease, as also in verbal discussion, the non-specialists are optimistic, the venereologists incredulous.

I have carefully avoided entering on the moral and social aspects of this problem, and would suggest to Dr Laing that the views of a doctor in his professional capacity as to the value of marriage certificates and chastity as an ideal have no special value. It is not easy to see how the bringing of promiscuous sex relations "out of back streets" by a change in the official outlook of Church and State "would lower the incidence of disease and automatically make the adventures of our patients "beautiful." *T. pallidum* and the gonococcus are no snobs and flourish at any address. In my experience among races whose moral outlook is not that of European Churches and States venereal diseases were very prevalent, and the beauty of these peoples' lives was not particularly obvious, while neuroses seemed quite common.

But let the cobbler stick to his last as a venereologist I repeat there is no method of prophylaxis of venereal infection which in ordinary life affords any significant degree of security, and in that categorical statement is included condoms and/or chemicals, regulation of prostitution, arsenicals by mouth, measures applied under supervision, and those left to the individual—I am, etc.,

Tadmorden Lancs

R C WEBSTER

### The B M A Under Fire

SIR—To defend the B M A by saying (Aug 21, p 392) that no organization is perfect but, so long as it acts in good faith and with courage, it can withstand criticism recalls Mr Churchill's remark about our pre-war Government—that it is a fine thing for a Prime Minister to be honest but an important thing for a Prime Minister to be right. Was the B M A right in refusing to allow any discussion of terms of service during the past six years? It has been obvious for all of that time that sooner or later the B M A would offer the services of the profession to the country. When any of us is going to sell something important his first step is to get an opinion of what it is worth: satisfactory negotiation is impossible otherwise. The B M A had a real duty to find out what value the profession put on its services. The evidence given to the Spens Committee would pretty certainly have been affected by such information. It is a doubtful argument to say that a majority of practitioners have approved the Spens Report. A majority of practitioners opposed the health service in the second plebiscite, but the minority view was adopted then. Anyhow, if the B M A had put discussion of terms on divisional agendas years ago it would have been in a far better position to appreciate the difficulties of what it regards as a minority now, instead of spending six years on principles, of which it evolved seven, or slightly more than one principle per annum. I challenge any reader to write down at once those principles (if he remembers them), to reflect on how many have proved essential, and to say that they justify six years of planning committees and executive, divisional, representative, and council meetings. So far as the health service goes no other result emerged.

We still have no agreed opinion as to how many patients a doctor can look after properly, or what income he should have.



There is no conception of what proportion of that income used to come from no-longer existent contracts or appointments to hospitals, public authorities, schools, etc., nor what is still needed to perform that work in the nature of qualified assistants, domestic or dispensing staff, or housing accommodation. All these points might have been discussed, would have attracted larger attendances in divisions, given a feeling of reality to the matter, and accumulated essential information qualifying the B.M.A. to advise in drafting the regulations which are the important things in the Act now. There was not even a statement that no medical practitioner ought to suffer appreciable loss by entering the service yet, if the service has seemed to start smoothly, that is because quite a lot of the profession are resigned to more work, often for less pay. The essential trouble with the B.M.A. is that it is impractical. I hope more correspondents will write frankly about their difficulties, and that the B.M.A. Executive will recognize these more readily than (to judge by letters I have received from wide spread correspondents) they have hitherto. I am a strong believer in the possibility of a successful service, but we must be much more honest with ourselves and the public than B.M.A. policy has hitherto allowed us to be—I am, etc.,

Hove Sussex

W A BOURNE

### Service Doctors in Far East

SIR,—In his reply (Aug 7, p 311) to my letter concerning the service of doctors in the Far East I feel that Major-General R Edgeworth-Johnstone has either deliberately or unintentionally side-tracked the issue. In addition he appears to be ignorant of the regulations governing the granting of family passages. Contrary to what he states, the grant of an Army passage is *not* dependent on the availability of Army quarters. If the officer concerned can provide private accommodation for his family, a passage may be granted. There are in fact two scales of allowances, one for the officer occupying Army quarters and one for the officer in private accommodation.

The points system which the Major-General so carefully outlines has little bearing on the allocation of family passages. I personally know three officers who have the same or less number of points than myself and whose wives were granted passages to Singapore and live in private accommodation. These concessions appear to be available for some and not for others, and it seems to be the policy to put all possible obstacles in the path of the conscript doctor who wishes to bring his wife out to join him.

Many doctors, despairing of the administrative battle, have brought their wives out at their own expense. These officers have been in receipt of the increased allowance paid to officers living with their wives out here. The officer under the age of 25, in addition to receiving only the half-scale ordinary marriage allowance, is on no account entitled to a family passage for his wife. Nor if he arranges and pays for the passage himself is he entitled to the increased local marriage allowance without which it is impossible to live.

I think that penalization of the married officer under 25 is grossly unfair at any time. When it amounts to enforced separation at a time when separation is not necessary (v the large number of military families at present in Singapore) it is nothing short of criminal. No amount of official explanation will make it anything else—I am, etc.,

D R MORGAN  
Lieut R A M C

Singapore

### Shortage of Nurses

SIR—One of the most important factors preventing the building up in this country of a successful comprehensive health service is the shortage of nurses. Hospitals and other branches of the Health Service are carrying on, in some cases struggling on, with nursing staffs much below the minimum requirements. Hospital beds are lying idle while waiting-lists are expanding. The over-burdened nurses are becoming more dissatisfied and a vicious circle has been set up reducing further the already too few.

Much has been done to try and improve the nursing shortage. First, the Rushcliffe Committee introduced better salaries and conditions of service. Their original recommendations, followed by many successive improvements were thought to be sufficient inducement, but these have obviously failed.

Then the Working Party on the Recruitment and Training of Nurses, under the chairmanship of Sir Robert Wood, investigated very thoroughly the whole matter, and published a very comprehensive report of 116 pages, which in my opinion points out very definitely the seriousness of the position but suggests little or nothing to improve the situation within the next twenty-five years.

It must be admitted that all efforts up to now to build up an adequate nursing service have failed. The reasons for the shortage must be investigated further, and other attractions used to counteract them. The aims to be achieved are (1) to attract sufficient numbers into the profession, and (2) to attract the correct types of persons into the profession (I say persons to include both sexes).

The answer to (1) would appear simple. Give them a big enough salary and you will get the numbers. But what would be the result? Large numbers would commence training with no intention of completing it, others, intending to complete their training and make a profession of nursing, would be so disgusted with some of their colleagues that they would resign, and there would be no incentive for a junior nurse to reach senior status and carry more responsibility. We must, therefore, have such conditions as will achieve both aims—sufficient numbers and correct types.

In my opinion the only way to do this is first to raise nursing to the status of a profession, in fact as well as in name. A student nurse should be considered and should consider herself of equal status as a student of medicine or law or accountancy or any other profession. How is this to be achieved?

The solution, I think might be found along the following lines: (1) Do not keep increasing the salary of a student nurse, but as soon as she qualifies give recognition to her professional status, and give her an adequate salary—e.g., £300–£350 per annum. This, of course, should increase as her professional skill and responsibility increases. (2) For persons who could not afford the three to four years of training with low salaries, scholarships should be granted to those who prove themselves suitable. Scholarships could be considered by examination or interview. (3) Living and working conditions must be improved in many hospitals. To do this building priority must be given for nurses' homes and hospitals.

I feel sure that only by working along these lines will the strength and status of the nursing profession be improved. And it must be done now. Already the nurses themselves, and many of them are very excellent nurses of the best type, are beginning to lose sight of the fact that nursing is a glorious and noble profession. Backsliding is easy, but progress can only be achieved by strong and immediate efforts—I am, etc.,

South Shields

N STRANG

### POINTS FROM LETTERS

#### Guild of St Luke

Dr H M RAVEN (Broadstairs) writes: There have been several communications in the *Journal* lately on the subject of doctors, clergy, and healing. The main link between the two professions used to be the Guild of St Luke. The officers of the guild are apparently not functioning, I believe the Provost, Dr Bokenham, has died. Would it be possible to revive the guild, which has had an honourable past and which must still contain many members, including myself. Perhaps a meeting of old members and others interested, to be held at B.M.A. House, would be allowable and useful. This letter may catch the eye of an ex-official of the Guild of St Luke and I hope he may feel inclined to take the initiative.

#### World Food Shortage

Dr H M STEPHENSON (London SW5) writes: In a leading article (Aug 14, p 345) you praise the optimism of Sir John Boyd Orr for his belief that the nations of the world may yet show as much concern about feeding the 2,500 million people in the world as in feeding the 2½ million people in Berlin. A facile optimism can be shown by anybody who belittles a problem by misstating it. The problem is not to feed 2,500 million people but to feed 2,500 million people who are increasing at the rate of 1% per annum. The 40 million square miles of cultivable land in the world might support in food a total of 6,000 million people. At the present rate of increase that total will be reached in about 50 years. Improved agriculture may defer the disaster for perhaps another decade. I can think of no remedy that mankind—which includes their churches—would accept. But surely realizing the truth of a problem may induce first a few and then the many to try to solve it.

## Obituary

J E H ROBERTS, OBE, MB, FRCS

James Ernest Helme Roberts died on Aug 25 at his home in Ottershaw, at the age of 67, after a long illness during which he maintained a remarkably keen interest in the activities of all his old friends, although he was fully aware of the fatal prognosis. He will go down in medical history as one of the great pioneers in surgery of the chest, for his interest in this specialty started in the 1914-18 war and was sustained through all the vicissitudes of its infancy, those practising thoracic surgery to day must realize how much they owe to the courage of men like Roberts.

Born in West Bromwich, Staffs, he was educated at King Edward's School, Birmingham, and subsequently studied medicine at St Bartholomew's Hospital. After qualifying MRCS, LRCP in 1906 he graduated MB, BS with honours in surgery in 1908 and proceeded to the Fellowship of the Royal College of Surgeons the following year. Of numerous house appointments there is no doubt that Roberts valued his period of service as house-surgeon to Mr C B Lockwood at St Bartholomew's Hospital more than any other, for he repeatedly referred to his teachings. Roberts's amazing powers of observation were probably developed through his study of natural history, but Lockwood's example may well have emphasized for him the importance of training this faculty. He was later appointed part-time demonstrator of pathology, and this influenced his approach to medicine throughout his career, for his hospital visits were rarely completed without his "dropping in" to see the pathologist to discuss some problem connected with the work in the ward. Concurrently he held the post of chief assistant to the orthopaedic department, and this period of training was never forgotten, for even when his surgical work had become almost confined to the chest his interest would always be particularly aroused by any abnormality of the bones or joints. A child with an obstructed diaphragmatic hernia became a doubly fascinating problem when discovered to suffer from diaphragmatic aetiology as well.

Roberts learnt to appreciate the importance of studying children and their diseases as a house-physician at Great Ormond Street, and in 1913 he was appointed assistant surgeon to the East London Hospital for Children. Children are better judges of human character than many would suppose, for they choose for their adult friends those with patience, kindness, and absolute honesty, all of which Roberts had in abundance. These basic qualities, combined with his special training, were responsible for his remarkable success in handling children. He served in the first world war from 1914 to 1919 and was thrice mentioned in dispatches. The excellence of his work as a surgical specialist with No 5 General Hospital and No 41 Casualty Clearing Station was recognized officially by the award of the OBE. Before 1914 the surgery of the chest was more or less confined to drainage of empyemas, and it was during his war service that Roberts, having dealt successfully with large numbers of major wounds of the chest, realized that the knowledge gained might well be employed in bringing relief to conditions other than wounds. After the war his work for the wounded was continued by his appointment as surgeon to Queen Mary's Hospital, Roehampton.

In 1919 he was appointed assistant surgeon to St Bartholomew's Hospital where he was destined to become senior surgeon before his retirement from hospital practice in 1946. Practitioners of to-day who had the good fortune to serve Roberts as dressers in their student days will recall how much they owe to his teaching. He always stressed principles rather than details and always emphasized the practical nature of the work of a doctor. He prided himself on his knowledge of practical nursing and there must be many who remember the embarrassment of being asked to describe exactly how to prepare raisin tea or Imperial drink. Nothing annoyed Roberts more than cloaking ignorance with verbosity and his irritation would reach its zenith if this was wilfully done for deceit as an anaesthetic to him. He was a purist and insisted that others

should be equally accurate. The expressions "almost," "nearly," "not quite" would always bring forth one of his fund of stories. His teaching in general surgery was remarkable for its clarity and simple logic, any student who heard him discuss intestinal obstruction would never afterwards delay in taking steps to confirm such a diagnosis. Although his name will always be connected with chest surgery, he was ever in the vanguard of general surgical progress. For example, he was performing gastrectomies for intractable gastric ulceration when many other surgeons were still practising gastro-jejunostomy. There was no limit to his courage as a surgeon so long as the patient's disease warranted drastic measures, and in the operating theatre he was at his best when undertaking truly formidable procedures.

It was his appointment as surgeon to the Brompton Hospital in 1919 which gave Roberts the opportunity to develop his interest in chest surgery and so to become one of the world's most famous thoracic surgeons. He was not a prolific contributor to medical literature, so that the propagation of his work was largely by personal teaching, which always proved a great stimulus to the younger surgeons because he was ever ready to discuss their problems. He is justly credited with being the originator of an excellent plastic operation for some cases of chronic empyema which is now usually designated the "Roberts flap operation." He was a frequent and much-valued speaker at meetings, and was at one time president of the Medical Society of London, of the Society of Thoracic Surgeons, and of the Tuberculosis Association. His desire to do everything possible to raise the standard of treatment of the tuberculous, and his ability to divest a problem of its trappings so as to see the essentials, resulted in his serving on the Joint Tuberculosis Council for more than ten years and on the Standing Advisory Committee on Tuberculosis to the Ministry of Health for four years. He was particularly interested in the international aspects of surgery, and was for many years the British delegate on the committee of the Societe Internationale de Chirurgie. His work was recognized abroad by his election to honorary membership of the American Association of Thoracic Surgeons and of the Polish Society of Surgeons.

Roberts generated a striking loyalty and affection among those who served him, and there are many who feel a deep personal loss in his death. Fundamentally a shy man, he covered any self-consciousness with a forthright, almost aggressive manner which was not always completely understood by his contemporaries. His interests were by no means confined to medicine, so that there was hardly any subject of conversation to which he could not make some valuable contribution. He was an enthusiastic alpine gardener, and was probably more proud of his awards as a member of the Alpine Garden Society than of many surgical triumphs, he was also a well-known authority on dragon-flies. His leisure pursuits were such that he was well equipped to enjoy the retirement which has been denied him. To his widow, a sister of the late R C Elmslie, the orthopaedic surgeon, the sympathy of all his colleagues and friends will be extended.

P R LOWE, OBE, MB

Dr P R Lowe, who died on Aug 18 at the age of 78, had an international reputation as a student of ornithology and was for many years in charge of the bird-room at the British Museum.

Percy Roycroft Lowe was born at Stamford, Lincolnshire and was educated privately and at Jesus College, Cambridge, and Guy's Hospital. He graduated in 1899, and soon afterwards became senior house-physician at Leicester Infirmary, and later senior house-surgeon at the Derbyshire Royal Infirmary. He was one of the civil surgeons selected by the War Office for service in the South African war and was appointed medical officer in charge of Princess Christian's hospital train. It was during his service in the field that his interest in ornithology began. Returning from South Africa, he became private physician to Sir Frederic Johnstone, Bt, and with him made a number of voyages to the West Indies and collected no fewer than 3,000 birds from practically every island in the Caribbean Sea as well as from Cape Verde, the Canaries, Madeira, and the Azores. In 1916 Dr Lowe served in the Mediterranean in Lord Dunraven's yacht, which was

fitted up as an officers ambulance ship and plied from Malta. Returning home, he was commissioned as a captain in the R A M C and was appointed to command Princess Christian's new ambulance train, a post which he filled for three years.

At the end of the war Dr Lowe succeeded the late Mr W R Ogilvie Grant in charge of the bird-room at the Natural History Museum and set himself to reorganize the collections there. He was given charge of the osteological collection, which previously had been kept entirely separate from the collection of skins. Over the next twenty years Dr Lowe contributed greatly to the classification of waders and to the understanding of the relationship of these birds to one another as well as to other families and groups. His paper on the finches of Gough Island shows the thoroughness with which he investigated every problem, and he was a so responsible for important work on the anatomy of ostriches and penguins. The British Section of the International Committee for Bird Preservation, of which he was first secretary and then chairman for many years owed much of its effectiveness to his untiring energy. Dr Lowe was vice-president of the British Ornithologists Union from 1934-6 and president from 1938-43. As recently as 1946 he was awarded the Salvin Godman Gold Medal of the Union for outstanding work on bird anatomy and on the protection of birds.

Dr ANDREW RADBURNE FULLER, of Perranporth, Cornwall, died suddenly on July 19 at the age of 55. He was born in London, the elder son of Dr Andrew Fuller, chief medical officer for England and Wales under the Local Government Board. He was educated at Leighton Park School and St Mary's Hospital, at both of which he won open scholarships. In September, 1914, he went to France with the Red Cross as a medical orderly, returning in 1915 to work for his final examination, which he took in 1916. He was immediately commissioned in the R A M C and posted as a battalion M O to a division in the Battle of the Somme. Early in 1917 he was invalided home to spend many weary months in hospital, before being invalided out in 1920. Dr Fuller subsequently took his D P H and joined his father, who was then in practice at Perranporth. There he remained until his untimely death. He was always a keen athlete and was a first-class cricketer and tennis player, holding the Cornish singles championship for three successive years and also playing first couple for the county. Dr Fuller will long be remembered by all in Perranporth and the surrounding district for his exceptional medical ability and devotion to his work, which he combined with a sincere and unselfish love of his fellow-men. He upheld the finest traditions of the profession. He married in 1925 Elizabeth Mary, younger daughter of Dr Peter Ingram, of London, who, with two children, survives him—C B S F.

Dr ROBERT EVANS THOMAS, whose sudden death on July 30 at the age of 66, came as a shock to his friends, was associated for some twenty-seven years with the Bath Health Department, for much of that time as deputy medical officer of health and deputy school medical officer. He was the son of a Bristol solicitor and went to school at Clifton and Felsted. Receiving his medical education at Bristol, he qualified in 1906, graduated M B, B S two years later, and proceeded M D in 1911, taking the D P H in 1915. Resident posts experience of private practice, and service in France during the 1914-18 war were followed by an appointment in the school medical service at Manchester. A little later, in 1920 he came to Bath, and he remained there for the rest of his life. Dr Thomas's most notable work was done in connexion with maternity and child welfare and school medicine, and both those services in Bath owe a great deal to his keen interest, sound judgment, and outstanding clinical ability. A crippling arthritis, which he bore with admirable courage, led to his retirement from his post as deputy medical officer in 1938. A year later, however, on the outbreak of war, he was recalled to take charge of the municipal antenatal clinics at Rivers Street, where his services were so much appreciated that he continued to attend several times a week until the day of his death. His patients soon discovered the deep personal interest Dr Thomas took in their welfare, and they had the greatest confidence in whatever advice he gave. He gained the sincere respect of all with whom he came in contact and will always be remembered by his colleagues with the most friendly and affectionate regard—J F B.

## Universities and Colleges

### UNIVERSITY OF WESTERN AUSTRALIA

On the occasion of the Australasian Medical Congress, held at Perth last month, the honorary degree of D Sc was conferred on the following: Frank Macfarlane Burnet, M D, F R S, Professor of Experimental Medicine in the University of Melbourne and Director of the Walter and Eliza Hall Institute for Medical Research, Melbourne; Sir Henry Simpson Newland, C B E, D S O, M S, F R C S, F A C S, F R A C S, a Vice-President of the British Medical Association, President of the Federal Council of the B M A in Australia for the last 18 years, and President of the Royal Australian College of Surgeons from 1929 to 1934; James Calvert Spence, M C, M D, F R C P, Professor of Child Health in the University of Durham; and Frank Burton Walsh, M D, Professor of Ophthalmology at the Johns Hopkins Medical School, Baltimore, U S A.

### SOCIETY OF APOTHECARIES OF LONDON

A course of ten postgraduate subscription lectures on modern therapeutics will be delivered in the Hall of the Society (Black Friars Lane, Queen Victoria Street, E C) between Oct 18 and Nov 5, at 5 p m both dates inclusive. The fee for the whole course is £3 3s (single lectures, 7s 6d). Details of the lectures will be published in the diary column of the *Journal* week by week.

At a recent meeting of the Court of Assistants Professor E C Dodds, F R S, was re-elected Master of the Society for a further year from Aug 17 and Mr Duncan C L Fitzwilliams and Dr Frank D Howitt were elected Wardens. The reports of the deaths of Dr C H T Ilott, late Assistant, and Sir George Newman, Honorary Freeman, were received with great regret. Dr Reginald Fisher was welcomed to a seat on the Court. Sir Cecil Wakeley was re-elected representative of the Society on the Governing Body of the British Postgraduate Medical Federation.

The following diplomas were granted

MASTER OF MIDWIFERY—G H Hall, R Hodgkinson, J I Miller, C M Stacey, G F Newbold, M O Will.  
DIPLOMA IN INDUSTRIAL HEALTH—J N Heales, W A B Reynard, F Wrigley, S J M Walker, D G Robinson, C H Hoskyn.  
L M S S A—V E S Rolfe, P G Green, F R Walker, O B Beardsley, G Copper, E R Ettlinger, J A W Berryman, B Newton, J S Swift, K H Ghobrial, A C Boje, N Rivers, D Davis, A D Griffith, S P Lapage, A I Bervitz, N B Kenyon, W Bust, N Kacas, D F Little, R J F Moore, A J Glyn, M V Salmon, W B Wolstenholme, W Winterstein, R J H Snelson.

## The Services

Major-General A H Harty, C I E, late I M S, has relinquished the appointment of Honorary Physician to the King on retirement.

Major General D V O'Malley, C B, O B E, I M S, has relinquished the appointment of Honorary Surgeon to the King, on retirement.

Colonel (Temporary Brigadier) W H B Bull, O B E, E D, Royal New Zealand A M C, has been appointed Honorary Surgeon to the King in succession to Colonel K McCormick, C B, C B E, D S O, E D, who has been posted to the Reserve of Officers.

Colonel (Temporary Major-General) F K Norris, C B E, D S O, E D, A A M C, and Colonel R D King, C B E, D S O, Royal New Zealand A M C, have been appointed Honorary Physicians to the King in succession to Major General S R Burston, C B, C B E, D S O, E D, A A M C, retired, and Colonel F T Bowerbank, K B E, M C, E D, retired, respectively.

In Circular 140/48 the Ministry of Health has drawn the attention of county district councils to the fact that in accordance with the Tenth Schedule of the National Health Service Act, 1946, the medical officer of health of the council is now required to send to the county council, as local health authority, a copy of a notification of infectious disease within 12 hours of its receipt. This applies to notifications received under Sections 144, 146, and 242 of the Public Health Act, 1936, or of any infectious disease occurring in a common lodging house. The wording of the passage referred to in the Tenth Schedule of the National Health Service Act does not specifically extend to such infectious diseases as have from time to time been made notifiable by regulations under Section 143 of the Public Health Act (or earlier enactment). But the Ministry considers it necessary that for these diseases also copies of notifications should be sent to the county council in the same way.

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## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug 14

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland

Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases, a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	38	4	23	1	1	60	6	33	2	2
Diphtheria Deaths	106	14	31	7	4	145	12	39	8	8
Dysentery Deaths	107	15	50	—	1	66	10	14	—	—
Encephalitis lethargica acute Deaths	—	—	—	1	—	4	1	1	—	—
Erysipelas Deaths	—	—	28	9	—	—	—	19	3	—
Infective enteritis or diarrhoea under 2 years Deaths	33	2	9	28	2	66	3	21	8	1
Measles* Deaths†	5 897	287	47	40	34	4 468	229	43	254	6
Ophthalmia neonatorum Deaths	75	6	16	—	—	65	5	15	—	—
Paratyphoid fever Deaths	19	1	—	—	—	17	—	1(B)	—	—
Pneumonia influenzal Deaths (from influenza)‡	282	13	4	2	4	253	9	3	—	3
Pneumonia primary Deaths	114	17	101	19	7	—	15	117	11	3
Polio-encephalitis acute Deaths	2	—	—	—	—	45	8	1	—	—
Polio-myelitis acute Deaths§	37	2	1	1	—	646	89	134	10	20
Puerperal fever Deaths	—	1	12	—	—	—	3	13	—	1
Puerperal pyrexia   Deaths	88	7	9	—	—	127	3	15	2	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	774	33	122	45	15	614	54	114	21	26
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	8	1	2	—	—	8	1	2	2	—
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	3 458	228	23	55	14	1 870	203	64	70	12
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	274	24	28	—	17	324	30	50	21	9
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	3 710	547	494	—	102	3 765	536	455	168	76
Live births Annual rate per 1 000 persons living	8 027	1303	947	—	259	9 004	1420	1027	363	241
Stillbirths Rate per 1 000 total births (including stillborn)	198	25	30	—	—	253	29	37	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only

† Deaths from measles and scarlet fever for England and Wales (London administrative county) will no longer be published

‡ Includes primary form for England and Wales (London administrative county) and Northern Ireland

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London administrative county) are combined

|| Includes puerperal fever for England and Wales and Eire

The return of births and deaths in Eire for the weeks ended Aug 7 and 14 has not been received.

## EPIDEMIOLOGICAL NOTES

## German Vital Statistics

According to the *Monthly Statistical Bulletin* (June, 1948) of the Control Commission for Germany (British Element) the provisional result of the population census at Oct 29, 1946, showed that the population of Germany was 65,898,900, of which 22,344,900 are in the British Zone and 605,300 in the British Sector of Berlin. In the first quarter of 1948 the infant mortality rate in the British Zone was 90 and the neonatal rate was 39. The comparable figures in the British Sector of Berlin were 107 and 49. During May, 1948, the daily average percentage of occupied beds in hospitals in the British Zone were as follows: general hospitals 87, hospitals for infectious diseases 68, hospitals for nervous disorders 95, hospitals for children's diseases 88, tuberculosis hospitals 93.

## Discussion of Table

In *England and Wales* a decrease in the number of notifications was reported for measles 982, scarlet fever 74, acute pneumonia 81, and paratyphoid fever 28, while only whooping-cough 273 increased in incidence.

The incidence of measles continued to fall throughout the country, the largest falls during the week were London 143 and Yorkshire West Riding 115. A small decrease in the notifications of scarlet fever was general but no large local variations occurred.

The largest increases in the incidence of whooping-cough were Yorkshire West Riding 68, Lancashire 61, and Sussex 38. The notifications of diphtheria during each of the last three weeks have fallen to a new record low level. The largest returns of diphtheria during the week were Lancashire 18, London 14, and Durham 13.

Outbreaks of dysentery notified during the week were in Surrey, Coulsdon and Purley UD, 24 and Oxfordshire 9. The other large centres of dysentery were London 15, Warwickshire 15 (Warwick RD 10), and Lancashire 11. Notifications of acute poliomyelitis have been practically constant during the past five weeks, and the largest returns during the week were Lancashire 4, Middlesex 4, Yorkshire West Riding 4 (Sheffield CB 2), Glamorganshire 3 (Cardiff RD 2) and Kent 3, 2 cases were notified from Essex, West Ham CB.

In *Scotland* the chief feature of the returns was an increase of 20 in the notifications of dysentery. The largest centres of infection were Glasgow 25 and Edinburgh 10.

In *Eire* a decreased incidence was recorded for diarrhoea and enteritis 15 and whooping-cough 24, while increases were reported for scarlet fever 16.

In *Northern Ireland* only small fluctuations were reported in the trends of infectious diseases. An outbreak of poliomyelitis affecting 11 persons was announced by the Ministry of Health on Aug 16.

## Week Ending August 21

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 736, whooping-cough 3,260, diphtheria 116, measles 4,611, acute pneumonia 266, cerebrospinal fever 26, acute poliomyelitis 72, dysentery 111, paratyphoid fever 20, typhoid fever 8.

## Medical News

## Prize Essay on Colonial Tuberculosis

A prize of one hundred guineas will be awarded by the National Association for the Prevention of Tuberculosis for an essay on 'The Control of Tuberculosis in a British Colony'. The competition is open to doctors in the British Colonial Medical Service who are of not more than ten years' or less than five years' medical standing, of which at least three years have been spent overseas in a medical capacity. Competitors should describe their own proposals for a practical scheme for the clinical, social, and administrative control of tuberculosis, either in the British Colonies as a whole or in one or more of them separately. Writers should give their own opinions based on personal experience of public health and anti-tuberculosis work. Essays should reach Dr Harley Williams, N.A.P.T., not later than March 1, 1949. Award of the prize will be notified at the N.A.P.T. Commonwealth and Empire Conference, which is to be held in London in July, 1949.

## Unesco Publication

Unesco has issued a 'List of Scientific Papers Published in the Middle East'. The introduction is in French and English, and the titles of papers in Arabic are translated into one of these languages. The list includes those papers received by Unesco up to March 1 of this year.

**Extra Rations for Tuberculous Patients**

The Ministry of Food has announced that patients with active tuberculosis who are receiving additional allowances of milk, bacon, and cooking fat are to be granted an extra three ounces of butter or margarine and an extra three eggs a week. Patients who are eligible for this extra food can obtain the necessary permit by taking or sending their ration books to their local food office.

**Whitley Council for Nurses**

The names of the representatives of the management and staff sides of the Whitley Council for Nurses and Midwives were published in the *Supplement* of Aug 21 (p. 89). The name of Dr R. H. H. Jolly, medical officer of health of Wolverhampton, should be added as the second representative of the Association of Municipal Corporations.

**School Meals Service**

The National Council of Social Service has just published a booklet, *The Social History of the School Meals Service* by Mr F. Le Gros Clark. The author traces the development of school meals as a new social institution. At the end of the nineteenth century school meals were regarded as an occasional charity for poor children. The changes which have taken place from then to the present day are fully described and some of the more recent developments are illustrated. Copies of the booklet (price 2s) may be obtained from the National Council of Social Service, 26, Bedford Square, London, W.C.1.

**COMING EVENTS****Refresher Courses in Paris**

Refresher courses in medicine, surgery, and the specialties will be held in October at the Hôpital Bichat, Paris, XVIII<sup>e</sup>. Further information may be obtained from Expansion Scientifique Française, 23, rue de Cherche-Midi, Paris.

**Congress of Biological Chemistry**

The 8th Congress of Biological Chemistry will be held in Paris on Oct. 6-8. Information may be obtained from M. Jean Courtois, Secrétariat du Congrès, 4, Avenue de l'Observatoire, Paris, VI<sup>e</sup>.

**Refresher Courses in Tuberculosis**

The National Association for the Prevention of Tuberculosis has arranged the following refresher courses: "Radiology in Connection with Tuberculosis and Chest Diseases," at Leeds University, Sept. 20-22. Fee, £4 4s, limited inclusive accommodation at Leeds University Hostel, £2 15s. "The Treatment of Non-pulmonary Tuberculosis, including Lupus," at Lord Mayor Treloar Cripples' Hospital, Alton, Hants, Oct. 5-7. Fee, £3 3s, reserved hotel accommodation approximately £1 1s per day, dinner, bed, and breakfast. Course limited to 16. Clinical Courses at the Cheshire Joint Sanatorium, Market Drayton, Salop, Oct. 26-28, Nov. 23-25, and Dec. 7-9. Fee £3 3s, hotel accommodation in Market Drayton can usually be obtained at approximately £1 1s per day, dinner, bed, and breakfast. Courses limited to four.

**Health Education Courses for Public Health Nurses**

The Central Council for Health Education is arranging two day courses of lectures on the subject of health education for health visitors, midwives, district nurses, school nurses, etc., in the under-mentioned university centres: Birmingham, Sept. 13-14, Bristol, Nov. 1-2, Cambridge, Oct. 18-19, Cardiff, Oct. 25-26, Leeds, Oct. 4-5, Liverpool, Sept. 20-21, Manchester, Sept. 23-24, Newcastle, Oct. 14-15, Oxford, Oct. 11-12, Sheffield, Oct. 7-8. Courses are also arranged in Belfast, London, Middlesex, Essex, Kent, and Surrey, particulars of which can be obtained from the Medical Adviser and Secretary of the Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1. Under the general title of Health Education, lectures will be given on physiology, psychology, social factors affecting health, child health, educational methods, and the practice of health education. A member of the staff of the Central Council will take part in each course, but the majority of the lectures will be given by appropriate senior members of university staffs. No charge will be made for nurses nominated by officers of local authorities, to whom application to attend should be made.

**Radioactivity in Inorganic Chemistry**

Three postgraduate lectures on "The Impact of Radioactivity in Inorganic Chemistry" will be delivered by Professor H. J. Emeléus, F.R.S., on Sept. 30, Oct. 7, and Oct. 14 at the Royal Institution, 21, Albemarle Street, London, W.1. Admission will be by ticket (10s for the three lectures) obtainable from Mr H. C. Worsdall, London Section, O.C.C.A., c/o Plastanol, Ltd., Crabtree Manorway, Belvedere, Kent. Junior members may attend free but must apply for complimentary tickets.

**SOCIETIES AND LECTURES****Tuesday**

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY 330 Gray's Inn Road, London, W.C., Sept. 7, 9.30 a.m. *Non-operative Treatment of Maxillary Sinusitis* by Mr Myles L. Formby.

**Friday**

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Anatomy Lecture Theatre, Edinburgh University, Sept. 10, 3.30 p.m. *'Localization of Cerebral Function'* by Dr W. Ritchie Russell.

**APPOINTMENTS**

DICKIE G. G. M.B. Ch.B., D.P.H. Medical Officer of Health Barrow-in-Furness.

MOORE E. H. M.B. Ch.B., D.P.H. Medical Officer of Health for Sale and Lymm and Divisional Medical Officer and School Medical Officer for Cheshire.

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

Essex-Cater—On Aug. 11 1948 at Paddington Hospital to Jane (née Binning) wife of Dr Antony Essex-Cater F.R.A.C. a son—Jonathan.  
Graves—On Aug. 23 1948 to Valerie wife of Dr J. C. Graves a son.  
Quinn—On Aug. 24 1948 to Mary (née McKenna) wife of Dr Brian S. Quinn of 116 Kenilworth Gardens Westcliff-on-Sea a son—Niall Patrick.

**DEATHS**

Alderson—On May 29 1948 Esther Violet Alderson (née Adderley) M.B. B.Ch. Dublin.  
Berry—On Aug. 26 1948 Noel William Berry M.R.C.S. L.R.C.P. of Langton House, Bury Road, Alverstoke, Hants.  
Brogden—On Aug. 27 1948 at Brackendale, Maybury, Woking, Surrey George Alexander Brogden M.D. Ed. aged 78.  
Burton—On Aug. 23 1948 at Oakdale, Frodsham, Cheshire William Edward Burton J.P. M.R.C.S. L.R.C.P. D.P.H. aged 82.  
Carver—On Aug. 25 1948 at Sutton, Courtenay, John Robertson Carver M.D. D.P.H.  
Cobban—On Aug. 21 1948 at an Edinburgh nursing home Alexander Lee Cobban M.B. C.M.  
Cuff—On Aug. 17 1948 at Nicosia, Cyprus Cyril Charles Herbert Cuff O.B.E. F.R.C.S. Ed.  
Higgs—On Aug. 12 1948 at St. Leonards-on-Sea Walter Alpheus Higgs M.R.C.S. L.R.C.P.  
Jamieson—On Aug. 20 1948 at 8 Waltham Terrace, Blackrock, Dublin John Kay Jamieson Hon. LL.D. M.B. C.M. Ed. late Professor of Anatomy Trinity College, Dublin and Leeds University.  
Leggatt—On Aug. 24 1948 at 11 Devonshire Road, West Kirby, Archibald Renwick Leggatt M.B. Ch.B. Ed. late of Manchuria aged 71.  
Lowbury—On Aug. 24 1948 at 21 Menelik Road, London N.W. Benjamin William Lowbury M.D.  
Lowe—On Aug. 18 1948 Percy Roycroft Lowe O.B.E. M.B. late of the British Museum (Natural History) aged 78.  
Lowry—On Aug. 20 1948 James Arthur Lowry M.D. R.U.I. of 49 High Street, Fareham, Hants.  
MacLagan—On Aug. 18 1948 at Port Lodge, Dunbar, Donald Robert Clarke MacLagan M.B. Ch.B. Ed.  
Manby—On Aug. 19 1948 Walter Edward Manby M.B. B.C. of Pembroke aged 83.  
Nesbitt—On Aug. 17 1948 Charles van Homrigh Nesbitt M.D. of Liverpool Road, North Marghill, Liverpool aged 84.  
Parmiter—On Aug. 19 1948 at the Victoria Cottage Hospital, Wimborne Dorset Bernard Rayne Parmiter M.B. B.S.  
Perceval—On Aug. 19 1948 at 28 Branksome Wood Road, Bournemouth John Lansdowne Perceval M.R.C.S. L.R.C.P. dearly loved husband of Winifred late of Childe, Okeford, Dorset aged 61.  
Pugh—On Aug. 19 1948 Stephen Horatio Pugh F.R.C.S. Ed. of Maes v. Coed, Bulth, Wells, Breconshire.  
Pym—On Aug. 5 1948 at Burwood, N.S.W. Australia Charles Brownlow Pym M.R.C.S. L.R.C.P.  
Ritchie—On Aug. 20 1948 at Sheffield Royal Infirmary Alexander Ritchie M.B. Ch.B. D.P.H.  
Roberts—On Aug. 25 1948 at The Croft, Brox Road, Ottershaw, James Ernest Helme Roberts O.B.E. F.R.C.S.  
Thomas—On July 30 1948 Robert Evans Thomas M.D. D.P.H. of Bath aged 66.  
Young—On Aug. 28 1948 at Hazeldon, Tavistock, Devon Augustus Henry Owen Young L.R.C.P. & S.I. and L.M. Lieutenant-Colonel R.A.M.C. retired.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Altoley Western London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 4 1948

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 Dr R G Gordon Bath  
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 Prof J R Marrack, London  
 Prof V H Mottram, Shaftesbury  
 Dr R A Murray Scott, Leeds  
 Dr H M Sinclair, Oxford  
 Dr R E Smith, Rugby  
 Dr Donald Stewart, Brighton  
 Dr J G Thwaites, Brighton  
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 Major-General Sir Alexander Biggam, Edinburgh  
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 Dr R P Liston, Tunbridge Wells  
 Mr J D McLaggan, London  
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 Sir Leonard Parsons, Birmingham  
 Dr I C B Pearce, Diss, Norfolk  
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 Dr Donald Stewart, Birmingham  
 Mr J W Tudor Thomas, Cardiff  
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 Prof G M Wishart, Glasgow

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 Mr V Zachary Cope, London  
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 Mr V Zachary Cope, London  
 Prof F A E Crew, Edinburgh  
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 Prof T Ferguson, Falkirk  
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 Dr Donald Hunter, London  
 Dr J T Ingram, Leeds  
 Dr J A L Vaughan Jones, Leeds  
 Prof R E Lane, Manchester  
 Dr A J Lewis, London  
 Dr George MacFeat, Douglas, Lancashire  
 Sir Archibald McIndoe, London  
 Mr Alexander Miller, Glasgow  
 Dr H B Morgan, London  
 Mr R L Newell, Cheshire  
 Mr Donald C Norris, London  
 Dr Donald Stewart, Birmingham  
 Dr S Wand, Birmingham  
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 Mr A M A Moore, London (*Treasurer*)  
 Dr R W Cockshut, London  
 Together with the Chairmen of the Building, Armed Forces, and Organization Committees

B M A AND BRITISH HOSPITALS ASSOCIATION  
LIAISON COMMITTEE

Dr R Gordon Cooke, Derby  
 Dr R G Gordon Bath  
 Dr H Joules, London  
 Mr R L Newell, Cheshire  
 Mr M P Reddington, London  
 Mr A Dickson Wright, London

JOINT COMMITTEE OF B M A AND TRADES UNION  
CONGRESS

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 Dr H Guy Dain, Birmingham (*Chairman of Council*)  
 Mr A Lawrence Abel, London  
 Dr R W Cockshut, London  
 Dr F Gray, London  
 Dr J A L Vaughan Jones, Leeds  
 Mr R L Newell, Cheshire  
 Dr S Wand, Birmingham

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PHARMACEUTICAL SOCIETY

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 Dr S A Forbes, South Croydon  
 Dr F Gray, London  
 Mr E Lewis, Lilley, Leicester  
 Dr A Smith Poole, Glasgow  
 Prof E J Wayne, Sheffield  
 Dr D J B Wilson, High Wycombe, Bucks

Together with 2 representatives appointed by the Royal College of Physicians (Dr P Hamill and Dr D Hunter), and representatives appointed by the Ministry of Health

B M A AND ROYAL COLLEGE OF NURSING LIAISON  
COMMITTEE

Dr H Guy Dain, Birmingham (*Chairman of Council*)  
 Dr J Fenton, London  
 Mr A Staveley Gough, Watford  
 Dr J A L Vaughan Jones, Leeds  
 Dr H Joules, London  
 Mr M P Reddington, London  
 Chairmen or nominees of the Central Consultants and Specialists and General Practice Committees

## THE NEGOTIATING COMMITTEE

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 Mr A Lawrence Abel London  
 Dr J C Arthur Low Fell  
 Dr J A Brown, Birmingham  
 Dr O C Carter Bournemouth  
 Dr R W Cockshut London  
 Dr F Gray, London  
 Dr E A Gregg, London  
 The Rt Hon Lord Horder, London  
 Dr J A ... eds  
 Dr W J ... anarkshire  
 Dr J F ...  
 Dr J B ...  
 Mr R L ...  
 Dr S Wand, Birmingham  
 Dr S A Winstanley, Urmston Lincs  
 2 vacancies
- 3 Representatives of the Royal College of Physicians  
 The Rt Hon Lord Moran London  
 Dr H E A Boldero London  
 Prof Henry Cohen, Liverpool
- 3 Representatives of the Royal College of Surgeons  
 The Rt Hon Lord Webb Johnson, London  
 Mr V Zachary Cope London  
 Mr E F Finch, Sheffield
- 2 Representatives of the Royal College of Obstetricians and Gynaecologists  
 Sir William Gilliatt London  
 Mr A A Gemmell, Liverpool
- 3 Representatives of the Royal Scottish Medical Corporations  
 Prof C McNeil, Edinburgh  
 Sir Henry Wade, Edinburgh  
 Dr J H Macdonald, Luss Dumbartonshire
- 2 Representatives of the Society of Medical Officers of Health  
 Dr G F Buchan, London  
 Dr R H H Jolly, Wolverhampton
- 1 Representative of the Medical Women's Federation  
 Dr Mary Esslemont, Aberdeen
- 1 Representative of the Society of Apothecaries  
 Dr H Seaward Morley, Midhurst, Sussex
- 1 Representative of Association of Honorary Staffs of the Major (Non Undergraduate Teaching) Voluntary Hospitals of England and Wales  
 Mr H J McCurrich, Hove

## INDUCEMENT PAYMENTS

A sum equal to 1% of the central pool which is being established for the payment of general medical practitioners is being set aside to provide inducement payments to assist doctors to practise in peculiarly difficult areas—e.g., those which are sparsely populated or unpopular. The Ministry of Health, after discussions with the Negotiating Committee, has recently told executive councils how to proceed in this matter. They should consider, in consultation with the local medical committee, any cases where they are satisfied that general medical services adequate to the needs of the district cannot be provided or maintained without an inducement payment. Among the grounds for recommending such payments might be (1) Vacancy advertised, but no applications received (2) Vacancy to be advertised for an area which has in the past always attracted too few doctors (3) An existing doctor unable to remain for the income which he might expect to receive without an inducement payment (4) An existing doctor who previously received special assistance under the NHI Scheme, the loss of which will cause undue hardship (5) An existing doctor with an abnormal number of aged and chronic sick on his list, or a vacancy in an area with an abnormal number of such persons.

It is not intended that inducement payments should be made in cases where the difficulty can be met by a basic salary of £300 per annum. The Minister will refer proposals put up by executive councils to the Medical Practices Committee, and all payments approved by the Minister must be reviewed annually by the executive council in consultation with the local medical committee.

## National Health Service News

## Prescription of Appliances

Executive councils have recently been requested by the Ministry of Health to inform all the chemists in their areas that only those appliances listed in the Third Schedule to the National Health Service (General Medical and Pharmaceutical Services) Regulations, 1948, may properly be prescribed on Form EC 10 by medical practitioners, and may be dispensed by chemists. Specifications of appliances additional to those supplied under the National Health Insurance (Medical Benefit) Regulations, 1936, are to be issued shortly. Chemists should meet prescriptions for appliances in general and especially for elastic surgical hosiery and trusses, by supplying standard grades and qualities, except where the prescriber has specified a particular grade or quality.

## Foreign Visitors and NHS

Visitors staying in Britain for less than two months are entitled to treatment under the National Health Service as temporary residents. They should not be included in a doctor's permanent list unless they remain for three months or more, in which case they should state their national registration identity number.

## PRESCRIBING ON EC 10

The Ministry of Health has issued the following statement about the use of the official prescription form.

There is considerable misunderstanding among doctors as to the use of the official prescription form, EC 10. This may be used only

1 By doctors who have agreed to give general medical services under Part IV of the National Health Service Act

2 For named patients on their lists or patients accepted by them for treatment as temporary residents. A separate form must be used for each member of the family

3 For ordering drugs and medicines or the prescribed appliances and reagents named in the Third Schedule to the National Health Service (General Medical and Pharmaceutical Services) Regulations, 1948

EC 10 may not be used

- 1 For ordering medicines, etc., for private patients
- 2 For ordering foods and food like preparations
- 3 For ordering appliances not in the prescribed list
- 4 For obtaining stocks of drugs or appliances required by the doctor in his practice. These he should obtain from his wholesaler or a local chemist in the usual manner

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton le Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Tyldesley

The Home Office announces that Dr William Henry Armistead, of Paisley, is no longer authorized under the Dangerous Drugs Act to be in possession of or to supply dangerous drugs.

## Correspondence

### Obstetric Committees

SIR—Something is radically wrong and impracticable in the present attempt to improve the midwifery service by dividing doctors into those who are on the 'Special List' and those who are not. The former are to be first on call for midwives' cases and to receive 7 guineas for cases they personally conduct from start to finish. The latter are to be second on call and are to receive 5 guineas for cases personally conducted.

It is to be deprecated if, as seems likely, the names of those on the special list are published in post offices alongside the general list. The general public will naturally feel that those with the hall mark of the local executive council are the better doctors. I am sure that this method of trying to improve midwifery will in the long run prove a miserable failure.

The teaching and practical experience given students is sufficient to give them a reasonable working knowledge. As a practising obstetrician I know that just as in operating it is only by constant contact and practical experience that one maintains efficiency. What a discouragement it must be to a recently qualified and keen doctor to know that he has not been appointed to the special list. How can he ever qualify for it? It is well known that only a small proportion of those qualifying can hold a resident post in a maternity hospital, while most postgraduate courses are non-resident and consist mainly of some lectures and demonstrations.

The vast majority of calls to midwives' cases are for such minor things as lacerations, but answering the call gives the young doctor confidence and experience. In major problems he has an expert specialist to call on, and he can send his patient into hospital by ambulance.

Durham Obstetric Committee were recently faced with a list of some hundreds of doctors from different areas in the county, most of whom were personally unknown to the members of the committee. How on earth could any discrimination be made? They were appointed on the special list *en bloc* because they had expressed a wish to practise obstetrics. This was the only logical course at the present stage of the evolution of midwifery. Similar action had already been taken by Northumberland County, Newcastle, Gateshead, and Tynemouth—I am, etc.

Newcastle-upon Tyne

FARQUHAR MURRAY

### Remuneration of Specialists

SIR—Under the Supplementary Ophthalmic Services Regulations the technical skill of an optician in dispensing a prescription for spectacles is valued at £1 5s a pair, the medical eye specialist who prescribes them is paid one and a half guineas per case in some recognition of his longer training and greater responsibility. At the lowest estimate, the most junior medical eye specialist can examine six patients comfortably in a half-day session of three hours, and in ten such sessions each week at regular times over forty-six weeks in the year (which should be easily achieved) he can earn £4,347.

The Minister having established this economic basis for discussion cannot honourably evade a contention that the labours and responsibilities of physicians, surgeons, anaesthetists, radiologists and others deserve no less favourable reward (nor can he doubt that opticians will resent with vigorous action any breach of faith entailing reduction of their agreed rate of remuneration which serves as a starting point of this argument).

In negotiations regarding the value of the contributions to the health and life of patients by consultants and specialists in any branch of medicine or surgery and of the continued study, professional skill and working hours entailed these facts should be borne in mind. It is immediately apparent how inadequate a reward for any member of the senior staff of a hospital is the suggested interim figure of £2,000 a year for the equivalent of ten three hour sessions a week (if so many can be achieved) of which a proportion may be spent in the physically and mentally exhausting conditions of an operating theatre some after a trying journey and others at unspecified hours—I am, etc.

Hull

D D STENHOUSE STEWART

### War Service of Specialists

SIR—Dr C A Hinds Howell's letter (Aug 21, p 90) raises a question that must have disquieted many ex-Servicemen but which does not appear to have attracted much attention. In common with others, specialists both gained and lost by war service. The gains were mostly intangible though not unimportant, but the losses were very material. They resulted mainly from the fact that those in the Forces were usually denied those opportunities for gaining experience, qualifications, position, and wealth that were often the lot of those who remained behind. Ex-Servicemen accepted these misfortunes of war in good part, hoping to remedy the position as the years went by and, perhaps, secretly believing that the spiritual gains of the war may prove a long-term investment.

There now arises the danger that the NHS Act may make these disadvantages permanent. It would indeed be unjust to ex-Servicemen if the very Government that they served should now consolidate the gains of those who served in less detrimental ways or who did not serve at all.

Paragraph 11 of the Spens Report advises that authorities be empowered to allow four special increments of £125 in respect to age, experience, and qualifications to those who first attain an appointment some years after the age of 32. I suggest that ex-Servicemen could be partly compensated for the above-mentioned losses by recognizing these increments as an entitlement in respect to war service—I am, etc.

Hull

J CLAPHAM COATES

### Doctors' Employees

SIR—May I draw your attention to the position of doctors' employees, especially those required in a busy practice of at least three doctors? Executive councils are at liberty to appoint shorthand typists and clerks at Civil Service rates of pay, who also work overtime as required, and I am sure these people do not work overtime for the mere love of the work. In addition to these employees there are also office cleaners, who I hardly imagine are paid out of the clerk's salary.

Few people may realize the amount and variety of work required behind the scenes in a busy practice, which is done while doctors are visiting patients. During surgery hours, three times a day, there might be two doctors consulting at the same time, using two consulting-rooms, instruments, and two waiting-rooms. There are bells to answer from two doors, cards to have ready for each patient, and a telephone to answer. There is full-time work for two people, with overtime every evening to 6.30 p.m. during the summer time and for nine months of the year until 7.30–8.30 p.m.

The new Education Act provides for secretaries to all types of schools, and under the old system nearly all secondary schools had one secretary. From experience in educational and medical work I can safely say there is as much general secretarial work necessary in a practice of three doctors as in a London grammar or county school, not forgetting the cleaners.

In all fairness to doctors and their employees, I do think some provision should be made in the National Health Service to put doctors' secretarial and domestic employees on the same footing as the executive councils' employees, the former are just as necessary in the efficient running of the Health Service—I am, etc.

Lincoln

JOAN M ELLIS

### Politics or Medicine?

SIR—I have read with repugnance the report of a speech delivered at Durham by the Minister of Health in which he made an attempt, by quoting infantile and maternal mortality figures for two widely separated years to prove his prowess and success.

I do not question the figures the Minister quoted for the years 1926 and 1946, but I do take exception to the interpretation he chose to put on them. The conceit of taking to himself the credit for the dramatic improvement cannot be excused.

One presumes that the Minister is aware that in the decades he used as illustration were discovered and developed the "sulpha" group of drugs, penicillin, the theory of the rhesus factor and so on. To their aid and to the efforts of the medical profession, whom he chooses to ignore as unworthy of any share



of praise, the betterment is largely due. It is pitiful that at the start of the new Health Service the Minister gives no credit where credit is justly due, but claims it all to himself—I am, etc,

Dundee

W H GOSSIP

### Initial Faults

SIR—I should like to endorse all those excellent letters appearing above signatures on pp 86 and 87 of the *Supplement* of Aug 14. A survey of these letters shows that there is considerable ground for dissatisfaction over numerous anomalies and injustices in the new Service. I would like to ask: Can the B M A do anything about it? I recently heard the Chairman of Council state that it was now more important than ever that we had a strong B M A. The B M A has never in its history been so strong, yet at the height of its numerical strength it proved powerless to prevent the precipitate birth of a service so full of anomalies and injustices. If the B M A is to be the organ which will represent the profession, let it justify its existence and partially atone for its recent blunders by getting these initial faults put right, and put right very quickly. If it cannot do this, it can have no justification for its existence, and I, in common with very many others, will be bound to withdraw my support of the Association—I am, etc,

Bridgwater Somerset

J HANWAY BEALE

### Independent Doctors

SIR—One feels that the author of the ingenuous annotation "Independent Doctors" (Aug 14, p 347) must have written with his tongue in his cheek when he states, "If those taking part in this week's talks feel that some kind of 'watch committee' is necessary to represent the interests of those staying outside the National Health Service there would appear to be no reason why such a committee should not be set up for this purpose in the B M A." But in case your annotator should require enlightenment upon this matter, may I be permitted to point out that there is a very good reason why such a body should not be set up within the B M A—namely, that very many, if not the majority, of doctors have lost confidence in the ability of the B M A to represent the best interests of the profession—I am, etc,

East Horsley Surrey

B S GRANT

### Recovery of Fees

SIR—I have been interested to observe the extract from the National Health Service (Pay-Bed Accommodation in Hospitals etc.) Regulations, published in the *Supplement* of July 31 (p 61). Under Section 8 it is stated, "The charges to be made and recovered by a medical practitioner" and later we have the two schedules. Exactly how are these charges to be made and recovered by the practitioner? Is the collection of fees to be made by the hospital or by the practitioner directly? If it is to be the latter, who observes that the 75-guinea limit is not exceeded? I interpret the schedule that the first concerns payments made by patients to the hospital authority and that the second concerns payments made by patients to practitioners.

In my hospital there is as yet nothing known as to how this aspect of the new Service is to work—I am, etc,

Penzance

T D S HOLLIDAY

\*\* The Secretary of the Association writes: It is understood from the Ministry of Health that it is the responsibility of the practitioner concerned to recover his professional fees from his private patients, but that he may come to an arrangement with the hospital management committee or board of governors by which his account is presented to the patient along with that of the hospital.

### The Unattended Telephone

SIR,—Dr H B C Sandiford (Aug 21 p 91) refers to the unmentioned charges for installation and maintenance of the automatic telephone. He also makes mention of the tardiness in the response of the profession to this offer. May I, Sir, being myself an interested party, make some comment on this subject?

The automatic telephone mentioned by your correspondent was developed no doubt to meet certain medical requirements

The modification of this, also mentioned in the article referred to by him, is a smaller instrument, cheaper and designed for more general use and easier comprehension by the average patient. However, without professional demand, I do not see how ancillary charges can very well be reduced on the average, in spite of the smaller machine, useful as it no doubt will prove to be.

What is it we require of a telephone service? Doctors require 'phone coverage 24 hours daily, all or any part of this time, and over periods varying from day to day. Patients require the assurance that their messages will reach the doctor at the earliest, failing which there will be some person to deal with their wants. None of these has the G P O seriously undertaken before, and they certainly will not do so now. What has been done by them before was to intercept an unanswered call and redirect the caller to another, preselected number. This they are definitely no longer prepared to do beyond what they are able now to manage, and this inability, due to the lacks we find so common to-day, has been published at least twice in your columns in the last twelve months.

There has been some reasonable excuse in the past few months for the desultory interest taken in these matters but there is no doubt now that with adequate response from the profession generally there would be great encouragement and progress. Public appeal is useless in the absence of widespread professional support. If official telephone services are inappropriate, public attention can be brought to this specialized service only when the number of doctors behind it in any given centre is great enough to permit the making of reasonably accurate claims and conditions. Given wide support at each centre, general publicity and advertisement could easily inform the "patient" public where to find attention in case of need—I am, etc

Percall Service Ltd  
Mitcham Surrey

J A MOYSE

## H M Forces Appointments

### ROYAL NAVY

Surgeon Lieutenant Commander J M Couchman DSC has been placed on the Retired List.

Acting Surgeon Lieutenant Commander R St C Mooney DSC to be Surgeon Lieutenant Commander.

Acting Surgeon Lieutenant J A B Harrison to be Surgeon Lieutenant.

### ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Commander J C Moor, V R D, has been placed on the Retired List.

Surgeon Lieutenant-Commander R T Grant has been placed on the Retired List.

Temporary Surgeon Lieutenant Commander C R G Howard has been transferred to List II of the permanent R N V R, in the rank of Surgeon Lieutenant Commander.

Temporary Acting Surgeon Lieutenant Commander D C Lillie has been transferred to List I of the permanent R N V R, in the rank of Surgeon Lieutenant.

Temporary Surgeon Lieutenants E H Back and J C Jones have been transferred to List II of the permanent R N V R, in the rank of Surgeon Lieutenant.

Temporary Acting Surgeon Lieutenants J Duncan, D D La Touche, D E Savage, and F S Preston to be Temporary Surgeon Lieutenants.

### ROYAL ARMY MEDICAL CORPS

Major M M Medine, MBE, has retired receiving a gratuity and has been granted the honorary rank of Lieutenant Colonel.

Major R S de C Bennett has relinquished his commission and has been granted the honorary rank of Major.

### INDIAN MEDICAL SERVICE

Lieutenant Colonel C M Nicol CIE, has retired and has been granted the honorary rank of Brigadier.

Major I D Sutherland has retired and has been granted the honorary rank of Lieutenant Colonel.

## Association Notices

### Diary of Central Meetings

16 Thurs Publishing Subcommittee, 11 a m

## HUMAN RELATIONS IN INDUSTRY\*

BY

SIR GEORGE SCHUSTER, KCSI, KCMG, CBE, M.C

1 My approach will be that of a "universalist" rather than a specialist. I shall try to present various relevant considerations in their right total setting.

2 The subject of human relations in industry is attracting increasing attention to-day. There are many reasons for this in the conditions of our time. In the desperate national need for improved production there is a growing appreciation that, since mechanical re-equipment will take a long time, immediate results must be sought mainly in better use of human effort, for which voluntary co-operation is an essential condition.

3 That there should be increased interest is to the good. But there are dangers in a special concentration of interest aroused in this way—first, the danger that the improvement of human relations may be sought merely as a means to an end, and, secondly, the danger that the human factor may be treated as a detached subject for the specialist, as something which can be studied in isolation instead of as part of a total situation for which all share responsibility.

### The Ends of Industrial Activity

4 "What are the ends of industrial activity?" As I see it there should be a threefold purpose:

(1) To achieve "excellence"† in production, which in practical terms means to produce the "right" things with the minimum expenditure of human effort and material resources.

(2) To provide for the human beings engaged in it a satisfactory activity as the foundation of a good life.

(3) To fit in as an important part of a satisfactory pattern of society.

Of course in this imperfect world (certainly as we are likely to find it in our lifetime) there will be no ideal fulfilment of all these purposes. In practical circumstances they may at times be in conflict one with the other in the sense that more emphasis on one may mean less on the others. But no single one of them can be neglected, and the three must be reconciled as best possible.

Let me apply these ideas to the subject of my address in the actual conditions of to-day, and explain my apprehensions of the "dangers."

5 My chief point is that if managers start now to take a human interest in their workers *merely* as a means to an end—merely in order to improve production results—then they will be both wrong and unsuccessful. They will be

wrong because it is wrong to treat human beings merely as a means to an end. They will be unsuccessful because they will be found out. The whole industrial field is bedevilled with suspicions based on past memories. As a result, even the most honest attempts to improve human relations tend to be viewed with mistrust—either as mere dodges to get something extra out of the workers for the benefit of the profit-makers or as signs of a temporary mood "produced by force of circumstances rather than a change of heart" (to quote words recently used to me by a trade union leader).

### Human Relations

6 Good human relations in industry can only be surely founded on the treatment of each individual as a human being of infinite value whose welfare in the highest sense must be regarded as an end in itself. Industrial employment can provide the foundation for this welfare to the extent that the worker can find interest, free self-expression, and happiness in his work, something more than a mere distasteful way of earning a living. To help workers to find this should, therefore, be seen as an essential part of the managers' task in handling human relations.

7 But before I turn to that I want to make two points to show how I see this central purpose in its relations with the other two purposes in my list and in the total picture.

If to-day there is a danger that the "central purpose" will be debased or distrusted by being seen merely as a means to getting increased production, there is a converse danger that concentration on creating good human relations may tend to make the importance of *efficiency* undervalued. It is not enough for managers to be human and kind-hearted. Their efficiency—technical, commercial, administrative—is also necessary. Without that, "excellence in production," the first in my list of three purposes, cannot be achieved. And that is vital. If British industry fails in the quantity and quality of its production our whole order of society may break down. But there is more in it than this. Efficiency in management (both technical and commercial) is an essential condition for good human relations. As Sir Stafford Cripps said the other day, 'Co-operation rests on confidence, and confidence rests on competence.'

### Social Setting

8 The other point I want to make is concerned with the social setting—that is to say, with the third heading in my list of ends. It is impossible to have the right atmosphere of interest, happiness, and co-operation in industrial employment if the demands which it makes on the individual are in conflict with his social setting or his aspirations as affected by that setting. If his work makes demands on his time and energies which prevent his playing his due part as a member of his family or of other social groups if,

\*Read in opening a discussion in the Section of Occupational Health at the Annual Meeting of the British Medical Association, Cambridge 1948.

†"Universality does not consist in knowing as much as possible, but in seeing the relation between things. The universalist man does not wish to know everything but to grasp what is essential. Suddenly in a moment of blessed rapture he is vouchsafed a glimpse of the whole" (Walter Schubart).

‡I use 'excellence' in the sense of the Greek word *arete*.

in his outside society, his interest in his work brings him not honour but low regard or even ridicule, that will set up internal conflicts militating against good work or happiness in it

9 Let me sum up what I have been trying to say. First, the greatest need of our modern industrial society is to make industrial employment something which is, and is seen as, an essential part of a satisfactory human life (individual and social), *not* a cause of conflict or an evil burden to be escaped from or reduced as far as possible. Secondly, this purpose will not be attained unless managers are both single-hearted in their pursuit of it and also efficient at their production job. Thirdly, industrial employment must fit in harmoniously with the workers' social setting.

10 These conceptions are absolutely fundamental. They are fundamental for the individual because without satisfying work—free expression in work—there can be no sure foundation for his physical, mental, or spiritual health. They are fundamental for society because somehow or other industrial employment must be fitted into the total pattern of society as part of a balanced and harmonious whole (We have hitherto failed to evolve a satisfactory pattern of an industrial society). They are fundamental for economic achievement because, unless industrial employment can fit in with a satisfactory individual life and a satisfactory form of society, there must always be friction and loss of effort in industrial employment.

#### Practical Arrangements or Methods

11 What then are the practical arrangements or methods which will help to make industrial employment a satisfying creative activity which fits in with a satisfactory pattern of society? This is what I see as the main question. But there is perhaps a prior question which must be answered. Is the end stated in my question attainable at all? Is my whole approach unrealistic? Doubtless many people will think it is. Certainly it is a commonplace to say that conditions of modern industry—with its mechanization, mass production, breakdown of skilled jobs into repetitive unskilled or semi-skilled operations, and so on—have made it impossible for the bulk of manual workers to find in their daily work a soul-satisfying activity. I do not deny the difficulties, but I think they are exaggerated. I believe that modern industry offers opportunities for new kinds of interest to offset the loss of craft interest. Nevertheless there is of course here a crucial question, and we need to know much more on many aspects of it—how jobs affect different people, what proportion of drudgery is tolerable or, indeed, may even be desirable as a sort of "roughage" in our mental and spiritual diet, how jobs and machines can be designed with better regard for the human beings who have to do or operate them, how far, even from a production point of view, it is right to break down jobs into separate operations, at what point there begins to be a loss of effort from boredom or monotony which counterbalances any benefit from simplification, etc., etc.

12 Taking account of all these considerations I find myself brought to certain practical conclusions.

First, the less the creative satisfaction in the work itself the greater is the need for supplementing it, with satisfactions in comradeship, in understanding the common purpose of the working team, and in the use of leisure.

Secondly, at the very lowest, industrial work should be seen as a dignified activity, a necessity of nature, a condition of self-respect—not a definite evil imposed unnecessarily by the selfishness or incompetence of others. At the very lowest, even though it may not be itself a strong positive element of satisfaction in a good life, it must at least afford a foundation for that and not be an obstacle to it.

13 With these reflections I turn back to my main question—"What are the practical methods and arrangements which will help to make industrial employment a satisfying creative activity in a satisfactory pattern of society?"

The first thing to make clear is that there is no single universal prescription, no code or set of rules which an industrial leader can adopt with the comfortable feeling that he has got the solution for all the problems for the rest of his life. Indeed it is an essential point in my answer to say "Beware of cut-and-dried systems, the problem is one which needs never-ending attention, fresh effort every day, courage to face disappointments, flexibility to adapt methods to the varying conditions and different classes of work or worker, patience and sympathy to understand each single individual with his infinite variability (For it all comes down to the individual in the end)."

14 There is another reason why no single answer can be found to my question. One cannot generalize about British industry. There are such great variations between one unit and another, one industry and another, one district and another.

15 Yet this recognition that there can be no finality and that there must be constant variety and flexibility of method should not blur the conception of the guiding purpose nor discourage efforts to keep day-to-day practice under continuous scientific observation. On the contrary, the very nature of the case increases the need for clarity of purpose and patient interpretation of experience.

#### Negative Obstructions

16 When one turns to consider practical measures, I believe that the chief emphasis for immediate attention should be placed on removing obstructive influences.

I say this for two reasons. First, I believe in individual liberty as a fundamental principle, and I regard freedom of expression in work as the most essential element in this. Therefore I favour the sort of method which as far as possible leaves the individual to work out his own salvation. Secondly, I believe that the ordinary people of this country are fundamentally decent and ready to make the best of things.

Without arguing these points fully I will state my own belief that the problem of creating adequate satisfaction in work would not be too difficult if certain negative and obstructive influences could be removed. Our chief trouble to-day is that there are so many of these which prevent the individual giving his normal instinctive response. There are the suspicions which I have already mentioned based on memories of the past. There is the fact that the individual worker approaches many questions as a trade unionist, and that the whole trade union organization grew up as a war organization to fight for one side against another. There is the fact that, in spite of recent improvements, material conditions—housing conditions, factory conditions, methods and tools of work—are in many cases such as to make it very hard for the individual to see his work as a satisfying activity consistent with a good social life. There is the fact that for many the margin for security, leisure, and good times is still inadequate.

These are all general considerations. But in every particular situation there will be found particular obstacles. I could give many illustrations where the influence of individuals—individual tactlessness, or jealousy, or suspicion—is holding up progress and co-operation.

There is need to deal resolutely and patiently with all these negative obstructions, general and particular. That requires tactful handling of individuals but in the long run success will depend on getting the right guiding purpose clearly conceived and widely accepted.

17 If, then, my remarks are to have any practical value I must give more concrete content to my definition of the guiding purpose. In the simplest terms I have stated this as the purpose of making the individual happy in his work. But of course one cannot consider the individual in isolation. His work must fit in with that of his fellow workers and his relations with them form an essential part of the conditions affecting the result.

### Essential Points

18 The best way to bring out the kinds of action which are necessary is to make a list of the main points which are essential for a satisfactory total situation. Approaching the matter in this elementary way I would say that the guiding purpose should be to create in each industrial undertaking a satisfied healthy community of individuals

each interested in his own job,

feeling that he has an individual responsibility for it and some freedom for expressing himself in it,

all working together as a team,

with a sense of joint responsibility, understanding the place of their own work in the total purpose. Satisfied that this total purpose has a recognizable social value.

Working in healthy conditions

at tasks which give the satisfactions of skill in performance and of physical effort accomplished without overtaxing strain,

and finally satisfied that the proceeds of the whole joint effort are fairly divided.

This is a very elementary statement. It includes eleven conditions, all of which are familiar.

The much more difficult question, however, is by what means these conditions can be established.

19 I will start with two general or overriding conditions.

(1) *Organization*—There must be a good organizational structure capable of supporting the ideas embodied in my list of eleven conditions. Otherwise anything done about them will be mere camouflage with no genuine validity. In particular there must be a clear conception of the function of every individual working in the organization, and a clear chain of authority. Each must know *for what* and *to whom* he is responsible. Otherwise the idea of joint responsibility will not work and there will be a constant risk of confusion and frustration. This of course has a bearing on the position of industrial medical officers.

(2) *Enlightened Opinion from the Floor Upwards*—It is in the creation of this that I see the essential purpose of joint consultative methods. I cannot, as I should like to do, deal fully with all that is involved in the successful application of these methods. But there is one point which I must make. Joint consultation is normally and quite correctly, seen as a method for bringing about a sharing of responsibility. But there are some current fears (and aspirations) about this idea of sharing responsibility which I think are based on a misconception. As I see it sharing responsibility ought not to mean getting responsibilities either confused or divided. It ought not to mean that the workers claim a share in management in the sense of usurping responsibilities which properly belong to management. Nor conversely, should it mean management trying to put on to the backs of the workers responsibilities which it should carry itself. (I mention this latter possible interpretation because I have found that in certain cases where management has carried ideas of joint consultation very far, apprehensions of this kind are actually voiced by the workers.) What it should mean is on the one hand that every worker should have the chance to put forward ideas on the arrangements affecting his own job and feel that he has some freedom in the actual handling of that job and,

on the other hand, that in doing this he should have an understanding of the central purpose of the whole organization.

The chief executive officer, just like a military commander, has certain responsibilities for leadership and decision which he cannot devolve. There should be no weakening in his leadership and authority. But that does not mean that he should not help his subordinates to understand the reasons for his decisions, or that when it comes to settling how operations (whether in military action or industrial production) should be carried out he cannot get valuable ideas by consultation with his subordinates right down to the rank and file. The essence of good organization is (as Elton Mayo has well put it) to ensure that every decision is taken at the level where it can be most rapidly and effectively taken. And the essential point is that decentralized decisions cannot be well taken unless they are based on sufficient understanding of the central purpose. It is in these conceptions that I see the essential value of joint consultative methods, and I want to see medical officers brought into the whole process of joint consultation.

### Role of Medical Officers

20 I pass from these two overriding conditions to consider a few particular points in regard to which, as I see it, medical officers have a most important part to play.

(a) First, there is all that is involved in *fitting the man to the job and the job to the man*. This of course has two aspects on the one hand, selection and training of the man, on the other hand, design of the job and the tools for doing it. The two aspects are interdependent. I have already in my introductory remarks stated my view that much more study is needed of the psychological reactions of different kinds of manual work (taking into account the different aptitudes and characters of individuals). Based on such studies, much more thought should be given to the arrangement of production processes and the design of machines so that they may be best adapted to the human beings who have to work them.

We can all think of types of machines which must tend to "dehumanize" those who work them. There are many other aspects of this question. One of particular interest is the effect of ageing on industrial capacity. Increasing age may increase the value of certain capacities and diminish the value of others. Jobs should be designed to take account of this. This is important not only for the sake of the individuals concerned but also for general morale and production results. For example, new methods of work measurement and control introduced by some progressive firms are undoubtedly "hotting up the pace" of work, so that the older men feel at a disadvantage. Yet some of the older employees, say in the 50's, may in many ways be the most valuable elements in a works community.

Another aspect is when a man suffers from some special disability which disqualifies him for certain jobs—for example, colour blindness. Careful human consideration of the individual is necessary in such cases, consideration which will discover what he is best suited for and what openings can be found. In all this of course the medical officer can play a great part. His knowledge can help in the designing of machines as well as in finding out for what a man is best fitted. The positive helpful approach is needed here.

(b) A second point that I specially select for mention is *human understanding of each individual*. As I have already said, it all comes down to the individual in the end, and I regard it as a vital feature of a good organization that every worker should have, in the chain of authority above him, someone who can give appreciation of good work and who also understands him as an individual—not only in his work but in his interests and all the outside influences which affect him.

This point is of great importance in itself, but also for another reason. I see it as closely connected with discipline. There must be discipline, but firm discipline cannot be fairly exercised without an understanding of the individual and all that affects his conduct.

(c) Thirdly I come to an obvious point—health. This—and I mean positive health in the widest sense—is clearly a vital factor affecting the will to work and happiness in work. It is so essentially the subject of your conference that I will not enlarge upon it in this introductory talk.

21 I have, as already explained, selected these three points because I see them as matters which closely affect the position of medical officers and in regard to which they have a special part to play

### Outside Influences which may Help or Obstruct

22 To complete my sketch of the general framework I must make a short reference to the outside influences which may help or obstruct the fulfilment of the purposes of which I am speaking

Of all the outside influences that of the trade unions is the most obviously important. Here there are crucial questions to-day. What is going to be the trade union attitude to firms which are genuinely trying to create a sense of joint responsibility, community, and loyalty? Will trade union officials fear conflict of loyalties and obstruct? Or will they use their powers to encourage such firms? I believe the national trade union leaders are likely to take a broad and sound view on this question, but the attitude of subordinate officials in the districts may be different.

Apart from the trade union there are of course many other outside influences to take into account, political influences (under which heading one must put the Communist influence, which may be based on a desire to see the whole existing system break down), social setting and home conditions, the locality and its traditions, education (with particular reference to the effect on the general attitude to manual work of extending the statutory school-leaving age to 16), memories—good memories for bad things—an obstructive influence chiefly in the old industries like coal-mining or cotton textiles which got their form in the early days of the Industrial Revolution and have been through bad times, and, finally, habits and the effect of world wars on breaking habits.

### The Parts to be Played

23 What I have said hitherto about ends, methods, and outside influences has all been intended to lead up to the practical question, How should the various people concerned—executive officers, functional officers, rank and file—play their parts in the field of human relations?

In turning to this question of the parts to be played I come to the second of the two current dangers to which I referred at the beginning—the danger of regarding the human factor or human relations in industry as subjects which can be considered in isolation or left to specialists.

Everything to do with human relations and attitudes must be seen as an integral part of a total situation. Everyone engaged in industry in any capacity should be concerned with these questions all the time. When a production programme is being planned, when plant layout is being discussed, when new machinery is to be installed, or new designs of products are to be introduced—in every decision affecting every aspect of work—the reactions on the human being concerned should be taken into account.

24 For this reason I want specially to stress the importance in regard to this matter of human relations of having the right conceptions of the position of specialists or functional officers,\* and of the role of detached scientists and scientific research. Scientific research into human factor problems cannot be carried out in laboratories, and the chief value of the "scientific approach" in this field lies in the application of scientific method to the continuous daily study of the life processes of industry—industry being seen as a body of human beings working together for a

specific purpose. Special pieces of research work may be of value but they must be carried out on the spot in industry and must be applied to total situations, treating the unit investigated as a functional whole. Even these *ad hoc* investigations alone can make only a minor contribution. The major need is for continuous observation in the course of normal work.

### Industrial Medical Officers

25 This brings me to the position of industrial medical officers considered as a class of specialists who have a most important part to play in the matter of human relations. I will venture some ideas I would like to see accepted.

(i) The aim should be essentially constructive—the creation of positive health rather than merely the cure, or even the prevention, of disease.

(ii) A full-time medical officer should be employed and should be treated as a member of the management team. He has just as much right to this as the chief engineer.

(iii) As members of the team, works medical officers should take part in all joint management discussions and should know broadly what is happening in the firm as a whole. The medical view should be heard on every point in the total planning of premises, plant, production, etc.

(iv) The fact that a medical officer is a specialist should not exclude him—or indeed any other specialist—from eligibility for appointment to the highest administrative posts, if he desires that, and if he has the necessary abilities and qualities.

(v) If, on the strength of this broad conception of the human responsibilities of management, the medical officer is included in the management team he must himself have similar broad human conceptions of his own work. He must see the men and women with whom he comes in contact not as 'cases' but as human beings. He must be interested in all that affects them. He should have psychological insight into the material with which he is dealing." I take these last words from a paper read recently by Dr. Donald Stewart.

26 In what I have said I have been putting forward the broad conception of the works medical officer as a member of the management team. This I see as necessary for the achievement of the main purpose in human relations. But it is also necessary if the medical officer is to be able to do his own daily tasks properly.

"For instance"—to quote from a managing director's letter—"I well remember our own medical officer having a check done on the carbon-dioxide content of one of our shops and finding it somewhat too high for his liking. He examined the shop and found that by extension of the flue pipes on certain die-casting machines it seemed probable that this inert gas could be more efficiently exhausted. This was done, and overcame the problem quite simply. I am sure that the less-trained man would have demanded 'a much more efficient ventilation system,' which would have involved enormous expenditure and which would then, by its nature, have increased the heating problem in the shop, giving rise in turn to the need for better heating arrangements, but leaving the problem of draught behind it still."

27 Points like these are of considerable practical importance but I am more concerned with the contribution which the medical officer can make towards achieving what I have described as the essential task of management in the field of human relations—to create conditions in which people<sup>1</sup> can find interest and happiness in their work. The matching of the worker and the job is part of the task on which the good medical officer can make the decisive contribution.

### Human Contacts

28 Beyond this I am impressed with the special opportunity which the good medical officer can have in the whole field of human contacts—especially under the heading of

\*It has been well said that the general manager should himself be a specialist on human relations. But this does not mean that a personnel officer should not be included among the functional officers.

appreciation of the individual. He has the chance to make close contacts with workers without arousing any suspicions of ulterior motives. He has an opportunity to gain their confidence and to get to know their personal problems and all the outside influences which affect them. And at this point I want to express the view that, when the general relations between management and workers are good, there is no ground for the fear that the medical officer will become suspect because of his association with management. On the contrary, I believe it is true to say that, because he is a doctor who has access to and can influence management, the workers will go to him with problems which would otherwise never come to light.

In that connexion I am specially impressed with the opportunities of the medical approach in industries where the psychological atmosphere is abnormally difficult—coal-mining for instance. I have in mind, for example, the investigation which is now being made into nystagmus by Professor Brown, working from Durham University. All his arrangements have been made with and are supported by the local trade union organization.

In all this field one has to remember that psychological investigations—any research projects which can be regarded as a sort of “psycho-analysis” of the workers—are apt to arouse acute suspicions. On the other hand, investigations made for a clear purpose which the workers can readily understand are welcomed and can evoke co-operation.

### Full-time Medical Officer

29 I have advocated a service for purposes which could not be met by occasional visits from an outside practitioner but which depend on a full-time medical officer treated as an integral part of the management team. I have advocated such a service for the whole of industry. But what is the present position? I believe that, when Sir Thomas Legge arranged the first conference of industrial medical officers in 1921, only 20 could be found. Now I am told that there are ten times that number—about 200, supplemented by about 700 part-time officers. This obviously therefore covers only a tiny patch of industry. There are about 150 000 factories in this country. The vast majority of these of course are very small, but 15,000 are advanced enough to have canteens.

Obviously, therefore, my ideal is a very long way off. But is it really practicable? Would it cost too much? How could it be provided by small concerns which could not afford the service of a full-time medical officer of their own?

30 I do not know whether there has been any comprehensive investigation on these questions. I can do no more than raise them as questions for discussion. As to cost, I have been interested in some articles by Dr Gange, the chief medical officer of the Glacier Metal Company, which showed that the annual cost in an engineering firm employing about 3 000 worked out at 22s per head. Dr Gange compared the total annual cost in this case—£3 300—with the normal rate of expenditure on the maintenance department of an industrial undertaking of that kind and size, which he put at £20,000 to £50,000. Certainly if these figures are a true guide there ought to be no obstacle on financial grounds.

As to the provision of services for the smaller firms the solution would clearly have to be found in some kind of grouping arrangements.

31 I pass now to another question which has been in my mind throughout and which has very wide implications—namely “How do my conceptions of a medical service provided by individual firms fit in with Government policy,

Factory Acts, the factory inspectorate, national health policy, and the new State medical service scheme?”

I will only venture on a few observations on what might be the effects if, over the whole industrial front, there could be developed the kind of works medical service which I have advocated.

(i) It could be fitted in with, and be a most valuable supplement to, anything that can be done by the Government by way either of factory legislation or of a State medical service.

(ii) The kind of research work into industrial health, fatigue, etc., which has for many years been sponsored by the Medical Research Council would have a much greater chance of getting effective application.

(iii) There might be considerable economies and a much better adjustment between what is attempted or prescribed and the resources that are available. The example that I quoted from a works medical officer in a particular factory seems to show that, if such advice were always available, good practical results might be achieved at much less expense than if the same results were aimed at by rigid regulations.

32 Lastly, it is important to observe—and this is in harmony with all that I have been saying to-day—that a works medical officer could not possibly fill the place I envisage in a management team and in the confidence of the workers unless the whole attitude of management is such as to have already won their complete confidence. Unless there is confidence based on genuine consideration for the individual worker medical advice and medical inspection, if seen as part of the “management” set-up, are apt to be distrusted and feared.

### A Request

33 At the end of this unduly long paper I want to put forward a practical request. I imagine that I have been asked to address you because I am a member of the Government's new Committee on Industrial Productivity and chairman of its Panel on the Human Factors affecting productivity. From a panel of a committee which is only advisory and which is dealing with such an all-embracing and elusive subject as the human factor it is not easy to produce effective action. In the first place we have inaugurated a series of research projects covering such matters as joint consultation methods, the training and selection of foremen, work design and measurement of human performance, effects of ageing on industrial productivity and allocation of work, the effect on production of simplifying operations by job breakdown, methods for dissemination and assimilation of existing knowledge, etc. We are also planning some investigations into particular industries. Apart from these research projects we hope to be able to stimulate action of a more practical nature designed in various industries or areas to encourage the exchange of knowledge and the raising of average standards of productive efficiency nearer to the level which progressive firms have shown to be possible.

If any effective action is to result, that will depend largely on the measure of active co-operation which can be got from industry—both management and trade unions—as well as on the closeness of contact which can be established so as to reveal opportunities. I have from the beginning felt that most valuable aid could be got from industrial medical officers, and, without taking further time in explaining the position, I want to ask this conference whether it would be possible to form a group of industrial medical officers with whom my panel could discuss possibilities.

### Conclusion

34 I will add one final word. All that I have said has been framed to lead up to certain considerations about the position of industrial medical officers as part of the manage-



ment team I have naturally therefore tended to speak of human relations in industry in terms of the attitude of 'management' to workers. But I do want to emphasize that to think in these terms alone is quite inadequate. Human relations in any case are a two-way business, and the success of anything that can be done depends not merely on how management behaves to workers but on how the individual workers respond. But there are some things which seem to me to be clear beyond all doubt.

The first is that management if it wants to retain leadership should not argue about who is to blame, but should itself accept responsibility for giving a constructive lead.

The second is this. To-day we must all make a choice between two alternative ways. Are we to go forward or back? Are we to play down to the worst motives—fear and greed—or play up to the best—pride in the job, a sense of responsibility, a desire to act a worthy part in life? I have no doubt about what is the right answer, whether viewed as a matter of practical expediency or moral rightness. The only hope is to go forward, and the chief task is to clear away the obstacles which hinder the better motives having free play.

## RAT-BITE FEVER DUE TO STREPTOBACILLUS MONILIFORMIS

BY

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After many years of difficulty and confusion it is now clearly established that rat-bite fever may arise from two distinct infecting agents. Not all cases are due to actual rat bites, and in the absence of a clear history clinical differentiation of the two types is generally impossible and bacteriological evidence alone conclusive. Infection with *Spirillum minus* (originally named *Spirochaeta morsus muris* by its Japanese discoverers in 1916–17) is the commoner variety, and very many cases are on record. Infection with *Streptobacillus moniliformis* is much rarer, and Altmeier, Snyder, and Howe (1945) could trace only 17 examples published in the United States. This micro-organism was first discovered by Schottmuller in 1914, and classified by him as a streptothrix. The present name was first applied by Levaditi, Nicolau, and Poincloux in 1925, who isolated it from a laboratory worker, who, incidentally, had not been bitten by a rat.

The whole story of the elucidation of rat-bite fever of both varieties, including the relations of the streptobacillus to Haverhill fever and to the organismal cause of pleuropneumonia in cattle, is very fully reviewed by Brown and Nune-maker (1942). The incubation period of the spirillar infection is usually longer (seven days or much more) than in the streptobacillary disease (three days or more), but the period is so variable that only a clear history of a bite followed by a long interval before illness develops might clinically suggest the spirillar variety.

The newer arsenical drugs were quickly recognized to be very effective against the *Spirillum minus*, but the streptobacillary disease ran a protracted and serious course until the advent of penicillin.

This short account of a single case is intended to draw renewed attention to the *Streptobacillus moniliformis* as a

cause of rat-bite fever in Britain, to illustrate the methods of rapid bacteriological diagnosis and the chief cultural characteristics of the organism, and to emphasize the dramatic effect of adequate penicillin treatment.

### Case History

The patient was bitten on the right thumb while handling a hooded rat prior to an experimental operation. His hands were 'scrubbed up' at the time, and the wound was at once thoroughly washed and a sterile dressing applied. The wound appeared to be healing normally, but on the morning of the third day (i.e., within 48 hours of the bite) he felt very ill on waking. A severe rigor followed almost immediately lasting half an hour, with fever beginning at 101° F (38.3° C) and reaching 103° F (39.4° C) by evening, and associated with severe pains in the limbs and back. Fever continued throughout the following day, with, in addition to generalized muscular pains, severe pain and redness over the right elbow at the olecranon. This first attack of fever lasted for about 48 hours, and on the morning of the third day after the fever started the patient felt much better, except for the painful right elbow. On this day a scanty rash appeared on the dorsal aspects of the feet. He continued to be fairly comfortable for 48 hours, when the first bout was completely repeated, with high fever (103° F) and severe shooting pains particularly in the region of the right scapula. The rash also spread to involve the back, forearms and feet. He was admitted to hospital on the seventh day of illness about 12 hours before the end of the second attack.

On admission the patient looked very ill, with a temperature of 103° F. A fairly extensive maculo papular rash (no petechiae) was present, most abundant on the forearms, hands, legs, and feet, and less extensive on the forehead and body. The spleen and lymph glands were not enlarged. The leucocyte count was 10,400 (85% neutrophil polymorphs, 14.5% mono nuclear cells).

The laboratory investigations are given separately for clearness, but as soon as blood films proved negative for *Spirillum minus* and blood cultures had been taken penicillin therapy was started, with the idea quickly proved correct, that the infection might be due to *Streptobacillus moniliformis*. There was no scarcity of penicillin, and 500,000 units were given intramuscularly at once. By next morning the temperature was normal, but penicillin was continued intramuscularly in heavy dosage for seven days a total of over 12,000,000 units being administered. The patient quickly recovered without fever or relapse and has remained completely well.

### Laboratory Investigations

The clinical history suggested rat-bite fever, and the following investigations were rapidly carried out after the patient was admitted to hospital. Six fairly thick blood films were stained and examined for the *Spirillum minus* with negative results. Two guinea-pigs and two mice were inoculated intraperitoneally with 1 ml of heparinized blood from the patient, the results are referred to later. Blood cultures were made by dividing 20 ml of the patient's blood among three flasks containing heparinized horse-heart digest broth, and were incubated at 37° C. After 18 hours a few fluffy granules were seen floating on the top of the layer of sedimented red blood cells, and these were found to consist of tangled chains of pleomorphic coccobacilli. They stained feebly by Gram's method, but strongly with Leishman, Giemsa polychrome methylene blue and carbol fuchsin stains. Subcultures were readily obtained in glucose horse serum digest broth and on Loeffler's serum medium, while after incubation for a further 48 hours the original cultures showed a mass of "cotton-ball" colonies covering the layer of red cells in the flasks.

The diagnosis was now made but further bacteriological observations may be briefly but accurately summarized.

*The Micro organism*—This was pleomorphic slender, motile and non-sporeing, occasionally occurring as short rods but mostly arranged in chains of coccil or coccobacterial bodies or in long continuous filaments spreading across several microscopical fields. All of these forms were present simultaneously, and the long filaments were so interwoven that the question of

branching remained undecided. In young cultures on Loeffler's serum spindle-shaped rods and filaments predominated, the latter being shorter than in fluid media. The filaments also showed central, terminal, or subterminal swellings (moniliform bodies) similar to those seen by one of us (I.R.W.L.) in Levaditi's laboratory in 1936. It was noted that the moniliform bodies tended to disappear in older cultures.

**Staining Reactions**—Poor results were obtained with Gram's stain, but on the whole in very young cultures the organism tended to be Gram-positive and in older cultures Gram-negative. With the other stains previously mentioned the staining was irregular, the moniliform bodies being coloured more intensely than the filaments. When stained with Ziehl-Neelsen's carbolfuchsin the organism was not acid-fast.

**Characteristics in Culture**—On solid media no growth occurred on ordinary agar, very scanty growth on 5% blood agar, good growth on 25% horse-serum agar, and abundant growth on glucose-serum agar and Loeffler's serum. The colonies were at first small and translucent, but became granular and rough after several days. Even after 24 hours a number of the colonies were of R type. In deep glucose serum agar shake cultures mulberry-shaped colonies appeared which were not limited to the aerobic zone. The organism is thus aerobic but a facultative anaerobe. Growth did not appear to be stimulated by increased carbon dioxide pressure. In fluid media abundant growth occurred, as already indicated, when serum and fermentable carbohydrates were present. The sugar reactions were as follows: acid but no gas from glucose and starch, slight acid from lactose and maltose, no indole formation, gelatin not liquefied. In fluid media containing carbohydrates subcultures were found to be essential every 48 hours. In carbohydrate-free media the organism can remain alive for five days but is dead in seven days. It is killed by exposure to 60° C for 20 minutes. The organism isolated was found to be very sensitive to penicillin, all growth being inhibited by 0.01 unit of the drug per 1 ml of medium.

**Animal Inoculation**—The organism is pathogenic for mice, and both animals inoculated intraperitoneally with 1 ml of the patient's blood died in 9 and 11 days. Similar inoculations from 24-hour cultures (0.5 to 1 ml) caused death in four to six days but no characteristic lesions were observed at necropsy, although heart-blood cultures were positive. Both guinea-pigs and rabbits seem to be insusceptible.

Two additional points of interest may be noted. Attempts to demonstrate agglutinins both in the patient's blood and in the susceptible animals, failed, for the organism was auto-agglutinable even in media free from carbohydrates. The whole stock of hooded rats from the cage containing the original culprit was examined and *Streptobacillus moniliformis* was obtained by swabbing the nasopharynx in seven out of the 10 rats examined.

### Discussion

There are records of at least five patients previously treated with penicillin but their illnesses occurred in the time of penicillin scarcity and a much smaller dosage was employed. Kane (1944a, 1944b) reported the first case from Belfast, in which a positive blood culture was obtained only on the 25th day of illness. Gold therapy was tried without success and penicillin was first used on the 62nd day just after the beginning of a bout of fever. In all 200,000 units were injected over 48 hours, but within 12 hours after only 60,000 units the fever vanished and convalescence was uninterrupted. Weber and Favour (1945) began penicillin treatment of their patient on the 13th day using at first 100,000 units a day reduced to 50,000 units on the third day and continued for 10 days. Fever was abolished only on the seventh day. Altemeier, Snyder, and Howe (1945) gave 302,500 units over 8½ days to a child aged 10 months, 212,500 units to a child of 2 years, and 132,000 units over five days (all the drug available) to a child of 4½ years. Cure was immediate and complete in the first and second cases but the third child relapsed four days after penicillin was discontinued and blood culture again became positive.

### Summary

A case of rat-bite fever due to *Streptobacillus moniliformis* (Levaditi) is reported, developing 48 hours after the bite of a hooded rat.

Treatment with penicillin was completely successful, the disease being cured at once. Much larger dosage, probably excessive, was employed than in the few cases previously described, but the illness was severe and relapse had occurred in the days of penicillin scarcity.

The methods of diagnosis and the characteristics of the organism isolated are briefly described.

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## A CASE OF ACUTE DERMATOMYOSITIS

BY

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Acute non-suppurative myositis involving several muscle groups is a rare condition and deserves special notice when it occurs. It was first described in 1887 almost simultaneously by Wagner, Unverricht, and Hepp, but little has been added to our knowledge of the pathology of the condition since that time. The case recorded here is one of the very few in which an organism that might be regarded as causative has been isolated.

The chief clinical features of the disease are widespread oedema of muscle groups associated with intense pain and tenderness, fever, and often inflammatory lesions of the overlying skin. Unverricht coined the term "dermatomyositis" to describe the disease with cutaneous lesions, but this has since been applied to a large and ill-defined group of skin affections associated with muscular swelling or atrophy and with wide variation in the severity and duration of symptoms. Probably some of these are aetiological different from the acute polymyositis under consideration, but it is possible that allergic sensitivity may be a common factor.

### Pathology

The clinical and histological features of dermatomyositis of the acute type suggest that it is infective in origin, but organisms have very rarely been isolated and the standard textbook descriptions of the disease state that the aetiology is unknown. Deák (1931) isolated a haemolytic streptococcus in five cases of "acute haemorrhagic myositis," and Karelitz and Welt (1932) found a haemolytic streptococcus in blood culture shortly before death in one case. Other attempts to demonstrate a causative organism have been unsuccessful. Therapeutic evidence of an infective cause has recently been furnished by the successful treatment of the condition with sulphonamides and penicillin. Clark (1946) reports two cases—one treated with sulphonamides and the other with penicillin. Friedmann and Por (1947) also describe a case successfully treated with penicillin. In none of these, however, was an organism isolated from blood cultures. My case appears to be the first in which an

organism has been grown from a biopsy specimen of muscle

The affected muscles are usually soft and friable and may be adherent to the surrounding skin and subcutaneous tissues. Later they may become indurated and scarred. The muscles are severely oedematous in the acute stages and areas of haemorrhage may be seen. The skin usually shows macular or petechial haemorrhages and a variable degree of inflammatory infiltration and oedema.

Microscopically there is extensive degeneration of muscle fibres and infiltration with lymphocytic, mononuclear, or polymorphonuclear cells. Occasionally eosinophilic infiltration is seen. The infiltration is usually perivascular in distribution and oedema is intense. The degree of inflammatory change varies with the severity and stage of the disease. In the late stages the muscle fibres may be entirely replaced by fibrous tissue, with perhaps a few areas of cellular infiltration—the picture of "myositis fibrosa." Occasionally the inflammatory changes involve the walls of blood vessels. In some cases the myocardium and muscles of deglutition are affected.

The blood picture is variable. In many cases there is no leucocytosis even in the acute phases of the disease, but in others a moderate or even high polymorph leucocytosis occurs. There is often a moderate degree of splenomegaly.

### Differential Diagnosis

The clinical picture, once seen, should be unmistakable. The only condition which at first sight may give difficulty is trichiniasis. The disease was called "pseudo-trichinosis" by Hepp in 1887, but a high degree of eosinophilia is an almost invariable accompaniment of trichiniasis, and microscopical examination of a piece of excised muscle will usually reveal encysted forms of *Trichinella spiralis*. The skin lesions may suggest a diagnosis of the so-called Stevens-Johnson syndrome or of acute lupus erythematosus (Libman-Sachs syndrome), but myositis is not associated with these conditions. Polyarteritis nodosa may have to be considered in a few cases, particularly as some degree of myositis may occur in this disease as well as skin lesions. There should be no difficulty in distinguishing the disease from acute suppurative myositis.

### Prognosis

The disease has had a high mortality in the past, but few cases have been recorded since sulphonamides and penicillin have been available, and it seems probable that chemotherapy may change the outlook considerably. Recurrences after apparent recovery are common. Many of the patients who survive are left with muscular atrophy or contractures and scleroderma. It is possible that myositis fibrosa is a terminal stage of the disease. Calcinosis is said to be a sequel in some cases. When death occurs it is usually due to involvement of the muscles of respiration or deglutition and sometimes of the myocardium.

### Case Report

A boy, aged 15, was admitted to Crewe and District Memorial Hospital on Feb 16, 1947. The illness had started seven days before with sore throat followed by pain in the right ear. A few days later a painful swelling appeared in the right arm above the elbow, with oedema of the right pinna and bulging of the right eardrum, red tonsils and fauces, and slight cervical adenitis. The right arm was grossly oedematous from wrist to shoulder. Some swelling was also present in the left arm above the elbow, with extreme tenderness. Temperature 101° F (38.3° C), pulse 120, respiration 24. No cardiac murmurs, blood pressure 125/75, urine normal. Leucocytes 30,000 per cmm—polymorphs 80%. Penicillin, 20,000 units three-hourly, was begun. The muscular swelling spread rapidly to both legs and the face,

and the limbs and trunk became covered with a macular erythematous rash and scattered purpuric patches. Many of the purpuric areas became confluent, and as they faded more appeared. The play of the colours known as erythema iris was seen in the skin lesions. Bullae containing serous fluid appeared on the legs from time to time. The spleen became palpable and tender during the second week of the illness. The patient was immobilized by intense pain, which was only partly relieved by morphine. No improvement occurred until March 3. After this the skin lesions faded, leaving a brownish pigmentation. Pyrexia of 101°–102° F (38.3°–38.9° C) continued and gradually returned to normal on March 28. Penicillin was discontinued on March 16, a total of 3,300,000 units having been given. On March 25 the leucocytes were 5,000 per cmm—polymorphs 65%. Blood cultures were sterile on three occasions—once before treatment with penicillin and twice during treatment. Culture of fluid from a bullous skin lesion was also sterile. The patient was discharged home on April 16. The muscles of his arms and legs were very wasted and some contracture at the knees and elbows was present. Massage and exercises corrected these deformities, and by July 1 he was able to work as a packer. The muscular volume had returned to normal and there was no loss of motor power.

The patient was again admitted to Crewe Hospital on Sept 20, 1947, with a severe recurrence of the polymyositis, similar to the first attack, but more intense. The spleen was again enlarged and tender, and the polymorphic skin lesions more widespread. Temperature 103° F (39.4° C), pulse 120, respiration 24. Blood culture was again sterile and remained so after incubation for 18 days. Leucocytes amounted to 25,600 per cmm—polymorphs 83%, eosinophils 3%. Penicillin, 30,000 units three-hourly, was begun. No improvement occurred during the next week, and the patient was transferred to the Staffordshire General Infirmary on Sept 26. A diagnosis of dermatomyositis still seemed the most probable one, but the outlook appeared hopeless. A piece of muscle was excised from a tender oedematous site in the right adductor longus on Sept 29 to exclude the possibility of trichiniasis or polyarteritis nodosa. Half of this piece was kept for histology and half was placed into broth and incubated. By Oct 2 this culture yielded a pure and heavy growth of *Streptococcus viridans*. Two further blood cultures and culture of oedema fluid from the leg were sterile. Leucocyte counts were as follows during the illness.

Date	Total Leucocytes per cmm	Polymorphs %	Lympho- cytes %	Monocytes %	Eosinophils %
1/10/47	63 600	89	8	3	
3/10/47	59 800	86	11	3	
7/10/47	43 600	83	10	6	
13/10/47	15 600	78	17	3	
27/10/47	15 600	46	51	3	

In spite of this intense leucocytosis there was no evidence of suppuration at any time. Through an unfortunate laboratory error the sensitivity of the *Str. viridans* to penicillin was not determined, but the penicillin dosage was increased to 80,000 units three-hourly on Oct 3, and sulphadiazine, 1 g four-hourly was also begun. The sulphadiazine was stopped on Oct 14 after a total of 70 g had been given, and the penicillin was stopped on Oct 18 after a total of 8,120,000 units. "Benadryl" in doses of 200 mg daily had been given for four days from Oct 2, but without visible effect on the skin lesions or oedema. The skin lesions and oedema began to diminish on Oct 13 and the temperature had become normal by Oct 23. Electrocardiograms on Oct 3 and Nov 4 showed no abnormality apart from low voltage. The urine showed no abnormality throughout the illness apart from a trace of albumin. The patient returned home on Nov 16. The muscle-wasting was more pronounced than in the previous attack, but there has since been a rapid recovery.

Dr A. J. McCall has kindly given the following report on the sections of excised muscle: "The muscle shows numerous inflammatory lesions in which the muscle fibres are separated by collections of histiocytes and lymphocytes, with only occasional eosinophils and polymorphs (Figs 1 and 2). In some of these areas there is albuminous coagulum but frequently

there is none. The lesions are often perivascular, and they then tend to be spindle shaped. One or two small arteries show what is probably oedema of the vessel wall, with occasional inflammatory cells in the outer media, but there is no necrosis or thrombosis. Some muscle fibres appear normal, but others show damage varying from oedema to complete destruction and replacement by granular eosinophil material. Proliferation of sarcolemma nuclei is sometimes seen. The frequency of the lesions varied considerably in sections taken from different levels in the block, and it is evident that they are patchy in distribution. No parasites or organisms could be found in any of the sections."

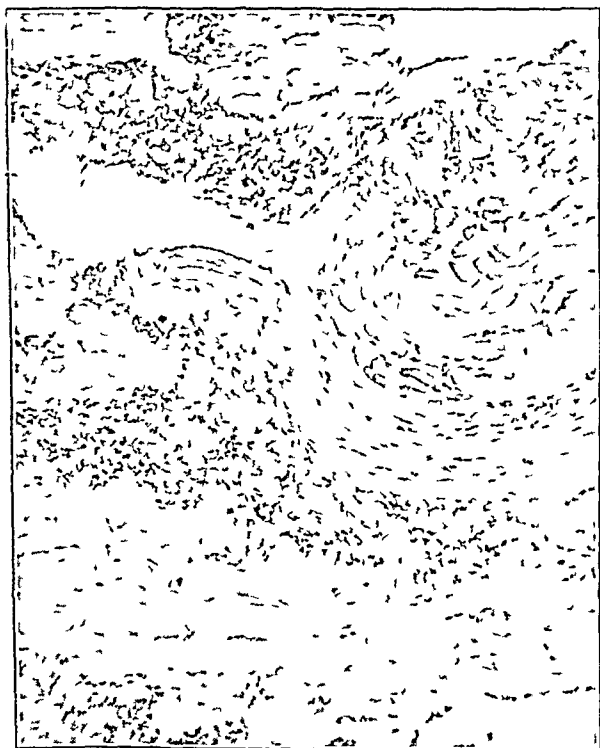


FIG 1—Section of muscle showing cellular infiltration and damage to muscle fibres ( $\times 80$ )

### Discussion

The clinical manifestations of acute dermatomyositis have been well recognized for more than sixty years, but although these are suggestive of a fulminating bacterial infection it is remarkable that an organism has been isolated on so few occasions. The isolation of a possibly causative organism in this case is so unusual that it must be examined with some scepticism.

It seems improbable that the *Str viridans* was an accidental contaminant of the culture, but lesions of the severity described are by no means a characteristic of *viridans* infections. They are never seen, for instance, in bacterial endocarditis due to this organism, even when a considerable degree of septicaemia is present. There was no evidence of cerebral, renal, or pulmonary lesions, which would be expected in a fulminating bacterial infection with such an intense leucocytosis. The localization of the lesions to the muscles and skin is the most remarkable feature of the case.

The similarity of the clinical picture to that of acute disseminated lupus erythematosus (Libman-Sachs syndrome), acute erythema multiforme of the Stevens-Johnson type, and polyarteritis nodosa has been mentioned, and it is possible that they also have a similar aetiology. In the past these diseases have been thought to be due to bacterial infection, but most authorities now regard them as manifestations of allergic hypersensitivity, in some cases to bacterial antigens. Ophuls (1923) first suggested that poly-

arteritis nodosa might be due to allergic sensitivity to streptococci, and Rich (1946) now emphasizes that substances of widely differing chemical nature must be added to the list of sensitizing antigens capable of producing vascular lesions. This conception of allergic hypersensitivity has also been applied to the Stevens-Johnson syndrome (Sutton and Sutton, 1939, quoted by Nellen, 1947) and to the Libman-Sachs syndrome (Fox, 1943).

Banks (1941) first discussed the question of whether there is a common denominator between scleroderma, dermatomyositis, acute lupus erythematosus, and poly-

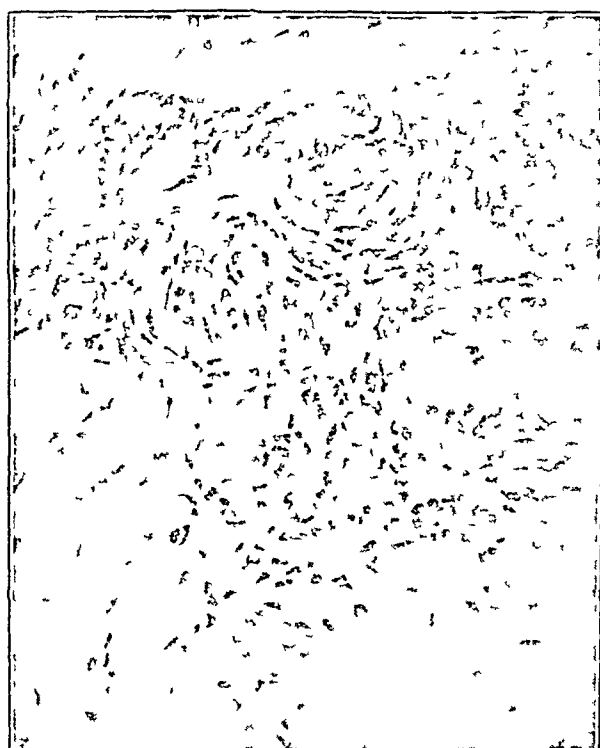


FIG 2—Showing perivascular infiltration and slight inflammatory reaction in outer coats of small artery ( $\times 250$ )

arteritis nodosa. He draws attention to the overlapping of the morbid anatomical features in all these conditions, particularly of the arteriolar changes. The very slight histological evidence of vascular damage in this case is an inconclusive finding, but the severe recurrent symptoms localized to muscles and skin and the slow response to penicillin and sulphadiazine could be explained by the assumption that the disease was due to an allergic response to the *Str viridans*.

### Summary

Two severe attacks of dermatomyositis in a boy aged 15 are described. After many unsuccessful attempts to grow an organism from the blood and oedema fluid *Str viridans* was obtained in pure culture from a muscle biopsy during the second attack.

A piece of excised muscle showed patchy inflammatory changes with perivascular cellular infiltration and necrosis of muscle fibres in some places. Only slight infiltration of arterial walls was seen in the sections examined.

Complete recovery from both attacks occurred. In the first there was a slow response to penicillin alone, and in the second a slower response to larger doses of penicillin and sulphadiazine.

It is suggested that the severe symptoms were due to an allergic reaction in muscles and skin to the *Str viridans* infection and that a clinical and possibly an aetiological similarity exists between dermatomyositis, polyarteritis nodosa, acute disseminated lupus erythematosus, and erythema multiforme of the "Stevens-Johnson" type.

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## POST-PRANDIAL SYMPTOMS FOLLOWING PARTIAL GASTRECTOMY

BY

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While the results following subtotal gastrectomy for ulcer are generally excellent, in a small proportion of cases there develop post-prandial symptoms which may persist for many months. Such post-prandial upsets after gastrectomy have been described in British, German, and American literature, and frequent attempts have been made to relate these symptoms to changes in sugar levels in the blood. Lawrence (1936) noticed that after such surgical procedures patients developed hyperglycaemic then hypoglycaemic sugar levels following ingestion of glucose. Evensen (1942) found that 34 out of 95 cases treated by partial gastrectomy developed unusually low blood-sugar levels after meals. Adlersberg and Hammerschlag (1947) divided such upsets into two groups—early and late. The early symptoms (sense of pressure and fullness in the epigastrium) they attributed to the rapid emptying from the stomach remnant. Later symptoms (palpitations, headache, dizziness, and perspiration) they believed to be due to chemical factors, especially hypoglycaemia. Gilbert and Dunlop (1947) believed the symptoms were due to hypoglycaemia, and they found that ephedrine administration lessened the upset. They suggested that the development of insulin sensitivity was a causal factor.

### Present Investigation

Twenty-four cases were studied—23 men and one woman. All had had subtotal gastrectomy for duodenal or simple gastric ulcer. The type of operation performed in every case was a gastrectomy, removing three-quarters of the stomach and the first inch of the duodenum, with an antecolic anastomosis. No valve mechanism was formed.

**The Nature of the Symptoms**—In mild cases (the majority) the patients complain of a heaviness and fullness in the epigastrium, accompanied by a curious sense of muscular or body fatigue, and want to sit down, in more severe cases they may have to lie down and may fall asleep. A flushing of the skin may occur and the patient often "feels hot" and may actively perspire. Giddiness and palpitations often occur. Such symptoms were present in all 24 cases. To this list of symptoms must be added bilious vomiting, which occurred in two of the cases. These two patients had all the other symptoms, but in addition after meals they felt very upset and wanted to vomit. They usually vomited about 30 to 45 minutes after meals, and thereafter felt very well and were able to go about their business. The vomited material consisted either of food heavily bile-stained or, as often, of 1½ pints (0.85 litre) of unmixed pure bile.

**Time Interval between Operation and Symptoms**—In every case the symptoms started either while the patient was in hospital or as soon as he went home and began to

live a normal life. In no case was there a time interval of some weeks, such as has been described by those who believe the condition to be due to the development of insulin sensitivity.

**Time of Onset of Symptoms in Relation to Meals**—In each case the symptoms started almost immediately after meals or, indeed, while the patient was still eating. The upset usually lasted 20 to 30 minutes. The rapidity of onset suggested a mechanical causation, and in nearly every case the symptoms could be brought on rapidly by eating more quickly, and by giving a larger meal the symptoms usually increased in severity. In no case did a group of late symptoms appear 1 to 1½ hours after meals.

### Type of Meal which Caused the Symptoms

In all 24 cases a careful study was made of the type of food and the amount taken at each meal in the day, and a rough measure of the total bulk of each meal and its total carbohydrate content was made. In 23 cases the symptoms appeared only after "the big meal"—i.e., the most bulky meal of the day. In almost all of these cases the carbohydrate content of "the big meal" was considerably less than the carbohydrate content of another meal in the same day which produced no symptoms. Indeed, the patients themselves in most cases clearly realized that it was the bulkiness of the meal which troubled them, and many noted that by missing the soup one day, and doing without pudding the next, they could avoid such symptoms altogether. In other words, the incidence of symptoms depended on the total amount of food eaten and not on its carbohydrate content.

In order to clarify still further the question whether the symptoms were due to bulk or to carbohydrate content each patient was given 50 g of glucose in water and the severity of the symptoms and their time of onset, etc., were recorded, the blood-sugar levels were estimated by MacLean's method. On the following day the patient was given a bulk meal containing scarcely any carbohydrate (about 6 g) and the severity and time of symptoms were again recorded. The blood-sugar levels were again estimated to check the fact that there was no rise in the blood sugar. In 16 of the 24 cases the symptoms were more pronounced after this bulk meal than they were after the ingestion of 50 g of glucose in water. In four cases the severity of the upset was equal, and in four cases the 50 g of glucose caused more upset than the bulk meal. In short, it was again shown that it was the bulk and not the carbohydrate content of the meal which mattered. It is, however, interesting to note that after these bulk meals the blood-sugar level rose to a moderate extent in most cases. Indeed, blood-sugar levels were recorded which were higher than one would expect after a meal of such small carbohydrate content. It will be suggested that this may be due to stimulation of the sympathetic system caused by distension of the gut, bringing about an adrenaline effect.

### Relation of Symptoms to Blood-sugar Level

It has already been stated that each patient had blood-sugar estimations done after the ingestion of 50 g of glucose in water, and the time during which the symptoms were present was carefully noted. The results are shown in the accompanying Table. By graphing the blood-sugar levels and marking on the graph the period of upset the following points were noted.

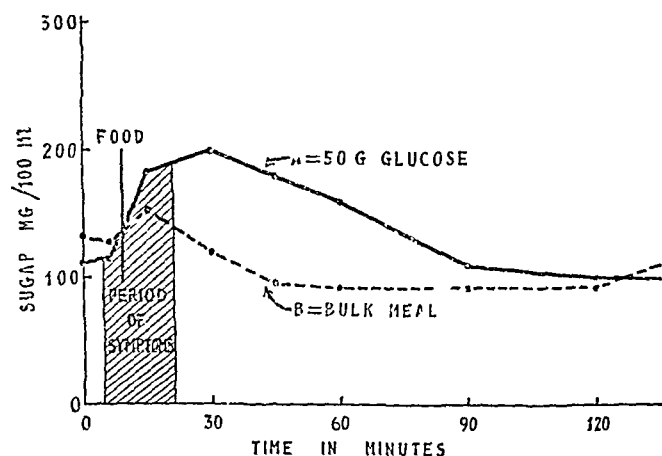
The symptoms appeared long before the sugar level in the blood had reached its peak. The symptoms were usually over before the blood-sugar level started to fall or before it fell below normal limits. In short, the symptoms appeared during the period of hyperglycaemia and the symptoms had

*Blood-Sugar Levels after 50 g. of Glucose by Mouth  
(The Readings in bold type occurred during the symptoms)*

Case No	Blood-Sugar Readings in mg per 100 ml								
	Before Meal	5 Min After	10 Min After	1 Hr After	1 1/2 Hr After	2 Hr After	3 Hr After	4 Hr After	5 Hr After
1	88	95	115	130	173	199	106	104	112
2	100	110	110	175	286	156	100	88	98
3	89	128	136	150	248	187	123	100	80
4	101	166	180	200	282	120	80	93	86
5	120	100	160	179	248	147	70	90	89
6	86	90	100	121	126	130	196	58	82
7	48	50	70	92	116	50	62	186	64
8	90	100	116	136	210	256	198	110	90
9	100	106	130	172	211	190	100	90	86
10	102	90	112	156	191	148	80	100	92
11	86	92	126	180	243	110	120	97	106
12	108	102	130	162	224	160	111	126	103
13	117	127	142	155	198	133	60	50	46
14	112	115	140	182	200	180	158	138	112
15	84	92	100	154	186	64	100	103	107
16	78	84	116	162	171	100	87	103	82
17	104	100	115	158	180	82	106	104	109
18	68	71	86	173	210	70	162	58	89
19	96	102	120	186	80	112	80	94	90
20	106	100	141	195	166	84	92	110	96
21	86	92	112	138	173	184	101	106	100
22	105	116	165	179	267	143	70	83	66
23	95	106	173	182	226	61	102	98	93
24	80	109	127	158	194	69	105	98	86

passed off before low levels of blood sugar were recorded. Furthermore, exactly the same symptoms were produced, often of greater intensity, with the bulk meals, where the blood-sugar levels showed a less marked rise and fall. An illustrative case, with typical blood-sugar curves, is noted below.

A man, aged 40, had a subtotal gastrectomy for duodenal ulcer 18 months ago. Since operation he has been complaining of fullness in the epigastrium for 20 minutes after meals with weakness and sweating. Palpitations are common and giddiness is often present. This comes on after his dinner at midday, which usually consists of soup, then fish or meat. If he takes any pudding of any sort, his symptoms are much worse.



Curve A shows blood sugar levels after 50 g. of glucose by mouth. Symptoms were slight. Curve B shows blood sugar levels after a bulk meal with almost no carbohydrate. Symptoms were pronounced after this meal. The period of symptoms is shaded. During this period blood sugar estimations were made every five minutes.

### Discussion

Post-prandial symptoms following partial gastrectomy are not likely to be due to hypoglycaemia. In all 24 cases they occurred in the hyperglycaemic stage. The symptoms were quite often over before the sugar level stopped rising. Even when hypoglycaemic curves were produced the symptoms did not coincide with that period, and a similar set of symptoms of at least equal intensity could be produced in the same patient with a bulk meal with a much smaller rise and fall in the sugar levels in the blood.

That these symptoms are due to mechanical distension of the gut is suggested by the following facts: (a) The rapidity

of onset of symptoms following the meal suggests a mechanical cause. (b) It was the major meal of the day which gave the trouble in 23 cases, and patients usually knew that they could avoid or lessen the upset by taking fewer courses. As has been said, this major meal in most cases had a smaller carbohydrate content than at least one other meal of the day which produced no symptoms. (c) In two-thirds of the cases the bulky low-carbohydrate meal produced more symptomatic upset, with only a moderate change in blood-sugar level, than did the 50 g. of glucose which caused a marked rise and fall in the sugar levels. Further, the very fact that the symptoms were the same in both cases suggests a mechanical basis.

It should be added that in the four cases in which the 50 g. of glucose caused more upset than the bulk meals no satisfactory explanation was found. These patients had no marked hypoglycaemia, and again the symptoms occurred in the hyperglycaemic stage. These four patients had insulin-sensitivity tests carried out. No hypersensitivity was found.

If the post-prandial upset is due to mechanical distension of the gut it is likely that the afferent pathway for this is in the sympathetic-nerve fibres and not the vagi. This is suggested by the work of Andrus (1947), who performed a preliminary gastrectomy on a patient with carcinoma of the oesophagus. At a later operation he did a bilateral vagotomy. By passing a cystoscope through the gastrotomy tube he was able to test the stomach wall for different types of sensation before and after vagotomy. He observed that most sensations, such as feelings of distension, heat and cold, pain, etc., were unaffected by vagotomy. Moore *et al* (1947) also observed such post-prandial symptoms following vagotomy.

Finally, the symptoms themselves suggest stimulation of the sympathetic system. The weakness, giddiness, perspiration, etc., are not unlike the effects produced by adrenaline and ephedrine. In this respect it is interesting to note that the pulse rate increased by 10 to 20 beats a minute in all 24 cases during the upset. Furthermore, the rise in the blood-sugar level after a meal containing very little carbohydrate might be explained by an adrenaline effect following stimulation of the sympathetic nerve by mechanical distension of the gut.

I would like to thank Professor Illingworth for his kind help and encouragement and for his many useful criticisms.

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In Circular 150/48 (dated Aug. 20, 1948) the Ministry of Health has given some advice to County and County Borough Councils about their functions under the National Assistance Act, 1948. There are not to be any changes in the system of registration of blind persons or of the arrangements under which the Regional Associations for the Welfare of the Blind maintain regional registers. The certification of blindness will be part of the local authority's duty under the National Assistance Act and not under the National Health Service Act, and the Form BD 8 will continue to be used. Local authorities are to pay the regional boards for certificates provided by specialists employed by the board, but where the specialist does the work outside his employment by the board the local authority will pay him direct. In addition to persons registered as blind within the meaning of Section 64 of the National Assistance Act, local authorities are now urged to keep an "observation register" of those who are substantially and permanently handicapped by defective vision ("partially sighted persons"). Local authorities should keep these patients under review and make sure that they are obtaining the treatment they may need through the National Health Service.



## PUERPERAL SEPTICAEMIA DUE TO *PS. PYOCYANEA*: FAILURE WITH STREPTOMYCIN

BY

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AND

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Infections of the urinary tract with *Pseudomonas pyocyanea* have in many instances been successfully treated with streptomycin (Alexander, 1946, Hamre *et al*, 1946, Keefer *et al*, 1946). In the case described below, in which both the blood and the urine were infected with the organism, the patient died despite the sterilization of the blood and the urine with this chemotherapeutic agent

### Case Report

A female aged 28 was admitted to the Farouk I University Hospital on Jan 26, 1947, complaining of excessive bleeding from the vagina for 28 days and backache. She was syphilitic, and had had an early abortion five months before admission, with amenorrhoea two months before the onset of her illness. She gave a history of recurrent attacks of salpingitis for seven years, for which she had had 60 administrations of short-wave therapy. Severe aplastic anaemia with marked leucopenia and gingivitis persisted till death—after 36 days in hospital. Blood examination: Hb 40% (Sahli), RBC 2,000,000 per cmm, leucocytes 1,000 per cmm (polymorphs, 20%, lymphocytes 72%, monocytes 8%), platelets 13,000 per cmm, bleeding time, nine minutes, coagulation time, one minute. The urine contained a trace of albumin and a few hyaline casts. A Friedman test three days after admission was negative.

A low grade pyrexia developed the day after admission, but the temperature became normal after five days' treatment with a total of 20 g sulphadiazine orally and remained normal for four days. It then rose, and penicillin 5,000,000 units was given intramuscularly over 17 days. This had no effect on the pyrexia. Penicillin was stopped when a blood culture yielded *Ps. pyocyanea* and streptomycin, 1 g per day, was given intramuscularly every three hours until death seven days later. Penicillin was resorted to in addition to the streptomycin the day before death because the patient was thought to have developed pneumonia. The temperature remained high until death.

Bimanually the uterus was felt to be retroverted and retroflexed and could not be corrected on account of tenderness and probable adhesions. It was rather enlarged. The os was closed and the lower segment slightly softened. On the right of the uterus a tender mass the size of a hen's egg was felt, with pulsating vessels on it.

Four days after admission the os was dilated one and a half finger-breadths; the uterine cavity was filled with blood clots, but no products of gestation were found. The patient had probably aborted the day before. There were signs of moderately localized pelvic peritonitis.

The severe anaemia was treated with iron, liver extract intramuscularly, and blood transfusion—11 litres (19.4 pints) of blood. For the marked leucopenia which was accompanied by gingivitis (? agranulocytosis), the patient took pyridoxin every other day.

### Bacteriological Examinations

The first blood culture, made 11 days before death while the patient was on penicillin, yielded *Ps. pyocyanea* five colonies per ml of blood. When the result was known blood cultures (eight) were made daily until death. The first showed no signs of growth (turbidity) before 48 hours. Surface pellicle developed in both the aerobic and the CO<sub>2</sub> tubes. The top centimetre in the CO<sub>2</sub> tube was tinged pale green. No pigment developed in

the aerobic tube. This phenomenon was observed in all subsequent positive blood cultures. Carbon dioxide seems to enhance pigment production (Khairat, 1940).

*Ps. pyocyanea* was grown from the first three blood cultures, the last two gave one colony per ml of blood. The blood became sterile the third day after streptomycin had been started. *Bact. coli* was grown from the eighth (and last) blood culture, taken the day before death—presumably an ante-mortem invasion (*Bact. coli* was grown in pure culture from the heart blood two hours after death).

The patient's serum taken a week before death agglutinated a living suspension of the first blood culture strain (washed off an agar slope) to a titre 1:320. A suspension killed by heat (60° C for 30 mins) failed to agglutinate even in low serum dilutions (Final serum dilutions from 1:5 to 1:1,280 were put up). Agglutination of the living suspension took place at 55° C (water bath) after 18 but not four hours.

A throat swab taken six days before death was negative for *Ps. pyocyanea* and negative also for haemolytic streptococci. A *pyocyanea* bacillus was grown from the stools in small numbers seven days before death. Four urine cultures, taken aseptically by catheter, were made every other day the week before death. The first, taken the day streptomycin was started, yielded *Ps. pyocyanea* eight colonies per loopful of the thoroughly shaken urine and also *Bact. coli* six colonies per loopful (on blood agar, the loopful was approximately 1/150 ml). The two urine cultures which followed were sterile, probably because of the streptomycin. From the last urine culture, taken the day before death, both organisms were grown. *Ps. pyocyanea* and *Bact. coli* in equal numbers were grown from three cultures from the cervix uteri taken 7, 5, and 2 days before death.

### Necropsy

The uterus was retroverted and surrounded by fibrous adhesions that fixed it. It was almost completely involuted. On the right side there was a tubo-ovarian mass. The right ovary was cystic and contained thick sanguineous fluid. The small intestines showed septicaemic petechiae along the whole mucosa. The lower part of the ileum close to the ileo-caecal junction was markedly congested and almost gangrenous in appearance, but the loop was free in the abdomen and had no adhesions. (The patient passed no motions for four days before death.) The heart valves were free. The pericardium contained much straw-coloured clear fluid.

Post-mortem cultures were made two hours after death from the heart blood, pericardial fluid, cut-surface of lung, cervix, uterine cavity and from the thick sanguineous fluid in the cystic right ovary. *Bact. coli* was obtained in pure culture from all these sites, the pericardial fluid and the cut surface of the lung also yielded *Ps. pyocyanea*. The three blood culture *pyocyanea* strains, the three cervical ones, the strains from the stools and the urine, and the two post-mortem strains were all agglutinated to the same titre (1:320) by the patient's serum. Pooled normal human sera did not agglutinate any of them.

### Summary

Penicillin had no effect on *Ps. pyocyanea* bacteraemia or bacilluria. Streptomycin, 1 g daily, sterilized the blood and the urine by the third day, but did not save the patient, who died probably of paralytic ileus or from agranulocytosis.

We wish to thank Prof. Aly Bey Hassan for the gift of streptomycin and for his interest.

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The National Under Fourteens' Council has issued an illustrated pamphlet entitled "Junk Playgrounds" describing how bombed sites and other derelict places may be made into suitable playgrounds for children to give them the opportunity of making small huts or gardens. This scheme has been very successful in Copenhagen, where it is claimed that juvenile delinquency has been eradicated by such measures. The Council is appealing for funds, and those interested should write to the Organizing Secretary at the Mary Ward Settlement, Tavistock Place, London, W.C.1.

## LAURENCE-MOON-BIEDL SYNDROME

BY

1 GRAHAM H ANDERSON, M.B., Ch.B., F.R.F.P.S.G.

The association of retinitis pigmentosa with polydactylism was recorded in 1860 by Laurence and Moon and the Frohlich syndrome in 1901. Biedl in 1921 described the pentad of polydactylism, obesity, hypogenitalia, retinitis pigmentosa, and mental retardation, with a familial occurrence, the association being now known as the Laurence-Moon-Biedl syndrome. Variants have also been described by Biesmond, Van Bogaert, and by Delhay in which coloboma of the iris replaced the retinal degeneration. Graefe in 1866 described optic atrophy as complicating oxycephaly, but not of the pigmentary degenerative type (Duke-Elder, 1940; Ridley and Sorsby, 1940). Mann (1937), however, records oxycephaly as one of the skeletal abnormalities which may be present with the syndrome.

Retinitis pigmentosa occurs much more often as an isolated disability than in combination with other disabilities. Nettleship worked out many pedigrees in which there was no other defect. Usher obtained similar results when searching especially for combined defects. In the Eugenics Laboratory Memoirs (1922) is reported a series of 914 cases, in 656 of which the patients suffered from retinitis pigmentosa alone. Deaf-mutism, or mental deficiency, occurred in 96 cases (10.41%), and was the commonest associated affliction. In only 9 cases (less than 1%) was polydactylism noted, such a combination is therefore rare. The genealogical tables constructed showed that retinitis pigmentosa could apparently be transmitted as an inherited Mendelian dominant, or recessive, or sex-linked character, whereas the Laurence-Moon-Biedl syndrome occurred as a recessive Mendelian type (Eugenics Laboratory Memoirs, 1922).

Pathological evidence of pituitary abnormality has generally been indefinite and disappointing. Dax (1938), however, reported the presence in the blood and urine, but not in the cerebrospinal fluid, of a substance which was melanophore-expanding in frogs and caused a visible darkening of the skin on injection. This substance could be demonstrated in cases of retinitis pigmentosa, with or without other abnormalities. It was also present in conditions of known pituitary stress, such as pituitary tumours, hyperthyroidism, and pregnancy. Similarly prepared extracts from healthy controls or other endocrinal upsets did not contain this substance. The presumption of a hypophysial-diencephalic lesion has thereby gained some experimental justification, but vascular phenomena, according to earlier Italian workers, also play an important part in the pigmentary degenerative process (Dax, 1938).

### Case Report

A spinster, aged 45, was admitted to ward 2 of the Western Infirmary, Glasgow, complaining of severe headaches occurring at frequent intervals over a period of two years. At birth rudimentary sixth digits were present on each extremity, but these spontaneously wasted and disappeared during her infancy. Soon after attending school she discovered her eyesight was defective the defect being more pronounced at night. Ophthalmological examination at this time led to a diagnosis of retinitis pigmentosa. She had always been a fat child but less than average in height, and at the age of 11 she weighed 13 st (82.5 kg). Menstruation began when she was 13, a regular 4/28-day cycle continuing up to the time of writing.

Eczema first appeared at the age of three months and asthmatic attacks when she was four years old. Both have occurred intermittently throughout her life. Two years before admission she began to suffer from headaches, usually present

on waking but sometimes developing later in the day. The occipital region was generally affected, with occasional spread over the vertex and forwards to the frontal area. They were not accompanied by nausea, vomiting or any increased visual disturbance, nor were they induced by those foods which she had learned by experience to regard as provoking attacks of eczema or asthma.

On examination the patient was seen to be obese, but not grossly so. Her face was florid, with marked hirsutism but no congested veins. Her skin was dry and scaly, with one small weeping area on the dorsum of the hand. Small scars were present at the lateral bases of the fifth digits. Her skull was of a pronounced oxycephalic shape. Her weight was 12 st 11 lb (81.2 kg), her height 5 ft 4½ in (1.64 m).

Clinical and x-ray examination of the lungs was compatible with the asthmatic history. The blood pressure was 175/105 mm Hg. Clinical and special methods of examination revealed no other abnormalities in the cardiovascular system. Blood examination showed Hb, 75% (Sahl), red cells, 3,800,000 per cmm, white cells, 6,800 per cmm, films—normal cell pattern, normal sugar-tolerance curve—fasting, 0.100%, half hour, 0.170%, 1 hour 0.180%, 1½ hours, 0.100%, 2 hours, 0.090%. No sugar in the urine, nor was any chemical or microscopical abnormality detected. Average daily volume was 49 oz (1.39 litres). Average daily excretion of 17-ketosteroids was 3.7 mg (average normal, 13 mg with limits 4–23 mg; Hadfield and Garrod, 1947). The B.M.R. was -19.5%. Examination of the C.S.F. showed pressure, normal, cells, 2 per cmm, Wassermann reaction and colloidal gold tests (Lange), negative, no precipitation to Pandy's or Nonne-Apelt tests. Hearing was normal with both ears. Sight—large objects seen at 6 ft (1.83 m) but without definition, individuals not recognized close up, strong contrast colours distinguished close up. Fundi—peculiar degeneration and pigmentary deposits of retinitis pigmentosa. No papilloedema or changes in vessels. Radiographs revealed that the pituitary fossa was smaller than usual, that there was no bony abnormality, that the middle phalanges of both fifth fingers were "dumpy," and that there were rudimentary accessory digits at both fifth toes.

*Intellect*—The patient was alert and quickly recognized voices. Her interests were limited, but this was clearly the result of her defective vision and not due to any mental defect. Her knowledge and understanding of everyday events, as reported on the radio, was quite up to normal standards.

She could not trace back any relative with blindness or polydactylism. There has been no Jewish racial mixing in the family so far as she is aware. No abnormality was found on examination of her mother and sister, the only relatives available.

### Discussion

The above case is incomplete in two respects. Mental retardation was not an obvious feature, and amenorrhoea, which would be anticipated with hypogenitalism, was not present, an average normal menstrual cycle occurring during the patient's stay in hospital. The hirsutism was limited to the face and did not encroach on the male distribution of trunk and arms. The possibility of virilism (adreno-genital or pituitary basophilism) is further negated by the low excretion rate of urinary androgenic (ketosteroid) substances. Such low values are obtained in hypopituitarism.

A benign myxoedematous state, induced by inadequate stimulation of the pituitary to the thyroid gland, readily affords an explanation of the lowered metabolic rate and anaemia. Hypertension is not uncommon in myxoedema, and the headaches symptomatically conform to the pattern associated with increased blood pressure. I have not traced an association with eczema and asthma in previous cases, thus an unlucky coincidence seems to have occurred in this patient's case.

The failure to elicit a family history is not surprising in a Mendelian recessive type, as several generations may elapse in human inheritance before suitable conditions (absence of a neutralizing dominant or other less easily explained factor) occur. An isolated case cannot therefore

be assumed, but only that previous members of the family showing this syndrome have been buried even beyond the knowledge and memory of those still alive. Sufferers from this syndrome are of course unlikely to marry, and even if they do so are unlikely to have children—a factor which of itself curtails the passing on of the defective gene except as a latent recessive type.

My thanks are due to Dr D K Adams for permission to publish this report.

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## Medical Memoranda

### A Fatal Case of Solanine Poisoning

Of the *Solanaceae* *A belladonna* (deadly nightshade) has long been recognized as having very poisonous properties owing to the high content of atropine in the plant. The commoner members of the nightshade genus—*S dulcamara* (woody nightshade) and *S nigrum* (black nightshade)—are generally regarded as being harmless, although the alkaloid solanine has been recovered from the berries of these plants and has been shown to have toxic properties in experimental animals and to a less extent in human beings. We can trace only one authenticated case of death following ingestion of the red berries of the woody nightshade and one fatal case of black nightshade poisoning (Taylor, 1875).

## CASE RECORD

A female child aged 9 years was admitted to hospital on the evening of Aug 13, 1948, suffering from vomiting, abdominal pain, and distressed breathing. Her home was on the outskirts of a town and she was apparently in the habit of eating berries from hedges and from the embankment of a disused railway near her home. She had eaten berries on several occasions during recent weeks, the last occasion being three days before admission. The following day she had felt unwell but had improved. On the day before admission she had been taken ill with vomiting and had vomited "coffee-ground" material four times during the five hours before admission.

The child responded weakly to questioning and complained only of abdominal pain and thirst. She looked exhausted, the skin was pallid and dry, the expression anxious. There were slight restless movements of arms and head. She was not delirious. A feature which remained marked throughout was dyspnoea. Inspiration was short and gasping, expiration was prolonged and active and accompanied by a sigh. The respiratory rate was 32 per minute.

The pupils were of normal size and reacted to light. Although the child was dehydrated the tongue was moist. Examination of chest and abdomen revealed nothing of significance. The extremities were warm. There was neither paraesthesia nor paralysis. Temperature 96.4° F (35.8° C), pulse rate 140 per minute, blood pressure 120/88.

A provisional diagnosis of vegetable irritant poisoning with central effect on the nervous system was made, and treatment was immediately instituted. This included stomach lavage, soap and water enemas, nikethamide 1.7 ml hourly, and latterly oxygen. Fluids were given by mouth and per rectum. Some improvement in her general condition was maintained for 24 hours, but she later became weaker and more cyanosed and her respirations became very feeble. Death occurred in the morning of Aug 15, 1948.

A post-mortem examination was carried out two hours after death. The main feature was an acute inflammation of the mucosa of the stomach and intestines, the inflammation decreasing in intensity towards the distal coils of small intestine and caecum. There were small haemorrhages in the mucosa of stomach and jejunum. The stomach contained about 1 pint (568 ml) of dark brown fluid and dark greenish brown semi-solid material was present in the upper coils of jejunum. The bowel contents decreased in amount and became paler towards the distal end of the small intestine. The contents of the colon were normal in appearance. Small fragments of the skin of a berry were found microscopically. The rectum was empty. Other abdominal organs appeared healthy. Thoracic organs, with the exception of the lungs, which were congested and oedematous, appeared healthy. The brain was normal in appearance.

Microscopically the liver showed moderate fatty infiltration and necrosis.

The post mortem findings were regarded as being consistent with death from respiratory failure following the ingestion by mouth of some poisonous substance, and specimens of stomach and intestinal contents and liver were submitted for analysis. No alkaloid was found in the liver by the normal Stas Otto process. A special search was made for solanine, and from about one-third of the liver 7 mg of crude alkaloid was isolated, which on recrystallization from alcohol gave a product giving characteristic tests for the solanine complex.

A search at the place where the child played revealed the presence of masses of woody nightshade entangled with blackberries. The child's symptoms, the finding of solanine in this organ and the presence of much woody nightshade where the child played provide evidence that death was almost certainly due to poisoning by *Solanum dulcamara*.

## DISCUSSION

Fatal cases of solanine poisoning are very rare, and although much work has been done on the potato as a source of the poison very little appears in the literature concerning the other two common sources, *Solanum dulcamara* and *Solanum nigrum*. It is known that the potato varies greatly in solanine content with the season of growth. Abnormally wet summers appear to favour high alkaloidal content. It appears possible that *Solanum dulcamara* may be subject to similar variations and that this abnormally wet summer may have favoured high toxicity of the berries. Recorded cases suggest that some individuals may be abnormally sensitive to solanine.

According to Reil (1857) solanine destroys life by producing paralysis of the muscles of the chest. It is a slow acting poison, and so far as we know has not yet been isolated from the vomit or stomach washings of suspected cases. It differs from atropine (deadly nightshade) and hyoscyamus (henbane) in not producing stupor or delirium, dilatation of the pupils, sphincter paralysis, or pyrexia.

Plants of the genus *Solanum* can be identified only by a botanical examination of the leaves and berries. The following brief accounts are extracted from Bentham and Hooker (1945).

(1) *Solanum dulcamara* Synonyms Bittersweet, woody nightshade, felonwort, violet bloom, scarlet berry. Found commonly in hedges and thickets in moist shady situations all over Europe except the extreme north. Common in England and Ireland. Rare in Scotland. Stem shrubby at base, with climbing or straggling branches, often many feet in length. Leaves stalked, ovate or ovate-lanceolate, two or three inches long, usually broadly cordate at the base and entire, but sometimes with an additional lobe or segment on each side. Flowers rather small, purple or blue with yellow anthers, in loose cymes, on lateral peduncles shorter than the leaves. Flowers in summer. Berries small, globular or ovoid and red when mature.

(2) *Solanum nigrum* Synonym black nightshade. One of the most widely spread weeds. Common in England but local in Scotland and Ireland. An erect annual or biennial with very spreading branches, about a foot high. In Britain usually glabrous. Leaves stalked, ovate with coarse angular teeth. Flowers small and white in little cymes almost contracted into umbels on short, lateral peduncles. Berries small, globular, black.

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### Five Cases of Belladonna Poisoning

On Sept 2, 1948, at 10.30 a.m., three children, Rosemary and Elizabeth, aged 7, and John, aged 8, were admitted to St Mary's Hospital, Portsmouth, with the statement that during the night they had become delirious, lost the use of their legs, and could not see. All three were extremely restless on admission, twisting about, plucking at the bedclothes, and constantly grimacing. John and Rosemary were extremely talkative and obviously hallucinated, their speech was a little slurred. Elizabeth appeared to have some photophobia and lay with her head buried in the pillow, fiercely resisting any interference. All three children had hot, dry skins and a marked malar flush. The lips were dry and fissured, the pupils widely dilated and inactive to light. They had rapid pulses, 120-130, but normal temperatures and respiratory rates. The highest B.P. recorded was John's, 138/80 mm Hg. Lying in bed there was no obvious muscular incoordination, though they continuously executed purposeless movements. All deep reflexes were brisk. The following facts were elicited from the mother.

The patients and another brother had gone out to play in the park the previous afternoon. They returned home about 5 p.m. stating

they were very tired and did not want tea, all complained of great thirst but otherwise appeared to be normal. At 7 p.m. the children went to bed and slept. At 9 p.m. three were awake and extremely restless. Their speech was rambling, they complained of being unable to see, and John, who climbed out of bed, "kept falling about the room." The mother thought all of them had high temperatures.

The fourth child in the family remained unaffected, and during the morning directed us to a plot of waste ground where there were two large blackberry bushes covered with ripe berries. Entwined among the stems were several plants of deadly nightshade (*Atropa belladonna*) also bearing large black berries. The child stated that he had eaten one berry, but five more children "had eaten a lot." Three of the five were the patients, and the fate of the other two was at this time unknown. Later during the morning the hospital was asked to admit a child, Keith, aged 9.

On arrival he was found to have a hot, dry skin, rapid pulse, and moderately dilated pupils inactive to light. He was extremely drowsy and resentful of any examination. The story was that this child had been blackberrying with the others. He had a large tea at 6 p.m. and went to bed at 9 p.m., apparently a normal child. At 2.30 in the morning he was found fighting with his elder brother. He talked incoherently, did not appear to know his parents, and kept picking imaginary objects off the bedclothes. At 4 a.m. he was given morphine by a local doctor, and remained drowsy up to his admission at 1.30 p.m.

Just after his arrival a fifth child, Derek, aged 6, was admitted with identical symptoms to the first three. He had returned from the blackberrying party about 7.30 p.m., had his supper, and went to bed. He was awake and vomited twice during the night. At 6.30 a.m. both parents went out, leaving the child in charge of an elder sister. The sister sought the help of neighbours about 12.30 p.m. because the boy was talking strangely. The onset of symptoms in this case must have been delayed for twelve to eighteen hours.

#### TREATMENT

On admission gastric lavage was carried out on all five children, first with plain water then with potassium permanganate solution, 10 gr (0.65 g) to the pint (568 ml). This procedure induced vomiting, and over 30 berries were recovered from John's stomach and nearly as many from his two sisters. The berries, mixed with gastric contents, closely resembled raisins, but the seeds were smaller and darker than raisin 'stones'. No berries were recovered from Keith and Derek.

Rectal wash-outs with normal saline were also given, but no seeds or berries could be detected in the washings. Four hours later the gastric lavage was repeated, and several more berries were obtained from John and one of his sisters. At the end of the lavage a solution containing magnesium sulphate 90 gr (6 g) was left in the stomach.

By late evening there was no appreciable change in the children's condition, all were still extremely restless and hallucinated, pulse rates remained high, and they were all incontinent. At no time was there any evidence of urinary retention. During the night they slept sporadically, and by 9.30 a.m. the next morning all, except John, were quieter and fairly co-operative, though suspicious and resentful of any examination. The children all complained of great thirst and two of severe frontal headaches, there was still a marked malar flush, but the pupils were smaller and showed a slight reaction to light. The saline aperient was repeated, and all had several bowel actions during the day, by evening large numbers of seeds and berry skins were still being passed by John and his two sisters. At a conservative estimate John must have eaten at least 40 berries, and his two sisters between 20 and 30. Why no berries or seeds should be recovered from the other children, whose symptoms were no less severe, is a mystery.

The important features in these five cases of poisoning appear to be: (1) The prolonged period between the ingestion of the berries and the appearance of symptoms. (2) The absence of any fever or respiratory depression and the prominence of the hallucination. (3) The significance of "raisins in the vomit"—so unlike fresh deadly nightshade berries—might not have been appreciated in a case where no history of eating berries was obtainable. (4) The necessity for administering an emetic: many of the berries would have blocked the largest size of stomach tube.

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## Reviews

### MODERN OPHTHALMOLOGY

*Modern Trends in Ophthalmology* Edited by Arnold Sorsby  
Volume 2 (Pp 600, illustrated £3 3s, plus 1s 6d postage)  
London Butterworth and Co (Publishers) 1948

*Modern Trends* does not aspire to be a textbook describing its subject adequately and fully, but, like a connoisseur, surveys the whole field, neglects what is fully established and has become ensconced in the standard textbooks, and discusses those aspects of the subject which are showing emergent tendencies, in which active research is progressing, and which are still matters of speculative interest. A book of this kind, if written by those who are contributing actively to new knowledge and edited adequately and with wisdom, is of great interest. The first volume in this series appeared in 1940. The second, which is now published and contains accounts of many subjects not included in the first, maintains the same standard of excellence as its predecessor.

There are forty-eight articles on all aspects of ophthalmology—physiology, optics, diagnostic procedure, pathology, treatment, and social aspects—written by authors in Britain, the Continent, and the Americas. They are all of high standard and it would be invidious to single out any for special mention, although some of them are somewhat short and superficial. A composite compilation of this type often suffers from great inequalities but the thoroughness of the editorship is seen in the relative standard maintained in the presentation of the various sections: many of these must have been rewritten. The illustrations and the general production of the book are a credit to the publisher.

STEWART DUKE-ELDER

### THE DIFFICULT ADULT

*The Doctor and the Difficult Adult* By William Moodie, M.D.,  
F.R.C.P., D.P.M. (Pp 296 15s) London Cassell and Co  
1947

Dr Moodie, primarily a child psychiatrist, has always maintained that it is just as necessary, if not more so, to treat the parent as to treat the child. He has therefore provided a sequel to his book on the difficult child with one on the difficult adult and how the medical man may deal with such a problem. Throughout the book he is at pains to show how the difficult child becomes the father or mother of the difficult man or woman by handing on his peculiarities of idea, emotion, and behaviour, not by heredity but by example.

The book starts with a brief résumé of the progress of psychiatric understanding of mental illness during the present century, but the author deprecates the modern tendency to pamper the neurotic, whereby he may derive more advantage than ever from his illness and assume an importance in the family and the community which is not warranted. He warns against the possibility of the psychiatrist encroaching too far into the fields of education and criminology and making practical issues of half-digested theories. The descriptions of the psychoses and psychoneuroses are admirably terse, and the narratives of the illustrative cases are throughout so vivid and dramatically told that a living picture of the individual patient is presented to the reader. Dr Moodie makes a useful distinction between the anxiety neurotic, who thinks but really does not feel, and the agitated depressive, who feels intensely, often attributing his distress to a situation which is really the outcome of the depression. He points out that obsessive people live close to the unconscious and are closely allied to the schizophrenic, so he doubts whether they should be classed with the psychoneurotic.

He briefly discusses epilepsy emphasizing its close association with emotional disturbance and the harm that may be done both to the patient and his relatives by too ready diagnosis of a disease that they dread so much. In many cases simple psychotherapy may be very effective and a hopeless prognosis very

detrimental. In discussing mental and emotional defect he makes it clear that intelligence tests are all too easy to perform but all too difficult to interpret. Intelligence profiles are much more useful than the plain IQ. He gives a sound account of the approach to and general and special psychological treatment of patients and points out that really deep analysis is only seldom necessary. Full physical examination must never be neglected and physical treatments may be useful in saving the face of the hysteric, provided that the doctor, and probably the patient too, clearly realize what is being done. Dr Moodie is sceptical but not condemnatory of the modern physical treatments of the psychoses and is content to await further experience before passing a final judgment. The last chapter is on the milieu necessary to allow the mentally healthy child to grow into a mentally healthy adult, and the author refers particularly to child care in an affectionate and balanced home which is not disturbed by parent teacher or doctor.

This is just the sort of sound, well-balanced, informative book which anyone who knows Dr Moodie would expect from his pen, and all who read it—and there should be many—will not be disappointed.

R G GORDON

## GYNAECOLOGICAL ANATOMY

*Gynaecological and Obstetrical Anatomy* By C F V Smout M D, M R C S. With Chapters on the Histology of the Female Reproductive Tract and its Endocrine Control, by F Jacoby, M D Ph D. Second edition (Pp 248, 185 figures many coloured £2) London Edward Arnold

The first edition of this book was deservedly popular, but the new edition, compiled with the help of Dr F Jacoby, who has written four chapters on the histology and physiology of the ovary and uterus, is a great improvement. The photomicrographs are of fairly good quality. The other illustrations are plentiful, though not quite up to the standard of the best modern publications. The book should be widely read by candidates presenting themselves for the higher examinations in gynaecology and obstetrics and there is clearly a big demand for a book of this kind.

Certain general criticisms can be offered. A fair amount of the subject matter is discussed in general textbooks and some of it should be omitted. On the whole the standard of the work is not sufficiently advanced for the senior students of to-day. Dr Smout describes the normal bony pelvis and the different types of contracted pelvis in some detail, and it is interesting to read the opinion of the pure anatomist on the different types of pelvic deformity which have been identified by x-ray examination. The account of the anatomy of the pelvic floor is not, perhaps sufficiently detailed. The original work of Tandler and Halban has withstood the test of time and should be mentioned, and more emphasis might be placed on the publications of Curtis and his co-workers. Further, the pelvic fascia is not divided into the pelvic fascia proper and the endopelvic fascia. Amreich's work is not mentioned.

The chapter on the histology of the ovary is good, but Dr Jacoby should have emphasized more the work of Brewer and of Rock and Hertig, although all these authors are mentioned. The description of the pituitary hormones is excellent, and the author has shown a fine selectivity in delving through the literature. There is the usual difficulty in locating the limit of the lower uterine segment in the non pregnant uterus, but he might have mentioned Aschoff's anatomical internal os and his histological internal os. Operating gynaecologists would possibly welcome an accurate description of the small arteries and venous plexuses found in the vicinity of the cervix and upper part of the vagina and perhaps Dr Smout might consider including one in the next edition. The aetiology of prolapse is well described, although there may be differences of opinion about the direct supports of the uterus—for example the practical-minded gynaecologist might object to the statement that the vagina, the broad ligaments and the round ligaments should be regarded as direct supports of the uterus. Markee's work is recognized, and we notice with interest that the authors pay sufficient attention to Rakoff's work on the biology and histology of the vagina.

WILFRED SHAW

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Speech and Voice Correction* Edited by E Froeschels, M D (Pp 321 No price) New York Philosophical Library 1948

A review of recent knowledge by various authors

*The Problem Facing British Universities* By the Education Subcommittee of the Nuffield College (Pp 131 5s) London Geoffrey Cumberlege 1948

A study of the demands made on the universities

*A New Theory of Human Evolution* By Sir Arthur Keith (Pp 451 21s) London Watts 1948

A full exposition of the author's group's theory of evolution

*Experimentelle Triebdiagnostik* By L Szondi (Pp 308 68, Swiss francs) Berne Huber 1948

A classification and system of testing mental impulses

*Traité de Médecine* By A Lemierre et al Vols VIII and XI (Pp 545 and 1 166 1,400 and 2 500 francs) Paris Masson 1948

Parts of a textbook of medicine appearing in 17 volumes Vol VIII, liver and pancreas, vol XI disorders of blood vessels

*Hormones and Behavior* By F A Beach (Pp 365 \$6 50) London Hamish Hamilton 1948

An account of the influence of hormones on human and animal behaviour

*Wonderful Mrs Marriott* By J Bell (Pp 294 9s 6d) London Longmans 1948

A novel

*Management in Obstetrics* By A M Claye M D, F R C S, F R C O G (Pp 186 12s 6d) London Geoffrey Cumberlege 1948

A practical manual of management

*Taking the Cure* By R G Lovell, M D (Pp 93 10s) London Macmillan 1948

A book written to help the patient with tuberculosis

*Clinical Toxicology* By C H Thienes M D, Ph D and T J Haley, Ph D 2nd ed (Pp 373 22s 6d) London Kimpton 1948

Intended as a guide for the general practitioner

*Transactions of the Association of Life Insurance Medical Directors of America* Edited by J R Gudger M D Vol XXXI (Pp 220 No price) New York Recording and Statistical Corporation 1948

Includes articles on various aspects of medicine in insurance practice

*Diagnostic Procedures for Virus and Rickettsial Diseases* By various authors (Pp 347 \$4 00) New York American Public Health Association 1948

An account of laboratory methods

*About Cosmic Rays* By J G Wilson, M A Ph D F Inst P (Pp 144 8s 6d) London Sigma 1948

The detection and nature of cosmic rays described for the layman

*A Study of Hospital Administration* By F Hart and A J Waldegrave (Pp 188 15s) London Stevens 1948

A study of the administration of British hospitals immediately before the start of the National Health Service

*Almanaque de la Salud* (Pp 204 No price) Republica Argentina Secretaria de Salud Publica de la Nacion 1948

A popular exposition of hygiene and preventive medicine

*Treatment by Manipulation* By A G Timbrell Fisher M C, M B, Ch B, F R C S 5th ed (Pp 275 25s) London H K Lewis 1948

Much of the book has been rewritten to include new material

*Minor Surgery* By R J McNeill Love M S, F R C S 3rd ed (Pp 430 22s 6d) London H K Lewis 1948

A guide to hospital residents and general practitioners

## BRITISH MEDICAL JOURNAL

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## HUMAN FACTORS IN INDUSTRY

It is now coming to be understood that efficient production depends on industrial morale no less than on tools and equipment. Morale in industry depends in turn on mutual trust between manager and worker and on a sense of common responsibility and participation as much as on financial incentives. The re-equipment of industry necessary for increased output may take many years, but effects of great ultimate value, as well as more immediate results, may be obtained if a better use of human effort can be secured through an improvement in human relations in industry. In December, 1947, the Lord President of the Council set up a Panel on Human Factors, under the chairmanship of Sir George Schuster, as a permanent part of the Government's Committee on Industrial Productivity. This Committee advises the Government on the application of scientific knowledge in the present economic crisis and on the promotion of short-term research aimed at increasing output. The Panel's terms of reference<sup>1</sup> are "to advise the Committee regarding the directions in which productivity could be increased by the application of research into the human factors in industry and to make recommendations for further research in this field where called for." The British Medical Association appropriately invited Sir George Schuster to open a discussion on human relations in industry in the Section of Occupational Health at the Annual Meeting which was held in Cambridge last July, and his paper appears in the opening pages of this issue. In it he cogently presents one argument of importance to the medical profession. Industrial medical officers in different occupational groups can and should, through the intimate and individual nature of their vocation, have an important effect for good in the field of human relations. Medicine has already shown that it can contribute to the better deployment of human skill, there should therefore be an immediate and comprehensive expansion of occupational health supervision as part of the national plan for increasing productivity.

Sir George Schuster suggests that medicine can assist industrial productivity in three ways. The medical officer can attempt to fit the man to the job and the job to the man, he has the opportunities for sympathetic contacts with individuals, and he is in a position to plan and direct a positive health policy. But to fit the man to the job or the job to the man the profession must become more knowledgeable about work and working conditions than it is

at present. The doctor must be prepared to equip himself with a wide and intimate personal experience of industrial life. One immediate opportunity to do this comes through the study of disabled workers and the problems of their retraining and resettlement. Success in placing disabled men and women in suitable jobs through mutual co-operation means that relationships of the right sort are established. Industry, on the other hand, must pay more attention to the problem of fitting the job to the worker and also to its moral obligations towards him. Sir George Schuster and his Panel, in addition to planning new investigations, will no doubt consider how the results of past research can now be implemented in practice by managers. Some doctors may possess a deeper human understanding of individuals than others, but all need experience and training in how to link human understanding with the day-to-day realities of occupation and how to translate good will into action. The individual man at work offers a great scope for study with the purpose of providing detailed information about the meaning of individual differences and motives, and the basic importance of participation and satisfaction. Arising from this will come the need for a closer investigation of working groups, and for more knowledge of the intricacies of collective attitudes and of sources of discontent and unrest.

The necessity for making future managers aware of these issues is shown in a recent report of a committee set up by the Minister of Education<sup>2</sup>. Over 400,000 persons are "engaged in managerial functions" at present, and 12,000 recruits are required annually. For men already in jobs training is to be on a part-time basis, over one or two years. The proposed syllabus is ambitious, particularly where it covers the fields of occupational health and psychology, but evidently the scheme is now accepted by the Government. Thus the need to inculcate into industry the importance of the human factor and its relation to a positive health policy is obviously accepted in the highest quarters, and a great opportunity is therefore presented. It is imperative that industrial doctors, as well as managers, should receive further training in this same field, not necessarily in short, condensed courses, as has been the tendency, but spread over two to three years. Some scheme might be evolved for interchange of views and for pooling of experiences, perhaps by combined "schools" for managers and doctors. So far the medical faculties of our universities have shown little evidence of understanding how medicine might thus contribute to the national well-being. If the university departments of occupational health now being developed in various industrial areas are to be nationally effective they must give close attention to the need for postgraduate education in individual psychology and the practical application of studies in human relations in industry. If Sir George Schuster and his Panel agree with this proposal, a stimulating impetus, backed perhaps by the Treasury, might well be given to those responsible for postgraduate medical training.

Recently an encouraging account was published in *The Times* of the initial work of the Panel. It has set up a research advisory group with representatives of the Medical Research Council, the British Institute of Management, the

<sup>1</sup> *The Times* Aug 10 1948<sup>2</sup> *Education for Management* 1947 HMSO London<sup>3</sup> *British Medical Journal* Aug 28 p 436



Tavistock Institute of Human Relations, and the National Institute of Industrial Psychology. A programme of short-term research drawn up by this advisory group is now to be undertaken. The Medical Research Council has accepted responsibility for the administration of this work—with the exception of that undertaken by the British Institute of Management, which has its own sources of support—including administration of the necessary funds which will be provided specially by the Treasury for these investigations. The programme includes studies of productivity in certain Royal Ordnance factories, the design and measurement of human performance, the effects of ageing on industrial productivity, methods of joint consultation, intra-management relations, the status, selection, and training of foremen, and the effect on production of the size of the unit. Research will be carried out under the direct supervision of experienced workers from such places as the Cambridge Applied Psychology Unit of the MRC, the Nuffield Research Unit at Cambridge, and the Tavistock Institute of Human Relations. It has been, and still is, difficult to find the right field workers. There is a general lack of persons suitably versed in the social sciences, and few facilities appear to exist at present for training likely candidates.

A similar challenge to the medical profession has been made by another layman, Professor William Line, a psychologist from Toronto. Speaking recently at the International Congress on Mental Hygiene<sup>2</sup> in London on ways and means of promoting "mental health" in industry—another name for the human factor—he insisted that doctors must take the leadership in research. He saw the potential advantage of their neutrality in management-worker relationships, and argued that high ethical standards have to be maintained, that training for doctors entering industry is vital, and that research into all matters of occupational health may have repercussions, possibly where least expected, of considerable importance in the field of human relations. In this last respect he wisely suggested that investigations into the health of the juvenile at his place of work should be undertaken immediately. He would no doubt agree that no close plan of always having a doctor as the leader could be effective, leadership in this connexion depends on opportunity, the nature of the problem, and individual qualities. In one place the chemist may be the pivot, in another the sociologist. Professor Line is on more controversial ground, however, when he demands for the research worker an unqualified right to scrutinize the inside of industry. Such a demand, at least in so far as this country is concerned, must be qualified by appreciation of practical realities and difficulties. There are difficult problems here, and research, which is bound to be governed by the tempers and emotions of individual human beings, will be successful only when management at all levels and employees in all groups feel that they are themselves participating in the search for knowledge. The human factor in industry cannot be considered in isolation, nor can it be investigated on the laboratory floor. So it is more than ever important, if Sir George Schuster's research schemes are to materialize happily, that those taking part have a full appreciation of these fundamental issues.

## CONTROL OF DENTAL CARIES

A conference held last year at the University of Michigan was attended by dentists and others specially interested in the control of dental caries. In addition to hearing and discussing papers dealing with various aspects of the caries problem the delegates set up six evaluating committees to examine the literature and present reports embodying what seemed to them to be the most generally accepted present-day views. Had such a conference been held in this country a prominent place on the agenda would doubtless have been assigned to a discussion of the effect on the incidence of caries of dietary changes during recent years. It is perhaps not surprising that one finds no reference to this question in the report<sup>1</sup> of the American conference proceedings, but the paper by Lady Mellanby and Dr Helen Mellanby which was published in the *Journal* two weeks ago (p. 409) provides much valuable information on the subject. Previous reports<sup>2</sup> recorded the incidence of caries in the deciduous teeth of 5-year-old London children in 1929, 1943, and 1945, and this latest paper in the series brings the story up to 1947. Between 1943 and 1947 the proportion of children completely free from caries increased from 14.9 to 28.1%, and the percentage of deciduous teeth which were carious decreased from 30.1 to 20.3. The improvement in the period 1945-7 is shown to have been greater than in the period 1943-5, and the authors consider that this is due to the fact that "throughout the whole antenatal and post-natal life of the latest group of children examined, who were born between November, 1941, and October, 1942, the diet available has been of consistently better calcifying qualities than that of the subjects of the earlier surveys. The pre-eruptive diet has produced better-calcified teeth than were formerly observed, and the post-eruptive diet has tended still further to increase the already higher resistance of these teeth to caries."

While there was some support at the Michigan conference for the view that teeth are more susceptible to caries when formed during a period of deficient vitamin-D intake, the members of the evaluating committee to which this subject was assigned felt unable to consider it as established that the vitamin-D content of the post-eruptive diet has any influence on the prevention or retardation of dental caries. Even during the period 1945-7 the majority of the children examined by Mellanby and Mellanby were by no means free from caries, and they suggest, as a result of a small-scale inquiry which they carried out, that many mothers did not obtain all the special foods which they might have had. This could be confirmed by an inquiry on a larger scale, but the finding would be of little value unless an investigation were also made with the object of discovering whether or not the incidence of caries tends to be higher in those children whose mothers do not fully utilize the available supplements than in those whose

<sup>1</sup> *J. dent. Res.*, June 1948.

<sup>2</sup> Mellanby M., and Coumoulos H. *British Medical Journal* 1944, 1, 837 and 1946, 2, 565.

<sup>3</sup> Knowles E. M. *Mon. Bull. Min. Hlth.*, 1946, 5, 162.

<sup>4</sup> Bibby B. G., *Tufts Dental Outlook*, 1942 May 6.

<sup>5</sup> Weaver R. *Brit. dent. J.* 1944, 76, 29.

<sup>6</sup> Weaver, R. *ibid.* 1944, 77, 185.

mothers do avail themselves of all the supplements to which they are entitled. It has been generally believed that the diet available for the population of the Channel Islands during the enemy occupation was much inferior to that in Great Britain, and yet Knowles<sup>3</sup> has recorded that in 1945 as many as 51% of the children aged 3-7 years remaining in the Islands had complete dentitions free from caries, while the figure for children of the same age group evacuated to this country was only 11%.

Dental hygienists have been widely employed in the USA for a good many years, and there is therefore special interest in the statement by one of the Michigan evaluating committees that there is no statistical evidence that prophylactic cleaning three or even more times a year will reduce the caries-attack rate. Some years ago Bibby<sup>4</sup> expressed the view that it was futile to try to control dental caries by prophylactic treatments of the conventional sort, and he suggested that advocacy by the dental profession of such treatments as a method of caries control was to be deprecated as something which would redound to the discredit of dentistry. Suggestions for legalizing the employment in this country of hygienists on the same lines as in America have alarmed some members of the dental profession, who see in this proposal a "weakening" of the Dentists Act, 1921, but such fears should not prevent amendment of the Act if the work of hygienists were of proved value. There are, however, other members of the profession who have always found it difficult to see how prophylactic cleaning, however thoroughly carried out, at intervals of some months could possibly influence the caries-attack rate. It should be noted that the Michigan statement refers only to reduction of caries incidence, it leaves it still open to the advocates of the employment of hygienists to claim that periodical prophylactic cleaning produces other results of value.

The subject which seems to have attracted more attention at Michigan than any other was the use of fluorides for the control of caries. The caries-inhibiting property of drinking water which naturally contains 1 part per million or thereabouts of fluorine is now established beyond dispute. It would be surprising if artificial fluorination of water to that extent failed to produce the same effect on caries incidence, but proof must await the outcome of the fluorination experiments which are now in progress in certain localities in the USA and Canada. Meantime enthusiasm in those countries for the topical application of fluoride solutions to the teeth seems to be increasing. There have been numerous reports in which it is claimed that three or four applications of sodium fluoride solution, usually in 2% strength, have reduced the incidence of caries by about 40%. There appears to be a reluctance on the part of the enthusiasts to consider whether their topical applications really prevent the development of caries or merely postpone its onset. Weaver<sup>5</sup> recorded the incidence of caries in the permanent teeth of 12-year-old children in South Shields as being only 56% of the corresponding figure for North Shields children, and he was eventually satisfied that the lower incidence in South Shields was due to fluoride in the drinking water. Further investigations,<sup>6</sup> however, led him to conclude that this apparently remark-

able reduction was not evidence of real prevention of caries but merely of postponement, and only for the relatively brief period of three to five years. It is possible that others who believe they can "prevent" caries might have to modify their views if they were to subject their findings to the same kind of examination as was applied to the South Shields figures. That examination showed that the incidence of caries in 15-year-old pupils in South Shields was approximately the same as the incidence in 12-year-old pupils in North Shields. Expressed in that form the findings may justify a moderate degree of satisfaction, but certainly not enthusiasm.

## ARTIFICIAL INSEMINATION

The commission on artificial human insemination appointed by the Archbishop of Canterbury has just issued its report.<sup>1</sup> A document sponsored by such authorities as Dr J W C Wand, the Bishop of London, Professor E O James, and Professor R C Mortimer for the Church, with Dr E A Bennet and Miss Louisa Martindale for medicine and Mr Justice Vaisey and Mr H U Willink, KC, for the law, is certain to command attention, and this is in fact a highly informative study of a very difficult subject.

All the members were agreed that when the procedure can properly be described as "assisted insemination"—that is, as a sequel to normal or attempted normal intercourse between husband and wife—it may be justified. With Professor Mortimer dissenting, the commission further found that when "assisted insemination" is inapplicable or ineffective other methods of using the husband's semen may be employed, even if there is no practicable alternative to masturbation. All the members except the Dean of St Paul's, Dr W R Matthews, were agreed that artificial insemination with donated semen (AID) brings about a breach of the marriage: it violates the exclusive union set up between husband and wife, defrauds the child begotten, and deceives both his putative kinsmen and society at large. For donor and recipient the sexual act loses its personal character and becomes a mere transaction. For the child there must always be the risk of disclosure, deliberate or unintended, of the circumstances of his conception. The commission, again excepting Dr Matthews, therefore judged AID to be wrong in principle and contrary to Christian standards. Moreover, following the advice of the legal members, who contributed a special section to the report and, incidentally, on the authority of Mr Justice Vaisey and the Rt Hon H U Willink, condemned the memorandum issued by the Medical Defence Union as "superficial and indeed grossly misleading," criticism to which Dr Robert Forbes replies elsewhere in this issue (p 530), a majority of the commission added that the evils involved in AID were so grave that early consideration should be given to the framing of legislation to make the practice a criminal offence.

This extreme condemnation reads somewhat incongruously in contrast with the impartiality, almost approaching sympathy, with which AID is handled in the body of the report. Such evidence as was available from practitioners who had used the technique was considerably in favour of AID in suitable cases, and the opposition, apart from that of the legal members, was almost entirely founded on conjecture.

<sup>1</sup> *Artificial Human Insemination* 1948. London: SPCK. Pp 70. 2s. 6d.

From this point of view the note contributed by Dr Matthews, the dissentient member, is especially interesting. While deferring to the legal opinion, he suggests that if AID is now contrary to law any further legislation may be unnecessary, and that a law imposing penalties would be difficult to enforce without the cordial co-operation of the whole medical profession, which might not be obtainable. He considers the commission to have been too eager to reach final and absolute judgments on a matter which is as yet imperfectly understood. He confesses repugnance to the whole idea of artificial insemination as tending to reduce life to mechanism and to degrade our conception of personality. Some of the conjectural ill-effects of AID seem to him, however, unlikely to occur, and he sees no reason to suppose that the psychological difficulties arising from it would be different from or more acute than those observed in adopted children. The real question in his view is whether AID can ever be morally justified, if it is to be condemned absolutely, it can on no conditions ever be right. He is not convinced by the theological argument, preferring to deduce moral laws from the Christian ethic of love rather than from a changeable theology or from a supposed law of nature. He also deprecates the adoption by Christian teachers of the "crassly materialistic" hypothesis on which the lawyers call AID adulterous when carried out at the request of the husband and with due precautions against injustice to others. The spiritual elements which constitute the sin of adultery are, he judges, absent. Without being in any way an advocate of AID, he has in fact stated the case for it about as strongly as it could be stated fairly in the present condition of our knowledge. Whichever of these two views the reader prefers, and whatever criticisms may be made of the conclusions of the majority of the commission, this report is bound to stand for a long time to come as an outstandingly able summary of this complicated question.

### POST-GASTRECTOMY SYNDROME

In a proportion of cases a syndrome of varying degrees of severity may follow partial gastrectomy, post-prandial symptoms of dizziness, palpitation, sweating, epigastric discomfort, and a feeling of extreme weakness progressing on occasions to complete loss of consciousness are the usual symptoms. They may appear thirty to sixty minutes after meals or may not appear for two to three hours. They have generally been attributed to hypoglycaemia following the rapid rise and fall in the blood sugar after the relatively undelayed passage of a carbohydrate meal into the small intestine. Barnes<sup>1</sup> reported three patients who, after gastrectomy, developed crippling symptoms of hypoglycaemia coming on two to three hours after meals. Gilbert and Dunlop<sup>2</sup> supported this theory, but in both the cases they record in detail the correlation of the symptoms with the fall in blood sugar was unconvincing, for the symptoms came on quite soon after meals. Adlersberg and Hammerschlag<sup>3</sup> suggest a way out of the difficulty by dividing the post-gastrectomy syndrome into two types. In the early type, which corresponds to the so-called "dumping" syndrome, the symptoms appear soon after a meal and are possibly due to mechanical factors, the small stomach emptying its contents rapidly into the small intestine. Small meals and lying down after them gave relief. The late type, coming on after several hours, was relieved by food and attributed to hypoglycaemia, which

followed the initial hyperglycaemia resulting from the rapid passage of carbohydrate into the intestine.

Elsewhere in this issue (p 514) Dr W T Irvine reports the results of his investigation of 24 patients who developed early post-prandial symptoms following partial gastrectomy. The symptoms were particularly obvious after big meals, which suggested a mechanical factor—an idea supported by the patients, who found that they could reduce the symptoms by limiting the bulk of the main meal. To elucidate the relative parts played by mechanical effect and by hypoglycaemia the results were compared of giving 50 g of glucose in water on one day and a bulk meal containing very little carbohydrate (6 g) on the following day. Serial blood-sugar estimations were made and the presence of symptoms recorded. In 16 out of the 24 cases the symptoms were more pronounced after the bulk meal, in four the severity of the upset was equal, and in the remaining cases the glucose drink caused most discomfort. It seemed, therefore, that bulk rather than the carbohydrate content was to blame. Hypoglycaemia was certainly not responsible, as all the symptoms occurring after the glucose drink were associated with a normal or raised blood sugar. Irvine's observations therefore support Adlersberg and Hammerschlag's contention that mechanical factors are responsible for the early symptoms. All his patients, however, had been operated on recently, and none had developed the late post-prandial symptoms which come on two to three hours after a meal. It is possible that these may not appear until months or several years after the partial gastrectomy, as in the three cases described by Barnes. There seemed to be no doubt that his patients were suffering from hypoglycaemia. The fact that the early and late post-prandial symptoms are similar does not exclude the possibility of two different mechanisms being responsible. Irvine suggests that adrenaline over-secretion may be produced by distension of the gut, and there are certainly points of symptomatic similarity between hypoglycaemia and excess of adrenaline secretion. This conception is of particular interest in view of the similar syndrome which is known to follow vagotomy for duodenal ulcer, and careful observation of these cases is indicated. A further study of early and late post-prandial symptoms is needed in correlation with different types of gastrectomy.

### NINTH INTERNATIONAL CONGRESS ON INDUSTRIAL MEDICINE

The Ninth International Congress on Industrial Medicine is being held in London from Monday, Sept 13, to Friday, Sept 17. The Congress is held under the auspices of the Commission Internationale Permanente pour la Médecine du Travail, which was founded by Luigi Devoto in Milan in 1906 to study questions concerning industrial medicine and to establish permanent relations between those who work in this field in different parts of the world. The original aim of the Commission was to hold congresses at regular four-yearly intervals, but two world wars have interfered with this plan. The last Congress was held in Frankfurt in 1938.

The opening session of the Congress next week is to be held in the Central Hall, Westminster, SW 1, at 11.30 a.m. on Monday, when the chair will be taken by Lord Moran, P.R.C.P., and the inaugural addresses will be given by the Rt Hon G A Isaacs, M.P., Minister of Labour and National Service, and Mr T E A Stowell. At the closing session, also in the Central Hall, at 2.30 p.m. on Friday, with Lord Webb-Johnson, P.R.C.S., in the chair,

<sup>1</sup> *Lancet* 1947 2 536

<sup>2</sup> *Surgey* 1947 21 720

<sup>3</sup> *British Medical Journal* 1947, 1, 330

addresses will be given by the Rt Hon G R Strauss, M P, Minister of Supply, Sir Ewart Smith, Professor P Mazel, and Professor L Carozzi. The very full programme which begins on Monday afternoon is divided into a number of sessions concerned with the various aspects of industrial medicine, and for the first time in the history of the Congresses the subject of industrial nursing has been included. Delegates from over 23 countries are attending the Congress, and it is hoped that there will be at least 1,000 delegates present during the week.

Those diseases of the lungs caused by metals and organic material will be discussed, and special attention will be paid to the pneumoconioses. Recent advances in the study of the problem as it affects the coal-mining industry in Great Britain, particularly in South Wales, will be described by a team of workers whose contributions to the study of this condition are already well known. Such distinguished workers as Professor Philip Drinker, of the United States, and Dr A J Orenstein, of South Africa, will receive an especially warm welcome from the British Organizing Council. The study of disease prevention, which is the keynote of industrial medicine, will be given special consideration, and one session has been devoted to preventive methods in mining. Experts from a number of countries are to read papers on the organization of industrial medical services, on the training of industrial medical officers and industrial nurses, and on the medical content of the law as it applies to industrial medicine. The study of the industrial environment, chemical, physical, and psychological, will be amply covered, and five sessions will be devoted to the study of industrial toxicology and the effects of the newer metals. There will also be a discussion on the hazards of radiant energy and their prevention. A new feature in the programme is the inclusion of a session on architecture in its relation to the industrial environment, and two specialists in this field will be speaking on the subject as it affects both miners and industrial workers. Papers on the highly specialized subjects of industrial diseases of the skin and of the eyes will be presented by experts in this field. At the close of the Congress the Mackenzie Industrial Health Lecture on the surgeon in industry will be given by Mr H E Griffiths in the Great Hall at B M A House.

At no time in our industrial history have the health, happiness, and efficiency of the industrial worker been of greater significance than they are to-day. Sir George Schuster's views on human relations in industry are presented at length in the opening pages of this issue and are the subject of comment also in our first leading article. At the Congress the problems of human relations, of incentives, skill, job adjustment, and absenteeism will be reviewed by experts from the United States, Canada, Great Britain, France, and Belgium, and important papers will be read by Professor Elton Mayo and Professor Sir Frederick Bartlett.

#### "BRITISH JOURNAL OF INDUSTRIAL MEDICINE"

Next month the *British Journal of Industrial Medicine* will have completed five years of life, and it seems appropriate, when the Ninth International Congress of Industrial Medicine is about to meet in London, to review its achievements. The enthusiasm of a small group of members of the Association of Industrial Medical Officers led by Dr Donald Stewart in Birmingham was responsible for the creation of the journal and it was a considerable

achievement to start a new journal in 1944—the fifth year of a world war. Sir Henry Bashford, then medical adviser to the Treasury, was the first editor, and it was under his guidance that the pattern of the journal was set. The first number contained articles on statistics, toxicology, environment, nutrition, and orthopaedic surgery. This in itself shows what a wide field had to be covered. The medical problems of such different industries as shipping, ship-building, chemicals, mining, catering, agriculture, and retail trading cannot be confined in a narrow specialty, and there is no branch of medicine which has not some representation in this journal.

Sir Henry Bashford resigned the editorial chair before the first number appeared in print and his place was taken by Dr Donald Hunter, whose indefatigable energy has carried the journal over every sort of obstacle from paper control to printing strikes, so that it is now a flourishing concern with a large circulation.

The journal has often had to face the criticism that it devotes too much attention to toxicology, but there have never been any grounds for this opinion, in fact out of 117 articles only 25 have been concerned with industrial toxicology. The wide scope of the journal is also shown by the diverse interests of the editorial committee, which includes a statistician, an orthopaedic surgeon, a toxicologist, a chest physician, a ventilating engineer, a professor of industrial medicine, and others interested in the social aspects of the subject. There have been many articles on the prevention of accidents, a topic regarded as of great importance by the Ministry of Labour and frequently discussed in the annual reports of the Chief Inspector of Factories. There have, however, been very few from the surgeons on the treatment of these accidents, and it is to be hoped that much more attention will be given to this subject. The excellent Liverpool Docks Medical Service has shown that efficient treatment of minor injuries can save an enormous amount of human suffering and disability. Besides the original articles the journal publishes book reviews, summaries of British and foreign official publications, proceedings of the Association of Industrial Medical Officers, and, by collaboration with *Abstracts of World Medicine*, an abstract edition, which is of value in keeping the industrial medical officer informed of work in foreign countries. From time to time critical reviews have appeared. The first, by Dr Thelwall Jones, of Liverpool, was on the subject of "Industrial Dermatitis." This was followed by the "Toxicology of the Newer Metals," an authoritative and complete account of a developing subject by Dr Lawrence Fairhall, of the United States Public Health Service, "Health Hazards of the Pharmaceutical Industry," by Dr R M Watrous, of Abbott Laboratories, Chicago, and the "Effects of Climatic Extremes," by Dr Macdonald Critchley.

Clearly the *British Journal of Industrial Medicine* is already playing a useful part in disseminating knowledge and in promoting interest in this growing specialty. Another annotation in this issue gives some account of the programme for the Ninth International Congress on Industrial Medicine. It is hoped to publish in the near future a special issue of the *BJIM* with papers and reports from the more important sections of the Congress.

Dr F M R Walshe, F R C P, F R S, will deliver the Harveian Oration before the Royal College of Physicians of London (Pall Mall East, S W) on Monday, Oct 18, at 3 p m. His subject is "The Structure of Medicine and its Place among the Sciences."

## THE FACTORY NURSERIES

BY

W E CAVANAGH, BSc (Econ), DPA

Since the end of the war a great many of the wartime nursery schemes operated by local authorities have dwindled or vanished altogether. This may be partly because the general public pressure in favour of nurseries has lifted and also because a more cold-blooded examination of the position has thrown doubt upon their value as a contribution to the solution of problems of labour shortage.

The main interest of the maternity and child welfare department of the authority is in the welfare of the child, not the economic productivity of the mother, and it is often the most necessitous rather than the most highly skilled mother whose child is admitted to the council nursery. From the point of view of labour supply there are too many loop holes, and it is not always possible for the nursery to maintain an accurate check on the attendance of the mothers at work or to evaluate the comparative national importance of the proposed employments of those on the waiting list. In addition the expense of the nurseries is very great and now falls to a far larger extent upon local funds than during the period of the wartime special grant. The local authorities are therefore showing some resistance to Government efforts to persuade them that it is the duty of the local ratepayer to make a substantial contribution for a generalized, and doubtful, return.

While the number of nurseries has declined, it is worth noting that this has been accompanied by a considerable increase in the number of nursery classes provided by the education authorities in the schools as part of the education service, and a great expansion of the school meals service. The staff used in the nursery classes is in the ratio of one to every seven or eight children as against one to four in many of the day nurseries but otherwise some of the same objections apply, far more serious is the difficulty that they do not accept children under 2, and that they are normally open only during the usual school hours and during term time. They cannot take the place of the day nursery.

These changes have taken place simply as part of our general peacetime plan for normal social services. They are not intended to relate to our present situation, which is such that we are fighting for our lives in the export markets of the world and our labour supply position is worse than at almost any time during the war. Except in areas with a high concentration of export industries the picture does not present itself to the public mind with the sharpness of its ominous reality, and it is doubtful whether public opinion on the restarting of large-scale nursery schemes by the local authorities would in most areas be more than lukewarm, if not actually hostile. Against this background of doubt and hesitation a new development is being tried out on an increasingly large scale—the factory nursery.

Here the employer is responsible for the whole expense beyond what can be charged to the mother, and the cost is still near the 35s mark. Charges are low, and usually not on a sliding scale but on a flat rate varying from 1s to 2s per day in different factories for a five day week. This means that a net cost of 25s to 30s per child is being borne by the firm. In spite of this great expense the North-West Region, which contains almost all the factory nurseries now opened, presented the following picture at the time of going to press.

*Factory nurseries*

Open	66, providing	2,549	places
About to open	23, "	875	"
In project stage	15, "	570	"
	Total	3,994	"

Private firms do not lightly incur such costs as these. Their interest is in the freeing of mothers for factory work, and the schemes are well worth examination from the labour supply point of view.

### Administration of Nurseries

The key points are, of course, the staff used and the mothers released. Each factory need open its nursery only for the period covering its own full time day and can therefore usually manage to run on the number of staff officially recommended by the Ministry of Health—i.e., one to every five children. Many factories have maintenance and service staffs and a doctor actually on the spot or near at hand, and these can often include the nursery in their normal day. Nurseries may draw their food from the factory canteen and neither buy nor cook their own. The nursery is appropriately sited in the sense that no extra travelling time is required, and some firms collect the mothers and babies in a special bus each morning. The mother can often see the nursery garden and playroom from the windows of the factory.

The employer has a direct interest in seeing that the nursery is used by the mothers most valuable to him and will even hold a place open, refusing the applications of the less skilled if he has hopes of securing a worker in a higher category. He has also the best means of knowing exactly what work the mother is doing and whether she is actually at work. He does not allow the mother who takes a day off for shopping or an afternoon at the pictures to use the nursery while she does so, nor can she usually send the child while she is sick, since it is not primarily a welfare service but a very costly method of getting labour.

Most of the factory nurseries take only one child from each family as a rule, but some categories of labour (e.g., drawframe tenters in the ring spinning industry) are so vital—since their absence can cause a bottle-neck affecting a wide range of subsequent processes and numbers of other workers—that an employer may be prepared to incur the expense of two or even three children rather than lose the mother. There are similar instances of nurseries taking a child of over nursery age during the school holidays, or the child of a male key worker whose wife is sick and could not attend to it.

The nurseries are being allowed to recruit helpers of all ages over 15, and it is an interesting fact that while almost all other occupations can offer vacancies but cannot fill them the factory nurseries have no difficulty in obtaining staff. Some employers are even able to vary their staff from week to week according to the numbers of children being accommodated.

Most of these helpers are between 17 and 40 years old and could theoretically be employed in factory work themselves. They are unskilled, however, and presumably unwilling, and their usefulness would be small as compared with that of the mothers they now release. The more highly skilled the work in the area the more worthwhile the nursery becomes. In some areas where nearly all the work is skilled or at least requires a degree of dexterity only acquired after long practice as much as two thirds of the labour force is female and up to 80% of these are married. In the case of cotton a record of prolonged unemployment and bad conditions in the past has diverted the juvenile entry to other occupations. Until the new attractions of higher pay, shorter hours, more modern machinery, much better working conditions such as exist at many undertakings now, together with the new gain in national prestige, have had time to take effect, the outward flow will not be reversed. This may take a decade, and it is difficult to see what in the meantime is the acceptable alternative to nurseries. The size of the labour pool which they can hope to tap is indicated by the success of the housewives' evening shifts and the long waiting lists at all the nurseries.

There are areas where the labour-supply advantages of even the factory nurseries are not quite so clear—e.g., where the released mothers are doing work which is not so skilled that it could not be done by young unmarried women at present working in the nurseries. It must be realized, however, that the two groups—staff and mothers—have sorted themselves out into those who, on balance, prefer nursery to factory work and those who are willing to go into the factory. It is possible to criticize this solution from the point of view of the children, even against a background of bad and overcrowded housing conditions, low rations, and the difficulty of meeting the high cost of living beyond bare necessities out of one income. But those who do so must also face the realities of the present situation. They must be prepared to consider the alternative.

of a return to wartime control of labour, of direction of women to work of the highest priority only, however "unsuitable," and of juveniles into the undermanned industries, whether in their own home towns or away, and the further alternative of much longer hours for men of all ages

### Registration with Local Authority

There has been strong criticism of the nurseries themselves. Reference has been made in Parliament to "cases of bad overcrowding, premises deficient in ventilation or sanitary accommodation," and staff "completely untrained and not suited to the work." The Ministry of Health, though able to give priority in certain areas for building materials, etc., has otherwise had no more than an advisory function and could neither inspect nor control such nurseries.

The Nurseries and Child-Minders Regulation Act, which received the Royal Assent a few weeks ago, now lays the responsibility squarely upon the shoulders of the local welfare authority and the local medical officer of health. Nurseries are in future to be registered with the local authority, whose authorized representative may enter the premises at all reasonable times, if necessary on a warrant from the justices. The local health authority may require the appointment to the staff of persons qualified as they may specify and in such numbers as they decide. They can also require the adequate maintenance and equipment of the nursery, medical supervision of the children, and an adequate and suitable diet.

As one MP remarked voicing the general opinion "the regulations are wholly desirable." Nothing is required to be done before the expiration of a "reasonable time" from the commencement of the Act, and as the greatest difficulty is likely to be that of obtaining trained staff the interpretation of a "reasonable time" must be liberal. Present economies of labour due to the supply of meals from the factory canteen may also disappear in some cases. But the advantages of the factory nurseries in regard to siting and maintenance are solid, and the vital fact that the employers, who bear the cost, also select the users should ensure that they continue to make a real contribution to the solution of our labour problem.

## STREPTOMYCIN TREATMENT OF TUBERCULOSIS

### MINISTRY OF HEALTH STATEMENT

The allocation and distribution of streptomycin will henceforth be on a regional basis. The beds will be so staffed and equipped as to ensure the necessary scientific control of the treatment. It is therefore hoped that, so far as possible, doctors having suitable patients will endeavour to admit them to these beds.

In view of the recent and proposed future extensions of the scope of streptomycin treatment of tuberculosis in this country it is desirable that all who are likely to use the drug should be aware of certain limitations and dangers associated with its use. Even for the three types of tuberculosis (acute miliary, meningeal, and ulcerative tracheo-bronchial and laryngeal) for which streptomycin constitutes the best treatment yet found and appears to produce a cure, this is only in a minority of the meningeal cases, and it certainly does not produce 100% cures in miliary cases. Clearly, streptomycin is not a panacea even in these forms of the disease. By far the most important toxic effects of streptomycin are vestibular changes, compensation for which is visual and cannot therefore be achieved in a poor light.

The production of streptomycin-resistant strains of *M. tuberculosis* is, however, the greatest potential danger because it is two-edged. Thus a patient with very early pulmonary disease who might have responded to other recognized forms of treatment alone but who is given streptomycin "prematurely" may be found, in the event of relapse or extension of the disease, to be beyond the reach of streptomycin treatment. From the public health point of view there is clearly a risk of old chronic cases spreading infection with streptomycin-resistant strains—so that patients acquiring meningeal or miliary tuberculosis from them cannot hope, in their turn to be benefited by streptomycin treatment.

### HOSPITALS IN SPECIAL SCHEME

- A Tuberculous meningitis and acute miliary tuberculosis,  
B Tracheo-bronchial tuberculosis

An asterisk indicates university hospital centres

#### Newcastle Region

	Beds
A *Royal Victoria Infirmary, Newcastle	18
City Hospital for Infectious Diseases, Walkergate, Newcastle	12
Sunderland Royal Infirmary	?
Fleming Memorial Children's Hospital, Newcastle	2
Newcastle General Hospital	12
Poole Sanatorium, Nunthorpe, Middlesbrough	6
Phillipson Children's Sanatorium Stannington	12
Cumberland Infirmary and I.D. Hospital	6
B Poole Sanatorium, Nunthorpe, Middlesbrough	?
City Hospital for Infectious Diseases, Newcastle	?
Cumberland Infirmary	?

Regional Distribution Centres —(a) Newcastle General Hospital, Mr Wing, Chief Dispenser (Newcastle 35211) (b) Pathology Laboratory, Cumberland Infirmary, Carlisle Dr Faulds (Carlisle 590) (c) Newcastle Royal Victoria Infirmary Dispenser (Newcastle 25131)

#### Leeds Region

A *General Infirmary, Leeds	2
*St James's Hospital, Leeds	6
*Seacroft Hospital	5 co
*Pinderfields Hospital, Wakefield	10
*Killingbeck Sanatorium	6
Hull Sanatorium, Cottingham	6†
York City Hospital	3
Scotton Banks Sanatorium, Knaresborough	6†
Middleton Sanatorium Ilkley	6†
Grassington Sanatorium	4† + 2 co
St Luke's Hospital, Bradford	6
Huddersfield Royal Infirmary	3
Halifax General Infirmary	3

Regional Distribution Centre —Leeds Blood Transfusion Laboratory, The Bridle Path, York Road, Seacroft, Leeds Dr T Marshall (Leeds 45091-2-3)

#### Sheffield Region

A *Children's Hospital, Western Bank, Sheffield	Sheffield Group	12
*Royal Infirmary, Sheffield		
*Royal Hospital, Sheffield		
City General Hospital, Sheffield		
*Lodge Moor Isolation Hospital		
*Winter Street Hospital		
Derby Isolation Hospital		1
Nottingham General Hospital		6
Nottingham City Hospital		
Leicester City General Hospital		3
Lincoln County Hospital		4
B *Sheffield Group (as above)		12
Ransom Sanatorium, near Mansfield		10
Newstead Sanatorium, Mansfield		4
Leicester City Isolation Hospital and Sanatorium		12
Bransdon Hall Sanatorium, Lincoln		5
Grimsby Corporation Hospital		5

Regional Distribution Centre —City Hospital, Hucknall Post, Nottingham Dr W Morton (Nottingham 66292)

#### East Anglian Region

A *Addenbrooke's Hospital, Cambridge	10
Ipswich and East Suffolk General Hospital	4
Norfolk and Norwich General Hospital	4
Peterborough Memorial Hospital	4
B Papworth Sanatorium	6
Kelling Sanatorium	6
White Lodge Hospital, Newmarket	4

Regional Distribution Centre —Addenbrooke's Hospital Cambridge Mr Hopkins, Chief Pharmacist (Cambridge 4451)

#### North-West Metropolitan Region

A *Middlesex Hospital	8
*St Mary's Hospital	10
*Hospital for Sick Children, Gt Ormond Street	8
*University College Hospital	8
*Royal Free Hospital	10
*Charing Cross Hospital	10

†Including tracheo-bronchial  
‡Tracheo-bronchial only



*North West Metropolitan Region (continued)*

	Beds
Archway Hospital	3†
Highgate Hospital	3†
Clare Hall Hospital	6†
Royal Northern Hospital	6†
King Edward VII Hospital, Windsor	6†
Central Middlesex Hospital, Park Royal	6†
Ashford County Hospital	6†
Paddington Hospital	6†
Hillingdon Hospital, Uxbridge	6
Lister Hospital, Hitchin	4
Redhill Hospital, Edgware	2 cots§
Colindale Hospital, Hendon	6
Northern Hospital, Winchmore Hill	6
Harefield Sanatorium	6
St Charles Hospital, Kensington	6
West Middlesex Hospital, Isleworth	6

*Regional Distribution Centre*—West Middlesex Hospital, Twickenham Road, Isleworth Miss Bristowe (Hounslow 2311)

*North East Metropolitan Region*

A *St Bartholomew's Hospital	8
*London Hospital	8
Black Notley Hospital	6
Broomfield Hospital	6
Oldchurch Hospital	6
Mile End Hospital	6
North Middlesex Hospital	6
Highwood Hospital	6
Herts County Hospital	3
The Herts Sanatorium Woodford Green	3
Southend Municipal Hospital	3
Hackney Hospital	3

*Regional Distribution Centre*—Mile End Hospital, Bancroft Road,

E 1 Dr Sears, Physician Superintendent (Advance 2873/7)

*South East Metropolitan Region*

*Guy's Hospital (and at Evelina Hospital for Children)	12
*King's College Hospital	5
Grove Park Hospital	10†
Park Hospital	4
Kent and Canterbury Hospital	8†
Farnborough Hospital	8†
Eastbourne Hospital	2
Tunbridge Wells Hospital	}
Kent and Sussex Hospital	
Pembury Hospital	
Brighton Sanatorium	6†
Joyce Green Hospital	6†

*Regional Distribution Centre*—Grove Park Hospital, Lee, S E 12  
Dr M H Logg (Lee Green 1547)

*South West Metropolitan Region*

A *St Thomas's Hospital	8
*St George's Hospital (Victoria Hospital for Children, Tite Street, and Atkinson Morley Hospital, Wimbledon)	10
*Westminster Hospital	4
Royal South Hants and Southampton Hospital	8
Royal Victoria and West Hants Hospital, Bournemouth	6
St Peter's Hospital, Woking	6
B Royal National Hospital for Diseases of the Chest, Ventnor, Isle of Wight	12
Milford Sanatorium, Godalming	12

*Regional Distribution Centre*—South London Blood Supply Depot, Benhill Avenue, Sutton Dr E G Murphy (Vigland 0068)

*Oxford Region*

A *Oxford United Hospitals (Radcliffe Infirmary, Churchill Hospital)	7
Northampton Hospital Group	4
Reading Hospital Group	10
Aylesbury Hospital Group	2
B *Oxford United Hospitals (Oster Pavilion)	8
Peppard Sanatorium	26
Creaton Sanatorium, Northants	15
Rushden Sanatorium, Kettering	8

*Regional Distribution Centre*—Churchill Hospital, Oxford Mr Trillwood, Chief Pharmacist (Oxford 48651)

†Including tracheo bronchial crises

§Meningitis only

||Miliary and tracheo-bronchial crises

*South Western Region*

A *Bristol General Hospital	12
Winsley Sanatorium, Bath	6
Ham Green Hospital and Sanatorium, Bristol	8
Hawkmoor Sanatorium, Bovey Tracey, Devon	6
B Winsley Sanatorium, near Bath	6
Ham Green Hospital and Sanatorium, Bristol	12
Hawkmoor Sanatorium, Bovey Tracey, Devon	6

*Regional Distribution Centre*—Ham Green Hospital and Sanatorium, Bristol Dr J Macrae (Bristol 31165)

*Wales Region*

A *Cardiff City Isolation Hospital	20
North Wales Sanatorium, Denbigh	10
Glan Ely Hospital, Cardiff	5
Hill House Isolation Hospital, Swansea	10
B Sully Hospital, Glamorgan	6
North Wales Sanatorium Denbigh	6

*Regional Distribution Centre*—Cardiff City Isolation Hospital Cardiff Dr Emrys Harries (Cardiff 960)

*Birmingham Region*

*Children's Hospital, Birmingham	}	25
*Queen Elizabeth Hospital, Birmingham		
*General Hospital		
*Women's Hospital		
Selly Oak Hospital		12
Dudley Road Hospital		9
North Staffordshire Royal Infirmary		8
Little Bromwich Hospital		6
Yardley Green Road Sanatorium		6
Wolverhampton Royal Hospital		4
Coventry and Warwick Hospital		4
Royal Salop Infirmary		4
Whitley Isolation Hospital, Coventry		4
Hereford County Hospital		3
Worcester Royal Infirmary		2
Warneford Hospital Leamington		2
Burton General Infirmary		1

*Regional Distribution Centre*—Selly Oak Hospital, Birmingham Mr R P S Kelman, Medical Superintendent (Selly Oak 1361)

*Manchester Region*

A *Royal Infirmary, Manchester	12
Preston Royal Infirmary	6
Hope Hospital, Salford	6
Park Hospital, Davyhulme, Manchester	4
Royal Infirmary, Bolton	6
Boundary Park Hospital, Oldham	6
Booth Hall Hospital, Manchester	4
Baguley Sanatorium, Manchester (long stay)	6
B Baguley Sanatorium Manchester	6
Elswick Sanatorium, Fylde	4

*Regional Distribution Centre*—Manchester Royal Infirmary A J B Lloyd, Chief Pharmacist (Ardwick 3300)

*Liverpool Region*

A *Alder Hey Children's Hospital, Liverpool	7
*Royal Southern Hospital, Liverpool	5
*Royal Liverpool Children's Hospital	4
Fazakerley Sanatorium	4
Fazakerley Infectious Diseases Hospital	3
Clatterbridge General Hospital, Bebington, Cheshire	4
Royal Infirmary, Liverpool	3
B Fazakerley Sanatorium	20

*Regional Distribution Centre*—Fazakerley Sanatorium, Liverpool Dr O F Thomas, Medical Superintendent (Aintree 2324)

The Medical Protection Society records in its recently issued Annual Report that 1,501 new members have been elected. The short accounts of legal proceedings taken against medical men during the year—an inevitable and indeed increasing burden on our profession—are as instructive as ever. The Report comments on the large number of cases being reported where a syringe needle has broken in the tissues of the patient. The Society has such needles examined by a metallurgist, and it appears that the fault lies almost invariably with the needle. Practitioners are reminded that iodine should not be brought into contact with these needles, and they should be sterilized in such a manner that the temper of the steel is not altered. The Annual General Meeting of the Society will be held on Sept 22 after an Extraordinary General Meeting to be held on the same date.



SIR JOHN HERBERT PARSONS

## A Presentation Portrait

The members of the Faculty of Ophthalmologists and of the Ophthalmological Society of the United Kingdom subscribed to present to Sir John Herbert Parsons on his eightieth birthday his portrait painted by Mr John Gorlay. The presentation, the occasion for which was the subject of an annotation in our issue of Sept 4 (p 481), took place at the Royal College of Surgeons on Friday, Sept 3, in the presence of a large gathering of ophthalmologists from all parts of the country, others at the ceremony included Lord Webb-Johnson and Sir Henry Dale.

Sir Stewart Duke-Elder, in making the presentation, after speaking in feeling terms of his great personal indebtedness to Sir John, said that the portrait was given to signalize what its subject had done for British ophthalmology, and in the second place to express the feelings which his colleagues and former students had for him. Some of the younger men in ophthalmology might not be aware of all they owed to Parsons. Alike in clinical work, fundamental research, and publication and teaching he was *facile princeps*. Every ophthalmologist treated his patients better because of what Parsons had taught and written. He would be remembered for his work as a pioneer in ophthalmological pathology. In the fundamental sciences which underlay vision—the biological, physiological and pathological sciences—Parsons was still the greatest authority. In the organization and inspiration of research he stood almost alone. In all problems concerning sight, Government and industry had consistently asked and received his help. In international ophthalmology he had always been a leading figure and a constant and acceptable British ambassador.

Sir Stewart Duke-Elder went on to say, however, that in his opinion Parsons's greatest service to ophthalmology was something more subtle. Through him it had been possible to maintain continuity in the transition from the past to the future. When he was young ophthalmology was the scene of a great deal of individual research but later, and particularly during the inter-war period, largely because of the advance of scientific research in general it was necessary for individual to give place to organized effort, for which they were rather ill equipped and

ill prepared. It was certainly due to Parsons that individual scientific research in ophthalmology showed signs of reviving. Parsons had been largely responsible for instituting the Faculty of Ophthalmologists. The speaker hoped that in the new College of Surgeons the Faculty and the Society would have a council room of their own, and that in that room, when Sir John had no further use for it, this portrait would hang in the place of honour as a reminder to them all of his great service. The portrait was not only a mark of admiration and gratitude but a real expression of affection. In his long life Sir John had received many marks of recognition in high places, and British ophthalmology had given him every honour it was in its power to bestow. The portrait was a symbolic expression of the affection of three generations of British ophthalmologists who felt themselves deeply in his debt.

Lady Duke-Elder having unveiled the portrait, Sir John Herbert Parsons covered his emotion by embarking on some philosophical observations on portraiture and personality, adding only that no achievement could be greater than for a man to have gathered around him a group of faithful and affectionate friends.

## Reports of Societies

### BRITISH NEUROLOGICAL SURGEONS

#### Meeting in Dublin

The Society of British Neurological Surgeons held its thirty-eighth meeting in Dublin on July 29 and 30, under the presidency of Sir Hugh Cairns. Meetings were held in Trinity College by the courtesy of the Provost, and the programme was arranged by the regius professor of surgery, Adams McConnell. There was a large attendance which included corresponding members from Canada, Sweden, Denmark, and Spain, as well as British visitors.

The main item was a symposium on the surgery of the acoustic neuromas opened by Dr Gilbert Horrax, of the Lahey Clinic, Boston, Mass, and Professor Herbert Olivecrona, of Stockholm, whose paper had to be read for him as he was recovering from a recent attack of pneumonia. The discussion was continued by Mr D W C Northfield, Professor Jefferson, and Mr Pennybacker. It is hoped that a full account of this important review, in all of several hundred cases, will eventually be published.

Other items of interest were contributions by Sir Hugh Cairns on the treatment of subdural empyema, by Professor McConnell on subdural collections of fluid after head injuries, by Dr Allan Mooney on the cause of certain field defects by pressure on the optic nerves, by Professor Jefferson and Mr Richard Johnson on intracerebral bleeding from aneurysms, by Mr Dawson on the blood supply of the chiasma and optic atrophy from arteriosclerotic plaques in the walls of the carotid artery, by Mr Atkinson on brain-stem infarction from operative injuries of branches of the superior cerebellar artery, and by Mr Tutton on the superiority of facio hypoglossal over spino-facial anastomoses for facial palsy. Mr Dickson Wright showed a coloured film illustrating his special approach to the orbit for the removal of orbital tumours.

The Society's dinner was held in the Hall of the Royal College of Surgeons in Ireland, through the hospitality of Professor Meade.

The second meeting of the Scottish Society of the History of Medicine was held in the hall of the Royal College of Surgeons of Edinburgh on June 18, with Dr DOUGLAS GUTHRIE, the president, in the chair. Dr JOHN RITCHIE read a paper on "Quarantine for Plague in Scotland in the Sixteenth and Seventeenth Centuries." Dr Ritchie described the methods of quarantine and disinfection of ships and their cargoes, and the measures taken to deal with the crews and passengers by isolating them on various islands in the Firth of Forth and elsewhere. In 1627, "Laurence Cockburn, surgeon," personally examined the crews of suspected ships in the Forth on the instructions of the Edinburgh magistrates. Cockburn was therefore probably the first port medical officer in Scotland. It is hoped that the third meeting of the Society will be held in Glasgow in October.

## Correspondence

### Prevention of Dust Diseases of the Lung

SIR—Dr A Meiklejohn (Aug 21, p 399) asks us in relation to dust disease of the lungs, "What is the earliest harmful evidence in coal-miners at which the workman should be advised to give up his skilled occupation and seek alternative work, or in the language of the compensation schemes, what constitutes the disease to a dangerous degree?" We would immediately agree with him in stating that this question demands a clear unequivocal answer. Before such an answer can be given there are various points which require consideration. First, it has long been known that of men certified as suffering from pneumoconiosis at an early age a majority advance to massive consolidation some years after leaving the industry and become eventually totally disabled by their disease. It is evident that this state of affairs must not be allowed to continue and that ideally, at no time should any man become completely unemployable by virtue of pneumoconiosis, but again it must be remembered that the vast majority of ex-miners are, once their skilled trade is closed to them, only able to obtain manual work usually of a comparatively heavy nature. This statement is borne out by the obvious preference shown to young women and non-miners by the managements of factories in this area who employ by and large the minimum of ex-miners. One can see, therefore, that the ex-miner must be able to carry out fairly heavy manual work compatible with his age for the remainder of his life, in fact at no stage must he be more than 30 to 35% disabled.

In order to obtain this result, we would state definitely that with the knowledge available to us to day all men who show pin-hole nodulation should be removed from exposure to dangerous dust, the question of disability and compensation being a separate issue. In our opinion, this standard should prove satisfactory for men with exposure to dust of 20 to 25 years' duration. In the event of such changes becoming evident with 15 years' exposure or less, a somewhat severer standard must be adopted, and conversely, if pin-hole nodulation becomes evident only after 35 years' exposure, the standard may then be somewhat relaxed. Even with suspension from the industry at this stage it is possible that in some cases progressive disease might occur, but we feel that the proportion of cases so progressing would not be greatly in excess of the number of mine workers who could be expected to develop tuberculous disease of the lungs in any event.

Again, all cases of consolidation should be immediately removed from the industry as potential sources of tuberculous infection, and to speak of leaving such men in the industry "as their progression may not be dependent on further exposure of dust" is in our view equal to advising a man to leave his hand under a steam hammer, as once it has received one crushing blow no further injury can take place. Furthermore, we would repeat with the greatest possible emphasis the plea we have made over many years for periodic x-ray examination of the lungs of all mine-workers, this being the only means by which the disease may be detected and suitable action taken before eventual advance to total disability becomes inevitable. It has been our practice for many years to carry out periodic examination of the lungs of the majority of workmen in the anthracite area of the South Wales coalfield, and all too often we see men already in the late stages of the disease who have only recently noted any disability.

These then are an outline of our views regarding the stage at which men suffering from pneumoconiosis should be removed from dust risk. Perhaps Dr Meiklejohn, who has had considerable experience of this type of work, would be kind enough to give us his personal opinion. Dr C M Fletcher, in his second Goulstonian Lecture printed in the *Journal* of June 5 (p 1065) stated that "the urgent necessity for the institution of an appropriate system of periodical x-ray examinations, which alone can give our coal-miners security from pneumoconiosis, cannot be over-emphasized." "The sincerity of the industry's and the Government's concern with the health of the coal-miners will be

judged by the speed and thoroughness with which such a system is instituted in this country." At the present time the Government and the industry seem to be doing all in their power to prevent the development of such a scheme and to discourage private workers in this field. Furthermore, the power of suspension has now been removed from the Silicosis Board and the compensation payable to partially disabled workmen severely reduced. These factors will contrive to force many men to remain in the industry where they may or may not be under proper observation. If this state of affairs is allowed to continue and if no action is taken to combat these retrogressive changes which undermine many years of struggle, then a future which will be truly tragic is inevitable and many young men will join their fathers and grandfathers in the cemeteries of mining villages years before their time. Their epitaph may well be, "We died that nationalization might succeed"—We are, etc.,

ARCHIBALD HARPER  
J MANSEL MORGAN

North

### Artificial Insemination

SIR—Despite the risk of appearing unduly sensitive I am requesting you to allow me to reply in your columns to certain criticisms in the report of the Archbishop of Canterbury's Commission on Artificial Insemination bearing upon a memorandum issued by the Medical Defence Union. The Union's memorandum did not purport to be an exhaustive study of the subject from all angles, and thus the Union had neither the facilities nor the intention to undertake. It was written, as the headnote states solely with a view to the protection of practitioners who engage in the practice of artificial insemination. In these circumstances the criticism that the memorandum is "superficial" is entirely unjustified.

It is, moreover, stated that the memorandum is "grossly misleading," but no indication is given of the reason for the use of such strong language. The chapter of the report dealing with the legal aspects of artificial insemination fails to reveal any basis for the criticism, unless it be that the writers have confusedly attributed to the Union the authorship of an article in the *British Medical Journal* (1945, 1, 40) or assumed that the Union shared the views expressed by the three authors of that article. Should this be so, it is appropriate now to repudiate on the Council's behalf both the authorship of the article and agreement with the views therein expressed.

It is conceded, of course, that the Union's memorandum did not make reference to the difficulty that will arise over the registration of the birth of an infant resulting from AID since registration is not a matter with which the practitioner is normally concerned. The difficulty is a very real one, and to it further consideration will be given by my Council in the future for this constructive criticism we are grateful.

It is regrettable that the authors of the chapter in question should have thought it proper to publish strong condemnation of the views expressed by the Union in a matter of complexity and public importance without first giving to the Union some indication of their intention and an opportunity of expounding its views. The very eminence of the authors in their own field promotes an expectation that the usual courtesies would have been observed. It should further be noted that permission to publish the Union's memorandum as an appendix to the report was only sought when the report itself was in galley proof and at a time when the urgency of publishing the report precluded the Union from properly considering whether the memorandum—prepared as it was with a different object in view—was suitable for such publication. I add with regret that neither then nor at any other time was there any communication to the Union that the memorandum was or would be made the subject of criticism.

Considerations of space prevent me dealing fully with the contents of the report, and it must suffice to say that, except for the single matter mentioned above, there appears at present no need for the Union to modify in any way the advice to its members set out in its memorandum—I am, etc.

The Medical Defence Union  
London WC1

ROBERT FORBES  
Secretary

### Inclusion Bodies of the Erythrocyte

SIR—With reference to your annotation (Aug 28, p 431) entitled 'Inclusion Bodies of the Erythrocyte,' we should be obliged if you would allow us to refute an opinion you attribute to us. Referring to our publication on this subject you state, "They are convinced that the siderotic granules of Gruneberg are different from the Pappenheimer bodies." This is, indeed, a complete misrepresentation of our views, for on page 255 of the paper referred to<sup>1</sup> we stated, "In view of these considerations it would appear that the siderotic granules described by Gruneberg (1941a and b, 1942) and by Doniach *et al* (1943) are probably fundamentally similar to the Pappenheimer bodies."

On the other hand, we wish to emphasize our belief that these inclusion bodies which stain with Romanowsky stains and give a direct positive reaction with potassium ferrocyanide and hydrochloric acid, are fundamentally dissimilar from the siderotic granules described by Case<sup>2,3,4</sup>. The arguments supporting this belief were discussed in our paper, but it may be mentioned here that Case's granules differ in respect of occurrence, morphology, and staining reactions from the erythrocytic inclusions described by Gruneberg in curly-tailed mice, and by Pappenheimer *et al* and by ourselves<sup>1</sup> in man.

Your annotation also refers to our having collected some evidence that the granules of basophilic stippling due to lead poisoning are similar to Pappenheimer bodies. It may be of interest to note that we have extended our studies in this field and have confirmed that the basophilic granules of lead poisoning present many similarities to the Pappenheimer bodies as regards development, staining reactions in the bone marrow and in the peripheral blood, and the effect of splenectomy. This work has recently been submitted for publication—We are, etc,

Glasgow

ALEX J S MCFADZEAN  
L J DAVIS

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### Production of Rh Agglutinins

SIR,—I must apologize to Dr R J Drummond (Aug 28, p 443) and Drs Sheila T Callender and Z V Payloç (Jan 26 1946 p 119) for giving the impression that they suggested that patients suffering from certain diseases were more apt to produce antibodies. This idea was communicated to me in conversation, but I have quite forgotten with whom, or who originated the idea—it may even have been myself. I still think it is a hypothesis worth considering, and if anyone who has suitable patients available is able to test the idea the results, whether positive or negative, would be interesting.

I must apologize for a *lapsus ratiocinationis* pointed out by Professor Capell—the product of the mating  $Rr \times rr$  is equal numbers of  $Rr$  and  $rr$ —not 3  $rr$  to 1  $Rr$  as we wrote. This error does not affect our argument or conclusions—I am etc,

London W 10

GEORGE DISCOMBE

### Acute Porphyria

SIR—I read with great interest Dr Ernest Petrie's article (May 15 p 926) on 'A Case of Acute Porphyria.' The article reminded me of a similar case published by me in 1917 (*Z klin Med* 84 3) which showed the typical symptoms of chronic porphyria including a positive benzaldehyde (Ehrlich's) test. Owing to some unusual features I should like to give a short summary of the case.

A 24-year-old girl was admitted to hospital suffering from frequent attacks of severe abdominal colic, negative family history. Case history: temporary amenorrhoea and irregular menses had been suffering from these attacks for last 4 years, thought by some doctors to be due to peptic ulcer, by others to be of nervous origin. After an attack she passed an acid cherry red urine darkening on standing and becoming brown red on longer standing. Trace of albumin, hyaline and granulated casts in the deposit. On addition of alkali the colour turned yellow but on acidification the red colour returned. Negative guaiac and distinctly positive Ehrlich's benzaldehyde tests. Pigment not soluble in ether. Prof Salkowski, who

examined the urine, reported pigment soluble in amyl alcohol, slightly soluble in acetic ether, positive Ehrlich test but negative urobilin test, spectroscopically the acid urine gave a diffuse absorption band in the region of the urobilin band. Salkowski came to the conclusion that the abnormal pigment was "probably so called 'skatol-red,' which, however, was not sufficiently well characterized." Hot baths with subsequent diaphoresis seemed to relieve the pain. Patient died 1½ months later in a coma which occurred suddenly with epileptiform convulsions in all extremities, jerking of the head to the left, and horizontal nystagmus.

The results of post-mortem examination were: atrophy of musculature, dehydration, slight oedema of pia, hypoplastic aorta, small heart with moderately hypertrophied left ventricle. Pathologist's report: cortex of kidneys much reduced, in periphery tubuli very much reduced, fibrosis and small cell infiltration, slight fatty degeneration in tubuli but more so in Henle's loops, a few glomeruli showing amyloid degeneration (these findings did not, in his opinion, justify the diagnosis "death from uraemia"), fatty degeneration in most lobuli of liver, slight proliferation and small cell infiltration of peripheral fibrous tissue.

In the light of present knowledge of porphyrins the described data—red urine pigment not soluble in ether but soluble in amyl alcohol and slightly soluble in acetic ether, negative urobilin and positive benzaldehyde tests, absorption band in the region of urobilin—seem, no doubt, to justify the diagnosis of coproporphyrin porphyria—I am, etc,

London NW 11

M G GOOD

### Sturge-Kalischer-Weber Syndrome

SIR,—Dr C Worster-Drought (Aug 28, p 414) gives a valuable summary of the literature of this syndrome and describes a case of naevoid amentia with bilateral calcification of cerebral vessels.

A boy, aged 16½ years, was admitted to Cell Barnes Colony in 1939 and died of pneumonia in 1940. He was a quadriplegic epileptic idiot, with but one cutaneous naevus above the nose and practically central. Radiographic examination showed evidence of much naevus on the left side and some to the right of the centre line. The specimen itself shows more than the radiograph suggests, the condition being most marked in the left temporo sphenoidal and occipital regions, but also present in the right frontal and parietal areas. This is the only true case seen at the Colony out of 1,300 admissions.

Another has the typical cutaneous naevus, widely distributed, right more than left, and is of imbecile grade. There is some evidence of paresis, particularly on the left, but no fits and no x-ray evidence of meningeal naevus. She is regarded as a probable but not proven example of naevoid amentia—I am, etc,

St Albans

NOEL H M BURKE

### Dental Caries in Children

SIR,—Lady Mellanby and Dr Helen Mellanby (Aug 28, p 409) claim to have shown that better-formed teeth are less liable to decay. If they mean that such teeth are less liable because of their better structure their data seem to disprove the claim. They suggest that the lessened caries incidence in 1947 compared with that in 1943 is due to the better calcifying properties of the diet, and they also state that the actual factors initiating caries remain obscure.

To come to such conclusions they must ignore not only most of the work of other students of the subject but also some of their own findings. Although the data are not statistically analysed, it is apparent from Table IV that there is a very close correlation between hypoplasia and high caries incidence in 1943, but in 1945 this correlation is slightly reduced, and in 1947 it is very much weaker and possibly insignificant. This is because the caries incidence on the better-formed teeth has actually increased by 1947. The better the structure the greater is the increase, and the worse the hypoplasia the greater is the decrease in caries. Both increases and decreases between 1943 and 1947 appear to be significant for each grade of tooth structure. In other words, the decrease in hypoplasia incidence by 1947 has been most marked in the carious teeth and least in the non-carious teeth. It follows that improved structure cannot account for most of the decrease in caries, but only a statistical analysis could show how much, if any, it can account for. Certainly some other factors are responsible for much of the improvement, and these factors, which seem to

have been correlated with hypoplasia incidence in 1943, had almost ceased to be so by 1947. The correlation between structure and caries incidence in 1943 was not, then, mainly one of cause and effect, and thus most of the evidence for the authors' theory disappears.

The orthodox theory, which the authors consider obscure, explains the improvement as due to the change from a high-sugar and white-flour diet to one of whole vegetables, low sugar, and high-extraction flour. The 5-year olds examined in 1947 had been exposed for longest to the bulkier, more detergent, and low-sugar wartime diet. Apart from the lesser tendency of such diet to stagnate and ferment about any teeth, it also acts by promoting bone growth, and so preventing overcrowding of the teeth, and by removing other potential stagnation areas by attrition. Such factors begin to work almost from the time of weaning.

The correlation between caries and hypoplasia in 1943 and 1945 can only be explained by assuming that both are due to a common cause. The education of the mother might be a factor, but so little is known of the extent or the causes of variation in sugar consumption by young children that it is almost useless to speculate on the possible causes of the correlation. That sweet consumption varied widely before rationing is well known, and I have found that even now sugar and sweet consumption varies much more widely than one would expect.

It would not be worth while pointing out the fallacies in the authors' reasoning if they merely urged that we should consume more calcium, phosphorus, and vitamin D. However, they conclude that such is the *best* available way of attacking caries. Most well-informed students of the subject believe that a lower sugar consumption or higher fluorine intake, or use of a higher extraction flour, would, even separately, be far more effective, and it is even possible that caries could be entirely prevented at all ages by such measures used in combination—I am, etc.,

London NW 6

R B D STOCKER

### Stainless Steel Wire

SIR,—Messrs A Lawrence Abel and Alan H Hunt (Aug 21, p 379) are to be congratulated on a splendid series of cases sutured with stainless steel. They have added materially to the evidence that one of the simplest, soundest, and probably the best method of repairing herniae is by darning. Also, they have shown that the use of a suitable non-absorbable suture obviates a preliminary attack on the patient's thigh or the effort to squeeze a last reluctant centimetre out of a strip of the external oblique aponeurosis.

I like their repair for incisional herniae in which they darn across the gap without drawing the edges together, but I shall try that principle only in the very large defects. I believe a continuous darn is unnecessary for femoral herniae, several interrupted sutures serving similarly and being easier to insert in the depths. I endorse their views on the use of a non-irritating, non-absorbable suture for closing abdominal-wall incisions, and particularly is it necessary to use such sutures in infected wounds and in cachectic subjects.

Unfortunately their incidence of sepsis in either clean or infected incisions is not mentioned, there being merely a hint that sepsis may possibly have occurred sometimes. This does not assist the judgment of others. I have tried using wire sutures and have found them rather difficult to manage, especially in the deeper tissues, and if one's assistants vary frequently the entanglements increase. At skin level wire is fairly easy to use. No doubt as the years go by the art, as in the case of these authors, can be successfully mastered at depth. My preference is for a suture which serves the same purpose but neither kinks, fractures, nor grates. In practice I find that nylon sutures are equally non-irritating, and behave well in infected tissues. A double strand of No 7 is strong enough for any closure or reparative procedure on hernia, and is easy to work with.

My own histological studies are on material from reopened wounds in humans, and for what any such studies are worth they indicate a very low level of tissue disturbance by nylon. My clinical results have shown a very low incidence of sepsis in clean and infected wounds, personal figures for clean darns in inguinal herniae being over 150, with sepsis once (in a scrotal

haematoma). Figures for infected wounds are being assessed on other types of cases. Criticisms of nylon are not justified when derived by inference from microscopical studies of various sutures buried in the smaller domestic animals, the only real test being what happens in cases. One cannot help wondering whether before darning with steel it is advisable to be sure that one's patient is neither a mariner nor an air pilot, and so liable to set the compass spinning after treatment! I presume the chances of being struck by lightning are not increased.

We are not yet finished in our hunt for the best suture material. Braided nylon, which I have recently tried, is beautiful to work with. Our present ideas of the virtuous monofilamentous strand may give way to a belief that the good behaviour of nylon and steel in infected wounds depends not only on their low irritation of the tissues but also on the fact that they are, unlike silk and cotton, non-wettable substances. Bacteria hiding between the strands of silk from hungry leucocytes has never strongly appealed to me as a theory. The answer may yet lie in braided plastic or braided metal. Perhaps when one of these industries is nationalized the resulting shortage may decide the issue for the other—I am, etc.,

Oxford

G E MOLONEY

### Diabetic Coma

SIR,—The letter by Professor D M Dunlop and Dr J B Donald (Aug 14, p 352) contains an important warning in connexion with the treatment of diabetic coma with large doses of insulin. This is that hypoglycaemia in an unconscious dehydrated patient is not always easy to recognize. This occurred in a patient, 67 years old, whom I treated recently for diabetic coma.

Using large doses of insulin intramuscularly as recommended by Professor R H Micks (July 24, p 200) but unfortunately without immediate blood sugar control (the patient was treated during the night), a fatal degree of hypoglycaemia was produced. This was only revealed by subsequent biochemical estimations of samples of blood taken at intervals during the night. The patient was carefully observed at half hourly or hourly intervals for any change in her condition, and particularly for signs of hypoglycaemia, but none were detected. Continuous intravenous saline was given. Three hours before death a blood sample (estimated later) showed the blood sugar to be 17 mg %, blood urea 78 mg %, and blood chlorides 631 mg %. At the commencement of treatment 14 hours previously the values were blood sugar 408 mg % and blood urea 101 mg %.

It is clear from such an experience that it is dangerous to give large doses of insulin to a patient in diabetic coma without facilities for *immediate* blood-sugar control. This particularly applies, as Professor Dunlop mentioned, when the treatment is in the hands of an inexperienced physician such as myself—I am, etc.,

HOUSE-PHYSICIAN

### Lumbar Sympathectomy for Varicose Ulcers

SIR,—I believe that Messrs John Borrie and E Vernon Barling in reporting (July 24, p 203) successful healing of four chronic varicose ulcers with lumbar sympathectomy have publicized a further remedy of this condition. I learned of it in 1946 from Dr Marcus Werquin, of Paris, a former assistant of Professor Leriche. He told me that he had used lumbar sympathectomy effectively in these cases, but it was before he knew of the operative treatment of varicose veins.

Since that time I have been looking for an obstinate ulcer in which lumbar sympathectomy seemed to be necessary. I have met two ulcers in my fairly considerable experience in the last three years which resisted the remedies laid down by Thomas Baynton in 1797 and retaught so ably by Mr Dickson Wright since 1929. The first man was not well enough for a sympathectomy, and I have had to admit failure. He had an ulcer which Baynton found resistant—i.e., below the external malleolus. In the second patient my friend, Dr Kenneth Wolferstan, of Sunbury-on-Thames, is achieving the healing which I failed to obtain. I mention these because I believe that the patients who require lumbar sympathectomy for the healing of varicose ulcers are very few if the ordinary remedies are faithfully applied.

For instance, in reading the case reports of Messrs Borrie and Barlings patients I did not think that they had received what could be regarded as an efficient operation for their varicose veins. In my experience no ligature, whether high or low, single or multiple, will permanently clear up varicose veins, ulcer, or eczema. I find that permanent effectiveness is attained only by high ligature, division of all the branches, and the certain destruction of the entire column of the internal or external saphenous vein from their beginnings at the malleoli to their endings. I think it is essential that treatment for varicose veins be thoroughly instituted before resorting to the attractive procedure of lumbar sympathectomy, which carries a mortality and will be followed by recurrence of the ulceration if the varicose veins, which are a progressive condition, continue to exercise their deleterious effects on the scar tissue about the ankle.

I agree with Messrs Dickson Wright, Rowden Foote, Kenneth Wolferstan, and others that all varicose ulcers can be healed if we will apply the supportive bandaging ourselves frequently and faithfully. I think that, while lumbar sympathectomy has a place in the treatment of ulcerated legs when complicated by arterial and trophic conditions, it is a small one—I am, etc.,

London W1

HAROLD DODD

### Genu Valgum

SIR,—Mr H A Brittain's article on genu valgum (Aug 21, p 385) deals with the most common deformity of early childhood. Twenty eight years ago, when rickets was still a common disease, it was the custom to take children with rachitic knock-knees off their feet or to put them in irons. Bony deformity and loss of muscle tone were the causal factors, and the latter was considered the more important. Immobilization in bed and to a less extent in irons aggravated the muscle weakness. As the orthopaedic surgeon rarely sees these cases until the children are 2 years or older, the aetiology and early treatment as seen and practised at an infant welfare centre may be of interest. These children were allowed to exercise freely, their heels and soles were wedged, and they were given intensive treatment for rickets. The results more than justified the break-away from more orthodox methods.

In the far more common non-rachitic cases of genu valgum I believe the lack of muscle tone is the primary trouble and the stretching of the internal lateral ligament of the knee secondary to it. I have been struck by the fact that I see a larger proportion of children with knock-knees in private practice than I did over 20 years at an infant welfare centre. The explanation would appear to be that the children of the comparatively well-to-do spend more time in their prams and less on their feet than the children of the poorer districts, who run about during most of their waking hours.

The preventive treatment of genu valgum is attention to the musculature of the child throughout infancy. I need not detail the necessary measures here, but it is a fact that many infants with poor tone have to be 'taught' to use their muscles, and exercises in weight bearing should be practised from the third month onwards. This is particularly important for the heavy child. The first efforts at walking are made on a wide base which throws a strain on the internal lateral ligament of the knee—the better the muscle tone and balance the sooner the walking base narrows. If at 15 to 18 months there is any evidence of genu valgum the heels of the shoes are tilted  $\frac{1}{4}$  in, increased later to  $\frac{3}{16}$  in and the 'gramophone record' referred to by Mr Brittain is put on. Exercises are prescribed especially those which strengthen the quadratus femoris. A favourite one is carried out as follows. The child sits on the floor in the crossed leg tai or position facing his mother, who sits on a chair. She places her right foot as a steadying block against the inverted sole of the right foot of the child and her left to his left. She then clasps his outstretched hands and teaches him to rise slowly to the upright position and then return slowly to the sitting position keeping the legs crossed and the feet inverted the whole time. At first she takes most of his weight but less and less, until he can do the exercise without assistance.

At two years or a little later the tricycle (kiddy-car) serves with one precaution as good exercise for the leg and thigh muscles. The wooden bar which runs from the seat to below

the handle-bars should be well padded, so that the child shoves on the pedals with the knees well apart and the legs and feet inverted. A similar arrangement can be made on a toy motor-car or engine with pedals. The more fortunate child with a pony has the perfect apparatus.

It was surprising to hear that Mr Brittain has dealt with 8,000 cases of genu valgum in 15 years. Preventive measures or early treatment should reduce the numbers reaching the orthopaedic surgeon almost to zero—I am, etc.,

Esher Surrey

ALLAN HAMILTON

### Procaine Metabolism

SIR,—Procaine metabolism has been investigated during the last 15 years with growing intensity. Althoff<sup>1</sup> recently summarized facts and theories in a German publication. Thus, I hope, some findings dealing with the mode of action of procaine will be of general interest.

Recently Burgen and Keele<sup>2</sup> investigated the quantitative metabolism of procaine in the cat by determining procaine and *p*-aminobenzoic acid blood levels. They found rapid and extensive hydrolysis after intravenous injections. Neither Burgen and Keele nor other workers in this field (Hazard and Ravasse,<sup>3</sup> Dunlop<sup>4</sup>) published data on the second product of procaine hydrolysis, diethylaminoethanol. In experiments on frog's muscle (rectus abdominis), using a modification of the Chang and Gaddum technique (Soehring and Wiedow<sup>5</sup>), we confirmed the decrease in the reaction to acetylcholine described by Riesser and Neuschloss<sup>6</sup> when adding procaine to the bath. We found that this effect is followed by a marked increase in the tonus of the muscle, while acetylcholine excitability simultaneously is restored. Using small concentrations of procaine the response to acetylcholine can surpass the initial effect. These phenomena can be produced in the same way by equivalent concentrations of diethylaminoethanol. Hauschild and Landbeck<sup>7</sup> found an important sensitization to adrenaline when traces of diethylaminoethanol were given.

Modern procaine therapy thus appears as a special form of sensitization to adrenaline and acetylcholine, due to diethylaminoethanol set free by hydrolysis. The mode of action of this interesting compound cannot be discussed here in full detail. Its activity on surface tension<sup>8</sup> may be considered, as well as chemical composition, in some step of the choline metabolism<sup>9</sup>—I am, etc.,

University of Hamburg

KLAUS SOEHRING

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### Gynaecological Psychiatry

SIR,—I have read the article by Mr Linton Snaith and Dr Brenda Ridley (Aug 28, p 418) with great interest. There is, however, one problem fundamental to investigations of this kind, so far as the question of female orgasmic ability is concerned, which the authors have left unanswered and unsolved. What is a 'normal woman'? All investigators agree that 40–50% of their women patients show lack of orgasmic ability, and most authors regard this as a deficiency, physical or, mostly, psychological, that can and must be cured.

But before making this assumption would it not be our duty to prove to ourselves that the 'normal woman' is endowed with an orgasmic ability as universal and automatic as the man? In my opinion this assumption, so universally made, cannot be proved. As Terman has pointed out in *Psychological Factors in Marital Happiness* 'Woman's susceptibility to orgasm is either an evolving trait not yet fully established in the phylum or a regressive trait on its way out.' And since we can know next to nothing about the remote psychological past of the human race our only way to answer this question is to investigate whether or not female orgasmic ability could have played any part in facilitating the survival of the human race. It does not seem to have such significance.



To all bisexual organisms where successful copulation is absolutely necessary for the survival of the species, orgasm in the male acts as a fixing sensation additional to the organs of fixation, genital and extragenital, otherwise developed. With a few exceptions, most interesting in their appearance but which cannot be described here, the part of the females is so passive that they would not submit to copulation at all if they were not, during a particular season, stimulated hormonally to do so. They cannot, once copulation has begun, interrupt it of their own will. Fixation, physical and psychological, is exclusively achieved by the male, and this is true right up the evolutionary scale even to the anthropoid apes.

It remains for the psychologists to tell us why, in the absence of any phylogenetic history of female orgasm, the human female should in 40–50% of their number show orgasm ability. In my opinion this ability is linked up with the development of human self-consciousness, and I am inclined to regard female orgasm ability as "an evolving trait not yet fully established in the phylum." But I would refuse to assume that every female patient had already achieved or been born with this full degree of orgasm ability and should therefore be "cured" if found deficient.

Ever since and before van der Velde this assumption has led to great disappointment in doctors and patients, and while enlightenment, sex education, and treatment of all kinds do cure those cases where orgasm ability is only repressed by circumstances, it does nothing for those where this ability is non-existent. It makes the patients feel they are human freaks and leaves them more disappointed than if no cure had ever been attempted. It would be most interesting to hear from Mr. Snaith and Dr. Ridley what percentage of cases under their care have in fact been cured and what was the fate of the "incurables"—I am, etc.,

Pinner, Middlesex

EDWARD ELKAN

### Use and Abuse of Tonsillectomy

SIR,—I have read with interest the correspondence on the "Use and Abuse of Tonsillectomy," as it touches on a problem which frequently confronts the general practitioner. Dr. A. G. Newell (Aug. 21, p. 398) suggests that the decision for removal of tonsils and adenoids be left to the parents. I hardly think this is practicable, as most parents go to their doctors to be advised, and doctors as a rule do not dictate to them as to necessity.

Clinically I doubt if there is any more satisfactory operation in childhood than the removal of septic tonsils and adenoids. The ailing child, with frequent colds, gastric upsets, attacks of earache, and even running ears, seems to improve remarkably after the operation.

Up to the age of 3 to 5 years the tonsils and adenoids act as a defence and filter, preventing entry of infection into the blood stream. With each attack they form antibodies and confer an immunity against infection by countless organisms, which last until late in life. But once this function is performed they cease to be an advantage to the body, and are often only collections of pus and a frequent source of infection. At least in cases where pus is obviously present, with tonsillar glandular enlargement and obstruction to breathing, the parents should be advised that the removal of the child's tonsils and adenoids should be performed.—I am, etc.,

Blyth, Northumberland

A. M. TAIT

### Tonsillectomy or X-ray Treatment

SIR—No reference has been made to x-ray treatment in the interesting correspondence following the enquiry of Mr. William Ibbotson (May 22, p. 1002) as to what can be done for the many children awaiting tonsillectomy. X-ray treatment is a most valuable alternative to operation, as the tonsil is one of the most radiosensitive parts of the body (as Regaud pointed out about 1904). In children, quite small doses usually reduce the tonsil (and adenoid) enlargement to normal, and lead to rapid benefit in the general health, as I have shown in the *Journal* (1930, 1, 216 and 1197, and 2, 228, and 1932, 2, 665).

In the technique large doses and large fields should be avoided, the best results have followed small fields behind and below the angle of the jaw (or also from below and behind the mastoid) converging on to the tonsil. Doses of 100 to 200 r

weekly or fortnightly will be found to lead to rapid improvement in most cases, and operation can be rendered unnecessary. Once the tendency to physiological hypertrophy has been outgrown the tonsils, in cases followed up, have shown no further enlargement or infection.

In this method there is no risk of skin change even in blondes and the vicious circle of hypertrophy leading to crypt blockage and infection is broken so simply, and with such restitution to the normal of a structure which probably has a useful function, that x-ray treatment should be regarded as the treatment of choice. That it has not come to be so considered is probably due to a too exclusively surgical approach to the subject, and to the preoccupation of most radiotherapists with the more pressing problems of cancer—I am, etc.,

London W 1

J. H. DOUGLAS WEBSTER

### Prevention of Venereal Disease

SIR—Both Lord Horder (July 17, p. 171) and Dr. R. A. Lyster (Aug. 28, p. 441) seem to rely mainly on the opinion of the Trevethin Committee contained in the sub-paragraph of para. 11 of their report, which was quoted by Lord Horder. It seems to me that it would have been fairer to quote also the qualifications with which the Trevethin Committee guarded their opinion. The following extracts from the Report seem to be pertinent.

"13 We think, however, that we are justified upon the evidence in coming to the following conclusion. That in a community where there has been efficient instruction and where there is such a condition as arises from the control and influence mentioned above substantial results may reasonably be expected to follow from prophylactic measures but that the actual result is often less favourable than has been claimed."

In this "the control and influence mentioned above" refers to conditions in the fighting Forces. With regard to these the Committee said (para. 12)

"Where satisfactory results were recorded, a great difficulty arises in determining how far those results were due to the prophylactic methods employed, or were influenced by other factors in the case, such, for example, as regulation of hours of leave of absence, control of or exclusion from dangerous places, liquor control, imposition of penalties upon men becoming infected, the provision of facilities for recreation and the moral effect in time of war of appeals for restraint on grounds of patriotism. Further, the prevalence of disease among women has probably varied widely in different areas and it has rarely been measured."

The recommendation that the law should be altered to permit properly qualified chemists to sell *ad hoc* disinfectants was qualified by the following (para. 14)

"provided such disinfectants are sold in a form and with instructions for use approved by some competent authority. We suggest that the Medical Research Council should be invited to undertake this task. We think, however, that the commercial advertisement of *ad hoc* disinfectants should be prohibited."

Neither the M.R.C. nor any other authoritative body has undertaken the task. The Committee concluded on the subject of self-disinfection by saying

"16 In conclusion on this head, our view is that money spent on a general system of providing facilities for self-disinfection would certainly be less profitable than money spent either on treatment of disease or on those measures of education and improvement of social conditions to which we have referred above."

As I have taken a close interest in the prevention of venereal diseases for over forty years, studying methods and rates in our own and other countries whenever I could find them, I should like to describe here modifications made in my own views on prophylaxis by self-disinfection during that period. Until 1919 I was an enthusiastic advocate of the method, and when, in 1918, the D.G., A.M.D., Sir John Goodwin, asked my opinion on the probable effect of its introduction into the Army, I predicted a rapid emptying of military V.D. hospitals. In accordance with my advice, D.D.'s M.S. of the different commands in this country were made personally responsible for furthering the method by every means in their power, and inspectors were appointed to see that the facilities were freely available without any soldier having to ask specifically for the chemicals. I watched the V.D. rates in the Army at home very closely, and at the end of eighteen months had to admit that the matter was not proving so simple as I had at first thought.

At this time there was a strong agitation for broadcasting advice on the subject of self-disinfection to the civilian public. It was pressed with such claims for its probable effect as that, under it, V D in this country would quickly reach the vanishing point, and some advocates held that, considering that we had such a simple means of preventing these diseases, it was a waste of public money to provide facilities for their free treatment. My experience of its use in the fighting services had, however, taught me that, although it might eventually succeed in conditions permitting personal instruction, it would never do so in an undisciplined community instructed only by pamphlets. I stated this view at a meeting of the Royal Sanitary Institute in 1919 before I knew the views of the Local Government Board on the question. Further, it seemed to me that if, under such conditions, public health authorities advocated self-disinfection as a means of prevention of V D, sexual promiscuity would increase and the increased numbers of exposures to infection would not be counteracted by the measures advocated, the result would be an increase in V D. On the question of fear as a deterrent from extra-marital intercourse which is implied in this opinion, the Trevethin Committee held a different view, since they said

"It is urged by some that any system of disinfection would tend to increase the number of exposures and to raise the disease rate. We have received no evidence of facts in support of this view and we are inclined to think that those who hold it attach too much weight to the deterrent effect of the fear of disease."

It is questionable whether the Committee would have held this view if they had had the evidence which we now have of great increases in the incidence of V D in the armed Forces since the men learnt how easily gonorrhoea is cured by penicillin.

Dr Lyster says that many witnesses before the Trevethin Committee, including himself, "produced overwhelming evidence of the dramatic reduction in V D that follows the introduction of self-disinfection." The Committee does not seem to have been made wildly enthusiastic for a policy of self-disinfection by this evidence. As part of my own evidence before the Committee, I prepared a critical review of all the evidence I could gather from the literature and elsewhere on the value of disinfection, both skilled and self-applied, in the prevention of V D. It was a lengthy document, of over 25,000 words, its prolixity being due to long quotations, with all statistical tables, from the works studied. Before sending it to the Trevethin Committee I submitted it to criticism by an eminent medical statistician, who made many valuable amendments. I read the evidence given before the Committee and did not find in that submitted by Dr Lyster any new facts to alter the conclusions I had drawn from my review. If Dr Lyster has conclusive evidence on the value of self-disinfection I suggest that he give it now after submitting it to examination by a statistical expert. My own view that self-disinfection has not succeeded even in the favourable conditions provided by the armed Forces has been strengthened by the high rates in those stationed in highly infected communities. If it fails in such circumstances, how could it succeed with civilians instructed only by printed matter? I agree with those correspondents who believe that broadcasting advice on the lines advocated by the NSPVD would be harmful by increasing the incidence of V D—I am, etc.

London SW 1

L W HARRISON

## POINTS FROM LETTERS

### Treatment of Chronic Varicose Ulcers

Mr N N TERESHCHENKO (Wandsworth, London, SW) writes. In connection with Dr P E Roland's letter concerning the treatment of chronic ulcers (Aug 21, p 399), may I inform him that division of cutaneous nerves was first described by John Hilton (see *Rest and Pain*, pp 148-52 in the 1905 reprint of the 5th edition)?

### Treatment of Typhoid Carriers

Dr ARTHUR COMPTON (London NW) writes. In view of the somewhat disappointing results reported by Dr R M Fry and others (Aug 7, p 295) of the treatment of typhoid carriers with sulphadiazine, penicillin, and of your annotation thereon (p 305) may I call your readers attention to the account of a successful clearing up of the carrier state after various treatments, including sulphadiazine, failed to do so (Compton J R *Egypt med* 1937 12: 26-31).

## Obituary

### J K JAMIESON, M B, LL D

Professor J K Jamieson, who died at his home in Blackro on Aug 20 at the age of 75, had been professor of anatomy the University of Dublin from 1936 until his retirement last year. Previously he had been professor of anatomy in the University of Leeds for twenty-six years, and dean of the medical school there for nearly as long. John Kay Jamieson, the fourth son of Robert Jamieson, of Sandness, was born in Shetland in 1873. From the Madras School he went on to the University of Edinburgh, where he graduated M B, C M in 1894. He was chief demonstrator in anatomy at Surgeons' Hall before taking up a similar appointment at Leeds. He worked there under Wardrop Griffith and succeeded him as professor of anatomy in 1910. It was during the 1914-18 war, when he was acting as deputy dean of the faculty of medicine, that his notable administrative ability was first shown. At this time he was also registrar and later in command of the East Leeds War Hospital in Beckett Street. In this early period he made a number of valuable contributions to his own special subject, particularly on the anatomy of the lymphatic system. In this connexion his studies of the lymphatics of the tongue and of the colon were notable and have since come to be regarded as classic contributions to surgical anatomy.

Jamieson was a man of sound scholarship and impeccable integrity and for many years he dominated the Leeds medical school. He was, in the words of a colleague, "a remarkably good dean." He had the gift of making—without ever appearing to do so—a number of individuals of diverse character and interests work as an effective team. He was wise and far-sighted, and it was largely due to him that the faculty expanded so effectively, particularly in the department of physiology and in the establishment of the Algernon Firth Institute of Pathology. From 1928 to 1936 he was a member of the General Medical Council, and he was also acting as examiner for the universities of Aberdeen, Belfast, Bristol, Edinburgh, Liverpool, Manchester, and Sheffield. When he retired from the Leeds chair of anatomy early in 1936 tribute was paid to his wise judgment, his tact, his ingenuity in handling difficult situations, and his uniformly imperturbable good temper in the conduct of business.

Jamieson was then 63 and known throughout this country as a first rate teacher of anatomy. Already many generations of Leeds University students had reason to be grateful to him. He was appointed to the chair of human anatomy at Trinity College, Dublin, in March, 1936, and continued in active work for a further eleven years. He succeeded Professor A F Dixon and was given the task of reorienting a department which was still faithfully conducted in the tradition of D J Cunningham. His lectures were always appreciated, but he excelled in informal teaching in the dissecting-room. He never forgot a student, and there were few whose admiration and respect for him was not tinged with affection. Beneath his rather forbidding exterior there was great kindness, a sense of humour and much modesty about much learning.

Professor Jamieson was a member of the Royal Irish Academy, a keen golfer, and interested in deep-sea fishing. He married Elizabeth, daughter of Dr R P Goodworth, and she died in 1936. He is survived by a daughter and a son, Dr John Jamieson. John Kay Jamieson was an outstanding anatomist, a fine administrator, and a remarkable personality who will long be remembered by his friends, his colleagues, and the many students he trained in Leeds and in Dublin.

Mr P R Allison writes. When, as a student, I first met J Kay Jamieson he was professor of anatomy and dean of the faculty of medicine. At what age his personality became fixed I do not know, but certain it is that for the twenty years I knew him he remained unalterably and imperturbably J Kay Jamieson. Therein lay his immense popularity with all students, for he was a rock of reliability in a rapidly changing world. The Leeds school and its students meant so much to him that he must have enjoyed the affection with which he was regarded, but he never sought popularity or praise. He was unmoved by the winds that blew, whether they were gentle or harsh. He

had some sort of sympathy with every kind of student, good or bad, hard working or slacker, for he did not judge men only by their ability to study medicine, yet his counsels were wise, considered, and free from prejudice, and often not what his supplicant wished to hear. He would give advice when consulted, but he rarely explained the reasons for his advice, it might be accompanied by a parable or proverb, but the foresight on which it was based usually became apparent afterwards. His quiet joy at the success of his students and his colleagues was infectious, so that none of us had any doubts but that Leeds was the best medical school in the world. He was in fact a leader. He treated everyone as grown-ups and expected them to behave like this within reasonable limits, so that he never found it necessary to have an attendance book at his lectures, and it was only the occasional "chronic student" who failed to attend.

His lectures must have been carefully studied and distilled, for they were virtually the same throughout the years. He spoke so steadily and used so many simple diagrams that the lectures could be taken down word for word, and we used to write down the jokes as well. When working for the primary fellowship I attended some of his lectures again and found that I could keep one sentence ahead of him all the time by referring to my original notes. Yet somehow he took the dryness out of the bones and put it into his humour and his mannerisms. His diagrams had been reduced to the simplest and clearest, and he obviously enjoyed drawing them. When he drew a perfect circle standing sideways to the blackboard and swinging his arm round at the shoulder, or when he drew a perfectly symmetrical thorax using both hands at the same time, he always roused the cheers and stamping which brought a twinkle to his eye and a slight elevation of the corners of his mouth. The graceful lifting of the hand to indicate that the applause was enough had in it the same confidence of obedience as that of the most accomplished policeman at a London crossroads. He appreciated the importance of physiology, but was justly content to be an anatomist. He taught form in relation to function without recourse to the muscle-nerve preparation, and when once consulted by Moynihan (of whom he spoke affectionately as "our Berkeley") about the feasibility of a particular operation he replied that "the limits of surgery are physiological and not anatomical."

After he had gone to Dublin I often wrote to him about problems of lymphatic anatomy in relation to surgery, but he retained a notable reticence and modesty about his specialty, and his letters often contained answers which were too honest to be really informative. He would write, "The subject needs a determined new survey. When our knowledge is assembled there is no clarity in it. Few realize that the distribution of the absorptive capillary network is very limited, little is known about the continuity of that network, there is a great deal of confusion about 'perivascular lymph spaces', a great deal of our traditional descriptive anatomy is mere lively imagination and assumption taken from the magnificent drawings of the early workers with mercury who must have gone by the motto, *Ab hoc uno disce omnes*." Yet he also gave encouragement for about excision of malignant disease he would say, "It's wholly a question of surgical experience as to whether it's worth doing, it's up to you to try." Jamieson was a man from whom a little encouragement was exhilarating, his slight jerk of the head—while looking over the top of his glasses—was enough to determine the direction of a career.

#### J G WILSON, MB, CM

Dr John Gordon Wilson, professor emeritus of otology and chairman of the department of otolaryngology of the North-western University of Chicago, died on Aug. 13 at the age of 89. He had devoted himself to the study of aural anatomy and pathology for half a century, and was one of the best-known workers in this field in the United States.

A native of Edinburgh, he followed his graduation in 1890 at Edinburgh University with a period of foreign study in Berlin and Vienna, and particularly in Ewald's laboratory in Strasbourg, where he laid the foundations of his early work on *intra-vitam* staining. He returned to practice in Glasgow with an appointment to the staff of the Victoria Infirmary, and continued his researches into the anatomy of the ear and of the atrio-ventricular bundle of His. Impatience with the restric-

tion of animal experimentation led him in 1900 to leave this country for a fellowship in anatomy at Chicago University. It was not long before the value of his work was recognized, and he became an assistant professor. He retained a connexion with this country by spending his vacations in the laboratory of his friend Dr (later Sir Frederick) Mott at Claybury, where the abundance of fresh human material for anatomical study was an attraction. In 1908 Wilson was appointed professor of otology at the North-western University with which institution he was still in intimate contact up to the time of his death.

In the first world war his desire to be early in the field led him to join the Canadian Expeditionary Force which came over in 1915. This later prevented his obtaining American citizenship until after the lapse of a sufficient number of years. During the years that followed he was busy in practice and in research, investigating especially the more recondite aspects of his subject, as a list of his published writings illustrates. In addition to early papers on the bundle of His and the mechanism of vertigo, he made valuable contributions to our knowledge of the nerves of the tympanic membrane, the taste buds of the larynx, the comparative anatomy of the larynx of anthropoids, the utriculo-endolymphatic valve, and the patterns of the air-cells of the petrous temporal. Also well known were his studies of otosclerosis and labyrinthine disease.

In spite of nearly fifty years residence in the United States John Gordon Wilson remained a Scot. His speech and dry humour were typical, and as he advanced in years his nostalgia was shown by an increasing interest in the history of Scottish medicine. He contributed papers to various journals on this subject, and his last published work, which appeared just before his death, was a memoir of Dr Joseph Bell, the prototype of Sherlock Holmes, whom he clearly remembered from his student days. His work in otology gained recognition in the U.S.A., and indeed throughout the world. He was president of the American Otological Society and chairman of committees of the American Research Council on vestibular research and aural structure and function. He was a member of the Madrid Otolaryngological Society, and, most valued of all, member of the international Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum. Though afflicted in his later years by a failure of the organs to which he had devoted a lifetime of study, he retained the mental activity of a young man and an ability to keep abreast of the progress of science, not only in his own subject but in all branches of medicine, that was a continual source of wonder to those who had the good fortune to be associated with him. He died at the home to which he had retired in Old Bennington, Vermont.—G A E

Mr WILLIAM DAWSON GALLOWAY, one of the senior surgeons on the honorary consulting staff of the Huddersfield Royal Infirmary, died in the Infirmary on Aug. 2 at the age of 58. He was born in London and was a student at Clare College, Cambridge, and at Guy's Hospital. He qualified MRCS, LRCP in 1914 and took the Edinburgh FRCS in 1919. Immediately after qualifying he joined the Royal Navy and served for five years both at sea and at the Naval Hospital in Malta. He was twice mentioned in despatches. After several hospital appointments Mr Galloway started in practice in Holmfirth in 1922, and was made a member of the honorary staff of the Holme Valley Memorial Hospital. In 1930 he was appointed honorary assistant surgeon to the Huddersfield Royal Infirmary. He was also consulting surgeon to Storthes Hall Mental Hospital. In 1939 Mr Galloway took up residence in Huddersfield. He was a past president of the Huddersfield Medical Society. Mr Galloway was a man of outstanding ability. While running a busy practice in Holmfirth he took the FRCS in 1927. Then he gave up his practice to concentrate on general surgery. In later years his greatest interest was in gynaecological surgery. He was always very eager to help any young surgical enthusiast, but he did not suffer fools gladly, and demanded the best from all who worked with him. Apart from his surgical achievements he had many outside interests. As a young man, he was a proficient middle weight boxer, a keen rowing man, and a good "all the year round" swimmer. He also had a love of the bagpipes and was himself a player. He was a keen student of history and had a wide knowledge of military campaigns. His early death is a great loss to the Huddersfield district. Such was his zeal that he worked up to a few days before his death when he was obviously a very sick man. He will be sadly missed by his colleagues and by his many patients.—W S D

## Medico-Legal

### ACTION FOR NEGLIGENCE IN DIAGNOSIS

WHITFORD v HUNTER AND GLEED

In the Kings Bench Division, before Mr Justice Birkett, on July 6 and following days the action was heard of Mr James Forbes Whiteford, an American citizen, against Mr J B Hunter, MS, FRCS, and Dr Seymour R Gleed. The plaintiff's claim was that in 1942, when the defendants were called in to advise him on the state of his health, they diagnosed his complaint as inoperable cancer of the bladder, and stated that his life might not be very long extended. He had thereupon given up his home and business in this country and returned to America, but in New York, some five months after this diagnosis had been made, he was examined by an American surgeon, who operated on him and found an inflamed bladder and fibrous prostate but no evidence of cancer.

Mr Richard O Sullivan, KC, and Mr Robert Fortune, instructed by Messrs Billingham, Wood, and Pope, appeared for the plaintiff and Mr Cecil R Havers, KC, and Mr H C Dickens instructed by Messrs Hempsons on behalf of the Medical Defence Union, appeared for the defendants.

The learned judge found that the plaintiff was entitled to damages against Mr Hunter, and these were assessed at £6,300. Judgment was accordingly given against Mr Hunter for that amount with costs stay of execution being granted on the usual terms. It is understood that an appeal has been entered. Judgment was given for Dr Gleed, the second defendant, with costs.

#### The Facts of the Case

From the opening statement it appeared that in March, 1942, Mr Whiteford consulted Dr Gleed for bladder trouble. Dr Gleed examined him and suspected an enlarged prostate, but it was agreed to call in a specialist, and the patient was examined by Mr Hunter, who found acute retention due in his opinion to the state of the prostate gland, and advised immediate draining of the bladder to be followed at a later date by the removal of the prostate. The bladder was accordingly drained suprapubically, and Mr Hunter attended a fortnight later, on April 5, for the purpose of performing the operation. He found a hard indurated mass in the base of the bladder running backwards from the trigone about the size of the palm of a man's hand. He came to the conclusion that the mass was a carcinoma of the bladder of infiltrating type, that the tumour could not be operated on, and that it would be unwise to do anything further. He therefore closed the greater part of the bladder, leaving a tube for the purpose of drainage. Dr Gleed was present at this operation but it was Mr Hunter who was in charge. On being informed of the position the plaintiff went to America partly in order that his wife might be placed in the care of his brother but in September 1942 in the Memorial Hospital New York he came under the care of Dr Benjamin S Barringer who made a cystoscopic examination under spinal analgesia and took specimens for pathological examination. Dr Barringer came to the conclusion that the patient had a diverticulum of the bladder, with prostatic enlargement causing urinary retention. At operation he found the bladder inflamed but no evidence of cancer. He removed a large portion of the fibrous prostate. After some further treatment including electrical cauterization to remove further pieces of the prostate the plaintiff recovered and in 1944 returned to this country. The writ was issued in November 1945.

#### Case for the Plaintiff

The oral medical evidence given on behalf of the plaintiff was that of Dr Benjamin S Barringer of the Memorial Hospital New York a specialist in genito-urinary surgery. The evidence had been taken on commission. Dr Barringer stated that he saw Mr Whiteford on Sept. 6 1942. On cystoscopic examination he noticed several small areas on the wall of the bladder the nature of which he could not understand.

he took a specimen for pathological examination, and it showed chronic cystitis but no evidence of cancer. He also saw the opening of a diverticulum in the base of the bladder. Accordingly he operated on the plaintiff on Sept 15, and found an inflamed bladder, a small fibrotic prostate, and in the bladder itself the opening of a diverticulum, which was filled with calcareous material. He opened up the diverticulum and he removed a large portion of the prostate. After excising the suprapubic sinus he closed the bladder and left a drainage tube in place. There was no cancer of bladder or prostate. He summed up the whole of Mr Whiteford's difficulties by saying that he suffered from a considerable bladder diverticulum and chronic cystitis.

Dr Barringer was asked

Assuming that Mr Whiteford's bladder had been opened on March 22, 1942, and again on April 5 in order that a prostatectomy, if necessary, might be performed, and a cancerous growth was then diagnosed, what steps in your opinion should have been taken to verify such diagnosis?—A complete examination by means of the cystoscope and through the open bladder, and a pathological examination of any questionable areas.

In your opinion would there have been at that time any difficulty in making a cystoscopic examination of him?—No.

Or any danger in making such an examination?—No.

Would there in your opinion have been any difficulty or danger in then obtaining a section for pathological examination?—No.

In your opinion that should have been done?—Yes.

A further question was

Was there anything you did, either in the examination of Mr Whiteford, the operation you performed upon him and the subsequent lesser operation which you performed, as well as the treatments you prescribed for him, which were in any way unusual or beyond the ordinary skill and treatment of the medical profession?—No, not if he were a competent urologist.

In cross-examination he could not agree that when a bladder had been collapsed it would be practically impossible or very difficult to pass a cystoscope, provided the bladder retained enough fluid—as it generally did—so that most of it could be examined. He also said that he had never seen the taking of a specimen from the bladder cause a perforation or observable ulceration, though anything could happen in careless and crude hands. In re-examination he was asked whether it would have been possible for Mr Hunter to have determined that cancer did exist without taking a specimen, and replied that that could have been determined, with all reasonable accuracy by looking at it and by the feeling of it. "You can tell a skin cancer across the street, practically, if you see it on the skin." He added that he had at first thought that perhaps the patient did suffer from cancer, but from the pathological examination and his examination of the opened bladder—a combination of the two, not the pathological examination alone—he decided that he did not.

#### Case for the Defendants

The principal witness for the defence was Mr J B Hunter, who was submitted to a long examination and cross examination. Questioned on the use of the cystoscope, he said that it was not his practice, when dealing with acute retention, to use this instrument, and this, in his opinion, was a case of acute retention. Asked by the learned judge to elaborate this, Mr Hunter spoke of the damage to the posterior urethra which might follow such introduction or attempted introduction of a cystoscope. Describing the indurated mass at the base of the bladder, he said that the mucous membrane over the mass was thickened, changed in colour, and had very indefinite edges. He came to the conclusion that there was a carcinoma of the bladder submucous and infiltrating and that it was too large to be removed. Asked about the desirability of taking a portion of the growth for examination, he said that he deliberately decided against that procedure because he felt that he would have to cut deeply into the bladder wall to obtain a suitable piece and that it was likely that he would go through the bladder and open up the spaces at the back of the bladder to infection. On the second occasion, that of the operation itself, he again did not use a cystoscope. It was a collapsed bladder, having had a tube in it for a fortnight, and in order to use the cystoscope it would have been necessary to distend the bladder with fluid to a considerable degree. The instrument which would have had to be used was the irrigating or flushing cysto-

scope, he had not such an instrument, and he saw no useful purpose likely to be served by such an examination.

Many points raised in cross-examination turned on the question of cystoscopy. The witness said he had already explained why he did not use a cystoscope. Mr Justice Birkett said that he quite agreed but he wanted Mr Hunter to understand to what the questions were directed. This was an important part of the case, because he apprehended that plaintiff's counsel was going to say that one of the acts indicating lack of care was the non-use of the cystoscope. If Dr Barringer could use it in September, and if surgical textbooks said that it was one of the chief means of examination, should he not have used it in March? Mr Hunter explained that when Dr Barringer used the cystoscope the conditions were entirely different. The bladder had been drained, and therefore presumably the condition of the mucous membrane was much healthier than when he himself had operated. The condition of the prostate itself was probably quieter, and the patient had got only a small sinus so that it was much easier to distend the bladder.

It was suggested by Mr O'Sullivan that Mr Hunter had "leaped" to the conclusion that the condition was cancer, and did not adopt any means of checking this grave conclusion. Mr Hunter said that he could only assure the court that that was not true. Asked if, supposing he had taken a specimen, he would have expected to find the same result as Dr Barringer, Mr Hunter replied, "In view of what has happened now, I think there would be no doubt, but I should still at that time have been quite dissatisfied with the report that came back from the pathologist, because I should have thought that I had taken a bit from a non-cancerous area."

Mr Justice Birkett: If you had been doubtful what this mass was, "It may be cancer," would you have taken a specimen then?

Mr Hunter: I was not doubtful.

Mr Justice Birkett: No. I quite understand what you are saying. "I was not doubtful. I was sure. With my experience and my examination I was sure, and I therefore decided not to take a specimen." I understand that perfectly. What I wanted to inquire was this. Assume for the purpose of the question that when you had made your examination and brought your experience to it, your mind was in a position of some hesitation. "This looks to me like cancer, but there are one or two elements which make me a little hesitant." Assume that state of mind. Would you have taken a sample then?

Mr Hunter: I would have taken a sample.

With regard to the diverticulum, Mr Hunter said that he agreed that it was there, all he could say was that his finger did not go into the opening because he thought the opening was closed by the swelling of the mucous membrane. The diverticulum was a secondary manifestation to the prostatic obstruction. He agreed that the procedures followed by Dr Barringer were ordinary and useful procedures carried out by some surgeons.

The real trouble was something different from what you had diagnosed?—No, I diagnosed a condition which was present, and on top of that was this other thing.

And you concluded that it was cancer?—I did, yes.

Merely on what you saw and what you felt?—That is correct.

In re-examination the question was put to Mr Hunter as to what steps he would have taken assuming that he had felt doubt about his diagnosis, and Mr Hunter replied:

"I think you would have to be very definitely in doubt, but I think myself that there are only two things that happen about it when you make a diagnosis of this kind. You say, having taken all your experience into consideration, 'This is a carcinoma,' on that side, and then, on the other side, 'I do not think this is a carcinoma, I am going to take a section.'"

In reply to a further question, he said that in serious doubt he would have had a microscopical examination made.

Two urological surgeons gave evidence in support of Mr Hunter, the nature of their evidence at certain points is indicated in the judgment.

### Judgment

Mr Justice Birkett delivered judgment on July 29. Dealing first with the case against Dr Gleed, he said that Dr Gleed

when first consulted made a tentative diagnosis of enlarged prostate and advised a further opinion. Thereafter he acted in accordance with the view of Mr Hunter whom he had called in. Mr Hunter had said that it was an approved practice of the medical profession for the surgeon to accept full responsibility for the diagnosis, and he accepted such responsibility. Two other urological surgeons who had been called for the defence agreed that this was the recognized practice. One of the points made against Dr Gleed was that in his examination before Mr Hunter was called in he did not use a cystoscope, but he said that he did not possess a cystoscope and knew no general practitioner who did. It was also suggested that after Mr Hunter had made his diagnosis of cancer Dr Gleed should have made an independent diagnosis, and was negligent not to have done so. The judge was unable to accept that view, Dr Gleed had acted in all that he did in accordance with the approved practice of the medical profession, and no negligence could be attributed to him. The case against Dr Gleed failed.

Wholly different considerations arose in the case of Mr Hunter. Everything here turned upon the mistaken diagnosis of cancer, for it was this alone which determined Mr Hunter not to remove the prostate and indeed to do nothing more. It was charged against Mr Hunter that he had not used a cystoscope, whereas this was the first thing that Dr Barringer, the American surgeon, had done. Dr Barringer had said that the steps which should have been taken to verify the diagnosis were a complete examination by means of the cystoscope—and there was no difficulty or danger in making such an examination—and through the open bladder, with a pathological examination of any questionable areas. This was clear and unambiguous evidence. Mr O'Sullivan had quoted from Rose and Carless's *Manual of Surgery*, 17th edition, of which Mr Hunter was joint editor, and there it was stated, "Of recent years the chief means of examining the interior of the bladder is the cystoscope", and again, "The diagnosis of a vesical tumour can only be made by the cystoscope, and by discovering fragments of its substance in the urine. Early cystoscopy is all-important," and yet again, "Cystoscopy is now used so constantly that it is needless to lay stress on its value." Mr Hunter had said that there were special reasons in this case why he considered it inadvisable to use a cystoscope, and one of the medical witnesses for the defence (Mr Arnold Ward) had said that there was nothing inconsistent with proper care in not using a cystoscope, while the other (Mr Julian Taylor) had said that on the occasion of Mr Hunter's first examination, when there was urinary retention, it would have been dangerous to have used a cystoscope, and on the second occasion there was nothing to suggest its use.

The next question was that of the biopsy. Ought Mr Hunter to have done what Mr Barringer did in this matter? Here Mr Justice Birkett read from a report in the *British Medical Journal* of July 10, 1948 (p. 85), of the meeting of the British Association of Urological Surgeons at which Mr T. J. D. Lane, of Dublin, speaking of what he first called an "uncommon" bladder condition simulating carcinoma, was reported as follows:

"Biopsy was essential for proof of the presence of cystitis cystica and to differentiate it from cystitis granulosa and follicularis on the one hand and from malignant disease on the other. The resemblance to cancer in some cases had to be seen to be believed. Although in his title Mr Lane had used the word 'uncommon,' he said in conclusion that the condition was probably not very uncommon. There was little doubt that, if biopsy were resorted to oftener, glandular and other forms of metaplasia would be found much more frequently."

Mr Hunter had said that he considered whether a portion should be taken for microscopical examination, but decided against it because he would have had to cut very deeply to get a suitable piece, and there was a possibility of going through the bladder and opening up spaces behind it to infection, also the wound would not heal and would leave an ulcer, while a scraping or superficial portion, avoiding deep cutting, would have been useless for his purpose. Mr Justice Birkett dealt at length with the evidence of the medical witnesses on this

1 It is not every slip or mistake which imports negligence, and in applying the duty of care to the case of a surgeon it is peculiarly necessary to have regard to the different kinds of circumstances that may present themselves for urgent attention.—*Mahan v Osborne* (1939) 2 K.B. p. 147.

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point, and mentioned Dr Barringer's statement that at the time in question there would have been no difficulty or danger in obtaining a section. The learned judge also quoted from Rose and Carless, under the heading "Tumours and Cysts," that "at present there is no certain means of diagnosis, except clinical, and the microscopical examination of a portion of the growth removed for the purpose."

The real question was whether Mr Hunter exercised the reasonable care required of him. A mere mistaken diagnosis would not of itself be evidence of negligence. It might be akin to the "slip" mentioned by Lord Justice Scott in *Mahon v Osborne*.<sup>1</sup> Certain things appeared to be quite clear: (1) the diagnosis was wrong, (2) the diagnosis was made on sight and touch alone, relying upon past experience, (3) the wall of the bladder gave the appearance of cancer for Mr Hunter to make his diagnosis and for Dr Barringer to have felt doubt about it. The recognized test in these circumstances, apart from the clinical, was by means of a biopsy, and the microscopical examination must be made when circumstances permitted.

"Now I am clearly of the opinion in this case that Mr Hunter's duty to the plaintiff was to have made such a microscopical examination in the circumstances of this case if it was reasonably possible for it to be done, having regard to all the considerations he must keep in mind. Dr Barringer said it could and ought to have been done. Mr Hunter and his witnesses said, for the reasons they gave, that it could not and that it ought not to have been done."

He regretted to have to come to the conclusion that he could not accept Mr Hunter's reasons as a justification for not taking a sample for microscopical examination. Dr Barringer took the sample when he thought the area might be cancer, and if Mr Hunter's reasons were to be accepted as against Dr Barringer's evidence the dilemma would arise that in any case of this kind, where cancer had been diagnosed, a biopsy would never be possible. He found therefore that there was negligence in not taking the sample for examination, and that Mr Hunter was lacking in the duty of reasonable care to the plaintiff in making the diagnosis he did in the way he did and doing nothing more to verify or check it, although the means of verification was available.

If the sample had been taken, as I think it was possible to take it on the evidence, the microscopical examination would have shown that there was no cancer, and, although Mr Hunter said it would have led him to the conclusion that he had not got a piece from the right place, so sure was he that his diagnosis was right, it may well be that he would have been shaken in his view and taken still further steps to verify his original diagnosis, which was, as I have said, of such infinite moment to the plaintiff."

On the matter of the cystoscope, he thought that on March 22 when Mr Hunter made his first examination and when the retention of urine was so marked Mr Hunter was justified in not using the cystoscope but before or on April 5 the date of the operation a cystoscopic examination should have been made for by then conditions had altered very greatly. He held the mistaken diagnosis to have been made because of the lack of reasonable care, particularly in the matter of the biopsy and the cystoscope.

His lordship then proceeded to assess the damages in view of the loss which the plaintiff had sustained and the expense to which he had been put. He came to the conclusion that in the aggregate these amounted to £6,300 and gave judgment for that amount against Mr Hunter, with costs.

In circular No 146/48 (dated Aug 25 1948) the Ministry of Health draws the attention of local authorities to the aftercare scheme which the National Association for Mental Health has been operating for the Board of Control and the Ministry. The scheme was devised to assist ex-Service men and women who had been discharged from hospital after treatment for psychotic and neurotic disorders. It is now apparent that these disorders are becoming more and more associated with ex-Service men and are becoming a part of the civilian service for mental welfare which is now a function of local health authorities. In the future all such cases are to be referred by the regional hospital boards to the health authorities concerned and the latter are to provide any additional help which may be needed or come to an arrangement with the National Association for Mental Health for the continuation of the work. The Ministry has asked local health authorities to let it know what they propose to do by Oct 1 so that the National Association can be informed in good time and will be able to be of help to the services.

## Medical News

### Ninth International Congress on Industrial Medicine

The periods for formal registration by members have been arranged as follows: Sunday, Sept 12, from 10 a.m. to 5 p.m. at Church House, Great Smith Street, Westminster. Monday, Tuesday, and Wednesday, Sept 13, 14, and 15, from 9 a.m. to 10 a.m. and from 12.15 p.m. to 2.30 p.m. at Caxton Hall, Westminster. A number of social functions and demonstrations have been arranged for delegates during the week, and at the Royal College of Nursing a model of an Industrial Health Department has been erected and lecture demonstrations will be given in the Cowdray Hall of the Royal College of Nursing during the week. The Safety, Health, and Welfare Museum in Horseferry Road, Westminster, will be open during the week and a film unit will show films of industrial importance in the Museum Lecture Theatre. A Scientific Exhibition will also be open in the Bishop Partridge Hall, Church House, Great Smith Street, Westminster, when scientific apparatus and pathological specimens will be on view. A comprehensive programme of visits of technical interest has been arranged for the week following the Congress and full details of these are given in the Congress programme. The fee for the whole Congress is £3, but delegates wishing to attend only two sessions can do so on the payment of £1. The Secretary of the Congress is Dr Harold J. Davies, Room 501, Garden Court Wing, B.M.A. House, but during the week of the Congress all communications should be addressed to him at Room 16, Caxton Hall, Caxton Street, Westminster, S.W.1. From Sept 13-17, the following social functions have been arranged: Monday, Sept 13, 6.30 p.m., cocktail party in the Georgian Restaurant of Messrs Harrods, Ltd., Knightsbridge, London, S.W., arranged by the British Organizing Council and the Association of Industrial Medical Officers; Tuesday, Sept 14, 6 p.m., Government Reception at Lancaster House, St James's, London, S.W., when the Rt Hon George Isaacs, M.P., Minister of Labour and National Service, will receive the guests; Wednesday, Sept 15, 10.45 p.m., special performance of the film "Hamlet," at the invitation of the J. Arthur Rank Organization, at the Odeon Theatre, Leicester Square, London, W.C. The preliminary programme of the congress was published in the *Journal* of Aug 14 (p. 351).

### Chinese University President

Professor Cheer Shee nan, acting president of the National Central University, Nanking, and dean of the college of medicine, is visiting Britain under the auspices of the British Council until the end of October. He has been attending the Mental Health Congress in London and will afterwards make a study of recent advances in the field of internal medicine, particularly diseases of the cardiovascular system. He will also study hospital administration and teaching methods in medical and dental schools. Professor Cheer was one of the three medical delegates chosen to represent China at the World Health Organization Assembly in Geneva in June and July this year.

### Wills

Mr William Lloyd, formerly of London, W.1, left £32,773 13s. Dr Geoffrey Garland, of West Strand, Rottingdean, Sussex, left £43,187 7s 4d.

## COMING EVENTS

### British Commonwealth Medical Council

An informal dinner party, arranged by the British Medical Association, will be held at the Café Royal, 68, Regent Street, London, W., on Tuesday, Sept 14, at 7 for 7.30 p.m., to meet the members of the British Commonwealth Medical Council on the occasion of its inaugural meeting.

### Dinner for London Insurance Practitioners

The Local Medical and Panel Committee for the County of London has arranged a dinner for London insurance practitioners to commemorate the termination of its period of office. The dinner will be held at the Café Royal, Regent Street, London, W., on Thursday, Sept 16 at 7 for 7.20 p.m. Tickets are 17s 6d each, exclusive of wine and applications for tickets should be made to the Secretary, London Local Medical Committee, Tavistock House (North), Tavistock Square, W.C.

### Society of Medical Officers of Health

The annual dinner of the Society of Medical Officers of Health will be held at Piccadilly Hotel, London W., on Thursday, Sept 16, at 6.45 for 7.25 p.m.

**Bengue Memorial Award Lecture**

Dr Paul Banzet (Paris) will deliver the Bengue Memorial Award Lecture on "The Surgical Treatment of Gastric Ulcers" at the Royal Institute of Public Health and Hygiene (28, Portland Place, London, W) on Wednesday, Sept 22, at 3 p.m. Admission is free without ticket, but readers are asked to inform the secretary of the institute in advance if they intend to be present at the lecture.

**Central Mediterranean Force Surgeons' and Anaesthetists' Dinner**

The annual dinner of the surgeons and anaesthetists who served in the Central Mediterranean Force will be held at Claridge's Hotel, Brook Street, London, W, on Thursday, Sept 23, at 7 for 7.45 p.m. Surgeons and anaesthetists may bring one guest and should apply for tickets to Professor H. W. Rodgers, OBE, FRCS, 4, University Square, Belfast, Northern Ireland.

**British Hospitals Contributory Schemes Association**

The Final Conference of the BHCSA will be held at Folkestone on Sept 30 to Oct 3, and the Annual General Meeting on Oct 1. Information may be obtained from the secretary, Royal London House, Queen Charlotte Street, Bristol, 1.

**SOCIETIES AND LECTURES****Tuesday**

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY 330, Gray's Inn Road, London, WC Sept 14, 5.15 p.m. *Dermatology as it Concerns the Ear, Nose, and Throat* by Dr A. C. Roxburgh. Illustrated by lantern slides.

**Thursday**

DREADNOUGHT SEAMEN'S HOSPITAL Greenwich, SE—Sept 16 3 p.m. Clinical demonstration by Dr R. Hartley.

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Anatomy Lecture Theatre, Edinburgh University, Sept 16, 4.30 p.m. *'Modern Trends in Anatomy'* by Professor J. C. Brash.

SOCIETY OF MEDICAL OFFICERS OF HEALTH—At Piccadilly Hotel London, W, Sept 16, 6.45 for 7.30 p.m. Annual Dinner.

**Friday**

BRITISH TUBERCULOSIS ASSOCIATION—At 26, Portland Place London, W, Sept 17, 3.15 p.m. *Tuberculosis and Diabetes* by Drs R. D. Lawrence and Ian Mills. *'Collapse Therapy and the Bronchus'* by Dr L. E. Houghton.

MIDDLESEX COUNTY MEDICAL SOCIETY—At Central Middlesex Hospital, Acton Lane, NW, Sept 17, 4 p.m. Annual general meeting. Address *'Diagnosis'* by Mr Ivor Lewis.

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

Aldridge—On Aug 26 1948 to Hilda wife of Mr L. W. Aldridge FRCS a son.

Fox—On Aug 22 1948 at Elizabeth Garrett Anderson Maternity Home 40 Belsize Grove London to Margaret (née Graham) wife of Dr John P. Fox of 103 Howberry Road Stanmore a son.

Harnes—On Sept 2 1948 at Queen Charlotte's Hospital to Betty wife of Dr W. A. Harnes a son.

Hartley—On Aug 26 1948 at Oakvale Nursing Home Sheffield to Bee wife of Dr B. P. R. Hartley MBE a second son.

Jack—On Aug 27 1948 at Elsie Inglis Maternity Hospital Edinburgh to Hilda wife of J. B. Jack FRFPS FRCS a daughter.

Jones—On Sept 2 1948 at Okehampton Devon to Marjorie (née Dobson) wife of Dr C. Gwynnda Jones a son—John Richard.

Murphy—On Aug 28 1948 at King's College Hospital to Elizabeth wife of Mr C. I. Murphy FRCS a daughter.

**MARRIAGE**

Stutt—Waite—On July 17 1948 at Holy Trinity Church Claygate John Charles elder son of Rev and Mrs J. W. Stutt 25 Strathmore Park North Belfast to Pamela elder daughter of Mr and Mrs Bryan R. Waite Hillcrest Baconfield Road Claygate.

**DEATHS**

Drysdale—On Aug 30 1948 at 11 Clarendon Terrace Dundee Campbell Westwood Drysdale M.B. Ch.B. aged 46.

French—At Nairobi found dead from gunshot wounds in the head Stanley Gay French FRCS aged 40.

Gill—On Aug 30 1948 at North Staffordshire Royal Infirmary Alexander Wilson Gill M.D. FRCP of The Limes Birlston Staffs aged 60.

Kelly—On Aug 27 1948 at North Wingfield Derbyshire John Booth Kelly L.R.C.P. & S.I. and L.M.

Marrriott—On Aug 30 1948 Francis Keene Marrriott M.C. M.R.C.S. L.R.C.P. of Yoxford Suffolk.

O'Driscoll—On Aug 29 1948 at Bon Secow Home Cork Patrick O'Driscoll M.B. B.Ch.

Ong Chong Keng—On Aug 31 1948 murdered Ong Chong Keng M.B. B.S. Hong Kong.

Paterson—On Aug 28 1948 at 340 Lee High Road London SE Arthur Robert Paterson M.D. Major I.M.S. retired aged 98.

Rashleigh—On Aug 29 1948 at Coves Cottage St. Peter's in Thanet Hugh George Rashleigh M.R.C.S. L.R.C.P. late of Chatham near Canterbury aged 72.

Schmidt—On Aug 21 1948 Peter Wolstadt Schmidt M.B. C.M.E.d. of 161 Hookstone Road Harrogate Yorks.

Stephen—On Sept 1 1948 at 97 Fitzwarren Street Salford Lancs Leslie Dechmont Stephen M.B. Ch.B. Ed.

Wise—On Aug 30 1948 at 115 Greenhill Hampstead NW Kenneth Stanton Wise M.B. B.S. late Surgeon General Trinidad B.W.I. aged 67.

**EPIDEMIOLOGICAL NOTES****Typhoid at Greenock**

A sharp outbreak of typhoid fever has occurred in the Greenock Port Glasgow, and Gourock areas of Clydeside, and 30 cases had been notified by Tuesday, Sept 7.

The first 3 cases were holiday-makers in Gourock who had crossed the Firth of Clyde to Kilcreggan, a favourite place for picnic parties, and there had taken water (unboiled) from a stream. The next batch of cases came from members of a church organization who, to the number of approximately 700, proceeded on an excursion to the same resort. Large numbers are known to have drunk unboiled water from the stream, and 24 cases have so far been reported in this group. The next 2 cases were Greenock youths who were camping at Kilcreggan. All these are primary cases, and it is expected that their number will increase in the next week or two.

So far the organism has not been discovered in the stream but the bacteriological findings on samples taken at various points are awaited. No individual who drank water from the same source which had been boiled has been affected. It is known that drainage from a few dwellings reaches the stream above the point from which the water was taken. There is no history of typhoid fever in the locality. The one factor common to all cases, however, is the consumption of water from this particular stream, and the evidence is overwhelmingly in favour of this as the cause of the outbreak. The dates of the visits to the waterfall cover a long period, the first patient having been there on June 30. Most of the infections, however, date from July 31, when the party of about 700 spent the day near the stream and, owing to the hot weather, drank copiously at the waterfall. One recent patient lives in a hamlet a mile from the stream and definitely did not drink at the fall. Inquiries are continuing into this and other cases. Attention has also been given to other possibilities such as ice cream bought in a nearby village, and farm milk—so far with negative results.

Most of the patients are children or adolescents. The incubation period has been long the average being about 20 days. The illness has been clinically serious, but up to the time of going to press no death has been recorded.

**Discussion of Table**

In England and Wales a decrease occurred in the notifications of measles 1,286, whooping cough 198, and scarlet fever 38; an increase was recorded for acute poliomyelitis 35 and diphtheria 10.

The largest decreases in the notifications of measles were Lancashire 236, Yorkshire West Riding 119, Surrey 103, and London 98. In contrast to the decreasing trend of whooping cough in the whole country a rise of 87 was reported in London, the largest falls were Middlesex 48 and Yorkshire West Riding 48. Only small changes were recorded in the local returns of scarlet fever. The notifications of diphtheria, despite the slight rise have continued for four weeks at the lowest level ever recorded. No changes of any size occurred in the local trends of diphtheria during the week.

A new outbreak of dysentery, affecting 12 persons, was notified from Cambridge M.B. during the week. The other large returns for dysentery were Lancashire 40 and London 10.

The incidence of acute poliomyelitis was almost doubled, the largest centres of infection were London 10 (Kensington 2, St Pancras 2), Middlesex 10 (Wembley M.B. 4, Twickenham M.B. 2), Kent 9 (Chislehurst and Sidcup U.D. 2), Lancashire 8. Notifications have been widely scattered, with a tendency for most of the cases to occur in the densely populated areas. On the whole the situation this year appears to be one of high endemic incidence quite different in degree from that of last year but similar in distribution.

In Scotland only small changes were recorded in the notifications of infectious diseases. In Glasgow the notifications of dysentery increased from 25 to 44.

In Eire increases were recorded in the number of notifications of whooping-cough 59, scarlet fever 29, and diarrhoea and enteritis 17. An outbreak of whooping-cough affecting 38 persons was notified from Galway, Oughterard R.D. The rise in the incidence of scarlet fever was contributed by Dublin C.B. The rise in the notifications of diarrhoea and enteritis was due to isolated cases in several areas.

In Northern Ireland the notifications of measles decreased by 9 while an increase of 7 was recorded for scarlet fever.

**Week Ending August 28**

The notifications of infectious diseases in England and Wales during the week included scarlet fever 812, whooping cough 3162, diphtheria 123, measles 3774, acute pneumonia 240, cerebrospinal fever 29, acute poliomyelitis 70, dysentery 70, paratyphoid 17, and typhoid 12.

A—Monteggia's fracture-dislocation is the name applied to the combined injury of fracture of the upper part of the shaft of the ulna and dislocation of the head of the radius. Typically there is an anterior angulation at one site of the ulnar fracture and a lateral displacement of the radial head. Exceptionally, the reverse deformity may occur. The injury occurs in both children and adults. Treatment is difficult because the fragments

unstable after manipulative reduction, yet operative risks, particularly for the radial dislocation, increase the risk of complications. Most surgeons advise operative reduction of the fracture of the ulna, with internal fixation by means of a plate, a bone graft, or an intramedullary nail. At the same time the head of the radius is replaced by manipulation. A full-length arm plaster is applied with the elbow flexed to the right-angle, and immobilization is continued until union of the fracture is present. The success of this line of treatment may be impaired by the occurrence of certain well-recognized complications. First, attempts to replace the head of the radius by manipulation may fail, or redisplacement may occur after initial reduction. Although this difficulty can be overcome by operative reduction with suture of the orbicular ligament or by excision of the head of the radius, these procedures considerably increase the risk of ossification of the surrounding haematoma and are reluctantly undertaken only in cases in which the injury is recent. Secondly, there may be delayed union or non-union of the ulnar fracture, demanding further operative treatment and further prolonged immobilization. Thirdly, in spite of the most careful treatment, ossification of the haematoma around the elbow-joint is a not infrequent occurrence and leads to serious limitations of elbow movements.

#### Hormone Treatment of Mastitis

**Q**—What are the relative merits of oestrogens, progesterone and testosterone in the treatment of chronic mastitis? What is the recommended dosage of each?

**A**—The optimum and, in fact, the only logical treatment of chronic mastitis is testosterone if we subscribe to the generally accepted view that this condition is due to excessive stimulation of the breast tissue by an abnormally high level of oestrogens. If the dose of testosterone is large—e.g., 600 mg by implantation or 25 mg daily by injection—the function of the ovary is completely suppressed and the breasts tend to atrophy. Smaller doses, varying with individual cases, will produce a modifying but less absolute effect and without the disadvantage of producing hirsutism and virilism. These changes are produced by inhibition of the secretion of the pituitary gonadotrophic hormones. A more direct local action, antagonistic to oestrogens, appears to be produced by local injection of testosterone in the form of an ointment, some 50 mg a week or less being adequate. Oestrogens and progesterone are sometimes prescribed on the theory that before menstruation tension is felt in the breast region when the breast structure, ducts and acini respectively, are not completely developed. This may be the case in a small proportion of patients.

#### Incision of the Hymen

**Q**—What is the most suitable local analgesic for division of a tough hymen? How much should be used and at what point should it be injected? What is the best technique immediately and post-operatively?

**A**—A 1% solution of procaine could be used to infiltrate the posterior and lateral tissues of the introitus and lower vagina at the level of the attachment of the hymen, and incisions could then be made postero-laterally. If the indication is dyspareunia or apareunia, however, this operation is not recommended. Incision of the hymen alone gives unsatisfactory results, because in many cases the whole introitus rather than the hymen appears resistant and nearly always there is an important element of vaginismus, at any rate by the time the patient seeks advice. Moreover, the woman who suffers long-standing apareunia is usually so nervous and apprehensive that it is unwise to attempt any procedure under local analgesia.

Apareunia in recently married women without gross vaginismus is mainly due to ignorance, a little instruction and perhaps the daily use of graduated vaginal dilators by the patient herself for a few weeks is all that is required. When, however, the difficulty is long standing and vaginismus is present it is usually necessary to carry out a digital dilatation of the introitus and vagina (this involves stretching or tearing the hymen) under general anaesthesia. After this the patient is instructed in the use of vaginal dilators daily for three weeks. The object of these is not to dilate the vagina further but to allow the patient to convince herself that any previous obstruction

to coitus has been removed and to restore her confidence. The tendency to muscle spasm persists for a time, but this can be overcome by leaving a large-size dilator in the vagina for 10 to 15 minutes. Relaxation of the pelvic floor muscles is also favoured by telling the woman to concentrate on forcibly abducting the thighs when she is lying in the dorsal position with the knees flexed.

#### Erythema Nodosum and Ringworm Infections

**Q**—Is erythema nodosum a recognized accompaniment of animal ringworm infections? A young farm labourer had animal ringworm affecting principally the forehead, and painful shins. The lesions on his shins were undoubtedly those of erythema nodosum.

**A**—Erythema nodosum is one of the recognized patterns of allergic reaction to ringworm infections—an 'ide' reaction, more common with the animal large-spore ringworms than with other types of infection.

#### Snoring

**Q**—A man aged 30 who is about to get married snores loudly. He sleeps with his mouth shut but has no obvious clinical obstruction in the upper respiratory tract and he seems healthy. Is there a remedy?

**A**—Snoring is in most cases due to the tongue falling back during sleep. In the absence of nasal obstruction or disease the usual cause is sleeping on the back. An old and simple means of avoiding this is to strap a small hard object on the middle of the back, so that the sleeper turns for comfort on to his side. The causes and treatment of snoring were discussed by the Section of Laryngology of the Royal Society of Medicine last year, and a report of this discussion appeared in the *Journal* (1947, 2, 835).

### NOTES AND COMMENTS

**Embalming**—Dr P. W. HAMPTON (Onchan, Isle of Man) writes: Your correspondent (July 31, p. 279) who wishes for a simple method of embalming might be interested in the way in which it is done in the trans-Pacific emigrant trade. It is part of the contract that the body of a Chinese passenger dying *en voyage* shall be returned to the Celestial Empire for burial. A layer of ashes from the stove hole is spread at the bottom of the coffin and chloride of lime (chlorinated lime) is liberally sprinkled over this. The body is then laid on top and formalin (40% formaldehyde solution) is injected at various points: neck, right and left sides of chest, abdomen at three or four places, and both thighs. Formalin is then poured into the open mouth and sprinkled all over the body, then chloride of lime again, and finally the coffin is filled with ashes. A four-ounce syringe is used with a wide-bore needle, and a quart jugful of formalin is sufficient. Of course this method is impracticable if the relatives wish to view the body at the end of the voyage. I have embalmed seven Chinese on a voyage from British Columbia to Hong Kong and can vouch for the soundness of this method.

#### Corrections

Dr S. G. B. D. GRAY (London E17) writes: May I correct a numerical error in my letter on children's medicines (*Supplement* Aug 21, p. 91)? "Suspension sulphathiazolis" contains 2 grammes (= 4 tablets) per ounce (not 4 grammes as I stated).

In the article entitled "Modern Therapy of Benign Tertian Malaria" by Dr J. F. Monk in the *Journal* of June 26 there is a misprint at the foot of p. 1224. The dose of quinine in the quinine-pamaquin regime should be 10 gr., not 10 g.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Antology*. Westcent LONDON. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1 on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.) TELEPHONE: EUSTON 2111. TELEGRAMS: *Britmedads*. Westcent LONDON. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, TELEPHONE: EUSTON 2111. TELEGRAMS: *Medisecra*. Westcent LONDON. B.M.A. SCOTTISH OFFICE: 7 Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 11 1948

British Medical Association

## HEALTH CENTRES

Interim Report by the Council of the Association, July, 1948

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### A PRELIMINARY

1 In April, 1947, the Council of the British Medical Association appointed a special committee with the following terms of reference —

“To investigate and report on existing forms of group practice, including partnerships and other forms of collaboration between general practitioners, and to relate this and other experience to health centre development”

The membership was as follows —

G O Barber, M A, M B, B Ch (Great Dunmow)  
A Beauchamp, M B, Ch B (Birmingham)  
J W Bone, B Sc, M B, C M, LL D (Treasurer), (Luton)  
H Guy Dain, M D, F R C S, LL D (Chairman of Council), (Birmingham)  
P J Gibbons, M B, B Ch (Liverpool)  
A S Gough, M B, B S, F R C S (Watford)  
C F R Killick, M B, Ch B (Williton)  
Sir Hugh Lett, Bart., K C V O, C B E, D C L, M B, F R C S (President), (Richmond)  
G Lowe, F R C S Ed (Tiverton, Devon)  
\*H M C Macaulay, M D, D P H (London)  
G MacFeat, O B E, M B, C M (Douglas, Lanarkshire)  
J B Miller, M D, D P H, J P (Chairman of Representative Body), (Bishopbriggs)  
T W Morgan, M B, B S (Kingston-on-Thames)  
A E Porritt, C B E, M A, M Ch, F R C S (London)  
A T Rogers, M B, B S (Bromley)  
J A Scott, O B E, M D, D P H (London)  
H R Youngman, M A, M D, D A. (Cambridge)

\*Resigned April 1948

Observers —

R O C Thomson, M B, Ch B, appointed by the Ministry of Health

Burnett Davis, M D, United States Public Health Service

Dr A Talbot Rogers was appointed Chairman and Dr A Beauchamp Deputy Chairman

On consideration of the Committee's report the Council reserved for further discussion certain aspects of the subject, including the future of the general practitioner, specialist services in health centres, group practice, and the adaptation of the health centre to rural conditions. These matters will be dealt with in the final form of the report. The present interim report is concerned with the conception of the health centre and the general problems arising from it, and is submitted for the information of the medical profession, local health authorities, local medical committees, executive councils, and others interested in the development of health centres.

The interim report is based on a field survey of the present structure of general medical practice carried out by Dr J Revans, then one of the Association's assistant secretaries, with the guidance of a comprehensive questionnaire prepared by the Committee. The data obtained in the survey has been used to build up a narrative picture of the advantages and the shortcomings of present-day practice, and to base upon these findings, and upon the individual experience of its own members, suggestions for the future, with particular reference to the desirability of developing health centres.



and to the types of centre which might prove advantageous in the differing conditions of practice in different areas of the country

The Council is indebted to all those general practitioners and Divisional Secretaries who co-operated in the field survey. Dr Revans received the fullest possible help from everyone he interviewed on his travels. In every area suggested for investigation by the Committee ready co-operation was forthcoming. In addition, far more doctors than were needed or could be visited in the available time sent in suggestions that their particular practices or areas merited investigation. It was therefore necessary to refuse some invitations that could only have taken Dr Revans to areas very similar to ones he had already studied. Invariably Dr Revans found the doctors he was able to visit most communicative. His difficulty soon became not to get the required information but rather to stop the discussion of the ways and methods of that particular practice going on too far into the night.

In submitting its report to the Council the Committee expressed its appreciation of the skilful and tactful way in which Dr Revans carried out his task. It also acknowledged its indebtedness to one of its members, Dr Youngman, for his valuable assistance in the preparation of its report.

## B THE PRESENT STRUCTURE OF GENERAL MEDICAL PRACTICE

### 2 The Field Survey

As was stated in the previous section, an investigation was undertaken of the present structure of medical practice as carried out by general practitioners. It was thought advisable to consider both single-handed and partnership practices in rural, suburban, and urban areas. In addition some less formal methods of collaboration between neighbouring practitioners (not amounting to partnership arrangements) were examined. The single-handed practice (though not specifically mentioned in the Committee's terms of reference) was studied for two chief reasons: first, to find out how many of the single-handed practitioners found this method of practice preferable and so intended to continue practising alone and how many intended later to take partners or assistants, and, secondly, because it was felt that there might be found in this type of practice some who had tried but given up partnership practice, and who might therefore be able to indicate some of the disadvantages of group practice.

The areas visited by Dr Revans in the course of his inquiry included industrial areas, rural and agricultural areas, the great cities and some of their suburban or dormitory areas, seaports, holiday resorts, and mining areas.

### 3 The General Practitioner and his Work

(a) *The Doctor-Patient Relationship* Nearly everybody in this country has one general practitioner whom he regards as his own personal doctor. With certain exceptions, which will be discussed later, it is true to say that whatever kind of medical help is needed, in health or in sickness, the first resort is to a general practitioner, and through him the whole health organization is brought into action as needed. This system was used as the basis of National Health Insurance in 1912, and it is an essential feature of the new health service.

A strong bond exists in many cases between individuals and their family doctors which at its best rises to the level of great confidence on the one hand, a high sense of responsibility on the other, and a true friendship. All the doctors interviewed in the Committee's investigation stressed the

importance of maintaining this personal bond between the patient and an individual doctor in future conditions of practice.

It was found that the doctor-patient relationship was strongest in rural areas and towns with a stable population. It was less strong in the dormitory suburbs of London, especially among the poorer classes. In the vicinity of the London teaching hospitals it was weak mainly because doctors' letters of introduction are not insisted on, it was apparent that in these areas there was a tendency to make direct use of the hospital whenever the patient was able to go to it.

#### (b) *The General Practitioner's Place of Work*

(i) *The Home* General practitioners have the unique advantage among doctors that they are constantly visiting the homes of their patients. This gives them a knowledge of the patient's surroundings and a personal contact without which medical advice and treatment are very gravely handicapped. The importance of this factor in considering any reorganization of medical work cannot be over-emphasized.

(ii) *The Surgery* The majority of general practitioners have surgeries which form part of their own houses. In some cases rooms of an ordinary residence have been adapted for the purpose, in others the surgery has been specially built. In many cases the surgery has been established for 100 years or more. Often each doctor of a partnership has a surgery at his own house. In some cases the partners use a joint surgery, and this may be at the residence of one of the doctors of the firm, in other cases the joint surgery is away from the houses of all the partners and has a resident caretaker.

Another arrangement is the "lock-up surgery" encountered in the poor districts of large cities, the owner may live far away and be unobtainable at night and may leave emergencies to be dealt with by his colleagues.

From the patient's point of view there are advantages in the surgery located at the doctor's residence in that he is readily found outside surgery hours. The surgery away from a doctor's house is equally convenient if there is a secretary or caretaker always in attendance.

To the doctor a surgery forming part of his residence is frequently an embarrassment. The convenience of living by his work is more than offset by the interference with home life. The majority of doctors' wives would prefer the home to be right away from the surgery. The irregularity of meals in a doctor's house, the constant interruption of family activities, and the disturbed nights are enough for any woman to endure without the extra work she cannot avoid if she lives in the building to which come all the patients and messages and telephone calls.

When a joint surgery is combined with the house of one partner he usually gets more than his share of the emergency work. This can only be partly remedied by such an arrangement as an on-call rota.

Some excellent surgery premises were visited during the field survey. The advantages of specially designed premises over adapted rooms were obvious at once. Without doubt the approach of the National Health Service has retarded the development of surgeries generally. Doctors have been reluctant to spend money on their premises before they know what future conditions are to be. The present difficulties of getting building and repairs done and the prohibitive cost have also prevented improvement.

(iii) *Nursing-homes and Hospitals* The shortages of housing accommodation and domestic and nursing help often make difficult the proper care at home of patients who are confined to bed. This applies both to the sick and to maternity work. It is one of the main causes of the overwhelming

demand for beds in hospitals, nursing-homes, and maternity homes. Many of these patients need institutional care solely for domestic reasons, all the medical attention they need being that of their family doctors. The beds available for treatment under the care of general practitioners are limited to the private nursing-homes and cottage hospitals, and, in a very few instances, municipal maternity homes. There are not nearly enough, and most of them are too expensive for the majority of patients. In some of the smaller homes the standard of nursing is open to criticism.

(c) *The General Practitioner's Equipment* The equipment usually possessed by general practitioners may be summarized in the following list—

*Literary* Textbooks, reference books, at least one professional journal

*Diagnostic* Examining couch, stethoscope, sphygmomanometer, reflex hammer, specula (aural, nasal, vaginal, rectal), headlamp or head mirror, ophthalmoscope, urine testing equipment, microscope, containers for transfer of blood and other specimens to pathological laboratory, scales and measure

*Therapeutic* Sterilizer, syringes for injection of drugs and for injection therapies, aural syringe, instruments for minor surgery, midwifery equipment, including that for the commoner difficulties, and Minnitt or other analgesia apparatus, anaesthetic apparatus consisting usually of equipment for "straight gas," open ether and thiopentone

When, as so often is the case, a practitioner has some special interest or part-time specialty, he, of course, possesses more elaborate equipment in connexion with it.

It may be mentioned here that there is a tendency for minor surgery to be transferred from the consulting-room to the hospital or nursing-home or, in some industrial towns where injuries are frequent, to special minor surgery centres. The equipment available there is more complete and constantly ready for use, and there is more help.

(d) *Surgery Hours and Appointments* Consulting hours are usually in the morning and evening, but there is a tendency to introduce an afternoon surgery in some parts of the country. The times chosen depend on local industrial conditions and transport facilities. The extent to which definite appointments are made varies greatly. Consideration shows that an efficient appointment system for all patients is impossible. General practitioners do not know who is intending to come and any attempt at prior arrangement would greatly increase the burden on the doctor or his wife. Patients often fail to keep appointments even when made for special purposes. It is impossible to forecast the time needed for a particular patient, one patient requires a short time for the writing of a certificate, the next one twenty minutes for a careful examination, another five for removing a foreign body from his eye. Moreover, emergency calls to go out, and the unceasing telephone, are no more in abeyance during surgery hours than they are at meal times.

(e) *Ancillary Help* The lay help in a general practice varies from none at all to a secretary and a dispenser. As a rule there is less help than might usefully be employed with economy of professional time. It is rare to find a trained nurse employed whole-time by a general practitioner. The shortage of domestic help has greatly increased the burdens of the doctor's wife.

(f) *The Range of Work Undertaken by General Practitioners* Every kind of medical need comes within the field of the general practitioner as the first doctor to make contact with the patient. For many cases he does everything that is necessary himself. For some he calls in the help of the various kinds of auxiliary workers such as nurses, physiotherapists, social workers, and others.

Some cases he refers to a specialist of one kind or another who helps with diagnosis or treatment or may have to take the case over altogether, as, for instance, into hospital for an operation. This does not end the interest of the family doctor in the patient, the specialist keeps in touch with the doctor and eventually returns the patient with details of his treatment and final advice.

The family doctor thus becomes the pivot of the health service. The privilege, already mentioned, of constantly visiting the homes of his patients leads to an understanding of their problems which gives him an advantage over any other practitioner. He has the personal and family history of each of his patients in his hands, he gets to know their inherited constitutions, their strong and weak points, their physical and psychological circumstances. He also becomes, through long acquaintance, their trusted friend. He is the only possible co-ordinating centre for all that is done for his patient by specialists, nurses, and others. He alone provides continuity. Any attention given without contact with him is apt to be inappropriate through incomplete knowledge of the case.

Midwifery, domiciliary and institutional, forms a regular part of the work of the majority of general practitioners. It often forms one of the strongest bonds in the relationship of the family doctor with his patients. Some practices have a tradition of close co-operation with the local midwives, the practitioners making full use of the local authority's arrangements for antenatal and post-natal care by the family doctor as well as holding themselves available if the midwife sends for medical aid.

The training of doctors in the care of babies and their dietetics has improved enormously during the past generation. Indeed, the teaching hospitals—always the pioneers of any new development—were the first to establish, for the purpose of training their students in a new subject, the special baby clinics which soon spread all over the country and kept a large proportion of this work out of the hands of family doctors. All the same, family doctors who seek it can get plenty of experience in infant welfare. In more than one practice visited in the field survey the majority of the mothers attended the firm's own baby-clinics.

(g) *The Partial Breakdown of the Family-Doctor System* In both town and country there are definite exceptions to the rule that the family doctor is the primary point of contact between the individual and the health services. Side by side with the general practitioner service the public makes direct use of the various kinds of special clinics which have been established everywhere by the local authorities in recent years, and of the health visitor service. These have no organized contact with the general practitioner, and their work overlaps with his considerably. It is needless to point out the inefficiencies that arise from a state of affairs in which advice and treatment are given to the same patient by different doctors and nurses at different times or even simultaneously without any co-operation between them. An account of general practice to-day would be incomplete without a statement of the way in which this situation arose, because it represents a partial breakdown of the family-doctor system, or a failure to adapt it to modern conditions.

Great advances have been made in recent years in the theory and practice of preventive medicine. As new advances were made, naturally those interested in public health as a whole were quick to appreciate their possibilities and to apply them in their care of the health of the community. The family doctors on the other hand, inevitably preoccupied with the individual, were slow in realizing the importance of preventive work and in educating their patients in it. Also the doctor's fee prevented people from seeking advice and supervision or early treatment for minor ailments when they

did not feel really ill. The solution was the establishment of free clinics with preventive functions, such as antenatal care of healthy mothers and guidance in the management of healthy babies. In the first place these were started by voluntary hospitals for the surrounding districts, and in many other places by voluntary committees with charitable funds. They soon proved so valuable that they were adopted universally by the official public health service and have undoubtedly been the chief and most effective source of health education available to the community. Now it is impossible to draw a line between preventive and therapeutic medicine, it was a natural development that the maternity and infant welfare centres and the school medical service and the health visitors tended increasingly to give advice and treatment for the disabilities and ailments they discovered. The more was this so because reference of patients to their family doctors for treatment was likely to involve the payment of fees. Also in many cases co-operation was prevented by a definite antagonism between the general practitioners and the clinics, which they regarded as encroachments on their preserves. It must be said, though, that many practitioners made no attempt to provide what they resented others providing in their place.

Some examples follow of the kind of incoordination that has resulted from the existence side by side of two unrelated but overlapping services, the general practitioners and the clinics —

(1) At most antenatal clinics the expectant mothers are examined by medical officers who never conduct a confinement, but, if the midwife needs to summon medical aid, she sends for a practitioner who has had no opportunity of examining the patient beforehand.

(2) A child is found by his school teacher to have impetigo and is sent to the Education Committee's minor ailments clinic for treatment. His mother is due to give birth to another child at home. The family doctor who is attending her knows nothing of this source of septic infection in the house, and no special precautions are taken to prevent contact, with the result that the mother runs a risk of contracting puerperal fever.

(3) Health visitors often visit in the course of their duty the homes of young babies and others who are being attended simultaneously by their family doctors. Here is a situation in which two agencies could be complementary and extremely helpful to one another and the patient were there any organized co-operation between them. Alas, there is not. In most areas there is only occasional communication, more often doctor and nurse overlap without knowing it, give apparently conflicting advice, confuse an anxious parent, and exasperate each other.

(4) Cases are often referred direct to specialist departments of hospitals by school medical officers, clinic doctors, or health visitors without any communication with the family doctor. This often deprives those dealing with the patient at the hospital of useful information as to history and constitution, with bad and occasionally disastrous results.

(5) Treatment in factory clinics in some instances is carried out without any reference to the family doctor. In such cases the industrial medical officer or the industrial nurse has no knowledge of the family history or home environment of the patient. Without such background of knowledge, treatment can never be efficient. Knowledge and observance of the ethical rules for industrial medical officers by them and their nurses would lead to much more efficient treatment of the patient.

(6) The clinic medical officers do no home visiting. Therefore if a patient (adult, child, or infant) attending a clinic needs medical attention between sessions, or becomes unfit to go outdoors, it is necessary to call in the general practitioner and "swap horses in mid-stream". An actual case is that of a child who was treated at a school clinic for some days for a gastrointestinal upset with a medicine containing full doses of belladonna. While under treatment she became more severely ill during the night, and a general practitioner was sent for. He also supplied a medicine which contained belladonna, not knowing that the child was already taking this drug. Next day

the child was found to be suffering from belladonna poisoning and had to be admitted to hospital.

It is plain that an incoordinated state of affairs has developed in which there is much overlapping and wastage of professional man-power—a wastage which is especially serious to-day in view of the great shortage of doctors and nurses.

#### 4 Ways of Organizing Medical Practice

For the sake of clarity this section is considered under four headings, namely, Single-handed Practice, Partnership Practice, Group Practice, and Forms of Collaboration between Practices, each of which is defined. It will be appreciated, however, that this division is not rigid and that they frequently merge into one another. For example, (1) in a partnership there is almost always some diversity of interests among the respective partners, these different interests are utilized in varying degrees for the division of the partnership's work, and the most highly organized form of this differentiation, in which most of the partners are general practitioner specialists holding hospital appointments, is a typical group practice. (2) What has been termed collaboration may be anything from an informal arrangement between doctors to be on call for each other to a system which unites the practices of a town into something like an organized service, little different from the patient's point of view from a partnership.

#### 5 Single-handed Practice

(a) *Definition* Single-handed practice is a general practice carried on by one medical practitioner.

(b) *Description* The doctor to whom this type of practice most appeals is an individualist. He is stimulated by full responsibility, and would feel hindered by such obligations as exist between partners. He claims that the doctor-patient relationship is seen at its best under these conditions. He would never fit into partnership practice as we know it to-day.

It was found during the survey, however, that many doctors who were working single-handed were not doing so from choice. They disliked isolation and saw advantages in co-operation, many of them would now have been in partnership practice but for the interruption of their plans by the war.

It should be remembered that single-handed practice will always continue in some rural areas where no other arrangement is practicable. It is not confined to such areas now, and there are many practitioners who prefer single handed practice but are not suited to country life.

(c) *Advantages* The greatest advantage of single handed practice is that it attracts into medicine the extremely valuable type of man described above. The quality of the work in a one-man practice is often very high.

The occasional causes of disruption of a partnership are, of course, avoided. Some doctors interviewed had formerly been in partnerships which had proved incompatible and were determined to remain independent for the future.

The knowledge that the financial reward for harder work will be wholly his own is an incentive to the single-handed man.

(d) *Disadvantages* When a practitioner is absent from his work there is a more serious break in the continuity of attendance on his patients if he is single-handed than there is if he has partners. If he is called to an emergency or a confinement during surgery hours the rest of his patients have to wait or be sent away. Absence on holiday necessitates the employment of a locum tenens who has no knowledge of the patients. For this reason the doctor does not take as long holidays as his colleagues in partnership practice. (This is especially true in country districts, where it is often said



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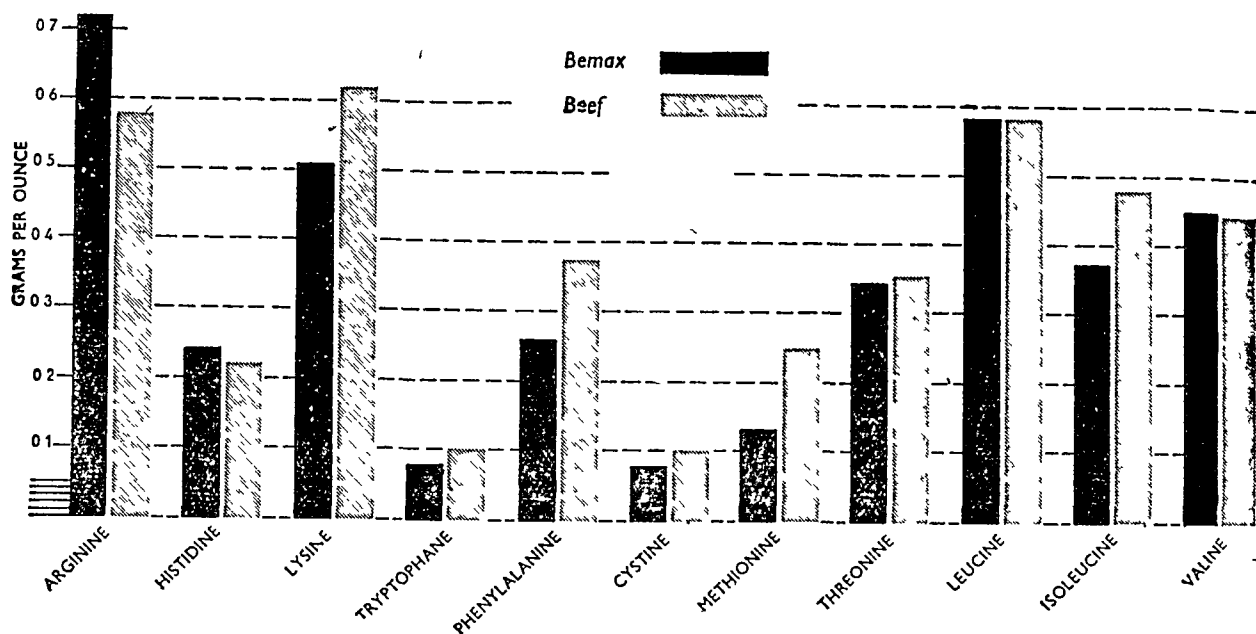
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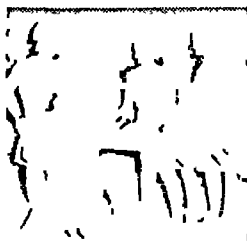


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that the patients so obstinately await their own doctor's return that a locum does not earn his keep) For the same reason it is difficult to take time away for postgraduate study, and when ill the single-handed doctor is apt to stay at work longer than is good for either his patients or himself When in his practice the single-handed practitioner is usually on call 24 hours a day and 7 days a week, arrangements with colleagues for a rota of week-end or night duty are uncommon outside a partnership, and again are open to the criticism that the substitute doctor may have no acquaintance with the absentee's patients

The single-handed practitioner does not enjoy the advantage and stimulus of daily consultation and discussion of cases with colleagues Assistance, such as the services of a second practitioner to administer an anaesthetic, is not so readily obtained as it is between partners, and is sometimes dispensed with to the patient's disadvantage

It is not infrequently observed that in old age a single-handed doctor has carried on too long, or with too big a list of patients, before retiring or curtailing his work Frequent indisposition, unfitness for night work, and even failing judgment may then cause his patients to receive bad service A senior partner is less likely to be in this position, because patients are much more ready to transfer to a junior partner whom they already know than they are to leave their doctor for one in another practice

(c) *Conclusions* The Council considers that in urban areas the disadvantages of single-handed practice outweigh its advantages Although there are many highly efficient and successful practitioners working single-handed, and some who could not work satisfactorily in any other way, the rapid advance of medicine has made the single-handed practitioner's position a difficult one But the Council would be opposed to a policy which rendered single-handed practice impossible.

## 6 Partnership Practice

(a) *Definition* Partnership practice is defined as a general practice carried on by two or more practitioners associated by a partnership bond

(b) *Description* As mentioned before, the definitions used in this account describe types which frequently merge imperceptibly into one another There are partnerships which are little more than single-handed practitioners with a financial connexion At the other extreme is the highly organized partnership based on a joint surgery providing its patients with a wide range of service by means of partial specialization Many of the benefits of partnership practice depend on the possession of a common place of work at which all the partners meet

Most of the following advantages were mentioned by one or more of the practitioners interviewed as their reasons for preferring partnership practice

(c) *Advantages* Partnership gives the opportunity of frequent consultation with one's colleagues and of sharing responsibility with them Two heads are better than one, and it is so easy to obtain a second opinion from a partner—especially when there is a communal surgery Co-operation with partners also produces a friendly competition which stimulates senior and junior partners alike to improve their standard of work and keep up to date Entering a partnership is a most helpful way for the novice to start in general practice, so much of which cannot be learnt until one is engaged in the work

A partnership often provides its patients with an increased range of service by partial differentiation of work between its members Medicine is such a wide subject nowadays that it is impossible for one man to retain more than an elementary knowledge of all its branches though he may go further in

one or two So in a partnership if one member is specially interested, say, in dermatology, another in paediatrics, another in psychiatry, another in anaesthesia, though all remain general practitioners and have their own patients, they can be of great help to one another by exchange of patients for special purposes Or again, often one or two members may carry most of the midwifery of a firm

A family as a whole is better provided for by a partnership than by a one-man practice For example, a child often will not go to the same doctor as his parents, or the doctor becomes associated with some unpleasant episode in the child's mind, so that a change is advantageous There is usually one of the firm who is acceptable, and the continuity of treatment of the family by one practice is thus not broken It is often found that adults, too, appreciate being able to change their doctor (sometimes temporarily for a special purpose) without taking the step of going outside the practice under whose care they have always been In this connexion, and in various other ways, it is advantageous for a partnership to include doctors of both sexes

It is a great advantage to the doctor and his patients for him to have partners to do his work during temporary absence, thus avoiding all the hazards of employing a locum-tenent who is known by neither the patients nor the absent principal This gives the doctor a sense of security against the risk of illness, it makes it easier to take good holidays and time away for postgraduate study, and to arrange a rota of off-duty times instead of being always on call Many doctors say a partnership is worth while for this reason alone

It was observed during the survey that the partnerships usually had more equipment than the single-handed doctors, and a better library of professional books They also, as a rule, spent more on their premises and on secretarial and dispensing assistance These facts make it questionable whether the pooling of expenses leaves a greater net income per head in a partnership, but there is no doubt that partnership gives financial security

It was a common report that the starting of a partnership had been so successful in increasing the work of the practice that after one or two years it became necessary to take on yet another partner A good partnership gets a reputation that attracts patients and commands well-qualified candidates for membership of the firm

The great majority of partnerships were terminated only by retirement, owing to age or illness This durability of partnership arrangements is proof that they generally give satisfaction both to patients and to doctors

Another occasional reason for a partner leaving a firm is retirement from general practice to become a full-time specialist

(d) *Disadvantages of Partnership Practice* Apart from retirements as above, the following list of "disadvantages" includes all the causes of disruption of partnerships recorded during the Committee's investigation

No partnership is successful in which there is incompatibility of personalities This is probably the commonest cause of break-up of a firm Careful choice of a prospective partner by all the members of the firm, preferably with a few months' probation, would seem to be most important

One kind of incompatibility arises from great inequality of age between partners It is inevitable that this inequality should exist periodically in the life of a partnership, it is likely to be more prominent in firms of two or three and less noticeable in the larger firms containing members of all ages

Another cause of failure of a partnership is a partner who does not carry his due share of work and responsibility There is sometimes difficulty in getting rid of a partner who proves undesirable in this or other ways Such situations



arise most frequently in partnerships that have been started without a proper agreement. The value of a partnership deed prepared by a lawyer experienced in this work has been proved again and again.

Sometimes a junior partner is dissatisfied with his financial share in the firm, quite apart from any question of the work being unequally divided. In his early days in general practice a junior partner's work is not as efficient as it will become later. He earns less than his seniors for a time, and it is fair for his share of the proceeds to be less. In the past, however, senior partners have often retained for too long a major share, part of which could only be regarded as continued payment by the junior partner for his place in the firm. Such inequality has been less common in recent years, many modern partnership deeds contain a clause providing for a periodical review of the earnings of the partners and revision of their shares.

The influence of wives is sometimes fatal to a partnership, and it is usually connected with the situation of consulting rooms at the residence of one or more of the doctors. Jealousies or disagreements may arise about the allocation of the doctors' work, or a wife may dislike the neighbourhood of her husband's practice for her own sake or that of her children and do all she can to get him to move away.

The patients of certain partnership practices complain that it is difficult to get attention regularly from one doctor, but this usually seems to be due to lack of proper organization. The average patient agrees readily that his doctor is entitled to be off duty at definite times, especially if he knows there will always be some member of the firm available for emergency. He is also willing to go to any partner for attention of a routine kind and for trivialities, but he appreciates himself the value of continuity of treatment, and for the more serious purposes rightly expects to be able to keep to the doctor of his choice.

A large partnership runs a certain risk of losing the personal touch with its patients, and needs to be on guard against the intrusion of an institutional atmosphere, for instance, a joint surgery should look like a suite of private rooms and as unlike a hospital out-patient department as possible.

(e) *Conclusions* The Council considers the advantages of partnership practice outweigh its disadvantages, it is difficult to conceive a type of general practice more suited to the needs of the present day than a partnership of doctors combining the fine traditions of the family doctor with a variety of interests and experience.

## 7 Group Practice

Group practice is a practice carried on by three or more practitioners in partnership, having a definite relationship with a hospital, providing general practitioner service for their patients, and also covering to a considerable extent the work which is more usually done by consultants and specialists not in general practice.

The Council will give a fuller account of group practice in its final report.

## 8 Forms of Collaboration between Practices

(a) *Definition* Collaboration is a system organized between the members of the various practices in an area with the object of ensuring continuous service to the public while enabling the majority of the doctors to be off duty at night and at week-ends, leaving one or more of their number on duty in rotation.

(b) *Description* The rota system has not been generally adopted, though it appears to be increasing, especially in the industrial areas. Even within some of the large partnerships visited no arrangements had been set up for a rotation of times on and off call. This is inefficient in that no doctor can

really remain constantly on call 24 hours a day, even if he is so nominally, and if no plan is made there will be times when no member of a firm or even no doctor in a town can be found.

The following are typical examples of collaboration —

(i) Night duty and week-end duty are shared among a group of doctors, one of the group is on duty each night in rotation and takes the night calls of all the practices concerned, similarly, week-ends are taken in rotation. In one example of this system there was an interesting clause in the agreement that permanent transfer by a patient to a doctor met on rota duty would not be accepted.

(ii) The "multiple five" type. The rota panel consists of a multiple of five. Each doctor is allotted one of the five nights from Monday to Friday and retains it as his night on duty, and week-ends from Saturday to Monday morning are taken in rotation. For example Dr A is always on call on Monday nights and takes one week-end in five. On Monday nights Drs B, C, D, and E exhibit a notice to say that Dr A is responsible for seeing all patients from 8 p.m. to 9 a.m. Only one of the five is away on holiday at a time. All police stations in the neighbourhood are furnished with a copy of the rota.

Rota arrangements appear to have the effect of reducing out-of-hours calls to a minimum, patients prefer to wait until their own doctor is available unless the matter is really urgent.

(c) *Conclusions* These forms of collaboration do not overcome the main difficulty of single-handed practice, lack of help in the day time, as described on page 110. They do, however, provide the single-handed doctor with a solution of the problem of giving his patients a 24-hour service. The patients get to know their doctor's deputies, though not to the same extent as in a partnership. The employment of a locum tenens for a holiday of any length is usually necessary. In the Council's view collaboration removes some of the disadvantages of single-handed practice but does not procure for patients or doctors the very positive advantages of partnership.

## C PLANNING FOR THE FUTURE

### 9 Summary of Existing Conditions

Having studied the facts of present-day practice organization as revealed by the field survey the Council's next task was to consider what should be the direction of development of general practice under the new National Health Service and how the best features of existing practice might be incorporated in any new system. It will be convenient first to summarize the bad and good points of the present system. The findings may be put under two headings.

#### (a) Defects of the Present System that must be Remedied

(i) The most serious defect is the arbitrary division of family medical practice into several compartments, represented by the various clinics and so-called general practice. This started with an attempt to separate preventive from therapeutic work, which is impossible, and has ended, in an attempt to separate ambulatory from domiciliary work, which is indefensible.

(ii) Many doctors work too much in isolation. The more solitary a general practitioner is, the harder it is for him to play his part under modern conditions. Medical officers of clinics, on the other hand, are handicapped by confinement to a too narrow field of work and lack of contact with their patients' homes.

(iii) Some doctors' surgeries are ill-suited to their purpose, few have ideal labour-saving premises or as much secretarial, dispensing, and nursing help as they could profitably use.

(iv) The care of patients in bed at home is often difficult through lack of room and the shortage of domestic and nursing help. This leads to many patients being admitted to hospitals on the ground of domestic difficulty and not because they need the

attention of a specialist or the full facilities of a hospital. They thus occupy beds which ought to be available for cases requiring specialist investigation and treatment.

(v) Even under perfect conditions the family doctor would have no easy life, but as things are to-day many are needlessly burdened by conditions that could be altered with advantage to the public as well as themselves. Examples are the surgery combined with the home, shortage of domestic and secretarial help, and lack of planned free time.

(vi) All the above factors lead in one way or another to waste of professional time which the nation could ill afford to pay for even if there were not a shortage of doctors.

*(b) Features of the Present System that must be Retained or Developed*

(i) The personal doctor-patient relationship, characteristic of existing general practice, takes first place. Derived from this are the conception of the family as the clinical unit and the position of the general practitioner as the co-ordinating figure from whom the whole of the health services radiate.

(ii) The intellectual stimulus of working in frequent contact and consultation with colleagues is a valuable factor in maintaining a high standard of medical practice.

(iii) Experience has shown that many of the chief benefits of partnership depend on the partners having a common place of work.

(iv) The variability and flexibility of practice to suit different conditions, the purely voluntary nature of partnerships, and the freedom of doctors to organize their work as they think best are features suited to the national character and largely responsible for the high standard of medical work in Great Britain, and should be preserved.

## 10 The Changes Needed

The Council is of opinion that, in any planned development of practice, organization should incorporate the following points:

*(a) The General Practitioner and the Work of Clinics* Some way must be found of uniting the work of family practice with that of the clinics. It is not enough to conduct infant welfare, venereal, and other clinics in the same premises or even to arrange in addition that the work of the clinics is conducted by general practitioners. Essentially, the work of the clinics is either specialist in character, in which case it should be undertaken by specialists at or in association with the hospital, or general practitioner in character, in which case it should be undertaken by general practitioners as part of their daily work. What is wanted is assimilation and not merely liaison.

*(b) The Grouping of Doctors into Family Practice Units* The Council is satisfied that the co-operation of general practitioners in groups with a partial differentiation of function is the most effective way for them to cover the whole field of family practice while preserving the personal doctor-patient relationship. It desires to emphasize that such groups are unlikely to be successful unless they are formed voluntarily. Attention is also drawn again to the experience of the profession that a legal agreement is the best way of ensuring the harmony and permanence of a partnership.

*(c) Improved Working Conditions and Help* Doctors, as the most highly trained and expensive members of the Health Service, should be provided with conditions of work and ancillary help which enable them to produce with the highest degree of efficiency the maximum output of the work for which they have been trained. Although this may involve a great expense such expenditure must be balanced against the alternative expense of training enough extra doctors to provide the man-hours that are now wasted on unproductive effort.

*(d) General Practitioner Beds in Hospitals* It is most desirable that there should be more institutional accommodation for patients confined to bed but not requiring specialist treatment. This applies both to normal maternity cases and to illness. There will be little chance of this for years to come, but wherever it does become possible consideration should be given to the provision of hospital beds where patients could be treated by their family doctors. Such accommodation would not require the

standard of staffing or equipment necessary in the ordinary wards of a hospital, the cost per bed would be considerably less. It has been mentioned that a proportion of specialist hospital beds is occupied now by patients who are in them for reasons of domestic difficulty rather than medical necessity, these beds would be released for their proper use by the provision of the general practitioner beds.

It is important that the general practice wards should be part of a general hospital unit, and they should be under the supervision of the hospital authority. This would be a safeguard against the bad features of some small private nursing-homes. Also the knowledge that his work was open to hospital supervision would give the practitioner a strong incentive to keep up its standard.

*(e) Diagnostic Facilities* If one advantage of contact between the general practitioner and hospital work can be singled out above the rest, it is that he is kept alive to the importance of early diagnosis. The Council emphasizes the need of easy access by general practitioners to diagnostic facilities especially in the fields of radiology and pathology. As the first line of defence in the health service he has the principal part to play here. Recognition of the earliest signs of disease and immediate application of appropriate treatment will reduce incapacity and mortality far more than reference to hospital after a loss of valuable time. In surgery it has become obvious that the mortality rate of acute emergencies, and for that matter many other cases depends much more on early diagnosis and hospitalization than on the capacity of the surgeon who operates. The time factor is all-important, and this depends entirely on the acuity of the general practitioner.

## 11 The Health Centre Concept

Consideration of the aims described in the first three paragraphs of the last section leads with little further reasoning to a definite conception. It is that of a well-equipped building housing a group of doctors who carry out in a co-ordinated way all the work at present done by general practitioners and clinic medical officers. The remainder of the section pictures these doctors as having an organized association with the work of the local hospital. The working place of such a group of doctors may be called a "health centre." This term has already been applied to buildings of varying types with varying functions, but the Council is of opinion that although the organization of each centre should be flexible and adapted to local conditions it should in general conform to certain basic principles and that the development of a system of health centres should proceed on certain lines of policy agreed by the medical profession.

A detailed description of the Council's concept of a health centre is given in the sections which follow. No doubt most of the health centres which are started in the near future will differ from this picture in various ways. Some features suggested by the Council may be much ahead of their time, others may have to be modified in the light of experience.

The Council would be completely opposed to a widespread imposition of a health centre system without consultation of the local profession. It is probably fortunate that for years yet health centres will exist only where there is enthusiasm and determination to try them out in spite of current difficulties. If these experiments prove their value further centres will be welcome by the time it is possible to build them.

## D HEALTH CENTRES

### 12 The Services to be Provided

*(a) The Minimum Range of Service* The Council does not consider that any improvement on present conditions would be gained by the provision of health centres housing general practitioner services alone, or local authority services alone. The centre should unite these two in a single well-co-ordinated service.

As well as this the centre should have its own staff of nurses and midwives, so that frequent consultation will co-ordinate the work of doctors and nurses attending the same cases or visiting the same households. In a recent essay competition for nurses a surprisingly large proportion of the essays received from district nurses complained of the difficulty encountered in nursing patients while having no regular personal contact with the doctor in charge of the case. Every centre should also take part in a programme of health education. Thus the minimum range of work recommended includes

- General medical service
- Care of mothers and young children
- Care of school children
- Vaccination and immunization
- Antenatal and post-natal examinations
- Health visiting
- Home nursing
- Health education

(b) *Specialist Services* The provision of specialist services in relation to health centres is under consideration and will be discussed in the final report

(c) *Dental Services* No doubt many health centres will house the dental services which it is the duty of the local health authority to provide for mothers and young children, and the school dental services. In many cases it would be advantageous to provide accommodation at the health centre for general dental services too, but the opinion of the dental profession should be sought on this and experiments conducted with its co-operation

(d) *Pharmaceutical Services* Different districts will require different arrangements. The existing extreme shortage of trained pharmacists will affect the question of providing a dispensary in a health centre, especially as at least two dispensers would be required to cover the necessary hours of work. In many cases the most efficient pharmaceutical service will be obtained from the chemists' shops in the district, especially if they adopt a rota system for work out of ordinary hours

(e) *Health Centres and Medical Education* Many medical schools are taking an interest in the possibility of medical students or new graduates gaining experience of general practice and social medicine in health centres under the guidance of experienced general practitioners. The Association's Report, *The Training of a Doctor*,\* draws attention to the defects of clinical training based entirely on specialist hospitals and the distorted view of medical practice derived by students. After considering the possibilities of general practitioners teaching clinical students either in the lecture-room or in the field, this Report comes to the conclusion that general practice should be regarded as a post-graduate subject. A recent letter by Professor J. A. Ryle† even suggests that a year's postgraduate service in a health centre might eventually be a condition of admission to the *Medical Register*.

The Council agrees that the health centre could take a valuable part in medical education—as, indeed, every partnership does to-day when joined by a novice—but certain pitfalls must be avoided. One is the suggestion that a health centre should be established conveniently close to, or in, a teaching hospital for purposes of medical education and research in social medicine. This might or might not be the best site for giving most convenient service to the patients of the centre, it would almost certainly not give the best conditions for the work. The impersonal atmosphere of a modern hospital must at all costs be avoided in a health centre. A health centre will not teach students the right lessons unless it is situated,

designed, and run appropriately for its primary purpose, which is the provision of family medical service.

Those practitioners at the health centre who undertake the teaching should be chosen mainly by the local medical committee. The Council suggests that there should be whole-time apprenticeships at the health centre for students or new graduates, not more in number than the medical staff. Even quite short appointments of this character would be more useful than longer periods of visiting the centre by larger numbers of students who were not in a position to feel themselves part of its organization.

(f) *Health Centres and Education of the Public* This matter is under consideration and will be discussed in the final report.

### 13 Professional Staff and Organization of its Work

(a) *The Medical and Nursing Staffs as an Organic Unit* One method of professional staffing is for all the professional work of the centre, as described in the last section, to be carried out by a unified medical and nursing staff. The doctors (about six to eight to a centre) are all general practitioners, for simplicity masculine pronouns will be used in referring to them, but wherever possible centres should have doctors of both sexes. Each doctor has his own list of patients who have chosen him as their family doctor and in general come to see him or are attended in their homes by him. There is, however, some division of kinds of work between the doctors. Of a staff of eight, say, four do most of the antenatal and maternity work for their colleagues' patients as well as their own, four, not necessarily the same four, manage regular baby clinics for the whole centre. To minimize waiting, special times are allotted for antenatal work and baby clinics, and also for attention to school-children. One or two of the doctors do most of the minor surgery, one or two give anaesthetics for dentistry and minor operations and confinements, and so on.

Another method is for each doctor working in the centre to undertake the full range of general practitioner work—antenatal and post-natal, baby clinics and attention to school children included. There is professional co-operation between them without division of labour.

The range of work undertaken and the extent to which patients are exchanged by the staff for special services will vary in different health centres. The doctors co-operating in a health centre should be able to make whatever arrangements they choose for the division of work among them, just as an ordinary partnership does to-day, provided that as a unit they carry out all the services the centre has been established to provide.

The nursing staff provides health visitors, home nurses, and midwives for the patients on the lists of the centre. These all work in close co-operation with the doctors, being in daily contact with them and able to report to and consult with them on any case as the occasion arises. They assist the doctors at antenatal sessions, baby clinics and minor operations. The doctors who do midwifery conduct home confinements with the midwives when required, the anaesthetists are available for confinements whether conducted by a midwife or another doctor.

(b) *Self-Discipline of the Medical Staff* A doctor's work, so much of which is individual, personal, and confidential, cannot be carried out efficiently under close bureaucratic control. It is the Council's opinion that doctors working the National Health Service should be entrusted with the maximum of freedom in every aspect of their work. For this very reason it assumes that the doctors practising in the health centre will co-operate as an organized group, and would regard the renting of consulting-rooms by practitioners who remained independent of each other as definitely undesir-

\* Butterworth 1948 7s 6d

† *British Medical Journal* 1948 1, 1003

able. Less outside control will be needed if the medical staff makes its own arrangements to ensure harmonious working. No doubt various methods will be tried, but it is at least worth considering whether the doctors in a health centre should not join in formal partnership by means of a legal agreement with all the usual clauses providing for settlement of disputes, illness, retirement, and so on. The possible causes of friction in a health centre staff are much the same as those that have been reported in the account of partnership practice, and it seems likely that the most successful preventive measures will be the same too.

Successful co-operation will not be possible unless the doctors are working together by mutual consent, no doctor should be compelled to work in a health centre.

The Council notes with satisfaction that the Ministry has agreed that all doctors in partnerships under the National Health Service Acts shall be free to choose new partners to fill vacancies, and assumes that this applies to the staff of a health centre. It considers the regulations affecting general practitioners should be identical for them all, whether working in health centres or not.

(c) *Distribution of Earnings of Medical Staff* The payment of the doctors will come from more than one source. For provision of general medical services under Part IV of the National Health Service Act, including maternity services, they will be paid by the executive council, for provision of services under Part III of the Act, at least some of them will be paid by the local health authority, for services under Part II, whether performed in hospital or at the centre, by the regional hospital board. Also they should be entitled to receive fees for private work on the same conditions as doctors practising outside health centres.

The Council foresees considerable difficulty in arranging for an equitable distribution of earnings. It considers the staff should be free to adopt any method it chooses, but suggests that all these salaries and fees should be pooled and, after payment of joint expenses such as the rent of consulting-rooms in the centre, distributed to the members of the staff in agreed shares, which should be revised at regular intervals to keep them as nearly as possible proportional to the work done by each partner. Again it seems that the best way of avoiding disagreement over the distribution of earnings would be to let it be controlled on some such lines as these by the financial clauses of a partnership deed.

#### 14 Administration and Lay Staff of Health Centres

(a) *An Administrative Committee* In the words of the Act the local health authority is to "provide, equip and maintain" the health centre. The Council considers that the administration of the centre should be in the hands of a joint Committee representing all the professional personnel (doctors, nurses, dentists, pharmacists) and the medical officer of health or his nominee. The duties of the local health authority would be those of a landlord letting accommodation to the doctors in respect of their work under Part IV of the Act, for the provision of which they would, of course, be under contract with the executive council. The health authority would, however, be the employer of the doctors in so far as they were serving under Part III of the Act; it would also be the whole-time employer of the nurses and the lay staff. The health authority should delegate to the Committee the selection of the lay staff subject to the approval of the authority.

(b) *Administrative Secretary and Lay Staff* The chairman of the medical committee should have a responsible role in the administration of the centre. The remaining lay staff consisting of secretarial assistants, reception and record clerks, telephone and caretaker and cleaners would number about ten.

The way in which the work of the lay staff is carried out is very important. The introduction of health centres will do more harm than good if they acquire an institutional atmosphere. At all costs the patient must continue to feel that he is making a private visit to the doctor who is a friend of his own choice. This will not be easy, in hospital out-patient departments it has been difficult to avoid the impersonal handling of patients, and in the public health clinics, too, the atmosphere has been anything but one of privacy.

(c) *The Handling of Records* must be discreet. There should be nothing but identification details on the outside of a patient's records. It is probably best that those of each doctor's patients should be kept in his own consulting room. If they are kept in a central file, on the patient's arrival at the centre they should be taken to his doctor's room by the receptionist or other member of the secretarial staff.

#### 15 The Health Centre Building

(a) *Site* The strategic placing of a health centre will be most important in the eyes of the public. However well placed it is, many patients will have farther to go to the doctor than before, for the simple reason that the doctors are gathered together in a group of six or more, whereas they were formerly scattered about in ones and twos.

Town planning should provide for the sites of health centres even when there is no immediate possibility of building them.

(b) *Population to be Served* The Council has considered the figures suggested by various planning bodies. It estimates that in urban areas eight doctors could serve a population of 25,000 at one health centre. This would cover a district with a radius of about one mile.

These data are intended for use in deciding the number and siting of health centres in a given area. The "district" of a health centre should not be rigidly defined, as this would seriously limit the public's choice of doctor, especially in an area served entirely by doctors working in health centres. The areas served by partnerships of doctors at present overlap freely, in the same way no person should be compelled to receive attention from the nearest health centre if he prefers to go further to get a doctor of his choice who is willing to accept him on his list.

(c) *The Building should be Designed for the Purpose* The architectural plan, decoration, and furnishing of the health centre are of great importance. They will have a permanent influence on the psychological atmosphere of the centre as well as on its material efficiency. One quite often finds that patients prefer the inadequate but homely surgery of a doctor's house to more modern premises precisely because it does not give the impression of being a particularly medical affair. The architect should bear this in mind.

Ideally all health centres should be new buildings, but under present conditions the use of prefabricated units or the adaptation of existing buildings cannot be excluded. Only cases in which a really good functional result is possible should be considered.

(d) *The Accommodation Required* The Council does not intend to include detailed plans in this report but gives the following list of the accommodation it considers should be included—

(i) *The Administrative Unit* should consist of entrance hall with seats, reception and record office, telephone switchboard and office for the administrative secretary.

(ii) *The Consulting Unit* should contain a suite for each general practitioner on the health centre staff. Each suite should contain a consulting-room, an examining room and a waiting-room. As a minimum there might be one waiting room for patients of two doctors, a large common waiting hall is to be avoided. The decorating, furnishing, and equipping of each doctor's rooms should be carried out to his own taste.

(iii) *A Minor Surgical Unit* may or may not be required, depending on the character of the area served and the availability of a hospital Out-Patient Theatre. When provided it should contain a theatre and sterilizing-room, a dressing room and a recovery room.

(iv) *The Dental Unit*. When provided this should consist of surgeries for the dentists, recovery room for the patients, and separate waiting-room.

(v) *Antenatal Unit*, including waiting-room, consulting room, and series of examination cubicles.

(vi) *Child Welfare Unit*, including waiting-room, weighing room, toddlers' nursery, consulting room, small isolation room, and milk sales room.

(vii) *A Separate School-children's Unit* would have certain advantages. Whether it is considered essential or not there seems no doubt that at present the education authority would demand separate accommodation for the school clinic.

(viii) *A Dispensary* may be required.

(ix) *A Common Room* should be available to the medical and nursing staff for consultation and discussion. The provision of considerable amenities here, including facilities for the preparation of light refreshments, would in the Council's opinion add to the practical efficiency of the centre's work.

(x) *A Large Room* for lectures and demonstrations will be needed for the development of a health education programme if this is to be based on the health centre. Designs have been proposed in which folding partitions make it possible to unite some of the waiting rooms for this purpose at hours when most of the consulting-rooms are not in use.

(xi) *Sleeping Accommodation* will be required at the centre if it is considered necessary for the doctor on night-call to stay there.

(xii) *Toilet Accommodation* for staff of each sex and for patients.

(xiii) *Accommodation for Caretakers*. In many cases it will be convenient to employ a resident couple for this work.

(xiv) *Storage Space* for professional and clerical materials.

(xv) *Parking-space*, sheltered, divided into separate parts for (1) perambulators, (2) cycles, (3) cars.

#### 16 The Adaptation of Health Centres to Rural Conditions

This matter is under consideration and will be discussed in the final report.

#### 17 The Council's Plan and the National Health Service Act

The Council has given some account of its views on the purpose, structure, and staffing of a health centre and on the place which such centres should take in the development of the country's health and medical services under the National Health Service Act, 1946. That Act envisages the health centre as an important feature of the future health organization and places on local health authorities the duty of providing centres. Section 21 reads:

"(1) It shall be the duty of every local health authority to provide, equip, and maintain to the satisfaction of the Minister premises, which shall be called 'health centres', at which facilities shall be available for all or any of the following purposes—

- (a) for the provision of general medical services under Part IV of this Act by medical practitioners
- (b) for the provision of general dental services under Part IV of this Act by dental practitioners
- (c) for the provision of pharmaceutical services under Part IV of this Act by registered pharmacists
- (d) for the provision or organization of any of the services which the local health authority are required or empowered to provide
- (e) for the provision of the services of specialists or other services provided for out-patients under Part II of this Act, or

(f) for the exercise of the powers conferred on the health authority by section one hundred and seventy-one of the Public Health Act, 1936, or section two and ninety-eight of the Public Health (London) Act, 1936 for the publication of information on questions relating to health or disease, and for the delivery of lectures and the display of pictures or cinematograph films in which such questions are dealt with.

(2) A local health authority shall to the satisfaction of the Minister provide staff for any health centre provided by them.

Provided that a local health authority shall not employ medical or dental practitioners at health centres for the purpose of providing general medical services or general dental services under Part IV of this Act."

The latitude for development allowed by this provision of the Act makes it essential for the medical profession to see that health centres develop in accordance with the best interests of the public and with professional traditions and ideals, as has been suggested in the Council's report. The need for watchfulness has, indeed, already been demonstrated, for it is apparent from some of the local authorities' plans that their ideas of health centres do not correspond with the Council's recommendations and will not lead to the integration of clinic and family medical practice. The Council welcomes, however, the references to this subject in Circular 118/47 of the Ministry of Health, under the headings "Care of Mothers and Young Children" and "Health Visitors."

In the next section the Council discusses the need for adequate experiment before any one type of health centre is universally adopted. It is desirable that the medical staff of a health centre should have a corporate existence by some such means as a partnership agreement. Administrative relationships in a health centre will of necessity be complicated, and the existence of a partnership agreement would at least simplify the internal relationships of the staff and allow for wide variation and experiment in the distribution of the work.

#### 18 Proposals for Experimental Health Centres

(a) *Experimentation is Urgent*. The Council regrets the conditions which necessitated the issue of Circular 3/48 by the Minister of Health, in which local health authorities are discouraged from submitting any proposals for the immediate provision of health centres. The recent circular\* in which this position is somewhat modified is welcomed. While appreciating that there is no possibility of their general provision for some years to come, the Council urges that wherever it can be done experimental health centres should now be set up for the purpose of observing them in action and studying their effect on the efficiency of the health services. Circular 3/48 mentions the need for intensive research and thought about design, the Council and other bodies have done a great deal of this and the time is ripe for actual experiment. There are new towns and large housing estates being constructed in which some kind of accommodation for the health services will have to be built, in these it would seem an actual economy to build health centres in the most convenient sites instead of separate premises for the doctors' surgeries and the local authority services.

(b) *Existing Proposals and their Possible Development*. In the plans for health centres prepared by many local authorities the centre is simply a building housing a communal surgery for general practitioners side by side with accommodation for the clinics, the two parts continuing as at present to work without any organic connexion and with

\* Ministry of Health letter dated April 13, 1948, addressed to Major Local Authorities on Health Centres.



separate medical staffs. This plan goes only a little way towards the realization of the Council's ideal, though it is at least a start in the right direction. Their proximity will make it easier for the members of the two parts to meet, air their differences, discuss their problems, and begin to co-operate with each other over individual cases. As time goes on, it is to be hoped, there will be gradual integration of the two staffs into a family-practice unit of one kind or another, not necessarily on the exact lines which at present seem best to the Council. There is plenty of scope for extremely interesting experiment, very likely this will lead to the development of various types of health centres suited to the condition of different parts of the country.

(c) *Council's Proposal for More Advanced Experiments* The Council earnestly hopes that it will be possible in some places to make experiments in which the system of staffing described in Sections 12 and 13 of this report is tried from the start. It realizes this would have to be done without prejudicing the rights of the existing medical officers of clinics, but it is encouraged to believe from Circular 118/47 that this is not impossible. It is suggested that in some cases this problem could be solved by such medical officers being willing to co-operate in the experimental health centre by undertaking a share of the general practice and continuing with their special work on a part-time basis. Experimentation of this kind would in some ways be easier in a new or growing urban area, but it would also have a special interest if carried out among an old-established population.

(d) *The Initiation of a Health Centre* The first requirement for a successful experiment is enthusiasm on the part of those who would take part in it. The Council is informed that there are many groups of doctors in various parts of the country who would like to start health centre practices. In most of these cases there will be no possibility of providing new buildings in the near future, but it is quite possible that the doctors themselves may be able to assist in finding premises capable of efficient adaptation.

Whoever takes the first step, the stage of informal discussions should include the general practitioners and the clinic medical officers who are interested, the medical officer of health, and the local medical committee. The official initiative will have to come from the local health authority, which will no doubt consult with the executive council before taking action. Formal proposals will have to be published and submitted to all interested bodies at the same time as they are sent to the Ministry, and after any modifications found necessary the Ministry will give its approval.

All this machinery will undoubtedly move very slowly, so it is all the more important to get it in motion as soon as possible. The number of projects which any local authority and the Ministry of Health could approve will be limited by the amount of conversion required and, therefore, by the amount of material to be used.

(e) *Experiment in the Absence of a Building* In areas where it is impossible to provide any premises for a health centre it should still be possible to experiment with the health centre method to some extent. In fact it is possible that such experiments might lead to the evolution of an alternative to the health centre. It is possible to conceive of a close functional link between the general medical services and the public health services without any physical link in common premises, but at present the Council's opinion is that there are so many advantages depending on the physical contact that with it the evolution of a completely integrated service would go further.

A group of doctors could combine in an organized partnership with partial differentiation of function as described above,

the medical officers of the local health authority clinics, including the school clinic, being included in the group. Close liaison should be established with the nursing services, or preferably a group of midwives and nurses should be seconded by the local health authority to work with the doctors' group as a unit. A minimum physical link which would be essential to co-ordinate the work of this unit would be a central office to handle its correspondence and telephone connexions.

## 19 Conclusion

The Council, having reviewed the present conditions of general practice in this country, is satisfied that the most satisfactory form of practice at present and in the immediate future is partnership practice from a common surgery. It believes that the logical future development will be the provision of specially designed health centres from which both general practitioner and the present local authority services can be provided. Widespread development of such centres cannot, and should not, be commenced without experimental trial of different types of health centre in varying areas. Early experiment is advisable and prototypes should now be designed, built, and put into commission. A central committee should be established without delay, to offer guidance during this experimental period and to collect information of the results achieved.

## AUSTRALASIAN MEDICAL CONGRESS

### SIXTH SESSION

The Sixth Session of the Australasian Medical Congress of the British Medical Association was held from Aug 15 to 21 at Perth, the capital city of Western Australia. Over 500 medical men attended, of whom nearly one-half were practitioners in the home State. His Excellency the Lieutenant-Governor of Western Australia, Sir James Mitchell, was patron and opened the congress at the inaugural meeting in the Winthrop Hall.

The President, Dr McWhae, then delivered his address on "The Medical Profession of Australia and the War". After acknowledging his indebtedness for the detailed facts to Major-General S R Burston, Director-General of Medical Services of the Australian Imperial Force and Army during the war, he described how the profession was administered in wartime in order to provide for the needs of the Services and the civil population. One-third of the profession had served with the Armed Forces. By 1943-4 the Australian Army Medical Corps included 2,500 doctors, 3,500 nurses, and over 26,000 others, and it provided 35,000 hospital beds in Australia and in the operational areas, as well as 13,000 beds in casualty clearing stations and convalescent depots. The completely transportable mobile field hospitals and the pioneering of air carriage of casualties were placed to the credit of the Royal Australian Air Force Medical Service.

The President then drew attention to the post-war provision of overseas fellowships of the Nuffield and Carnegie Foundations and of the Carnegie Trust, and also to the Gordon Craig travelling scholarships. The total value was approximately £60,000, and between forty and fifty medical officers had already benefited. The Armed Forces and the community had been well and faithfully served by the doctors during the most difficult and fateful years Australia had ever known.

"Pulmonary Tuberculosis" was the subject discussed at the plenary session and various speakers considered such topics as control and preventive measures, treatment, sociological implications, radiological limitations, and clinical and laboratory methods. At the conclusion the Congress decided to support the formation of a voluntary body whose membership should be nation-wide to promote and co-ordinate anti-tuberculosis activities. Later in the week measures were taken to establish the National Tuberculosis Association of Australia. Sir Henry Simpson Newland was elected president and Dr D R W Cowan, of Adelaide, honorary secretary.



The Congress Lecture—on "Virus Disease and its Partial Conquest"—was delivered in the Winthrop Hall on Aug 18 by Professor F M Burnet, F R S, Professor of Experimental Medicine at the University of Melbourne and Director of the Walter and Eliza Hall Institute of Medical Research. He gave a lucid exposition in non-technical language and showed illustrations of the structure of virus bodies and swarms of them in action disintegrating bacteria. Afterwards the honorary degree of Doctor of Science was conferred on Professor Burnet, Sir Henry Simpson Newland (President of the Federal Council of the British Medical Association in Australia), and on two visitors from abroad—Professor James C Spence, Professor of Child Health at the University of Durham, and Professor F B Walsh, Professor of Ophthalmology at the Johns Hopkins Medical School, Baltimore.

The Congress conducted its scientific work in fourteen sections, meeting alone or in appropriate combinations. Reports of the proceedings will appear in the *Medical Journal of Australia*, there were 150 original opening contributions. Professor Spence contributed to the symposium on tuberculosis at the plenary session, made two addresses in the Section of Paediatrics, and entered into several of the discussions. Professor Frank B Walsh addressed a combined meeting of the Section of Ophthalmology with that of Neurology and Psychiatry on Aug 17, and a combined meeting of those sections with that of Medicine on "Myasthenia Gravis." The Section of Medicine held symposiums on "Ulcerative Colitis" (with the Section of Surgery), on "Hepatic Disease" (with the Section of Pathology, Bacteriology, Biochemistry, and Experimental Medicine), and on "Rheumatic Fever," and it was decided to advocate compulsory notification of rheumatic affections to the State authorities in order to obtain reliable information on which to base future plans. Hobbies and scientific and trade exhibitions were arranged, and provided much to interest the members of the Congress.

Visiting members were accorded a civic reception and luncheon, and the Congress dinner was attended by 300 members including all the visitors. Dr and Mrs McWhae held a reception and also gave a special dinner-party. The Western Australian Branch of the British Medical Association held a magnificent Congress ball.

The previous session was held at Adelaide in 1937, and the war intervened to postpone the one at Perth for nine years. It has been decided to hold the Seventh Session at Brisbane in 1950. Dr H M Trethowan, the Honorary General Secretary, is to be warmly congratulated on the success of the occasion.

### SPECTACLES FOR SCHOOL-CHILDREN

In a recent circular (Administrative Memorandum No 294) the Ministry of Education has told local education authorities how the supplementary ophthalmic services can be used for school-children. If the oculist selected by the authority is on the ophthalmic list, he will receive payment from the executive council. If a full-time medical officer of the authority is placed on the list, the remuneration received from the executive council should be handed over to the authority. (It should be noted that the fee payable for refractions undertaken at school clinic sessions is being reconsidered.)

The supply of glasses will be undertaken by ophthalmic or dispensing opticians on the ophthalmic list on presentation by the parent of the appropriate form (i.e., the prescription form or the form giving authority to repair or replace glasses). Education authorities will be charged by executive councils only when replacement or repair of spectacles is due to lack of care on the part of the child or parent. A charge will be payable by the parent, however, if glasses of a more expensive type are supplied than those ordinarily prescribed for this service.

Since there is to be freedom of choice of optician, the contracts which some authorities have with selected opticians, including in some cases arrangements for the selected optician to attend at the school clinic, cannot be continued. Detailed instructions about the method of completing the various forms are given in the memorandum.

## National Health Service News

### Ophthalmic Prescriptions

The method of writing an ophthalmic prescription generally accepted in this country and in the United States is

Right Eye	Sphere	Cylinder
Left Eye	Sphere	Cylinder

A large firm of optical manufacturers points out that some doctors now practising in this country write prescriptions in the reverse way—the cylinder written first instead of the sphere, and the left eye first instead of the right. In many cases these prescriptions are passed on to manufacturers whose staffs are trained in the conventional way of reading them, with the result that a large number of returns are incurred which could be avoided if all doctors adhered to the normal practice.

### Fees for Anaesthetists under Maternity Medical Services

Medical practitioners called in by midwives to give anaesthetics are paid in accordance with the Medical Practitioners (Fees) (No 2) Regulations, 1948—i.e., £1 15s plus the usual mileage fee of the district (with a limit of one mileage fee for one journey). The Minister of Health has decided that they shall be paid on the same basis if they are called in by general practitioner obstetricians or general practitioners providing maternity medical services for patients on their lists.

## HEARD AT HEADQUARTERS

### Gardens

Though the English are not often credited with great ability in the visual arts, there is at least one at which we have always excelled—filling odd patches, covering fences and walls, edging spacious lawns with beautiful flowers. Gardening is indeed the "popular" art of England, as folk-dancing or wood carving are elsewhere. Our temperate climate, though we often grumble at its vagaries, is one of the most perfect in the world for gardening and enables us to grow with a little trouble plants from the ends of the earth—dahlias from Mexico, primulas from the Far East, gentians from the Swiss Alps, nemesias from South Africa, and lilies from the Himalayas. The Ministry of Health is therefore to be congratulated on the publication of an illustrated booklet entitled *Our Gardens* (HMSO 1s) to help us, in the words of Mr Bevan, who contributes a foreword, 'to maintain in the surroundings and the settings of our homes that tradition of good gardening of which our country has always been proud. Nor is the town dweller forgotten, there are suggestions for window boxes and a climber such as the purple clematis will grow from a small plot of earth to decorate an ugly wall. A copy of *Our Gardens* has been sent to all housing authorities with the request that it be brought to the notice of council tenants. No doubt their well-being as well as their pleasure will be enhanced if they carry out some of its suggestions.'

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton le Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Tyldesley

## Correspondence

### Pharmaceutical Services for All

SIR—I write to support Dr Lewis G Glover's proposal (*Supplement Aug 28 p 96*) that all registered medical practitioners irrespective of the branch of medicine in which they are engaged and of whether they are in the National Health Service or not should be allowed to prescribe on NHS forms and to obtain pharmaceutical services free of charge or their patients, all of whom are now automatically "in the service" and therefore entitled to this service.

I am myself engaged in clinical pathology. In this capacity my department carries out work for patients covered by the service but I myself am not a part of the Service. I am an employed person, and therefore have to make my weekly payments. I have placed myself my wife and my children on the NHS list of the general practitioner friend who has kindly looked after the family for some years, but the personal relationship between us remains unchanged. It is however a nuisance both to him and to myself if, every time a member of the family wants something from the chemist, I must call on him to provide a prescription. He has more than enough writing to do nowadays but I object strongly to paying the chemist myself when I already have to make a weekly payment towards his services—I am, etc.,

Essex Surrey

GERALD OLLERENSHAW

### Scramble for Heads

SIR—If the distasteful scramble for heads is to be prevented the number of NHS patients on doctors' lists must be limited, also the *per capita* payment must be adequate. Given these two conditions then an adequate and fair and just service would be possible. For the first 1 000 patients on a doctor's list of NHS the payment should be 50s per head, for the second 1 000 patients it should be 40s per head, and for the next 500 patients it should be 20s a head.

Two thousand five hundred patients should be the maximum number allowed for any doctor in a single handed practice. For partnerships it should also be the maximum number allowed to each partner—i.e., 2 500. There is a mistaken idea among country doctors that town doctors will have lists of 4 000 people. This is quite wrong, with the exception of those in industrial slum areas. I think that the truth is that under the old NHI scheme both country and town practices had about 1 000 patients and under the new NHS scheme these numbers will be about double—i.e., 2 000. No man can cope properly with more than 2 500 potential patients. If the lists are not limited as I suggest the NHS will break down, and on the other hand work will be badly done. Most doctors will have to employ secretaries to cope with the increased clerical work entailed by the NHS. I invite the Minister of Health to come and see for himself how the practice is run—I am, etc.

Southridge Works

F W CHEESE

### A Salaried Service

SIR—Under the National Health Service we now have doctors in some places faced with a considerable drop in their incomes, and in other places an increase of income with an intolerable burden of work. A proportion of the former will probably be forced to migrate from their present homes by economic sanctions.

Surely a health service with an adequate salary and reasonable conditions of work for all doctors and fair treatment for all patients would have been better. Further it is preferable that decisions should rather be by a committee than by economics though no doubt the end result will be much the same. Under the present capitation system the average general practitioner is faced with a progressive reduction of income as the number of those in general practice increase, and thus will be forced to the under-doctoring areas.

I consider that the leaders of the profession have shown an incompensable lack of foresight and even common sense. They have attempted to continue the former conditions of

medical practice in a changing world, these were finished when it was agreed the service should cover 100% of the population. They have not been practical and have thought only of certain alleged principles or catchwords such as 'choice of doctor' and 'choice of patient'.

I do think it is shameful that these leaders should have agreed to and even urged on the Minister to make regulations which will put financial stress on some of their colleagues through no fault of their own. The situation would be eased if the basic salary was universal and raised considerably.

I personally would be glad to accept an offer of an adequate salary and reasonable conditions of work from the Minister at any time and to give up in return any right to private practice. I would then be able to attend to all my patients having regard only to their medical needs. I believe there are many more who think as I do and are disappointed with the present health service.

What I want to see is a service which encourages "the practice of medicine" and not just "the counting of heads" and, secondly co-operation among, and not competition between doctors—I am, etc.,

Bath

ROBERT J K FLEMING

### Certification

SIR—Would you allow me to register a protest against the supplementary certificate of the National Health Service? I am apparently expected to certify that I have examined some person unnamed and found him or her unfit for work. As far as I am aware this is a new departure in medical practice, and a highly undesirable one, which might be put to some quite unforeseen use in the hands of unscrupulous people—I am, etc.

Preston

J R EATOUGH

\*\* The Minister issued the following statement to executive councils on July 28. *Supplementary Certificate—Form Med 5*. By a printing error, the line was left out for the doctor to enter the patient's name on this certificate. The omission will be rectified when the form is reprinted. In the meantime, the Executive Council should, when opportunity offers, ask the doctors in their area to insert the patient's name at the top of the form before issuing the certificate"—Ed, B M J

### Crocodile Tears

SIR—'When I hear of people "suffering" when I hear talk of this kind, I stop before I either express or feel compassion to ascertain who and what the sufferers are.' Thus the abusive, hot-headed pre-socialist William Cobbett. Do our socialists apply even that rule before giving utterance in similar circumstances? Nothing is easier to produce than a torrent of passion and eloquence in defence of the imaginary wrongs of the sick and suffering yet Mr Bevan and one or two socialist women thought this a fitting manner in which to inaugurate the National Health Service. But crocodile tears of this kind are only drops in the ocean beside the genuine but unwept tears of thousands of doctors every day for the melancholy sufferings of many of their patients. May one therefore, express the hope that this may be the last of such diatribes on the subject of suffering from people who do not know to those who do.

A dignified restraint of utterance, tolerance, and a refusal to burst into a raging flame when some comparatively trivial rules have been infringed often in ignorance, mark out the statesman from the mere politician, and indeed the socialist of one type from that of another type. To those who have eyes to see it this intolerance, this ungovernable fury on the part of men not great enough to govern (who think they have been flouted), marks the beginning of the eve of freedom and the onset of tyranny.

If ever there was a time when we as a profession needed the B M A or some comparable association to protect our interests, that time is surely now. But can we be certain that the B M A is even scrutinizing some of the regulations now trickling out of the Government mill, and which we may expect soon to see in ever-increasing crescendo? What kind of right has anyone, for instance, to tell us that we must attend as "temporary residents" foreign visitors who may well be luxuriating in fashionable and expensive hotels? Many of us it is true, may long have lost the boisterousness and hardihood of our student

days and only wish to live in peace with all men, but if one may utter a *caveat* it is that we may not be driven too far. To all appearances everything has now been settled amicably and all that remains to be done is to goad on the doctors and make them work. A little abuse here, a little vilification there, an abundance of misrepresentation of all kinds, and all one has to contend with is the suppressed fury of many thousands of highly intelligent beings. How will it end?—I am, etc.,

Hove Sussex

G L DAVIES

### Remuneration

SIR—When the Spens Report on the remuneration of specialists and other whole-time hospital medical officers was published the principle was expounded that clinical work should be remunerated more fairly than in the past, when high salaries meant administrative posts. The Ministry of Pensions has reviewed the salaries of hospital medical officers and has just notified them individually of the new salaries. In accordance with usual practice the notification does not indicate whether any increments will be allowed in future years, nor has any provision been made for superannuation, for this is not necessary, as the Ministry stays out of the NHS and is not bound to accept the principles of the Spens Report, etc.

The writer has been employed for some years at the maximum scale of £550 per annum (plus £100 living out allowance and £90 consolidation allowance, making £740 total remuneration), having reached this by annual increments (which had to be requested) from the starting salary of £350 per annum. On applications made in recent years I have been informed that the Ministry did not "usually pay more." The new salary has been consolidated to include all these at £890 per annum.

This information may enable hospital medical officers not employed by the Ministry of Pensions to obtain some idea of their proposed new salaries, especially as there have been rumours that the Treasury could not accept the Spens Report—I am, etc.,

'TEMPORARY' MEDICAL OFFICER

\*\* The Secretary of the B M A states: The Association will do its utmost to ensure that medical remuneration outside the NHS is brought into relation with the NHS rates negotiated on the basis of the Spens Report.

### Antenatal Treatment

SIR—I wish to draw to the attention of those practitioners who may be serving in the NHS maternity service some points which in my opinion require further thought.

A patient may, if she cares, elect to be attended at her confinement by a specialist obstetrician in a private nursing-home and pay fees, but the general practitioner on whom she depends for antenatal supervision has to be content with 3½ guineas, and he will not even qualify for this unless the patient has applied to him for treatment, and then only when "the doctor makes the initial antenatal examination and gives supervision to the end of pregnancy, including antenatal examinations at the 36th and 38th weeks." In many such cases it is the specialist who makes the initial examination, and very often the patient decides to leave home before the 38th week to reside nearer the nursing-home, if she normally resides in the country. Therefore the patient's panel practitioner cannot qualify for antenatal payment, but he can be a cheap stop-gap to serve a patient for 15s 2d per annum under National Health Service Regulations.

I contend that a patient who is prepared to spend a considerable sum on fees for nursing-homes and specialist treatment has no moral right to avail herself of the services of a doctor paid 15s 2d per year. In other words, to have her general medical service "on the cheap" so that she may go to a nursing-home is unjust. In my opinion anyone electing to have private treatment in a nursing-home should lose the right to free treatment from her panel doctor during the antenatal and post-natal period.

There is one more very important item which deserves very careful consideration. I refer to a circular letter addressed to district nurses in this area in which I reside, and for all I know it may be more widespread. I quote the lines which I think require attention: "It is no longer a condition that the mother must have the services of both the doctor and midwife, so that

you may have application made to you by mothers who require your services as a midwife without a doctor."

In this I see a practice developing with danger lurking several places. Of course it will dispense with the necessity of paying a doctor seven guineas, and that is very important. The midwife can call in the doctor in an emergency if necessary, even though antenatal supervision by the doctor might have prevented the emergency. Again, two and a half guineas will have been saved—not so good, but better than paying out seven guineas. Why not dispense with the doctors' services altogether and send all emergencies to hospital? I may be wrong, but I have a feeling that soon mothers will be advised not to go to the doctor at all in order to save expense—I am, etc.,

Callander Perthshire

F C M MCILWRICK

### Mileage and Midwifery

SIR—I have not noticed any reference to one glaring omission in the NHS which should prove as great a grievance with a section of the general public as it is to a number of medical practitioners. I refer to the fact that no mileage is payable for maternity cases in rural areas.

As I see it, mileage is compensation for time wasted in attending patients at a distance, and it has been suggested to me that no mileage fee is paid for maternity cases (though curiously enough it is if one is called in by a midwife) because when the woman is on the doctor's list he is already getting paid mileage for her.

This, Sir, is not a good answer. Women often do not have their babies at their own homes in the country. May I cite two cases which I have seen during the past week? The first is a girl who lives near me, but in the present difficulty with domestic help she proposes to produce her baby in a nursing home in Bedford and wishes me to follow her there. This is quite usual, I have been doing it repeatedly for years, but not at the fee I should charge the same patient locally. Bedford is 12 miles away. Is it economically sound or sensible that I should agree to attend a first confinement 12 miles away for four and a half guineas? There are of course many excellent obstetricians in Bedford, but I brought the girl into the world and have looked after her ever since, and she wishes to be in my hands when she is confined. Where, then, is the free choice of doctor at the one time which probably most matters?

The second case is a girl now living 200 miles away—a primi gravida with a very bad heart. Because I have looked after her since she was a child she is coming to her mother's home, five miles away, so that I may attend her. Does this not deserve some mileage?

Young women often move to their mothers' homes at a much greater distance to have their babies, and there are a number of villages in my practice where the nearest doctor is over five miles away. Are doctors to refuse to attend these confinements until called by the midwife, when they do get paid mileage? I wonder if this could be brought to the notice of the Minister—I am, etc.,

St Neots Hunts

H C CRAVEN VEITCH

### Prescribing in NHS

SIR—In reference to my letter under the above heading in the *Supplement* of Aug 14 (p 84), may I be permitted to say that I am very glad to note from the Department of Health Circular ECS 27/1948 that the point raised by me has been anticipated and met by the authorities (see *Supplement* Aug 21 p 89)?

I am, however, at a loss to understand why a special form (Form EC 10A) should be needed for prescribing stocks of drugs for one's bag. I already carry in my bag, apart from its usual contents, three books of Forms EC 10 (my name being on the medical lists of three adjacent executive councils) a book each of Forms Med 1, Med 2 (A and B), Med 3, some of my own private forms for use for my private patients, a copy of the regulations for the certification of priority foods (for some reason also marked Med 2), and a few envelopes. The desk in my consulting-room is stocked with several more forms, such as certificates for glasses (Form OSC 1 (Scotland)), Med 5, etc., and the avalanche of forms is still gathering momentum. I suggest, Sir, that to devise and issue special forms for stock prescriptions is an unnecessary wastage of public money, effort,

I do not know what other important matters have been considered and approved—e.g. has the profession agreed that

patients admitted to private rooms in hospital shall pay twice for the cost of maintenance, and in addition pay an "amenity" charge?

It may well be that Dr Bourne is right and that sufficient negotiation on terms of service has not taken place, or it may be that, as in the case quoted, negotiations have taken place and the pass has been sold without our knowledge. It is certainly time that the position should be clarified, and the Winchester Division feels strongly that a thorough reorganization should take place—I am, etc.,

Winchester

C J PENNY

### Children's Medicines

SIR,—I was interested in the letter by Surgeon-Commander St George B Delisle Gray (*Supplement* Aug 21, p 91) pleading for more palatable medicines for children. Old records in our possession establish our claim that George Dunhill was growing and selling liquorice root and making "Pontefract Cakes" as far back as 1760. In those days the cake was known as liquorice cake. A few years before the war further evidence came to light that he was paying rent for land in Pontefract on which he grew liquorice root in 1749, so it becomes fairly safe to assume that he was also making liquorice cakes nearly 200 years ago. We have it on record that his purpose in introducing his liquorice cake was to make the taking of liquorice as a medicine more palatable. In those days it would appear that folks depended upon herbs and roots as the remedies for their ailments. We understand that liquorice is still very much used in present-day medicines. It certainly is a very popular ingredient in sugar confectionery, and when George Dunhill introduced his liquorice cakes nearly 200 years ago with the same idea as your correspondent, that of making medicines more palatable, he laid the foundation of the liquorice confectionery trade, as every liquorice confection there is on the world's market to-day has developed from his original introduction—I am, etc.,

REUBEN T KENNEDY,

London N 12

London Manager Dunhills (Pontefract) Limited

### Quarterly Payment

SIR—In your issue of March 20 (*Journal* p 567) you published our letter in which we referred to the doctor becoming a branch manager for a multiple concern and working 24-hour shifts. We believe that some doctors thought we were overstating the case, thinking that private patients would exist. Our experiences reveal otherwise, because of the heavy drain of taxation in some form or other.

With the cessation of private patients no ready money is at hand, and this position is further aggravated by the fact that the doctor gets his pay (we detest using the term) quarterly. Out of four quarters' pay income tax is met in two, the remaining two goes in rent, rates, motor expenses, maid's wages, maid's insurance stamps, and indeed our own subscription of 6s 2d weekly. Indeed it looks as if nothing is left for ready-money shopping.

The present system of paying the doctor quarterly gives the Government three months' free use of all doctors' earnings. Who else but doctors would allow such a happening?—We are, etc.,

Belfast

E J A DOUGAN  
H P LOWE

### POINTS FROM LETTERS

#### Huge Cost of Prescribing

Dr H G HARVEY (Dorchester, Dorset) writes. Since July 5 I have already written in my surgery alone 970 prescriptions, 1 per 4 patients on my list, excluding all prescriptions on my rounds, and this in the less busy summer months. One is amazed by the extras such as douches and nozzles, eye baths, pessaries, etc., one is invited to supply. More strange and more alarming still is the undoubted fact that the patients think they get all these extras free because the Government supplies them. I am firmly convinced that the huge cost of prescribing now piling up will in the short run return to the public for payment by increased taxation or other methods no less distasteful. The working classes will pay the largest share, as they represent the greater proportion of the population, and doctors may quite probably be compelled to pry by reduction of capitation rate as well as taxation.

## Association Notices

### Diary of Central Meetings

16 Thurs Publishing Subcommittee, 11 a.m.

### ELECTION BY MEMBERS OF (1) BERKS, BUCKS AND OXFORD, BIRMINGHAM AND STAFFORDSHIRE BRANCHES, AND (2) METROPOLITAN COUNTIES BRANCH

The following are the results of the election of members of Council to fill the vacancies in Groups F and I

GROUP F (Berks, Bucks and Oxford, Birmingham and Staffordshire Branches)

S F Logan Dahne (Reading)	432 (elected)
R H D Laverty (Coventry)	332
No of voting papers issued	3,210
No returned	769
Spoiled papers	5

GROUP I (Metropolitan Counties Branch)

R W Cockshut (Hendon)	416
R Hale-White (Marylebone)	908 (elected)
J A Moody (Stratford)	202
No of voting papers issued	7,151
No returned	1,538
Spoiled papers	12

CHARLES HILL  
Secretary

### SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award

1 The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice, it includes a money award of the value of 50 guineas

2 Any member of the Association who is engaged in general practice is eligible to compete for the prize

3 The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions

4 Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, WC1, not later than Dec 31, 1948. The prize will be awarded at the Annual General Meeting of the Association to be held in 1949

5 No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize

6 If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final

7 Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address

8 The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association

9 Inquiries relative to the prize should be addressed to the Secretary

LONDON SATURDAY SEPTEMBER 18 1948

## LOWERED INCIDENCE OF SENSITIZATION THROUGH USE OF SULPHONAMIDE COMBINATIONS\*

A NEW CONCEPT

BY

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The incidence of allergic reactions is largely dependent upon the nature of the allergenic substance and the amount and concentration of the antigen to which the individual is exposed. It is also influenced by a great number of predisposing factors such as heredity, constitution, infection, immunization, dysfunction of various organ systems, as well as meteorological and geographical conditions. It is generally recognized that within limits, the frequency of allergic reactions will increase in direct proportion with the intensity of exposure to the allergen,<sup>1,2,3</sup> particularly in types of sensitization where the role of heredity is less marked. Apparently almost every individual can be sensitized by adequate contact.<sup>4</sup>

There should be little reason to doubt that this rule applies to all drugs that can act as full antigens or haptens, including the sulphonamides. Suggestions of a definite relation between dosage of sulphonamides and sensitization have been made repeatedly almost since the inception of their clinical application,<sup>5,6</sup> and yet it is still widely believed that the incidence of allergic reactions from the sulphonamides is independent of the dosage used.<sup>8,9</sup>

A critical evaluation of the vast literature on sulphonamide therapy, greatly enriched during the recent war by exacting large scale studies of the armed Forces here and abroad, gives no support to the assumed independence of dosage and incidence of sensitization. Coburn,<sup>10</sup> for instance summarizing the tremendous programme of the United States Navy on "The Control of *Streptococcus hemolyticus*" with sulphadiazine, states that "sensitization did not appear to be produced by prophylaxis" even if used for as long as three to six months. His report deals with the experience gained on 600,000 men in approximately 3,000,000 man-weeks with a prophylactic dosage of 1 g. of sulphadiazine daily. The overall incidence of toxic reactions was 0.5%, as compared with 4 to 8% of human subjects who develop reactions from therapeutic dosage of sulphadiazine. "Stopping prophylaxis during alternate weeks or alternate months was followed by no increase in the incidence of reactions. Subjects who did not react to the first course of prophylaxis were not sensitive to subsequent courses. The administration of sulphadiazine therapy to a large number of men who had previously tolerated prophylaxis did not cause reactions. There was no difficulty in obtaining a satisfactory therapeutic

effect from sulphadiazine in individuals who contracted streptococcal infections while receiving prophylaxis."

Similar points of view were expressed more recently by Rosenberg and Hensch<sup>11</sup> from the Rheumatism Centre of the United States Army in their evaluation of sulphonamides for the prevention of rheumatic bouts. These authors, summarizing all reports published in the previous nine years, arrive at the following conclusion: "Theoretical considerations led certain investigators to fear that some patients, treated with small amounts of sulphonamides over long periods, might become 'sensitive' to these drugs and later be unable to take them for other therapeutic purposes. However, no such sensitization was observed. Finally, there was some concern that virulent drug-fast strains of haemolytic streptococci might result from prolonged sulphonamide prophylaxis, no such eventuality has been reported."

It is the purpose of this discussion to demonstrate, with the help of data from the literature on sulphonamide therapy and our own experience with the use of sulphonamide combinations, that the incidence of allergic reactions is dependent upon the dosage of individual sulphonamides. It is further intended to show that the existence of a direct proportional relationship between dosage and production of sensitization may open a rational approach to the diminution in the incidence of drug allergy.

### Dosage of Sulphonamides and Incidence of Drug Rash and Fever

In our search of the literature for comparative percentages of sensitization with small, medium, and large dosages of sulphonamides, particular attention was given to sulphanilamide, sulphathiazole, and sulphadiazine because these three drugs have been used most extensively since their introduction into therapy twelve, nine, and eight years ago respectively, and therefore offer the richest source of comparative clinical data. One can reasonably expect that the findings for these sulphonamides will apply in like manner to other derivatives of the series.

It was realized from the start that clear-cut information could not be expected from so ambiguous and confusing a manifestation of sulphonamide toxicity. The so-called sensitization reactions actually lack any strict standards of evaluation, giving wide leeway to individual opinion and interpretation. It seemed of advantage, therefore, to limit the accounting of allergic reactions to "drug fever" and "rash," which are considered to represent the most common

\* This work has been aided by grants from the Josiah Macy Foundation, New York City, and the Schering Corporation.



indicators of sensitizations. The reservation must be made, however, that the truly allergic nature of these reactions was established by subsequent testing in exceptional instances only. Without such tests drug fever may often be confused with a flare-up of the original disease and many non-allergic skin reactions may be counted as sensitization. This fact seems to have been disregarded by many authors, who consider every rash as sulphonamide allergy and therefore an absolute indication for the interruption of therapy. Otherwise, it is contended, more dangerous signs of sensitization such as hepatitis, "chemotoxic" nephritis, or agranulocytosis may be induced. In this connexion it should be remembered that the allergic nature of these serious but fortunately rare manifestations of toxicity has not been established. In fact, especially with regard to the haematopoietic system, much evidence was presented in favour of a direct and primary tissue toxicity<sup>12</sup> or a depletion of certain essential metabolites or vitamin factors.<sup>13</sup>

A detailed discussion of the pros and cons of allergy versus primary tissue damage is beyond the scope of this paper. It should be pointed out, however, that the intentional omission of extremely rare reactions of disputed nature from this account of sulphonamide allergy will not distort the values to any extent. It should also be clear that such data as can be obtained from the literature on rash and fever undoubtedly contain an appreciable number of non-allergic reactions. Hence, in using the terms "rash" and "fever" interchangeably for sensitization or allergy throughout this discussion I am fully aware of an unavoidable inaccuracy. The figures for true sensitization are probably lower.

An attempt was made to collect data from exacting reports with large groups of patients only, however, no claim of an exhaustive survey is made. Unfortunately, many good therapeutic reports lack clarity in their figures for rash and fever. If these two reactions are listed separately, because either one may occur alone, it would seem imperative to indicate how often both reactions occurred in the same individual in order to avoid overestimations when the total incidence of sensitization is calculated. In all such instances I chose to err on the conservative side by taking only the higher of the two figures rather than their sum and thus to present approximations of the minimum possible incidence. It will be realized in the course of the discussion that the lower figures obtained in this manner for therapeutic dosages tend to disfavor the concept for which these data were compiled. Whenever feasible, the findings of various authors were combined into larger groups. The final data obtained in this manner are summarized in the accompanying Table.

Drug	Daily Dosage in Grammes	Days of Treatment	No of Cases Treated	Incidence of Rash and Fever	References
Sulphonamide	1-2	120-240	188	1.0%	15-17
	1.5-4	7-21	1,687	0%	18
	6-9	5-10	1,407	>10.0%	19-20
	Routine therapy*			7.2%	14
Sulphathiazole	2-4	3-15	3,584	0%	21-26
	6	3-10	2,475	>6.4%	19, 27-33
	6-10	5-10	529	>10.0%	6, 19, 34
	Routine therapy*			11.2%	14
Sulphadiazine	1	12-90	664,840	<0.5%	35-41
	2-4	3-20	18,185	0.07%	42-45
	4-6	7-14	500	1.8%	46
	6+	2-31	2,791	2.3%	27, 30, 42, 47-52
	Routine therapy*			2.9%	14

\* These figures are based on a comprehensive compilation of the incidence of rash and fever reported in the literature.

For the purpose of correlation, the percentages of rash and fever recently published by Long<sup>14</sup> for therapeutic dosages of the three sulphonamides were included.

The table clearly illustrates a definite relation between dosage and incidence of rash and drug fever. Sulphamide given in daily amounts of 1.5-4 g for 7 to 21 days caused no sensitization in 1,687 patients, whereas 6-9 administered for only 5 to 10 days produced reactions in more than 10% of 1,407 patients. Even the worst offender, sulphathiazole, was tolerated without reaction by 3,584 individuals receiving 2-4 g daily for 3 to 15 days, whereas signs of sensitization were found in more than 10% of 529 patients when full therapeutic dosages administered for 5 to 10 days. Similarly, sulphadiazine when given in a daily dose of 1 g to 664,840 men for 12 to 90 days resulted in less than 0.5% overall toxic reaction (with sensitization obviously on a much smaller scale). Even daily dosages of 2-4 g continued for 3 to 20 days gave an incidence of only 0.07%. Approaching a routine dosage of 6 g of sulphadiazine and more, the frequency of allergic reactions rises sharply to about 2.3%. The time factor seems less significant beyond the fact that a minimum of three to five days must elapse before allergic reactions begin to appear in any significant number.

These examples may suffice for demonstration of definite correlation between the dosage of sulphonamide and the incidence of allergic reactions. It could be argued with justification, that the smallest dosages were used in most instances for prophylactic treatment of healthy individuals, or at least of persons not suffering from acute infections, thus eliminating a possible contributory factor of sensitization. However, this does not apply to the 4 g daily dosage of any of the three compounds used in the majority of instances for therapeutic purposes. In addition, it was also noted in sulphonamide prophylaxis that larger dosages result in a significant increase in allergic reactions.<sup>15-18</sup> The high incidence of sensitization observed with a 6 g daily dosage of any of the three sulphonamides could therefore not be explained solely on the basis of difference in contributory factors. It would seem that a systemic sulphonamide can be administered in a dosage of 1-2 g daily for long periods of time and even repeatedly<sup>17-36, 41, 43, 44</sup> in the same individual without the production of sensitization. The same drug in a dose of more than 4 g in 24 hours, on the other hand, induce allergic reactions in a definite and significant percentage of cases. The production of sensitization is apparently dependent upon the maintenance for some time of a certain minimum concentration of the allergen in the tissues which are to be sensitized.

This point of view is supported by many other observations. First, the so-called "non absorbable" sulphonamides like succinyl sulphathiazole (sulphasuxidine) even if given in large dosages by the oral route, will not cause drug rash and fever rather infrequently. Blood levels from these compounds are seldom higher than 1-3 mg (per 100 ml). Sulphaguanidine, on the other hand, which is far better absorbed, is known to produce an appreciable incidence of drug rash and fever.<sup>7, 9, 60</sup> In fact, Smith<sup>61</sup> who used massive dosages of this compound totalling 142 g in a 10-day period, reported 21 instances of maculopapular rash among 44 *Shigella dysenteriae* carriers. Blood levels ranged between 10 and 14 mg per 100 ml, which is unusually high for sulphaguanidine. The sensitization incidentally, was specific for sulphaguanidine, rash was not produced by sulphathiazole, sulphadiazine, or sulphonamide. Further evidence for the significance of sulphonamide concentrations in the production of allergic reactions seems to lie in the fact that sensitization reactions in

local sulphonamide application can be rather frequent<sup>62</sup> and as a rule develop only at and around the immediate site of exposure (contact dermatitis), unless there was extensive systemic absorption from this local site.

There is a paucity of exact statements concerning the incidence of sensitization from topical application. Many reports on the use of sulphonamide ointments in pyogenic dermatitis<sup>63</sup> do not mention the development of sensitization. Late and Klorfajn<sup>64</sup> on the other hand, reported 26 cases of sulphonamide dermatitis among 2,289 admissions to the skin department of a military hospital, and Clarke<sup>65</sup> found 12 cases of dermatitis in 218 patients treated with sulphathiazole—an incidence of 5.5%. North<sup>66</sup> estimates the average incidence of contact dermatitis from sulphathiazole as 2.2% and compares it with an incidence of 5% dermatitis medicamentosa from the oral administration of this drug.

The wide variations in the incidence of contact dermatitis reported by various authors are probably due in part to differences in the type of infection treated and the duration of therapy, but are undoubtedly also influenced by the condition of the skin. In many instances the skin is largely intact; hence absorption is at a minimum and sensitization does not occur. However, the eroded areas of eczema or skin denuded of its protective outer layers by burns or wounds, will permit of deep and extensive sulphonamide penetration. The result may be a high incidence of contact dermatitis.<sup>62</sup> In fact, Lowell<sup>67</sup> recently stated that "allergic reactions were so frequent and severe in eczematous areas of the skin that the prolonged use of sulphonamides on such sites has been cautioned against repeatedly." Systemic readministration of a sulphonamide to patients sensitized locally by previous topical application will often show exclusive or predominant reaction at the locally sensitized area.<sup>60-62, 68</sup>

Finally, the dependence of sensitization on absorbability and tissue concentration of sulphonamides can also be inferred from the excellent and exacting study of Sulzberger and associates<sup>62</sup> on human volunteers. These authors investigated the incidence of dermatitis following treatment with measured amounts of different sulphonamides in the same vehicle, on standard lesions (third-degree burns) in men of the same age group, living in the same environment on the same diets at the same occupation, and under similar experimental conditions. The overall incidence of dermatitis was found to be 19% in 254 men. The distribution of sensitization for the four sulphonamides employed was 57% for sodium sulphadiazine, 22% for sulphamylamide, 7% for sulphathiazole, and 5% for sulphadiazine. Based on these remarkable results the authors conclude that "the relative incidence of sensitization corresponded to the relative water solubility of the compounds—the most soluble giving the highest incidence of sensitization." It would seem therefore that especially in systemic therapy the production of sensitization could be avoided in many instances by preventing the rise of the tissue concentration of any one sulphonamide above a certain definite level. From the data compiled in the literature this level is estimated to be in the neighbourhood of 5 mg per 100 ml, allowing for some variations in the different compounds of the series. In this connection it should be pointed out that in sulphonamide preparations of sulphamylamide or sulphadiazine (daily dose range between 0.5 and 3 mg per 100 ml).

However, the production of sulphonamide allergy should not be confused with the response of a sensitized individual to a further dose. A further dose will elicit a vigorous and prolonged reaction. It will be that this has consequences in the interpretation that the production of

sensitization by sulphonamides may occur with small dosages as readily and is often as with full therapeutic amounts. According to Landsteiner's concept,<sup>61</sup> sulphonamides should be considered as haptens or incomplete allergens which obtain the ability to cause sensitization by combining with tissue proteins. In line with this theory, sulphathiazole and sulphamerazine, which possess the greatest protein-binding power, cause high incidences of allergic reaction, although other factors undoubtedly are of importance. (It is known, for instance, that the thiazole ring is more apt to produce sensitization than the pyrimidine ring.) The complete allergen created by combination of a sulphonamide or its metabolite with protein may be highly specific. Individuals allergic to sulphathiazole often tolerate sulphadiazine or other derivatives of the series without reaction. The specificity is also expressed by the substantial difference in the incidence of sensitization reactions established for various sulphonamides. In the majority of human beings apparently the tissue cells are able to distinguish even between closely related sulphonamides with regard to their allergenic properties.<sup>62</sup> In all such instances a combination of several sulphonamides in partial dosages should make it possible to exert full therapeutic effects and yet to "dilute" individual drug concentrations in the tissues below the level at which sensitization reactions are apt to occur. It is obvious that under these conditions the simultaneous presence of several distinct potential allergens in "non-antigenic" concentrations should be of little consequence.

If the cells of the body, on the other hand, do not distinguish between the various sulphonamides the danger of sensitization could still not be greater than if the full therapeutic dosage of a single sulphonamide had been administered. Obviously, the highest possible incidence will be determined by that drug in a combination which tends to induce allergic reactions most frequently. However, there should be no additive or even increased incidence of allergic reactions so long as individual sulphonamide concentrations are kept well below the level necessary for the production of sensitization to any one single sulphonamide in human beings with "normal" susceptibility. This concept seemed to be borne out by our experience with sulphonamide combinations.

#### Sulphonamide Combinations and the Incidence of Sensitization

Since 1944 unselected patients of all age groups suffering from acute bacterial infections have been treated with various combinations of sulphonamides at the Flower and Fifth Avenue Hospitals, as well as at the Metropolitan Hospital on Welfare Island. Adhering initially to the common belief that sulphonamide dosage is of little consequence with regard to the incidence of allergic reactions we were on the look-out for an increase in sensitization.<sup>63</sup> Instead however, we found a definite and significant decrease in the incidence of drug rash and fever, and no serious untoward reactions.<sup>63, 66</sup> Up to the present time more than 1,000 patients have received treatment with sulphonamide combinations at the hospitals associated with our institution. Although reports of allergic reactions in this series were sporadic on the whole, I have included for evaluation in the present paper only patients who were under my direct supervision or that of my immediate associates. Their number totalled 610. Of these 393 were treated with a mixture of sulphadiazine and sulphathiazole, 160 underwent therapy with a combination of sulphadiazine and sulphamerazine, and 57 were treated recently with various combinations of three sulphonamides. Equal partial amounts of the different sulphonamides were employed in all instances by the oral or subcutaneous route. Reactions

attributed to sensitization were observed in 11 cases, making it an overall incidence of slightly less than 2%. The distribution was as follows: sulphadiazine-sulphathiazole combination, 8 cases (2%), sulphadiazine-sulphamerazine combination, 2 cases (1.25%), sulphadiazine-sulphamerazine-sulphapyrazine combination, one instance of rash, apparently not allergic.

Four patients showing drug fever and/or rash were tested subsequently with small dosages of the sulphonamides to which they had been exposed. Two of these had developed allergic symptoms during therapy with the sulphathiazole-sulphadiazine combination, however, both proved to be sensitized only to sulphathiazole and not to sulphadiazine. A third patient showed no reactions while on intensive therapy with the sulphadiazine-sulphathiazole combination. Several days after discontinuation of therapy 4 g of a combination containing sulphadiazine-sulphamerazine-sulphathiazole was administered for the purpose of an absorption-excretion study. Rash, fever, and general malaise were observed within a few hours after administration, clearing completely within 36 hours.

Subsequent testing with the separate sulphonamides in the above-named order revealed, as in the first two instances, sensitization only to sulphathiazole, whereas sulphadiazine and sulphamerazine were tolerated without reaction. Finally, a patient with brucellosis treated intensively with a combination of sulphadiazine-sulphamerazine-sulphapyrazine (blood levels of 12-20 mg per 100 ml free sulphonamide), in addition to intermittent intramuscular injections of streptomycin, developed a confluent maculopapular rash over the entire body in the fourth week of treatment. Temperature at that time was continuously subfebrile. The emergence of the eruption was not accompanied by malaise or a febrile reaction. All therapy was stopped and the rash disappeared within 48 hours with residual light pigmentation. At this stage 0.5 g doses, first of the separate and then of the combined sulphonamides, were administered at 24-hour intervals. Finally, one intramuscular injection of streptomycin was given. All drugs were tolerated without reaction. Temperature fell to normal and the patient was discharged as cured.

It is obvious from these examples that two sulphonamides can be given simultaneously without the development of sensitization to both drugs. The fourth case illustrates that in many instances reactions may be counted as allergic without sufficient evidence for such a contention. Apparently the rash in this patient constituted a primary toxic response of the skin to intensive and prolonged exposure to sulphonamides or streptomycin. Dermatoses caused by hypersensitization should always be differentiated from toxic non-allergic dermatitis caused by overdosage or accumulation of a variety of agents.<sup>87</sup>

It should also be kept in mind that sensitization to several or all compounds of the sulphonamide series (group allergy) may develop in some individuals from the use of any one single representative of this group of drugs.<sup>82</sup> Obviously, if any such person develops group allergy during treatment with sulphonamide combinations it would not necessarily prove that sensitization to all components of the combination was elicited by their simultaneous administration.

The low overall incidence of rash and fever (2%) that we observed in our patients treated with sulphonamide mixtures speaks against a simple summation of such reactions by employing combinations of several sulphonamides in partial dosages. Otherwise we should have observed an incidence in the neighbourhood of 10% since more than 400 of our patients received combinations containing sulphathiazole. Actually, then, our findings indicate

a significant reduction rather than an increase in incidence of sensitization. The most plausible explanation seems to lie in the lowering of individual sulphonic concentrations in the tissues beyond the critical level necessary for the production of allergic reactions. It will be remembered that this concept was postulated earlier in this paper on the basis of the experience of many authors with single sulphonamides.

For clinical purposes a daily dosage of 2 g of any sulphonamide seems to lie safely below the amount that would produce sensitization, except in rare instances with special hypersusceptibility. Thus a combination of three therapeutically equivalent sulphonamides would allow a daily dosage of 6 g at a substantially reduced risk not only of renal damage but also of sensitization. If this concept proves correct the introduction of more than three sulphonamides into a combination should further increase the safety of sulphonamide therapy.

### Comments

The clinical use of sulphonamide mixtures, although widely accepted to-day on the basis of the protection afforded the kidney, is still too recent to permit any decisive statement on the question of sensitization. Our own limited experience would seem sufficient to disprove the contention of an increase in the incidence of allergy by the proper employment of combined sulphonamides. The concept of a reduced incidence, however, requires confirmation by other authors and with larger series of patients.

Of the few clinical reports on sulphonamide combinations which have been published thus far from other institutions,<sup>88-92</sup> only the one by Zeller, Hirsh, Sweet, and Dowling,<sup>92</sup> reporting on the combined use of sulphadiazine and sulphamerazine in 75 patients with meningitis, attempts to demonstrate a possible increase of allergic reactions. Unfortunately these authors arrive at conclusions which are not supported by their own results but are based on the fallacious interpretation of statistical data. Since their point of view is diametrically opposed to our concept, the evidence which Dowling and his associates present in support of their contention deserves close scrutiny.

One is struck by the unusual combined tabulation "drug fever and/or conjunctivitis, drug rash and/or conjunctivitis," which seems to attach undue significance to conjunctivitis alone as a sensitization reaction. Obviously the combined reporting of these three reactions makes it impossible to elucidate the exact position of conjunctivitis in the overall picture of reactions counted as allergic in nature. However, it seems reasonable to assume that the exceptionally high figure for sensitization reactions reported by Dowling and his co-workers for sulphadiazine (10%) which is in conspicuous contrast to all reports in the literature, is due to the inclusion of conjunctivitis as an allergic reaction.

Although conjunctivitis is seen occasionally during sulphathiazole therapy, it seems extremely rare from sulphadiazine and homologues. Plummer and Wheeler<sup>4</sup> reported one case of conjunctivitis among 1,357 patients receiving full sulphadiazine therapy without qualifying the nature of this reaction. Other authors reporting toxic reactions from sulphadiazine or sulphamerazine do not mention the occurrence of conjunctivitis. Dowling himself saw no conjunctivitis in 137 patients with pneumococcal pneumonia treated with sulphadiazine.<sup>93</sup> We have not observed any instance of allergic conjunctivitis in our large series of patients treated with sulphonamide combinations. Incidentally, no statement is contained in Dowling's report whether any attempt was made to establish the allergic nature of conjunctivitis, which is a well-known and frequent

concomitant sign of meningitis. Furthermore, Dowling *et al* increased the dosage of the combination arbitrarily by 25 to 33% above the generally accepted routine dosage of sulphonamides. Thus adult patients received 8-9 g of the sulphadiazine-sulphamerazine combination daily, as contrasted with the 6 g maintenance dose used by these authors in previous series with the separate compounds. Consequently each patient on combination therapy received an additional amount of at least 21 g of sulphonamide in the average 10 day treatment period.

While the authors neither claim nor prove the necessity of such a substantial increase in dosage when using the sulphadiazine-sulphamerazine combination, they formulate their conclusions on the advantages and disadvantages of mixture therapy as if they had used the ordinary required dosage and thus present an entirely misleading picture. Apparently based on the prevailing point of view that the incidence of sensitization is independent of dosage, Dowling and his associates attempt to demonstrate statistically significant differences between the sulphadiazine-sulphamerazine combination and the separate compounds, with complete disregard of the fact that the combination is used in a substantially higher dosage range. If we assume that the tissue cells were unable to distinguish between sulphadiazine and sulphamerazine, then an 8-9 g daily dosage of the combination which produced the highest blood levels should be expected to result in a higher incidence of allergy than either compound at a 6 g daily dosage. Even if on the other hand, sulphadiazine and sulphamerazine had acted as two distinct and specific haptens, an excessive dosage of the combination could have obviously created sensitizing tissue concentrations for both sulphonamides. The median blood levels obtained by Dowling *et al* (7.6 mg per 100 ml for sulphadiazine, 11.0 mg per 100 ml for sulphamerazine, and 14 mg per 100 ml for the combination) illustrate this possibility very clearly. In either instance an increase in the percentage of sensitization would not be surprising and would obviously not prove the point that these authors had tried to make. In this connexion it should be remembered that they did not report a statistically significant increase of sensitization with the sulphadiazine-sulphamerazine combination. In conclusion, then the results of Dowling and his associates are explainable on the basis of the substantially higher dosage schedule of the combination and therefore carry no weight against the concept under discussion.

The recognition of a direct proportional relation between the dosage of individual sulphonamides and the incidence of allergic reactions poses many new questions which far exceed the scope of this limited discussion. To mention only a few, it should be investigated whether sulphonamides which are structurally less closely related (like sulphadiazine and sulphacetamide) are more apt to be distinguished by the cells of the body as specific allergens than isomers or homologues (sulphadiazine-sulphapyrazine and sulphamerazine). A positive finding would obviously influence the selection of sulphonamides for use in combinations. Consideration should also be given to the possible diminution of toxic manifestations other than those due to sensitization or crystalline deposition in the kidneys.

Sulphathiazine abandoned as too toxic in full therapeutic doses in the United States and sulphathiazole, under consideration for elimination, should be re-examined in the light of this concept. Both are highly potent chemotherapeutic agents with an excellent record of efficiency, especially in pyogenic and staphylococcal infections. The inclusion of either drug in partial dosage schedules would be expected to reduce the incidence of their untoward reactions to a considerable degree. In addition the *in vivo*

antibacterial efficiency of such combinations should equal, if not surpass that of any one single sulphonamide.

Finally, the investigation should be extended to include manifestations of sensitivity elicited by many other drugs. It is known, for instance, that the principal toxic reactions from thiouracil are granulocytopenia, leucopenia, drug fever, and dermatitis.<sup>92</sup> Recently Cookson and Staines,<sup>96</sup> reviewing four years' experience with thiouracil, stated that 'most toxic effects were seen when the daily dose exceeded 0.1 g'. They found a decline in the incidence with the use of smaller doses. A similar suggestion was made by Williams and Clute.<sup>97</sup> McGavack and associates<sup>98</sup> believe that the incidence of agranulocytosis from thiouracil can be decreased by avoiding excessive dosages. Others<sup>99-101</sup> fail to find a dependence of the incidence of toxic reactions upon dosage within the therapeutic range. It seems important to point out that in these instances dosages varied as a rule within the fairly narrow range of 0.4 to 0.8 g thiouracil in 24 hours. In this connexion it is interesting to note that propyl thiouracil, which is effective in one-third the dosage of thiouracil on a weight basis, causes only 1.6% toxic reactions as compared with 9% for the latter drug.<sup>100</sup> This substantially lower toxicity of the propyl homologue, which is quite generally agreed upon,<sup>101-105</sup> has been attributed to the appreciably lower dosage schedule of this compound.<sup>106</sup> It has also been established that many patients sensitized to thiouracil can be continued on therapy with propyl thiouracil<sup>101-104</sup> or methyl thiouracil<sup>96</sup> without showing any ill effects. These observations suggest the possibility of lowering the incidence of dermatitis and fever and other toxic reactions occurring under therapy with full dosages of any one compound of the thiouracil series by using appropriate combinations of several homologues in partial dosages. Generally speaking, it should be feasible to diminish the incidence of certain untoward reactions from many drugs by employing partial amounts of therapeutically equivalent drugs of different molecular structure in combination instead of the full dosage of any one compound.

## Summary

Perusal of the extensive literature on sulphonamides reveals that in the dosage range employed in human prophylaxis and therapy the incidence of drug rash and drug fever increases in direct proportion with the dosage of absorbable sulphonamides.

At an oral dosage of not more than 2 g of sulphonamide in 24 hours none of the compounds used at present appears to produce rash or fever in any significant percentage of cases even if used for prolonged periods and repeatedly in the same individuals.

The incidence of these reactions assumes significant proportions when the dosage is increased to more than 4 g in 24 hours, and reaches even higher percentages with full therapeutic amounts of 6 g or more in 24 hours, provided medication is maintained for a minimum of three to five days.

These observations indicate that the production of so called sensitization reactions is dependent upon the repeated presence of certain critical tissue concentrations of a sulphonamide for a minimum period of several days.

In the majority of patients sensitization is specifically limited to the sulphonamide used for therapy. Hence the simultaneous administration of several sulphonamides in partial dosage should result in a reduced incidence of sensitization because it permits dilution of individual drug concentrations below the level necessary for the production of allergy.

Practical experience with combinations of two or three sulphonamides in 610 patients demonstrated a conspicuously low incidence of drug rash and fever at the full therapeutic dosage of 6 g in 24 hours.

The significance of this finding and its possible bearing upon toxic reactions from compounds of the thiouracil series, and drug allergy in general, are discussed.

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The University of Sheffield has just issued in the form of attractively bound pamphlets a number of inaugural lectures delivered by newly appointed professors over the period 1945-7. Professor C H Stuart Harris lectured on "The Fight Against Infection", Professor C P Bertie on "The Universities, Bacteriology, and National Health", Professor D H Smyth on "The Role of Physiology in Scientific Education", and Professor H A Krebs on "The Advances of Biochemistry". Copies may be obtained from the Registrar, price 1s 3d post free.

## PURPURA FULMINANS COMPLICATING SCARLET FEVER

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A haemorrhagic form is described for each of the infectious fevers. Such illnesses are usually the most severe types, and the haemorrhages occur as a manifestation of the acute stage of the disease. Much less frequently the appearance of haemorrhages complicates an already established convalescence. The following case is illustrative of the latter form.

### Case History

A girl aged 9 complained of sore throat on Sept 15, 1947. Next day her family doctor, on the appearance of a typical rash, diagnosed scarlet fever and had her isolated in her own home. Her temperature was high and she was moderately ill for a day or two, but the course was uneventful and no specific therapy was considered necessary. In particular no serum was given and no sulphonamide was ordered then or later. During the first week of illness some oedema of the eyelids was suspected, but examination of the urine showed no abnormalities.

Progress was thus uneventful until Sept 26, when complaint was made of severe abdominal pain of sudden onset. The patient vomited. The left forearm and elbow-joint suddenly became swollen and tender. Next day haemorrhagic areas were noticed on the lobes of both ears and on the lower lip. Further haemorrhages appeared on the 28th, and by this time the clinical condition had deteriorated so severely that admission to hospital was sought.

On admission the temperature was 97° F (36.1° C), pulse 140, and respirations 24. The child was pallid and was obviously extremely ill. The tongue was furred but moist. The throat showed numerous petechial haemorrhages on the soft palate and the tonsils were enlarged, of purplish colour, and oedematous from haemorrhage. There was a small ulcer on the inner surface of the left cheek. The lower lip and the surrounding tissues were grossly swollen and were involved in a large subcutaneous haemorrhage. Ecchymoses were also present in the lobes of the ears, on the right hand, and on the buttocks. Both elbow-joints were swollen, and movement was restricted. There was surrounding ecchymotic staining. Petechial haemorrhages were also noted on the trunk. Elsewhere the skin showed a fine pin-hole desquamation, and if there had

been any doubt about the original diagnosis the typical appearance of the desquamation would have permitted a retrospective diagnosis of scarlet fever.

At this time there was little else of note in the examination except that the tip of the spleen was palpable but four hours later a considerable deterioration was noted. Fresh haemorrhages had occurred. The patient's colour was grey and she was obviously shocked. The abdomen was slightly distended and tense. The liver was now enlarged but not tender and the spleen was easily palpable. There was no tenderness in either subcostal angle. The systolic blood pressure was 90 mm, but the diastolic was unrecordable. The pulse was thin and thready.

On admission the patient had had the usual specimens (including a blood culture) withdrawn for examination and had been given 100,000 units of penicillin, since it seemed possible that the condition was a streptococcal septicaemia complicating scarlet fever. The rapid changes which occurred in the next few hours made it apparent that the correct diagnosis was a fulminant purpura. Accordingly, after further specimens were removed 5 ml of cortical suprarenal extract was given along with 500,000 units of penicillin, and these were repeated at four-hourly intervals. The question of a blood transfusion was carefully considered, but because of the risk of reaction it was decided not to give one, and, indeed, the patient's condition seemed so critical that no chance of recovery could be entertained.

The improvement 12 hours later was therefore striking and unexpected. No fresh skin haemorrhages had occurred. She was now more alert and was interested in her surroundings. Further vomiting had, however, occurred and the specimens contained altered blood. The pulse was still of poor quality, but the systolic blood pressure could be recorded more easily and varied between 95 and 100 mm. The abdomen remained tense and the liver and spleen were enlarged. Examination of the urine showed granular and hyaline casts and a large number of erythrocytes. On the evening of the 29th a few fresh skin haemorrhages were noted. By the 30th the patient was progressing satisfactorily, and although convalescence was slow the subsequent course was uneventful. The bowels were kept constipated during the first five days in hospital. At the end of this time a gentle wash-out resulted in the return of typical melaena stool. During convalescence normal results were obtained from tests undertaken to ensure that suprarenal function was satisfactory, and the patient was discharged on Nov. 10. When she reported back two months later she was still somewhat anaemic but was otherwise normal. In March, 1948, she was well in all respects.

The laboratory findings are shown in the accompanying Table. From these it will be seen that the blood culture taken on admission was sterile. There can be little doubt that she had lost a considerable amount of blood on admission and that as a result there was a moderate degree of haemoconcentration. Platelets were always found, and although the figures are low

### Laboratory Findings

	September			October								
	28	29	30	1	2	3	4	6	8	10	13	17
Platelets (thousands)	15.9	14.0	11.8	10.4	10.3	11.3	10.5	8.2	8.7	9.0	8.9	9.6
Packed cell volume	4.6	4.83	4.54	3.54	3.37	3.65	3.48	2.67	3.23	3.15	3.79	3.67
White blood cells (thousands)	2.4	5.0	7.0	7.0	4.6	4.2	3.2	1.4	1.0	4.2	2.0	0.6
Neutrophils (%)	100	120	143	280	35	260	140	159	28	270		
Mononuclears (%)	50	45	30	35	33	34.5	35	28	29	29	30	31
Plasma proteins (g %)	85	87	78	88	77	70	52	42	48	10.0		
Blood culture	15	13	12	23	30	57	55	35	19			
Heeding time (minutes)	5.0	5.5	4.8			5.3	4.1	5.8	5.7			5.8
Internal marrow	No growth											
Clotting time (minutes)	2.5											
Prothrombin time	+											
Urine	3.0											
Red blood cells			70%									
White blood cells		++			+	+	0			0		
Casts		++			+	+	+			0		
Therapy												
Penicillin (million units)												
Eucortone (ml)	0.6	3.0	2.5	1.5	1.5	1.5	1.5	0.5	0.3	0.3		
D.O.C.A. (mg)	10.0	30.0	12.0	6.0	6.0	10.0						



the important fact is the demonstration of their presence. A sternal puncture was performed, but the specimen obtained only permitted the examination of films. No significant defect was noted, there was an abundance of megakaryocytes.

### Discussion

Purpura is not a common complication of scarlet fever, indeed, it is interesting to comment that the last case recorded in Glasgow (Pratt and Frew, 1929) was also seen at Knightswood Hospital. Gibson and Hobson (1932) have described two fatal cases, both from the same family. Box (1933), who reviewed the subject of haemorrhage in acute fevers, suggested that the toxin produced a capillary lesion, which in most cases, however, was transitory. He considered that the acute glomerulonephritis of scarlet fever might be a local manifestation of this same lesion. Fox and Enzer (1938) have described four cases, two of them fatal. No enlargement of spleen or liver was noted in any of their patients, and haematological examinations were not significant of any particular disease process. Necropsy revealed no evidence of intravascular clotting, but there were microscopical extravasations of blood. In one of the patients who recovered a progressive anaemia developed.

Now, in any acute infection the occurrence of haemorrhage during the stage of the primary illness is not hard to understand, for at this time the presence of an acute infective condition with tissue destruction and generalized toxin diffusion might well induce either central changes in the blood-forming organs or damage to the endothelium of the terminal vascular channels. It is more difficult to understand why such a complication should manifest itself in a patient who has already reached a stage of convalescence. Three possibilities require consideration, the first of which can in the present case be immediately dismissed.

First, the frequent administration of sulphonamides, even to cases of mild infection, might induce some state of sensitization which would favour capillary damage. Two patients who developed purpura during convalescence from a streptococcal infection have been recorded by Rantz, Boisvert, and Spink (1945). Both had received a sulphonamide—one nine days and the other 36 days before the appearance of haemorrhage—and the authors comment that the administration of the drug confused the picture in regard to aetiology. In our patient such an explanation can be discountenanced, for it is definitely known that no medicaments were used.

The second possibility to be considered is that the condition arises from some form of sensitization induced by the original infecting agent. Any discussion of the pathogenesis of the late complications of scarlet fever, such as nephritis and non-suppurative arthritis, must take into consideration the fact that in neither is there obvious clinical evidence of an infective condition at the time when the complication arises. It would seem possible that the organism and its toxins might set up tissue reactions during the acute stage of the illness which would induce a state of hyper-reactivity, but such a hypothesis would give rise to the further suggestion that before the acute manifestations of the complication appeared some secondary stimulus to the sensitized mechanism must be applied. In recent years various workers—e.g., Gunn and Griffith (1928), Allison and Brown (1937), and De Waal (1940)—have drawn attention to the frequency with which reinfection occurs in scarlet fever wards, and such reinfection might well supply the stimulus required. In this respect it is interesting that Ehinger (1945) has shown that cases of nephritis occurred more often in individuals who had acquired during convalescence a secondary infecting type of streptococcus, and that the onset of nephritis rapidly followed the reinfection. In the present case it seems

unlikely that such an explanation can be supported, for the patient was nursed at home, in isolation, during the course of the illness. Cross-infection by a different streptococcal strain, though not impossible, is certainly improbable.

The third possibility is that after apparent recovery the original organism remains in some nidus in a state of uneasy equilibrium with the host, and that the constant slow absorption of toxic products induces gradual changes of a sensitizing nature in certain organs. Although the old theory of "septic foci" has fallen into abeyance, the experience of those who see numbers of unexplained fevers would suggest that it is certainly true that in some of these cases cure may be obtained only after the eradication of some focal sepsis which has given rise to no clinical symptoms whatever.

In the American literature the focal lesion in such cases of purpura occurring in convalescence from infection is often described as a diffuse endotheliosis (Fox and Enzer, 1938). The use of this vague term (which in no way explains the pathogenesis) infers that the condition is not primarily infective but rather is toxic in origin. Our experience with the case which we have described gives some ground for the belief that a continuing infective element may play a part in the aetiology, for the most surprising feature was the amazing degree of recovery which ensued when the body was subjected to massive penicillin therapy. We are aware that mild cases of convalescent purpura have recovered in the past, but we would emphasize that the condition of our patient on admission was grave and that death seemed imminent. Her startling improvement within 12 hours of the beginning of treatment would suggest to us that the administration of penicillin had controlled some latent infective process which was inducing the vascular damage. The presence of thrombocytes throughout, although admittedly at a low level, would argue that the haemorrhages were not due to any deformity of the clotting mechanism itself, and the state of the bone marrow, too, indicated that there was no primary damage of the haemopoietic system.

It seems to us that there is only one other diagnosis to be considered. It might be suggested that the condition was an acute fulminating meningococcal septicaemia with suprarenal apoplexy. Against such a diagnosis we can only aver that the blood culture was sterile, that tests in convalescence failed to show permanent damage to the suprarenals, and that nursed in the early stage at home in isolation, contact with a meningococcus seems unlikely. It is more probable that the cortical extract administered had merely overcome a temporary deficiency, for had the suprarenal damage been extensive one would have expected the patient to require a maintenance form of therapy.

### Summary

A case of purpura fulminans (non-thrombocytopenic) complicating the convalescence of a case of scarlet fever is described. The patient recovered. It is suggested that the possibility of a continuing or a reintroduced infection must be taken into account in a consideration of the pathogenesis of such conditions.

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## RHABDOMYOSARCOMA OF THE URINARY BLADDER

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Rhabdomyosarcoma of the urinary bladder is a rare tumour the characteristics of which have been well reviewed by Khoury and Speer (1944). These writers have found eight cases in the literature, to which they have added a further case. A tenth (the first in this country) has been reported by Minchin (1947). Here is the report of a further case.

### Case Report

A 21-months-old male child was admitted to hospital on June 1, 1947, having had retention of urine for twenty-one hours. The child had been healthy in all respects and had had no previous complaints before the onset of retention. At the time of admission there was some overflow incontinence, the bladder was apparently distended to the level of the umbilicus, and the child was in pain. A skiagram of abdomen and pelvis showed no opaque urethral calculus. After catheterization a firm mass was felt rising from the pelvic cavity to the level of the umbilicus. A tentative diagnosis of tumour of the bladder wall was made.

On June 5 a suprapubic cystotomy was performed by Mr J W Riddoch under general anaesthesia. Exploration of the bladder revealed a firm smooth tumour occupying the posterior wall of the bladder and pushing that organ forward. The internal urethral meatus could be defined, and seemed to mark the lower limit of the growth. The impression was that this growth was covered only by the mucosa of the posterior bladder wall. On attempted biopsy the haemorrhage was severe. A de Pezzer catheter was inserted and the bladder wall closed in layers. The case was now considered to be one of myosarcoma of the bladder wall.

The patient became progressively emaciated and died of cachexia on Oct 26—just under five months from the onset of symptoms. During the last few weeks of his life the suprapubic opening would no longer accommodate a catheter, and he discharged his urine through a narrow fistula.

One month before death his red cell count was 4,770,000, white cell count 13,950 and haemoglobin 71%. His erythrocytic sedimentation rate was a 63-mm fall in the first hour (Westergren technique). His blood urea at that time was 28.57 mg per 100 ml. During most of his illness the patient's temperature ranged from 99 to 99.8° F (37.2–37.7° C), but there were five or six periods of seven to ten days each in which the temperature fluctuated around 102° F (38.9° C). These probably coincided with exacerbations of his pyelonephritis.

**Necropsy (Oct 27)**—A large tumour (Fig 1) weighing about 1,788 g occupied and completely filled the pelvis extending to

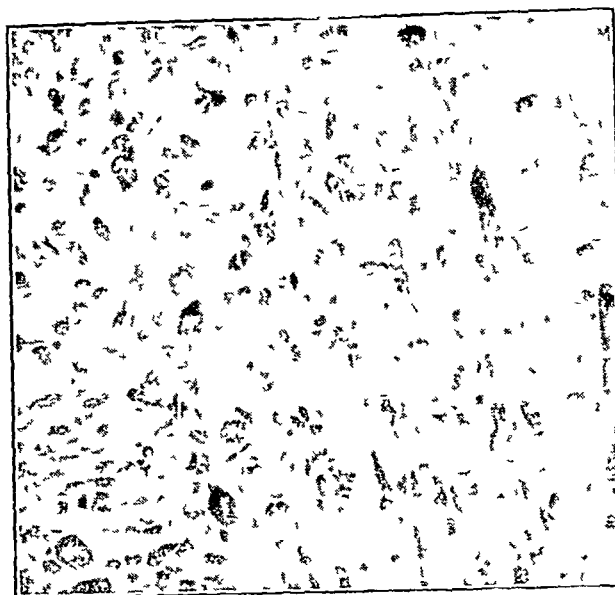


FIG 2—Showing the pleomorphism of the cells ×300

the level of the umbilicus. The tumour was entirely extraperitoneal. On macroscopic examination its surface was lobulated and the cut surface varied from clear gelatinous areas to others which were yellowish white and of firm consistency. There were some necrotic areas and slight interstitial haemorrhage. The peritoneal cavity contained about 50 ml of blood-stained effusion. The visceral peritoneum was studded with small secondary nodules, especially marked in the great omentum. There were very few adhesions. The terminal part of the pelvic colon and the rectum were surrounded by growth, which appeared to have invaded their walls. The left lobe of the liver contained one large and several smaller metastases. The right lobe had several small metastases. Both kidneys were enlarged. The left showed a definite pyonephrosis and the right a hydronephrosis. The ureters were dilated and obstructed by the growth. Both ureteric orifices were found to be free from growth and there was no evidence that the walls of the ureters had been invaded. The bladder contained purulent urine. Both testes and spermatic cords were normal.

**Histological Report**—Microscopical section of the tumour showed it to be richly cellular (Fig 2). The cells were polymorphic and most of them had an oval nucleus with a prominent nucleolus and a well-marked chromatin network, the cytoplasm varied from a long rectangular type in some cells to a small perinuclear rim in others. There were also multinucleate forms containing two or three nuclei with a wide band of cytoplasm often

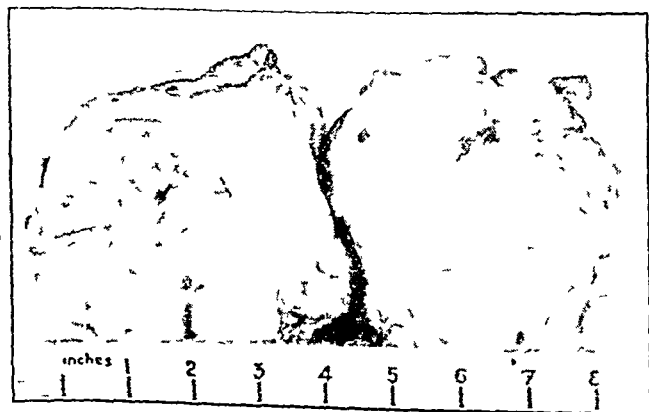


FIG 1—Showing lobulation and size of gross specimen



FIG 3—Showing the well-marked cross striations ×450

prolonged at one side. In all cases the cytoplasm was markedly eosinophilic and suitable staining revealed well-marked cross-striations (Fig 3) in some cells, with longitudinal striations in others. In the multinucleate forms the striations tended to be concentric. There were numerous mitotic figures.

The vascular supply was rich and tended to be sinusoidal. The supporting stroma was scanty, and there was a rich reticulum arranged around columns of cells as well as around individual cells. The histological appearance was that of a rhabdomyosarcoma. Sections of the metastases in the liver showed an identical appearance.

### Comment

This tumour was typical of its kind in that it presented itself as a cause of acute retention in an infant (of 11 cases reported 8 have occurred in infants) and that it proved fatal within 5 months (average 6½ months).

This case is unusual in that distant metastases were found. Their structure was identical with that of the tumour. Distant metastases have been described in only one preceding case—that of Mackenzie and Chase (1928).

I wish to thank Mr J W Riddoch, honorary surgeon, in whose charge this patient was treated, for encouragement to publish this case, Dr A G Marshall, pathologist to the Corbett Hospital, who performed the necropsy and supplied the histological report, and Dr W Whitelaw, Birmingham, who kindly provided the microphotographs, and who permits me to say that he agrees with the diagnosis.

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## STREPTOMYCIN IN NON-TUBERCULOUS INFECTIONS

### SUMMARY OF A REPORT TO THE MEDICAL RESEARCH COUNCIL

BY

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In December, 1946, the Medical Research Council appointed a committee\* to arrange clinical trials of streptomycin in non-tuberculous infections, in parallel with the trials in certain forms of tuberculosis which have been organized by another committee of the Council. The trials in non-tuberculous infections began at five centres in London and later were extended to eleven centres throughout the country. This report summarizes the pooled results of the investigation, more detailed results will be published by individual observers. Because of the small amounts of streptomycin available, the relative rarity of suitable cases, and the wide diversity of conditions treated, experience of most infections in which streptomycin therapy may be effective is still limited. Even when, as in *Haemophilus influenzae* meningitis, a reasonably large series has been studied, the distribution of cases over so many centres has led to unavoidable variations in case selection, therapeutic procedure, and bacteriological control. For these reasons present claims must be guarded. Nevertheless, some clear-cut results have been obtained and profitable lines for further inquiry have been indicated.

These trials have been restricted to infections resistant to other forms of therapy in which bacteriological control

of treatment has been possible. With few exceptions the infecting organism has been proved streptomycin-sensitive before treatment has been begun, occasionally—e.g., in infective endocarditis—when penicillin treatment has failed, subsequent attempts to isolate the organism have been unsuccessful.

The chief value of streptomycin (apart from tuberculosis) lies in the treatment of penicillin-resistant infection due to the Gram-negative bacilli, particularly *H influenzae*, *Proteus*, *Pseudomonas pyocyanea* and *Bact coli*. The clinical disorders in which treatment has been most effective are septicaemias, meningitis, urinary-tract infection and local (superficial) infections.

### H Influenzae Meningitis

The results of preliminary trials in the United States suggested that streptomycin might be particularly valuable in this condition, a standard scheme of treatment was therefore recommended in the present investigation.

**Dosage**—*Intramuscular*, 20 mg per 1 lb (0.45 kg) body weight daily in divided (four-hourly) doses, *Intrathecal* (in saline), 50–100 mg initial dose, according to age, and 25–50 mg on subsequent days. Treatment was continued for at least seven days after cerebrospinal fluid became sterile.

**Results**—Forty-three cases were treated with streptomycin. Four of these also received sulphonamide, penicillin, or serum, in five others the CSF was reported sterile before streptomycin injections were started. Of the remaining 34 cases, the infection was controlled in 25 (74%), while treatment failed in nine. There was no significant difference in age, duration, or CSF change between the two groups, but clinically the unsuccessful cases appeared to be more severe. Where typing was carried out the organism was found to be Pittman type b. Where treatment was successful the CSF usually became sterile within 24 hours of the first intrathecal injection. Streptomycin was effective in 13 cases which had relapsed after other treatment and in nine cases in which the infection had been present for two weeks or longer. Four patients relapsed after an initial response to streptomycin, but the organism remained sensitive and further treatment with streptomycin alone was successful. The principal cause of failure was the development of resistance by the organism, this occurred in seven of the nine failures, sensitivity changing from 0.5 to as high as 5,000 units in one to four days.

From this series it appears that streptomycin alone is probably as effective in *H influenzae* meningitis as any other form of treatment at present available. The development of resistance is, however, a serious drawback, and it has been decided in future trials to use a combination of streptomycin, penicillin, and sulphonamides from the start.

### Other Forms of Meningitis

Fourteen cases of meningitis due to penicillin-resistant bacteria have been treated with streptomycin. The causative organisms included *Bact coli*, *Ps pyocyanea*, *Staph pyogenes*, *Proteus*, and *Str faecalis*. In the majority of cases the meningitis developed after operation for cerebral abscess or cerebral tumour. The infection was controlled in 11 instances. Streptomycin is therefore a valuable new therapeutic agent in pyogenic meningitis due to penicillin-resistant organisms.

### Other Infections

**Septicaemias**—Five cases of subacute bacterial endocarditis due to *Str viridans* or *H influenzae* and one case of uncertain nature have been treated. With the exception

\*Professor Sir Alexander Fleming (chairman), Professor Ronald V Christie, Professor L P Garrod, Mr R Vaughan Hudson, Professor H Raistrick, Dr Robert Cruickshank, Dr F C O Valentune, Dr F R Selbie, Professor Clifford Wilson (secretary)

of the latter, the response to streptomycin has been only temporary. Two cases of septicaemia without endocarditis due to *Ps pyocyanea* or *Bact coli* have responded satisfactorily.

**Urinary-tract Infections**—A series of 61 patients with urinary-tract infection due to *Bact coli*, *Ps pyocyanea*, *Proteus*, *Staph pyogenes*, and *Str faecalis* has been investigated in 10 centres. In roughly half the cases the infection has been controlled by intramuscular administration of 3 g of streptomycin daily for one to three days. Failure has almost always been due to the development of resistance. As with other antibacterial agents, streptomycin has a limited value where there is some underlying condition which is apt to lead to recrudescence of the infection.

**Local Sepsis**—Fifty-five patients with local infections, have been treated. These include a wide variety of lesions such as infected burns, operation wounds, superficial ulcers, sinuses, abscess cavities, and septic skin conditions. The bacterial causes were similar to those detailed in the preceding paragraph. Daily applications of a saline solution of streptomycin (2 mg per ml) have been used either alone or combined with intramuscular therapy. The results are favourable, particularly in superficial lesions, provided that all necrotic tissue is removed. The employment of a standard technique is essential. Streptomycin has been used effectively as a cover for skin-grafting. In a proportion of cases failure has been attributable to the development of resistance.

**Respiratory Infections**—Chronic lung infections due to bronchiectasis and lung abscess (14 cases) have been treated by inhalation and intramuscular injection. Although a temporary reduction in bacterial content of the sputum has been noted the cases showed little if any clinical improvement. The results of a preliminary trial in whooping-cough were inconclusive. More experience is needed of acute lung infections due to penicillin-resistant organisms.

**Intestinal-Tract Infections**—Forty-two cases of infantile diarrhoea have been treated by oral administration of 2-4 g of streptomycin spread over seven days. Sensitive organisms rapidly disappear from the gut. As the infecting agent in this condition is not always the same it was to be expected that the results obtained in different centres would vary. Some centres report clinical benefit, but so far treatment has not been sufficiently controlled to warrant any definite conclusions. Further trials, in which streptomycin will be given to alternate cases, are being undertaken. A small number of cases of ulcerative colitis and of typhoid fever have been treated by oral and intramuscular administration with negative results.

### Summary

In this series of cases streptomycin has often been successful in controlling the following infections: (1) Meningitis *H influenzae*, *Bact coli*, *Ps pyocyanea*, *Proteus* and *Staph pyogenes*; (2) Septicaemia *Bact coli* and *Ps pyocyanea*; (3) Urinary tract infection *Bact coli*, *Proteus*, *Ps pyocyanea*, *Str faecalis* and *Staph pyogenes*; (4) Local sepsis *Bact coli*, *Proteus*, *Ps pyocyanea*, *Staph pyogenes* and haemolytic streptococcus.

There have, however, been examples of almost every type of infection in which the micro organisms rapidly became resistant. Courses of treatment should therefore be planned to exert the greatest possible influence from the beginning. The effect of combining streptomycin with other agents, such as the sulphonamides is under investigation.

Owing to the short periods of administration toxic symptoms have been unusual and of slight importance. Urticarial rashes and skin irritation at the site of local application have occasionally been noted.

## "C.B.11": A NEW ANALGESIC DRUG PRELIMINARY COMMUNICATION

BY

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AND

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In experimental studies in human beings we have recently compared the pain-relieving properties of C B 11 (4-diphenyl-6-morpho-linoheptan-3-one hydrochloride), pethidine, and physeptone (amidone). The method we used is a modification of that employed by Hewer and Keele (1947) in comparing the analgesic properties of physeptone, pethidine, and morphine. These authors, using a degree of ischaemic pain as their standard, found that the effects produced by 75 mg of physeptone and morphine were equivalent to those of 75 mg of pethidine. Because C B 11 has been shown in recent studies (G F Somers, personal communication, 1947) to be a more effective analgesic than morphine in rats and of low toxicity we considered it was worthy of clinical trial in man.

### Method

Ten volunteer medical students were trained to appreciate a degree of ischaemic pain produced by obstructing the blood flow to the arm by a sphygmomanometer cuff at a constant pressure of 220 mm Hg. Following occlusion the subject contracted the flexor muscles of the forearm 60 times within the space of one minute. Contractions were then stopped and the ischaemia maintained, resulting in the development of a steadily increasing pain in the forearm. The degree of pain produced in five minutes was easily recognizable, and if the ischaemia was maintained it became intolerable in 10 to 15 minutes. The subjects were trained to recognize the level of pain reached in five minutes.

An intravenous injection of one of the three drugs under trial was then given into the opposite arm. On three separate occasions 5 mg of C B 11, 5 mg of physeptone, or 50 mg of pethidine was given, the order of injection being varied in different subjects. The analgesic effect of the drugs was estimated as follows: the degree of pain at the time of injection was tabulated as 100%, an appreciable reduction of pain as 50%, and reduction to a barely perceptible level as 20%. Records of the degree of pain experienced were made every minute until the pain again increased above the original level or it was evident that the quantity of drug given had not produced any analgesic effect. The results of the experiment are given in Table I.

TABLE I

	Pethidine 50 mg	C B 11 5 mg	Physeptone 5 mg
Pain reduction to 20%	—	8	3
Pain reduction to 50%	—	1	3
No pain reduction	10	1	4

**Discussion of Results**—In each case in which analgesia was produced the effect was apparent within two minutes and lasted as long with C B 11 as with physeptone, the average duration being three minutes. After that period there was a rapid recrudescence of pain to above the original level with both drugs.

**Side-effects**—With C B 11 the injection was followed by transient dizziness, which did not last for more than five

minutes. Dizziness was slight or absent with physeptone or pethidine. With all three drugs there was a pleasant feeling of detachment, and with pethidine euphoria was marked in the majority of cases even though no relief of pain was noted. CB 11 produced pupillary contraction in all 10 cases.

**Clinical Study**—Eighteen patients suffering from pain of different types and of different degrees of severity were given CB 11 in doses varying between 10 and 30 mg. The oral, intramuscular, and intravenous routes were all employed at different times. The results are summarized in Table II.

TABLE II

	No of Cases	Complete Relief	Some Relief	No Relief
Coronary thrombosis	4	4	—	—
Teeth extraction	1	1	—	—
Pulmonary infarct	1	1	—	—
Pleurisy	2	2	—	—
Angina decubitus	2	—	1	1
Biliary colic	1	—	1	—
Gangrene	1	—	—	1
Sciatica	3	1	2	—
Neoplasm—secondary deposits	2	2	—	—
Miscarriage	1	1	—	—
	18	12	4	2

Given by mouth, 20 mg of the drug produced analgesia in 20 to 30 minutes when the pain was not severe, the effect lasting for three to four hours. When the pain was more severe, as in cases of coronary thrombosis, a dose of 30–50 mg was required to relieve the pain. No hypnotic effects were evident when the drug was given orally.

The intramuscular injection of CB 11 produced relief of pain in 10 to 15 minutes—an effect which lasted two to three hours. Very little cortical depressant action was evident. The dosage used was 10–20 mg. Giddiness and vomiting were noted only in ambulant patients and not in those confined to bed.

Given intravenously in doses of 10–20 mg, analgesia was produced within two minutes and was accompanied by a feeling of dizziness, which passed off in a short time. The analgesic effect lasted for one to two hours.

### Conclusion

This preliminary study suggests that CB 11 is a potent analgesic, comparing favourably with physeptone, and is apparently more active than pethidine under the conditions of the experiment. In a short clinical trial it proved to be effective in the relief of some types of pain.

There is no evidence at present that CB 11 is a drug of addiction.

We consider it is worthy of more extensive trial.

This study was suggested by Professor D. M. Dunlop, to whom we are grateful for advice and criticism. We are also grateful to Dr H. M. Walker, of Glaxo Laboratories, for reports of the animal experiments and for supplies of CB 11.

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## ASPHYXIA OF THE NEWBORN TREATED BY ROCKING

BY

F. C. EVE, M.D., F.R.C.P.

AND

The Late N. C. FORSYTH, M.D.

The unexpected death of Dr Forsyth in November, 1947, lays on me the duty of publishing his work, which he was about to do. At Malton (Yorks) he had a large practice in midwifery of about 90 cases a year. Since 1932, when I published my rocking method of artificial respiration, he applied it to all his cases of "white asphyxia"—11 cases without a death. Hence his experience is unique and notable.

In 1947 I reported the case of a drowned boy of 14 treated (manually) by rocking (Eve, 1947). He was beyond recovery, but the colour change in his cheeks from blue to pink showed that an oxygenated artificial circulation had been created and maintained. I was excited to hear from Dr Forsyth that the same colour change had occurred in all his 11 cases *before* the first gasp. I interpreted this to mean that rocking had restored a circulation to the respiratory nerve cells, which *then* were revived enough to make the respiratory muscles gasp. The lungs, unexpanded at first, may supply only a modicum of oxygen, but apparently that is enough for the modest demands of the nerve cells provided their blood is renewed by a *circulation*, stagnation is quickly fatal, and is aggravated by accumulated CO<sub>2</sub>. Those with "white asphyxia" suffer from the enfeebled circulation of shock. Hitherto our conscious goal has been pulmonary ventilation. The first lesson learnt from these 11 cases is that we must concentrate on providing an oxygenated circulation (indicated by a pink face) to the nerve cells. If these are still viable they will then produce respiration in the natural manner. *Restore the circulation and the respiration restores itself.* The infant's heart can survive much longer, and rocking forces blood through the heart muscle.

Schmidt *et al.* (1945) were experimenting on the "gaseous metabolism of monkeys' brains". Finally the animals were killed by letting them bleed through the catheters which had been tied in the jugular veins. When heart and respiration had ceased they found (by chance) that by sucking out more blood from the jugular veins by a syringe "respiratory activity could be restarted and maintained for some time. This was confirmed by subsequent similar experiments provided the monkey was in good condition". Hence they suggest that prompt manual artificial respiration may revive electric-shock patients by creating movement of blood in the cerebral vessels.

This recent evidence strengthens my plea that in asphyxiated babies natural respiration may be started by rocking if the cerebral blood (stagnant in quiescence) can be moved onwards. The valves in the heart ensure that the movement will be towards the heart. It is rarely remembered that every millilitre of venous blood which can be coaxed from the rigid cranial cavity is inevitably (I think) replaced by a millilitre of arterial blood from the lungs.

The second new and important lesson learnt from these 11 successful cases is that rocking is certainly not harmful in shock, and appears to be beneficial. The treatment present orthodox in these asphyxia cases is concentrated shock, and consists mainly of quiescence and hope. If rocking is harmless in shock it seems to me far preferable this stagnation treatment.

The delegates to the first World Health Assembly will have "five weeks of very hard work," according to Dr Brock Chisholm, Executive Secretary of the Interim Commission, who points out that "for the newly formed WHO, the member nations, and the secretariat there will be a year of hard work in 1949 to implement the decisions of the Assembly. As for the peoples of the world there is just beginning a realization of the WHO constitution, which stands 'for the enjoyment of the highest available standard of health for every human being without distinction of race, religion, political belief, economical or social condition'."

Many of the dogs used in the rocking experiments of Hemingway and Neil (1944) had their upper spinal cord cut and had the low blood pressure of "spinal shock." Yet rocking maintained their circulation and was more effective than Schafer's method or respiration by pump as regards oxygen consumption in the body. Schafer's compression method could not be expected to expand the solid lungs of the newborn infant—they need expansion before they can be compressed.

Eight of Dr Forsyth's cases were due to strangulation of the cord round the neck (nerve cells starved and anoxic), five were instrumental deliveries. He did not rock the few cases of cerebral haemorrhage which were born dead or died after a few gasps. Two recent cases were (1) A breech case, born in white asphyxia with a faintly beating heart. The face turned pink after four or five double rocks, but the first respirations occurred only after rocking for eight minutes. (2) In a boy delivered by caesarean section the heart was impalpable. The first breath occurred after rocking for seven minutes, but the change in colour from white to pink was noted some minutes *before* the first gasp. This illuminating precedence (circulation *before* respiration) was observed by Dr Forsyth in all his 11 cases. Has anyone observed it without rocking? I cannot get an answer. No one need be deterred from rocking by fear that it may increase a cerebral haemorrhage—the harm has already been done and the infant will soon be dead or better dead.

Dr Forsyth's method in his first case was to rock the baby in his large hands before the fire (success after 35 minutes). Later he found it better to stand holding the baby, wrapped in a towel and lying on its side, to his chest. Thus he could hear the respirations, and the nurse could suck mucus from the throat with a No. 10 rubber catheter. He could rock the baby—as women do—by swaying his body through some 40 to 70 degrees each way without fatigue. I have verified these angles and find them easily attained if the knees are bent a little alternately. Gravity would have longer columns of blood to act on if the infant's legs were extended and the arms raised straight overhead. Ten double rocks a minute are enough. Presumably steep angles are best.

For clarity, I have so far deferred the CO factor. In an important paper by Comroe and Dripps (1946) two adults with severe cerebral injury were investigated carefully. They survived about five hours without breathing or consciousness. Shock had reduced their blood pressure to 40–70 mm Hg. Hence their condition resembled cases of newborn asphyxia—the colour was not recorded. They were kept alive by infusions and intratracheal oxygen for two to three hours, which oxygenated their blood (fully at first) and gave them a pink colour. Yet their arterial blood was found by analysis to be poisoned by CO<sub>2</sub> (tension 314 mm Hg, equivalent to 44% alveolar CO<sub>2</sub>), which did not betray itself to the clinician. This great excess of CO would narcotize the nerve cells, depressing respiration and blood pressure. It could be washed out only by expansion and contraction of the lungs. Schafer's method was tried, but it yielded only the "completely inadequate" tidal air of 72 to 117 c cm, owing to lack of tonus in elastic recoil. Thus "the method fails when it is most needed—in deep asphyxia which abolishes tonus. On the other hand, Eve's rocking method gave the adequate tidal air of 286 to 500 c cm, as it is independent of tonus. Circulatory benefits could not be measured."

From this paper we learn that our cases of newborn asphyxia are presumably being poisoned by excess of CO until the lungs work. (This could be verified by blood analysis promptly after death in cerebral haemorrhage cases.) Also we do not know whether rocking expands the

lungs effectively. (This could be ascertained by x-ray examination or at necropsy in cases of failure.) Meanwhile it seems reasonable to spend a few seconds in gentle mouth-to-mouth inflation of the lungs. Then we could confidently expect rocking to oxygenate the lungs and blood, sweep out excess of CO<sub>2</sub>, and provide a circulation for the brain and heart muscle. Oxygen can be added, often with advantage. But to add 7% CO<sub>2</sub> to a probable 44% excess is deplorable poisoning.

I believe a co-ordinated research on some such lines would save many future citizens and much maternal anguish. I have tried in vain to compare Dr Forsyth's results with those obtained in hospitals by other methods. There seems a deplorable lack of co-ordinate study in these awkward emergency cases. In the U.S.A., where 30,000 babies die annually of asphyxia, Dr P. F. Flagg, chairman of the Asphyxia Committee of the American Medical Association, makes the same lament.

Some of my conclusions must be tentative until Dr Forsyth's evidence is properly confirmed—notably, that if rocking restores the circulation the respiration restores itself.

My thanks for help are due to Professor A. Hemingway, Professor Alan Moncrieff, and Dr Doreen Daley.

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## GYNATRESIA: REPORT OF THREE UNCOMMON CLINICAL TYPES

BY

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 Welsh National School of Medicine)

Anomalies due to aplasia of the female genital tract are not infrequent and, depending on the extent and location of the aplasia, all varieties and degrees of gynatresia may result. The more complex congenital abnormalities are usually associated with a non-functioning uterus and are rarely of much practical importance. I have recently had under my care three unusual types of gynatresia, with certain features in common. Failure of canalization was limited in extent and localized to the cervical or vaginal segments of the Mullerian tract, and the symptomatology was dependent upon the presence of a functioning uterus. Two were examples of haematometra due to atresia at the level of the cervix, and the third was a case of hydrocolpos, a condition in which an accumulation of watery or mucoid fluid in the vagina may produce serious mechanical effects during infancy and childhood.

### Congenital Atresia of the Cervix with Haematometra

**Case Report.**—A married woman, aged 31, attended the Cardiff Royal Infirmary in September, 1945, complaining of right-sided abdominal pain. The pain had come on in attacks at irregular intervals for the previous twelve months, and these were increasing in severity. She had never menstruated. On speculum examination the portio and external os had a normal appearance, but the cervical canal was represented by a shallow blind depression, and the uterus was enlarged to the size of a three months pregnancy. At laparotomy the uterus was found uniformly enlarged and there was some distension of the



Fallopian tubes with blood. A longitudinal incision in the anterior uterine wall released about 4 oz (114 ml) of old menstrual blood, and the uterine cavity was found to end below in a blind pouch at the level of the isthmus. After separation of the bladder the anterior surface of the cervix was exposed and the vagina opened. A column of tissue, 2 cm in length, which intervened between the external os and the uterine cavity was excised and a new canal fashioned over an indwelling catheter. Three weeks later the cervical canal was easily dilatable to No. 8 Hegar, and two years after the operation the patient was menstruating regularly, she was free from pain, and the uterus was normal in size.

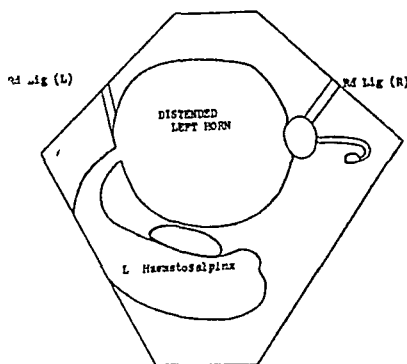
Haematometra is most commonly caused by occlusion of the lower end of the vagina, and it then occurs as a secondary though important complication of haematocolpos. Stagnation of blood in the uterine cavity, due to obstruction at the cervical level, is usually an acquired condition and develops as a result of scarring following operation or childbirth. Haematometra due to strictures of obstetric origin generally occurs after difficult confinements associated with infection and much cicatrization (Padovani and Vuillieme, 1931, Bernstein and Walter, 1939, Tait, 1945, Allen, 1947). Post-operative haematometra have usually been recorded after plastic operations on the cervix (Bernstein and Walter, 1939), but they have also occurred following the use of radium for benign uterine haemorrhage (Herring, 1939). In many cases of acquired stricture the stenosis is incomplete and, while blood accumulates within the uterus, there is some leakage past the obstruction. As a rule the distension by blood involves the entire uterine cavity, but Lifvendal (1933) has described a post-operative stricture of the cervix in which the haematometra was confined to the cervical canal. Retention of the menses is a quite unusual complication of carcinoma of the cervix, as this disease rarely causes stenosis of the cervical canal during menstrual life (Maliphant, 1939). Malignant occlusion of the cervix is predominantly a post-menopausal phenomenon, and pyometra is the common sequel. Most of the recorded cases of haematometra due to acquired stenosis of the cervix have required treatment by hysterectomy.

*Congenital* occlusion of the cervix is a condition of great rarity, and few examples have been recorded in the literature. Cervical aplasia is usually associated with more complex developmental anomalies of the genital tract, and the uterus is then rarely developed enough to perform the function of menstruation (Bonney and McIndoe, 1944). Bernstein and Walter (1939) described 10 cases of haematometra of congenital origin, but they were all secondary to haematocolpos. Similarly, in Simon's (1928) series from the Mayo Clinic there was not a case of haematometra due to cervical atresia in an otherwise normal genital tract, but two recorded examples of this condition have been noted in the literature. Napoleao (1931) described congenital atresia of the cervix in a woman aged 37 who had complained of attacks of abdominal pain since the age of 15. There was a hypogastric swelling equal in size to a five-months pregnancy. The vagina was normal, the cervix nulliparous, and the cervical canal was obstructed by a septum at the level of the isthmus. When this was snipped

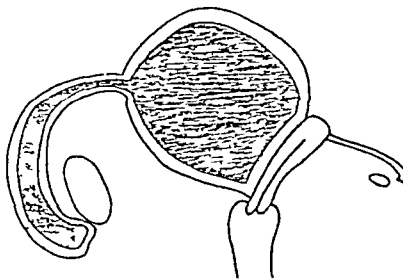
half a litre of dark menstrual blood escaped. Monjardino (1936) also reports a case—in a young woman of 18—in which there was an imperforate septum across the cervix, and supravaginal hysterectomy was performed.

### Haematometra in Atresic Horn of Uterus Bicornis Unicollis

*Case Report*—A girl, aged 13, was brought to the Cardiff Royal Infirmary in September, 1947, on account of severe dysmenorrhoea. Her menses had started nine months previously and were regular, lasting 7 days every 28 days. The menstrual pain was mainly localized to the left iliac fossa, but also extended to the buttock and to the left leg. For the past month she had also complained of dysuria and pain on defaecation. The girl was well developed and in good condition. On examining the abdomen a circumscribed spherical swelling was evident rising from the left side of the pelvis. Rectal examination showed that this was the upper pole of a mass which filled the left half of the pelvic cavity. The cervix was normal, and the uterus could not be distinguished apart from



Diagrammatic reconstruction of haematoma of blind horn of uterus bicornis unicollis



the main swelling. The provisional diagnosis was endometrioma.

On opening the abdomen free blood was found in the peritoneal cavity, and the pelvic organs had the appearance shown in the Diagrams. From the attachments of the round ligaments it was evident that the "tumour" was the distended left horn of a bicornuate uterus. It was about the size of a large orange. The right horn and corresponding appendages were normal, and were pressed against the right wall of the pelvis. Blood from the distended horn had been forced into the Fallopian tube to form a haematosalpinx, and blood had leaked into the peritoneal cavity. The left ovary was enlarged by oedema. On incising the distended uterine horn about 1/2 pint (284 ml) of dark menstrual blood was released. No communication could be made out between this horn and the cervical canal, so it was excised together with the haematosalpinx. Convalescence was smooth, and menstruation has since been normal and painless. Histological examination of the blind horn showed typical uterine structure. Its endometrium showed hyperplasia with secretory changes.

Uterus bicornis is often symptomless and may be found accidentally in the course of an abdominal operation for some other condition. When one horn is atresic and fails to communicate with the cervical canal it may be the site of an ectopic pregnancy, but it is unusual for its endometrium to undergo menstrual changes. When this happens it is responsible for many diagnostic problems. Menstruation occurs normally from one half of the uterus, with the coincident development of a haematometra on the opposite side, and the condition is characterized by dysmenorrhoea of increasing severity. The dilated horn has usually been mistaken for a neoplasm, and the true state of affairs has become apparent only at operation. Even then, unless the relation of the round ligament to the swelling is noted, it may be mistaken for a blood cyst of the broad ligament. Wilson's (1925) case was that of a girl aged 14 who menstruated four times and complained of severe dysmenorrhoea. As the nature of the condition was in doubt, uterus and adnexae were removed. Barris (1924) has described the condition in a woman aged 20 with a history of dysmenorrhoea for 18 months. Bernstein and Walter (1939) case was that of a 27-year-old nulligravida, in whom the pre-operative diagnosis was fibroid uterus with ovar-

cyst Simon (1928) reported unilateral haematometra in an incomplete uterus didelphys in a girl aged 17 who had complained of severe dysmenorrhoea for four years. These three cases were treated conservatively by resection of the atresic horn.

This form of uterus bicornis asymmetricus, although encountered infrequently, is a condition of some clinical importance. The stagnation of blood in the blind horn produces a characteristic clinical picture, and although the findings on palpation are often indefinite the history of intense dysmenorrhoeic pain so soon after puberty should make possible the correct diagnosis and appropriate conservative treatment.

### Hydrocolpos

**Case Report**—A girl, aged 14, was admitted to the Cardiff Royal Infirmary in March, 1944, with acute retention of urine. There was a suprapubic swelling, which partly disappeared on catheterization. The vagina was occluded by a retrohymeneal membrane, and it was evident on rectal examination that it was distended with fluid. The case was regarded as one of cryptomenorrhoea with haematocolpos, but on excising the membrane, which was unusually thick, about 1½ pints (850 ml) of turbid watery fluid were released. The uterus and appendages were normal. The fluid contained many epithelial cells, and its protein content was 0.6%. It did not contain any fat globules, and was sterile on culture. Normal menstrual periods began five months after the operation and have continued normally since.

Congenital occlusion of the lower end of the vagina is not an uncommon condition, but it is rarely responsible for symptoms before puberty. The object of this report is to draw attention to a clinical entity characterized by the retention in the vagina of enough watery or mucinous fluid to produce symptoms in infancy and childhood. In the literature the condition has been described as "hydrocolpos" or "mucocolpos," and the fluid as "turbid serous," "milky," or "mucinous" in character. The retained fluid, which is regarded as the accumulated secretions of the cervical and uterine glands, contains desquamated epithelial cells with some leucocytes, and is sterile on culture. A variable amount of mucoid vaginal discharge is not uncommon in the newborn, and it is probable that in most cases of vaginal atresia there is some accumulation of uterine secretions, but not in sufficient quantity to produce symptoms until augmented at puberty by the products of menstruation. The large accumulations of sanguineous fluid in some cases of cryptomenorrhoea after one or two attacks of abdominal cramps may represent cases of pre-existent hydrocolpos into which the first few menstrual bleedings have flowed. When abnormal activity of the uterine glands coexists with vaginal occlusion such a collection of fluid may form in the genital tract that serious effects may be produced long before the onset of menstruation.

The cause of the abnormally copious secretion of fluid is obscure, but it is probably related to the activity of the uterine glands, and this is controlled by the oestrogenic hormone. The foetus *in utero* is exposed to the influence of maternal oestrogens, and also, according to Dobszay (1938), for the first two weeks after birth. The oestrogens of maternal origin are responsible for the vaginal discharge often observed in newborn infants, and also for the transient uterine bleeding and breast enlargement which may occur. During this phase there is histological evidence of increased activity of the uterine and cervical glands, and the vaginal epithelium resembles the adult type. The vaginal epithelium of adults and of infants during the first few weeks of life contains glycogen, but this is not found in the vaginal epithelium of older children before the age of puberty (Dobszay, 1938). When the infant is about 2 weeks old this change occurs in the character of the vaginal epithelium, and the uterine glands become less active in appearance (Mahoney and Chamberlain, 1940).

The morbid histology of hydrocolpos in infancy has been described in operation and necropsy specimens by Mahoney and Chamberlain (1940). They found distinct evidence of activity of the uterine glands and varying degrees of keratinization of the vaginal epithelium. The great variation in the amount of uterine secretion is considered by them to be dependent upon the degree of oestrogen stimulation, and if this view is correct increased glandular activity would be expected to occur during foetal and early neonatal life, and again shortly before puberty. It is noteworthy that most of the recorded cases of hydrocolpos fall into one or other of these two age groups. The first category includes infants who either are born with enormous collections of secretion in the vagina or have accumulated such secretions during the first few weeks of life. The second category is comprised of cases in which symptoms of fluid distension of the vagina develop shortly before puberty, when there is awakening activity of the uterine glands.

The mechanical effects of distension of the vagina are well recognized. The vagina is capable of enormous distension even in infancy, and will accommodate a large collection of fluid before the uterus is affected. In this phase the uterus is merely displaced upwards and rides on the greatly distended vagina as a small nodule. When the intravaginal fluid pressure is sufficiently increased haematometra or hydrometra follows, with reflux into the Fallopian tubes. The distension of the vagina also causes upward displacement of the bladder and stretching of the urethra and bladder neck, so the commonest initial symptom in both haematocolpos and hydrocolpos is retention of urine. Other pressure effects in infancy, such as intestinal obstruction and oedema of the lower extremities, have been described (Morris, 1945).

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### Hydrocolpos in Infancy

It is during the first two months of life that hydrocolpos has its most serious consequences. The literature of the

Summary of the salient features of the recorded cases of hydrocolpos and hydrometrocolpos

Age	Clinical Features	
In infancy		
1 day	Found at necropsy in a baby with imperforate anus and intestinal obstruction. 1 oz (28 ml) of light yellowish mucoid material in vagina.	Mahoney and Chamberlain (1940)
2 days	Large abdominal tumour. Several ounces of turbid fluid released per vaginam.	
17	Progressive abdominal enlargement with retention of urine. Several ounces of mucinous grey fluid released p.v.	Rosenblatt and Woolley (1943)
3 weeks	Large abdominal tumour with retention of urine. Large amount of turbid mucoid fluid released during panhysterectomy.	Mahoney and Chamberlain (1940)
7	Retention of urine, intestinal obstruction and oedema of legs. Laparotomy followed by incision of hymen.	Morris (1945)
8	Retention of urine, abdominal swelling and diarrhoea. Laparotomy followed by incision of hymen and release of 2 oz (56 ml) of milky fluid.	Mahoney and Chamberlain (1940)
8½	Retention of urine, abdominal tumour, vomiting and diarrhoea. Laparotomy followed by incision of hymen and release of 2 oz. of milky fluid.	Kereszturi (1940)
11	Cystic swelling at vulva. 1 dr of mucus released p.v.	Spencer (1916)
Pre-pubertal group		
12 years	Abdominal swelling. Two quarts (2.27 litres) of milky chyle like fluid released per vaginam. Menstruated 5 months later.	Bowen (1941)
14	Abdominal swelling and backache. Laparotomy and 2,200 ml of serous fluid removed by puncture of 'pelvic cyst'.	Althoff (1941)
14	Abdominal swelling with retention of urine. 1½ pints (850 ml) of turbid watery fluid released per vaginam. Menstruated 5 months later.	Maliphant (1948)

condition was reviewed in 1940 by Mahoney and Chamberlain, and cases have since been reported by Kereszturi (1940), Rosenblatt and Woolley (1943), and Morris (1945). It is one of the causes of large cystic abdominal swellings in female infants, and the rational and only treatment required is excision of the occluding membrane. However, without inspection of the vulva and rectal examination the true pathology is apt to be overlooked, and laparotomy with its attendant dangers in a young infant may inadvertently be employed.

The infant is distressed, and progressive abdominal enlargement and retention of urine are usually conspicuous symptoms. The main abdominal swelling is distended bladder, and after catheterization a much smaller second swelling is noted in the lower abdomen. The vagina is occluded by a bluish membrane which bulges when the child strains, and rectal examination reveals fluctuant distension of the vagina. Mahoney and Chamberlain have drawn attention to the diagnostic value of injecting radio-opaque substances through the point of atresia, and Rosenblatt and Woolley confirm the value of roentgenoscopy in establishing a correct diagnosis.

Hydrocolpos may cause alarming symptoms two days after birth (Mahoney and Chamberlain, 1940), and cases have been recorded in infants of 17 days (Rosenblatt and Woolley, 1943), 7 weeks (Morris, 1945), and 8½ weeks (Kereszturi, 1940). Morris's case of hydrometrocolpos was complicated by hydronephrosis, intestinal obstruction, and oedema of the lower half of the body. An instructive case was reported by Kereszturi in an infant of 8½ weeks. The imperforate condition of the hymen was noted, but was not considered to be of clinical significance. A barium enema showed the colon to be displaced upwards, and intravenous urograms revealed bilateral hydronephrosis with obstruction of the ureters at the uretero-vesical junction. As the infant was losing ground and the diagnosis was "pelvic tumour of unknown origin" laparotomy was performed. A cystic tumour was found filling the pelvis and pushing the bladder upwards and forwards, pressure on this tumour caused bulging of the hymen. Before the abdomen was closed 2 oz (56 ml) of milky fluid was released from the vagina by incising the hymen, whereupon the pelvic tumour collapsed. In this case the hydrocolpos and hydronephrosis were complicated by pyelonephritis with severe constitutional symptoms, and the urograms did not return to normal for a period of 15 months.

Spencer (1916) has described mucocolpos in a baby girl, 11 weeks old, in which the condition was recognized before the onset of obstructive symptoms. The mother had noticed a swelling in the vulva which became a little more prominent when the baby cried. An elliptical piece of the imperforate hymen was excised and about 1 dr (3.5 ml) of mucus escaped. Spencer stressed the importance of examining as a routine the vulvae of female babies at birth. Unless this is done any vaginal occlusion usually escapes notice until menstruation occurs, and the genital tract may then receive irretrievable damage.

### Hydrocolpos in Girls shortly before Puberty

Records of two cases of this type were found in the literature and I have now added a third. The clinical features are indistinguishable from those of haematocolpos, although the absence of monthly twinges of abdominal pain may be significant.

Bowen's (1941) case was that of a girl aged 12 who complained of lower abdominal discomfort and had a soft symmetrical mass extending from the symphysis to the umbilicus. Incision of the vaginal septum released 4 pints (2.27 litres) of milky chyle-like fluid. The girl menstruated

five months later. In Althoff's (1941) case, quoted by Morris, a 14-year-old girl complained of abdominal pain and backache for six weeks. The hymen was imperforate, and when it was punctured 50 ml of cloudy serous fluid was withdrawn. As the nature of the condition was still in doubt the abdomen was opened and 2,200 ml of the same type of fluid was obtained by aspiration of a large cyst-like structure which arose from the pelvis.

### Summary

Three types of gynatresia are described. They each had distinctive clinical features and were amenable to conservative treatment. Developmental anomalies of this order, though rare, are of much practical interest, for unless recognized they may be submitted to needlessly radical operative procedure.

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## Medical Memoranda

### Acute Purpura with Neurological Complications Associated with "Sedormid" Therapy

The following case report seems to be interesting enough to merit publication.

#### CASE HISTORY

The patient, a woman aged 30, had been admitted to the Bristol Royal Infirmary three months previously for a thyroidectomy, and after her discharge had been given "sedormid" by her doctor. She had taken about 14 tablets at very irregular intervals in the course of two months. Three days before admission she had noticed a purpuric rash on her arms and legs, and on the day of admission she had had haematemesis, haematuria, and melaena.

On examination a widespread purpuric rash was seen, but the spleen was not palpable and there was no enlargement of the peripheral lymph glands. Macroscopic haematuria was present. A blood count showed red cells, 3,000,000, haemoglobin, 56%, white cells, 3,600, with normal differential count. Bleeding time was 26½ minutes, clotting time, 8½ minutes, clot retraction was very poor. Only one platelet was seen in the whole film and no estimate of their number could be made.

The next day, after a transfusion of 2 pints (1.14 litres) of fresh blood, there appeared a right-sided facial palsy of lower motor neurone type. On the following day dissociated anaesthesia (loss of pain and temperature, normal to cotton-wool) developed on the right side of the face, greater in the first and second division of the trigeminal nerve than in the third. No other abnormal physical signs were elicited, except for the right facial palsy previously noted, but the patient complained of a severe occipital headache and neck stiffness. Three days later she had had no further haemorrhages and her bleeding time was now 8½ minutes, although the platelets were still too few to make an accurate count. Her progress afterwards was uneventful, and on discharge 10 days later the platelets had risen to normal, and her bleeding time was now 4 minutes.

Nine days later she was readmitted, having had a further haematemesis and massive purpura, no platelets were seen in her blood. During the next 13 days she received 11 pints (6.25 litres) of blood—5 pints (2.84 litres) being fresh blood—and at the end of this time the platelets had risen to 3,000 per c mm and the haemoglobin

was 90%. Her condition appeared to be satisfactory for three days, but purpura developed once again and she suddenly went into coma the same night and died.

A post-mortem examination was performed by Dr R G Sandry. There were numerous petechial haemorrhages in the skin. Many small haemorrhages were also seen beneath the parietal and visceral peritoneum and pleurae, and beneath the epicardium. The spleen was enlarged to about twice its normal size and the pulp was somewhat softened. Histologically it showed no noteworthy change. The lymph nodes were slightly enlarged and purple in colour. Histologically it was evident that all the glands examined had been draining areas of haemorrhage. The bone marrow of the sternum was abundant and red, containing one area of haemorrhage. There was extension of red marrow down the shaft of the femur. Histologically, specimens of marrow taken from the sternum and from the mid-shaft of the femur were virtually indistinguishable. In both there was some hyperplasia of the erythroid series of cells. Megakaryocytes, although present, were relatively few in all sections examined. The left cerebral hemisphere was the seat of a massive haemorrhage, this being the ultimate cause of death. No haemorrhage, recent or old, could be found in the region of the descending nucleus of the fifth cranial nerve.

#### DISCUSSION

The first case of purpura due to sedormid (allylisopropylacetylurea) was published by Dening (1933), since then a number of cases have been reported in the literature. An interesting feature of my case was the accidental discovery of a positive Hess test in the patient's sister whilst using her as a fresh blood donor: no abnormality in her bleeding time or platelets was discovered, but it is suggested that there was some familial capillary abnormality in this case, and that sedormid therapy finally produced a further change in platelet production. A fatal relapse of purpura occurring nine days after discharge from hospital without further sedormid therapy is unusual, but it is suggested that the marrow, as evidenced by paucity of megakaryocytes, had been affected by the therapy.

Various therapeutic measures were tried including blood transfusion, 5 ml of intramuscular liver, vitamins C, P, and K, and 120 mg of rutin daily. Rutin, an extract of buckwheat, is stated to have an effect on capillary permeability, but in this case it appeared to have little effect.

I wish to thank Dr Orr Ewing for permission to publish this case report and Dr Sandry, of the Pathological Department, University of Bristol, for the post-mortem findings.

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University of Bristol

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### Instantaneous Traumatic Forequarter Amputation of the Right Arm

A search of the literature does not show any reference to traumatic forequarter amputation of the arm. Berman (1945) discusses operative interscapulothoracic disarticulation of the arm. It is considered, therefore, that this case may be worth placing on record.

#### CASE REPORT

The patient, a healthy miner aged 23, was freeing a coal-conveyor belt which had become clogged with coal at the roller end and had stopped. His right arm was through a hole in the protective grille. The moment the belt was free it began to move rapidly, and the patient's arm was caught between roller and belt and twisted round so that it was avulsed from the body.

On admission to the casualty department he was found to be shocked but not in a serious condition. After the wound had been rapidly inspected for a serious haemorrhage anti-shock therapy was begun including 2 pints (1.14 litres) of blood and 2 pints of plasma. Two and a half hours later he was operated upon under thiopentone and gas and oxygen.

On examination the skin around the shoulder showed an aperture 6 in (15 cm) vertically by 3 in (7.5 cm) horizontally, with loose and undermined edges for varying distances anteriorly and posteriorly along the chest wall. There was also a flap of skin on the anterior edge which came from the upper arm. Deeper inspection showed that there was no scapula present, and that the lateral half of the clavicle was missing. There had been, in fact, a formal surgical forequarter amputation. It was difficult to insert the hand into the bed of the scapula.

The pectoral muscles had been torn through near their insertion, the serratus anterior could not be found except for a few slips on

the ribs, the latissimus dorsi was quite intact, and only portions of the levator scapulae, rhomboids, and trapezius were found. The avulsed limb was unharmed. The axillary artery had been avulsed about 1½ in (3.75 cm) from the first rib, apparently there had been no serious haemorrhage at the time of the accident owing to the avulsion nature of the injury. The brachial plexus had been severed at about the same level as the vessels.

The axillary artery and vein were ligated at the outer border of the first rib. The brachial plexus was cut short and injected with 2% procaine. Haemostasis was then secured at other points. Complete closure was possible, utilizing the flap of skin on the anterior margin of the wound. A drain was passed up into the "axilla" and a coaptation suture was inserted to hold the sutured flaps to the chest wall. Throughout the whole operation the patient's condition remained excellent. Anti-tetanus and anti-gas-gangrene sera were given and a prophylactic course of penicillin was started.

Complete primary union was secured. The patient was in hospital for 14 days, during which time deep breathing exercises were encouraged. He complained of pain in his "phantom" limb for some time, and when this continued it was considered that the cause might be calcification in the region of the brachial plexus. A radiograph, however, showed complete absence of calcification. The nature of his "phantom" limb was peculiar, he complained that he could feel his hand and forearm but that they were attached to a very short upper arm. It may be noted that it was his hand and forearm which were primarily trapped in the machine.

I wish to thank Mr L E Sutcliffe, surgeon in charge of the accident service, for permission to publish, Dr H E Pooler for the administration of the anaesthetic, and the sisters and nurses of the casualty department and accident ward for their help and aftercare of the patient.

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### A Case of Poisoning by Ethylene Trichloride

A boy aged 16 had been employed at a factory for two years where one of the principal jobs consisted in the degreasing of metals by means of ethylene trichloride. Notices to the effect that this substance was dangerous were posted throughout the factory, and the boy had been particularly warned of its danger.

The degreasing of large metal parts was accomplished in a large vat containing ethylene trichloride, but it was possible to draw off the liquid into a bucket by means of a tap at the bottom of the vat, and, indeed, small metal parts were generally cleaned by rinsing them in a bucket containing ethylene trichloride. The vat was accessible to anyone working in the factory. On one occasion a workmate had found the boy smelling the liquid with evident pleasure.

At about 4 o'clock one afternoon the boy was heard to say that he was shortly going home to tea, but an hour and forty minutes later he was found in a lavatory some 30 yards (27 metres) from the vat lying on the floor with his head over a bucket the bottom of which was covered to a depth of 2 in (5 cm) by ethylene trichloride. He was dead.

At necropsy he was found to be adequately nourished and healthy. Superficial burns, reminiscent of anaesthetic burns, were seen on the left side of the face. The sweet smell of ethylene trichloride was most pronounced in the brain, lungs, and stomach, and the chief pathological changes were seen in the respiratory tract, where there was acute inflammation of all the air passages and an intense haemorrhagic oedema of the lungs. A little regurgitated vomit was found in the trachea. The cause of death was given as acute pulmonary oedema following the inhalation of ethylene trichloride, and the circumstances left no doubt that the boy had been inhaling the fumes of ethylene trichloride because he liked either the smell or the sensation which they produced.

Addition to ethylene trichloride is mentioned in the M.R.C. Report (No. 80) on the toxicity of industrial organic solvents.

The principal use of ethylene trichloride is as a degreasing agent for which purpose it is used in the dry-cleaning industry as well as in the treatment of metals. As a solvent of tar and pitch it is sometimes found in certain paints, and it has a limited use as an insecticide.

DONALD TEARE, M.D. M.R.C.P.

## Reviews

### MALARIA

*Pathological Processes in Malaria and Blackwater Fever* By Brian Maegaith, M.A., D.Phil. B.Sc., M.B. (Pp. 430 illustrated 35s.) Oxford Blackwell Scientific Publications 1948

The relation between the clinical signs and symptoms of malaria and the pathological changes of the disease has long excited interest and investigation. More than 400 years ago Albert Durer, it may be recalled, illustrated a letter to his physician by drawing a sketch of himself indicating his enlarged spleen and announcing, "That's where the pain is." The gross pathological lesions associated with malaria have long been recognized, but it is only during the last twenty years that improvements in technique have permitted an investigation of the biochemical lesions in malaria and a correlation of these lesions with the metabolic needs of the malarial parasites, information has thus been collected in a somewhat haphazard way. This book is the first attempt at a synthesis of the ascertained facts and as such it is an important achievement, not only because it sets out what is already known but perhaps even more because it reveals the very considerable lacunae still existing in our knowledge of malaria.

In the first chapter the author outlines the main clinical features of malaria, his account is designed more especially for those who may not be entirely familiar with the various forms of the disease in man. There follows a complete description of the morphology of malarial parasites by Dr R. H. Black, who brings to the task the knowledge that he has acquired from studies of plasmodia in cultures. He also fully discusses the physiology of the parasites, as well as the morphological changes and metabolic derangements caused by various anti-malarial drugs. This is a subject which requires much further investigation. Dr Maegaith then considers the effects of malaria on the various organs of the body. Through some process which is not yet fully understood the red cells which are not actively invaded by parasites are nevertheless destroyed in considerable numbers at the time of the paroxysm. In infections due to *Plasmodium falciparum* the loss of red cells may be as high as 500,000 cells per cmm. The author emphasizes the role of anaemia in the genesis of the lesions in the various organs, more especially in the liver and kidneys, in the genesis of derangements in the central nervous system the process of anaemia may be modified in some degree by hypoglycaemia. He concludes with a general summary of the pathological processes in malaria, such factors being considered as the still uncertain mechanism of the paroxysm, the role of haemozoin, and the tissue response to infection.

The author might have said more about the part played by humoral immunity as opposed to the phagocytic mechanism, the antithesis between latent infection and what is termed "a general humoral immunity" is not entirely clear. A few minor criticisms can be readily met in a second edition. The nomenclature of antimalarial drugs has not been satisfactorily worked out. The use of names which are official neither in Great Britain nor in America is to be deplored, as is the failure to spell consistently the names used. In the marshalling of so many references it is hardly surprising that there are occasional errors in ascribing priority, as for instance the failure to mention the pioneer work of E. K. Marshall and his colleagues (1942) on the action of *p*-aminobenzoic acid in inhibiting the antimalarial action of sulphonamides. Inclusion of an author index would improve the book.

However, it is an important and stimulating work which should be pondered over by all who are in any way associated with the problems of malaria, as there are on a conservative estimate some 700 million victims of malaria in the world quite a number of people should undoubtedly study it. Not everyone will necessarily agree with all the views put forward but some of the pundits may learn how tenuous is the evidence in favour of theories which have too long masqueraded as facts. Above all, this work emphasizes how great is the need for further investigation into the highly complex pathological processes which arise when once malarial plasmodia have entered the body.

G. M. FINDLAY

### CONSCIENCE

*The Battle of the Conscience: A Psychiatric Study of the Inner Working of the Conscience* By Edmund Bergler, M.D. (Pp. 296 \$3.75.) Washington Washington Institute of Medicine, 1720, M Street N.W.

In the literature of psychiatry the tendency is to classify and relate mental breakdowns and to assign broad aetiological factors. While psycho-analytic writings on the other hand are confined to tracing the dynamic relations of mental development, unfolding this war of conflicting trends which give rise by repression and reaction formation to both neurosis and character, they leave the common medical reader with the impression that the person disappears in the analytic bombardment as atoms disappear into nuclear substance in the pile. It is a relief, therefore, to see in this volume actual persons not disappearing but illuminated under the fierce, cynical glare of the psycho-analytic spotlight.

While the author discusses a wide field of mental processes, he focuses his attention on the vital problem of conscience in its unconscious manifestations—the super-ego of theory which determines from an early age the deeper moral preoccupation that gives quality to character and intense suffering to the victim of mental disorder, particularly the anxiety states, the obsessions and depressions, and the torture of insomnia. He shows how much more imperative can be the dictates of this unconscious regulator of conduct and to what lengths the human being can go in meeting it by subterfuges of which he is not consciously aware. The book is amply supplied not only with case examples but with literary references and attempts at literary analysis not unfamiliar to us in psycho-analytic literature.

The author writes rarely and shows a high competence in analysis as well as a freezing penetration of human nature. This makes his approach cynical and destructive, for in his exposition he sees the working of conscience in all mental attitudes, people appear to be left with only a shred of reality sense, and the ego seems to disappear between the nether millstone of instinctive urge and the upper stone of the super-ego. If this is the *reductio ad absurdum* of analysis, then culture has certainly reduced mankind to the state of conscience-ridden cowards and hypocrites. The besetting weakness of the book, otherwise both readable and instructive, is the excessively sensational style of the chapter headings—e.g., "The Injustice Collector", "Success without Blessings of Conscience", "Neurotics who Bargain for the Electric Chair".

EMANUEL MILLER

### TEXTBOOK OF MIDWIFERY

*A Textbook of Midwifery for Students and Practitioners* By R. W. Johnstone, M.A., M.D., F.R.C.S.E., M.R.C.P.E., F.R.C.O.G., F.R.S.E. 13th edition (Pp. 570 307 illustrations 30s net.) London Adam and Charles Black 1948

Professor Johnstone's *Textbook of Midwifery* will be familiar to many generations of medical students, for it is now 35 years since the first edition appeared. This new edition retains the well-known characteristics, and the general arrangement, including individual chapter headings, has hardly changed in the last 20 years at least. This does not imply that it has not kept abreast of the very considerable advances in the theory and practice of obstetrics in recent years, but rather that the book has always had a sound foundation. Indeed, the author is fully justified in claiming that he presents in this edition a thoroughly up to date account of what is generally accepted by the majority of modern obstetricians. The new features include a more detailed description of the maternal reactions to pregnancy, antenatal care and diet during pregnancy and lactation. The chapter on disordered uterine action has been rewritten to give a much more reasonable account of a difficult subject than is usual in textbooks. The complete segregation of hyperemesis gravidarum from the toxæmias of pregnancy is in keeping with current thought. Dr W. I. C. Morris has contributed a section on incompatible blood groups in relation to midwifery.

Apart from some inevitable differences of opinion over detail this by and large is a most satisfying textbook. On reading it again after an interval of many years it is easy to understand why it has enjoyed such continued popularity with undergraduates and practitioners. In the first place the author has

succeeded in keeping pace with advancing knowledge, and in including some useful reference to almost every condition likely to be encountered in professional examinations or in practice without increasing the size of the book to any great extent. Above all, however, the book is concise and methodical, easy to read and to understand and contains views likely to meet with general acceptance rather than highly individualistic opinions. Some of the illustrations perhaps lag behind the high standard set by most modern books but this again may appeal to the student, for it helps to keep the cost within reasonable limits.

T N A JEFFCOATE

### USES OF STREPTOMYCIN

*La Streptomycine et ses Applications Therapeutiques (principalement dans la Tuberculose)* By Prof C Levaditi (Pp 218, 76 figures 350 francs) Paris Presses Documentaires 28 rue Saint-Dominique, VIIe 1948

The author of this book, the director of the Institut Alfred Fournier France assembles the knowledge of the laboratory aspects of streptomycin in a form useful for research workers and others. His aim also is to review the clinical applications of the antibiotic, particularly in tuberculosis but in this he has been less successful partly because of the rapidly changing picture given by clinical trials. Professor Levaditi and his colleagues have themselves been active in experimental work on streptomycin, and many of their results are given; they tend to confirm previous conclusions rather than to break new ground. The book can be recommended for its concise presentation.

P D ARCY HART

### HOSPITAL ADMINISTRATION

*Problems of Hospital Administration* A Report on a study based upon interviews with 100 Hospital Administrators located in various sections of the United States. Charles E Prall Director Joint Commission on Education (Pp 104 No price given) Chicago Physicians Record Company

The profession of hospital administrator is a more distinct one in the USA than in Britain, and training courses have been established by many bodies including universities. Those responsible for devising courses and curricula have realized that, until it is clearly understood what the functions of a hospital administrator are or ought to be, provision of adequate training to an approved standard is impossible.

A joint Commission of Education was set up by the College of Hospital Administrators and the American Hospital Association to make a wide survey of the field and to submit what would be in effect a careful job-analysis of the work of a hospital administrator. This book is the result of the investigations and is based largely on interviews with 100 leading administrators chosen because of their approved experience and efficiency some being medical some lay and representative of all varieties of hospital voluntary and State, large and small. Every aspect of hospital work is touched on the questions and answers covering every conceivable problem both of policy and day-to-day running. The book is a useful record of facts and on it the Commission of Education will base its recommendations for an optimum curriculum. This book and the Commission's recommendations should be of great value to all interested in hospital control and management in Britain.

ANDREW TOPPING

Sir Alfred Pearce Gould's well known manual *Elements of Surgical Diagnosis* ninth edition revised by Sir Cecil Wakeley (Cassell 15s) has reached the age of 63 years and is still popular—a fact that speaks well for its usefulness for the law of survival of the fittest operates efficiently in the medical literary world. Sir Alfred was one of the best surgical teachers of his time and on looking into this volume one can see the secret of his success for here we find lucid exposition, clear differentiation of signs and symptoms and definite direction leading to accurate conclusion. The last edition was by the original author's son but Eric Pearce Gould unfortunately died during the recent war. Sir Cecil Wakeley has ably revised the text. He constantly used the book when a student and appreciates exactly what its function is in the education of the student. The revision was therefore (as he says in the preface) a labour of love and he has preserved the excellent tradition of the book. We can cordially recommend it to the student and for that matter to the teacher of surgery.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*The Skull, Sinuses, and Mastoids* By B R Young M D (Pp 328 36s) London H K Lewis 1948

A handbook of x-ray diagnosis with many skiagrams

*The Medical Clinics of North America Symposium on Psychiatry and Neurology* By various authors (Pp 555-853 No price) London Saunders 1948

A collection of clinical articles

*Pharmacology* By J H Gaddum Sc D FRS MRCS LRCP 3rd ed (Pp 504 25s) London Geoffrey Cumberlege 1948

New material is included on BAL, folic acid, anticoagulants, antibiotics, and other topics

*Petticoat Surgeon* By B Van Hoosen (Pp 334 12s 6d) London Peter Davies 1948

The autobiography of a woman surgeon

*Laboratory Diagnosis of Protozoan Diseases* By C Franklin Craig, M D, M A DSc FACS FACP 2nd ed (Pp 384 27s 6d) London Henry Kimpton 1948

A manual of laboratory methods

*Basic Principles of Ventilation and Heating* By I Bedford DSc Ph D (Pp 401 25s) London H K Lewis 1948

Ventilation and heating in terms of basic human needs

*British Surgical Practice* Edited by Sir E Rock Carling, FRCS, FRCP and J Paterson Ross, MS FRCS Vol 3 (Pp 524 60s) London Butterworth 1948

Subjects continued alphabetically—from Caesarean Section to Eyelids

*Mental Abnormality* By M Culpin M D FRCS (Pp 196 7s 6d) London Hutchinson 1948

An outline of the subject for the general public

*Glomerular Nephritis* By T Addis, M D FRCP (Pp 338 40s) London Macmillan 1948

A description of the author's method of diagnosis and treatment

*The Surgery of Abdominal Hernia* By G B Mair, M D FRFPSC FRCS Ed (Pp 408 25s) London Edward Arnold 1948

A monograph concerned with the causes and treatment of abdominal herniae

*The New Science of Surgery* By F G Slaughter, M D (Pp 241 10s 6d) London Sampson Low Marston 1948

A description of the triumphs of modern surgery for the layman

*Modern Surgery for Nurses* Edited by F Wilson Harlow MB BS FRCS (Pp 795 25s) London Heinemann 1948

A textbook for nurses written by a number of specialists

*Treatment in General Practice* By H Beckman M D 6th ed (Pp 1129 57s 6d) London W B Saunders 1948

Therapeutics for the general practitioner

*Clinical Diagnosis by Laboratory Methods* By J Campbell Todd Ph B M D and A Hawley Sanford, A M M D 11th ed (Pp 954 37s 6d) London W B Saunders 1948

A working manual of clinical pathology

*Diseases of the Skin* By O S Ormsby M D, and H Montgomery M D MS 7th ed (Pp 1462 90s) London Henry Kimpton 1948

A new and revised edition of a textbook of dermatology

*Anatomy and Physiology Laboratory Manual and Study Guide* By B Griffith King Ph D and H M Roser BA MA 3rd ed (Pp 267 15s) London W B Saunders 1948

A guide for those who have to give practical instruction in anatomy and physiology to nurses



## BRITISH MEDICAL JOURNAL

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## SAFETY IN CHEMICAL WORKS

The aim of those responsible for safety in factories is so to control the physical environment and so to stimulate the consciousness of workers that accidents are reduced to unpredictable events. Experience shows that most accidents could have been foreseen. Appropriate rules and regulations can be drawn up for the prevention of serious accidents, but compliance with the law alone will not necessarily reduce their incidence. The human factor, so hard to define and so real in the daily life of a factory, still dominates the picture. Were it possible so to operate industrial processes that the incalculability of man had no relevance to the problem of safety, then the incidence of accidents would fall sharply. The story of the manufacture of the atom bomb illustrates what can be achieved in spite of the extreme dangers involved. The concentration of effort on safety measures and the availability of means to implement them are still far from adequate in the general body of industry. Because of expense perfect environmental conditions cannot be provided, and reliance is placed on exhortation, propaganda, and training in safety. The response to this is improving but is still far from satisfactory.

In the chemical industry the opportunities for calamitous accident are many. Injuries, explosion, poisoning, and industrial disease menace the worker continually. In spite of technical conformity with the legal requirements the conditions in many chemical factories are bad. An almost traditional belief that the industry is necessarily a dirty one inhibits the efforts which are necessary to establish better practice. The workers who are employed in the industry are, in general, of the less developed type and correspondingly difficult to educate in co-operative safety measures. At the present time almost insuperable obstacles prevent even the best of managements from improving or renewing plant and from introducing those amenities which not only improve the self-respect of the worker but also are essential if safe working is to be attained.

Even in the chemical industry most accidents are not due to chemical faults but to falls, falling objects, moving machinery, tools, handling goods and articles without machinery, stumbling over obstructions, and the like. Probably not more than some 5-10% of all accidents in chemical factories are due to actual chemical products. This figure must, of course, be distinguished from the incidence of industrial diseases such as poisonings,

dermatitis, tumours, and eye affections. It is obvious that in order to reduce accidents in chemical factories the rules of safety applicable in other types of industry must be no less earnestly applied. Good housekeeping, clean working, good lighting, heating, and ventilation, effective guarding of machinery, and mechanical methods of lifting and transporting machinery and products.

The Chief Inspector of Factories in his Report<sup>1</sup> for 1945 points out that training schemes for new entrants into factories do not sufficiently emphasize safety principles. 'The general recommendation that men should be informed of the physical and chemical hazards of their work is much more difficult to carry out in chemical factories than would at first appear. Mere statement of hazards is not enough. Workers, ever pressed for more production, become confused by a multiplicity of instructions. What is wanted is clear and simple explanation by various experts (chemists, engineers, doctors), and then a demonstration on the plant of accident-prevention techniques, followed by practical lessons on the steps to be taken by the worker to protect his own safety and that of others. The worker must co-operate. If he cannot he should leave the industry or be placed where he can do no harm.'

The Works Safety Committee of the Association of British Chemical Manufacturers have recently issued a new edition of the *Safety Rules for Use in Chemical Works*, first drawn up in 1938. Presented as a series of more or less dogmatic statements, it provides a summary of all those matters which ought to be considered by works managements, and there are useful references to relevant parts of the Factories Act and the Chemical Works' and other Regulations. Stress is laid on the appointment of safety officers in works of appropriate size. These officers should advise heads of departments who bear direct responsibility for safety. A corollary to this might be that all such persons should undergo a proper course of training and an examination before being given these great responsibilities. It is true that engineers and chemists learn much about safety precautions by experience, especially in large organizations, but in the many small factories the situation may be very different. Safety committees, rightly insisted on in these *Rules*, can contribute much, provided that the most intelligent workers serve on them.

Before manufacturing or using new or unfamiliar materials it would seem reasonable to expect employers to obtain information on their toxicity. Some of the larger chemical firms have gone to considerable lengths in this, and the recent establishment of a toxicological unit by the Medical Research Council may be expected to meet the needs of many concerns unable to carry out their own tests.

The rules which are concerned with the establishment of health services in chemical works are on the lines more or less generally recognized as desirable. The appointment of first-aid men to deal with emergencies is the only possible expedient in small factories, but a part-time medical officer should be retained to train such men and to advise on medical matters. In factories employing 250 or more persons (on any period or shift) an ambulance room should be provided and a State-registered nurse employed.

<sup>1</sup> *Annual Report of the Chief Medical Inspector of Factories for the Year 1945*  
London: H.M.S.O.  
<sup>2</sup> *Model Safety Rules for Use in Chemical Works. Part I. 3rd (revised) Edition*  
1947. Published by the Association of British Chemical Manufacturers. London.  
<sup>3</sup> *The Chemical Works Regulations. Statutory Rules and Orders 1922. No. 731*  
London: H.M.S.O.

First-aid men in such factories should have their functions closely defined and be trained not to exceed them

One of the biggest problems in the chemical industry is to obtain the co-operation of the workers in the practice of routine ablution. The importance of this is obvious on medical grounds, but just as important is the undoubted fact that dirty workers are a menace in a chemical factory. Where workers on dangerous processes are supplied with complete sets of working clothes (under- as well as over-clothes) it is in general found that reluctance to bathe is overcome. But it is very different with other workers even when comfortable facilities are provided. There is frequently reluctance to undress, fear of colds, and anxiety to get away from the works. The medical officer has an important function to perform here, and it is not an easy one.

The ABCM Rules advise the provision of barrier creams to protect against dirt and skin hazards. The multiplicity of such preparations on the market is sufficient indication that a really effective cream is not available. The discouragement of dirtiness and the prevention of dermatitis depend largely on good working conditions and methods, good ablution practice, and a proper sense amongst management and workers that the chemical industry need not be as dirty as tradition has made it appear.

Medical men employed whole-time in large chemical factories have unique opportunities of making important contributions to safety as well as interesting themselves in more obviously medical matters. To have the required authority it is essential that they should either possess some chemical training or acquire by study a competent knowledge of the main chemical principles underlying the processes carried out in the factory. The more understanding of chemistry the doctor possesses, the more confidently will he be able to raise his voice in the councils of the industry.

### SULPHONAMIDE COMBINATIONS AND SENSITIZATION

In a paper published in the *Journal* last year Dr David Lehr, of New York, advocated the use of mixtures of different sulphonamides in place of single drugs.<sup>1</sup> He made the important observation that when such mixtures are given each drug retains its individual solubility in urine. It is thus possible by administering two or three drugs instead of only one greatly to reduce the risk of undue precipitation and hence obstruction in the kidney or urinary tract. Such mixtures also have a lower toxicity than an equal dose of a single compound, in spite of the fact that the better absorption of small doses of each compound produces higher total blood levels. Clinical experience of the use of these mixtures had also been satisfactory: they were therapeutically effective, rarely produced crystalluria, and were singularly free from toxic effects.

Dr Lehr returns to this subject from another point of view in the opening pages of this issue. He is concerned here to inquire whether these mixtures, which he now refers

to as "combinations," are more or less likely to cause sensitization than an equal dose of a single drug. It is clearly desirable first to determine so far as possible what are the factors governing sensitization when a single drug is given. In particular, how is sensitization affected by dose and duration of treatment? It would certainly appear a formidable task and might even seem an impossible one to obtain an answer to this question from the literature. Dr Lehr has nevertheless succeeded in doing this, and presents his evidence and the authority for it in a single concise table. The only criteria of sensitization adopted are drug fever and rash, and the only drugs considered are sulphanilamide, sulphathiazole, and sulphadiazine. A point worth noting is the frequency of sensitization phenomena during the administration of sulphathiazole; it has even been proposed to abandon its use in the USA on this account.

The main conclusion, which is amply supported in connexion with all three drugs apart from one anomalous finding in the lower dosage range of sulphanilamide, is that the smaller the daily dose the less likely is sensitization to occur. This is true regardless of the duration of treatment. A small dose continued for months is unlikely to sensitize—witness the results in the prodigious number of 664,840 patients given 1 g of sulphadiazine daily for up to 90 days. These were mostly members of the US armed Forces who took part in the mass prophylaxis of respiratory tract infections attempted during the war. On the other hand, doses of 6 g or more daily of any of these three drugs given for only a few days are much more likely to cause sensitization. The difference is slightest in the case of sulphadiazine, much the least apt of the three to produce such effects at all. It appears, therefore, that up to 2 g daily of any sulphonamide can be given for long periods or repeatedly with little risk of sensitization; the danger is from heavy doses, usually given for only short periods in the treatment of severe infections. This is a conclusion of fundamental importance and calls for general recognition. Evidently high blood and tissue concentration favour the development of sensitization; Lehr suggests 5 mg per 100 ml as the level which must not be exceeded. He points out that the notorious frequency of sensitization following local application is explicable on the same lines: if the drug is applied to eczematous skin or to any wound, absorption will lead to very high concentrations in the underlying tissues. It is generally believed that sulphonamides can function only as haptenes, the actual sensitizing agent being a compound of the drug and a body protein. This view is supported by the behaviour of sulphathiazole, which has both a high protein-binding power and a marked tendency to cause sensitization. It would be interesting if it could be shown *in vitro* that combination with protein is affected by sulphonamide concentration in the manner which these clinical findings would lead one to expect.

The final step in the author's argument rests on the fact that sensitization is usually specific for a particular drug. Whether one sulphonamide or two or three are administered at the same time, the possibility of sensitization will depend on the concentration of each drug attained in the blood and tissues and not on the total sulphonamide

<sup>1</sup> *British Medical Journal* 1947 2, 934

concentration when more than one is given. It is therefore to be expected that sulphonamide combinations will be less likely to sensitize than the same dose of a single drug. Lehr's personal experience bears this out. He gives particulars of 610 patients treated with combinations of two or three drugs, including sulphathiazole, in whom the frequency of sensitization nowhere exceeded 2%. Perhaps more extensive experience of the method is called for before this conclusion can be finally accepted, but an excellent case has been made out for an additional advantage of sulphonamide combinations. The same principle might be applied when several compounds of related but different molecular structure have the same pharmacological action. Thiouracil derivatives are said to behave independently in the production of sensitization and might therefore with advantage be used in combination for the same reason. If the possibilities of this principle are borne in mind, other useful applications of it may well be found.

### REMOVAL OF CHILDREN'S TONSILS

It is questionable whether any clinical problem has caused more controversy in medical and surgical circles or more confusion in the minds of lay people than that which was tersely stated by Kaiser in the title of his book, *Children's Tonsils, In or Out?* In a recent letter to this *Journal* Mr T B Layton<sup>1</sup> urged that the medical profession as a whole should reconsider its approach to tonsillectomy. The operation—perhaps more correctly described in bygone days as tonsillotomy—is an ancient therapeutic measure, for Celsus referred to it about A.D. 50, and Paulus of Aegina performed it with a hooked instrument about A.D. 670. But it is only during the past thirty years or so that the operation has been performed frequently—too frequently in the opinion of many clinicians. Dr J Alison Glover, who has recently reviewed the subject from the paediatrician's point of view, shares this opinion, and he suggests that further critical and controlled investigation of the indications for and after-results of the operation are needed.

An intelligent layman might well be surprised that doctors have not reached definite conclusions about the value of an operation which has been performed upon more than one and a half million children attending public elementary schools in England and Wales during the past twenty years, and he might argue that there should be a close season for tonsils until more is known of their functions. Though there is little precise knowledge on this point, few will deny that the location and cellular structure of the tonsils suggest that they contribute to the individual's defence against bacterial attack. They may be compared to filters, with the cervical lymphatic glands as a second line of defence. If it were possible to say from the patient's history and from direct observation that tonsils are diseased beyond natural repair there would be a good case for their removal and, if it were surgically possible, their replacement by healthy tonsillar tissue. The chief difficulty confronting the clinician is one of diagnosis. Simple hypertrophy—probably a beneficial reaction—should no longer be regarded as an indication for operation, and the history of frequent recurrences of tonsillitis is now thought to be a more valuable guide than clinical examination of the tonsils. Statistical evidence, though difficult to assess, would appear to favour a conservative attitude towards operation.

There are, however, certain aspects of tonsillectomy which justify definite statements. It is a major operation,

never urgent, and it should be preceded by a period of observation of six months after the completion of any necessary treatment of teeth and sinuses, it should not be performed in winter or early spring, nor when infectious diseases are prevalent, and it seldom improves the condition of patients with established systemic diseases such as nephritis or rheumatism.

### RAT-BITE FEVER

There are two forms of rat-bite fever caused respectively by *Spirillum minus* and by *Streptobacillus moniliformis* which some workers prefer to call *Actinomyces muris*. The disease has been reported from various parts of the world, but the spirillar type, which is the commoner, is specially prevalent in the Far East, including Japan, where it is known as "sodoku". There are clinical differences between the types, but the diagnosis can only be made bacteriologically. The usual history is that some days after being bitten by a rat or, more rarely, some other animal the victim succumbs to a severe febrile illness characterized by marked prostration, muscular pains, glandular enlargement, and a maculopapular or morbilliform rash. After an initial febrile period lasting two to four days the temperature subsides until the occurrence of the next bout of fever a few days later, fever of this relapsing type may last for weeks or months. The case fatality in the past has probably been from 2 to 10%.

Brown and Nunemaker<sup>1</sup> reviewed both types of rat bite fever and observed that while they may be clinically indistinguishable there are certain features characteristic of the streptobacillary type. The incubation period, often only two or three days, is shorter than the usual one to three weeks of the spirillar disease, the fever is less regular in its relapses, joint pains and actual arthritis are common, and there are few local inflammatory signs in contrast to the spirillar type, in which the wound becomes inflamed, the regional glands enlarged, and the dark purple rash may appear around the bite before becoming generalized.

The laboratory diagnosis of rat-bite fever is made by isolation of the infecting organism from the blood or from serum at the site of the local lesion. *Spirillum minus* may be found in dark-ground preparations of blood or peritoneal fluid from mice or guinea-pigs inoculated with infected material. *Streptobacillus moniliformis* is pathogenic to mice, but can be more quickly demonstrated by culture of the patient's blood in digest or serum broth, subcultured on Loeffler's medium. The organism grows rapidly in fluid media in the form of fluffy "cotton-ball" colonies. Microscopically it consists of chains of coccobacilli and pleomorphic filaments showing beading and swellings. It is Gram-negative in young cultures. The agglutination test<sup>2</sup> has been found useful in diagnosis by some workers if a uniform suspension of the organisms is carefully prepared. A leucocytosis is found in both types of disease, and a considerable proportion of false-positive Wassermann reactions have been reported, especially in cases due to *Spirillum minus*.

A report of a case of infection with *Streptobacillus moniliformis* by Dr I R W Lominski, Dr A Stewart Henderson, and Professor J W McNee in last week's *Journal* (p. 510) serves as a reminder that rat-bite fever may be a hazard of the laboratory worker. This case, which was of considerable severity, responded dramatically to treatment with penicillin. A dosage of 12,000,000 units was given over a period of seven days, but there is evidence that a smaller dosage would probably have been effective. The disease due to *Spirillum minus* responds both to arsenphenamine and to penicillin. The frequent occurrence of

<sup>1</sup> *British Medical Journal* 1948 2 310

<sup>2</sup> *Arch. Dis. Childh.* 1948 23 1

*Streptobacillus moniliformis* in the nasopharynx of rats was confirmed by these authors, who found the organism in 7 out of 10 of the rats from the batch containing the original culprit. Rat bites, however, are not necessarily the only cause of human infections: two outbreaks in the United States of the disease known as Haverhill fever have been traced to the consumption of raw milk presumably contaminated with this organism.

### TRAINING OF NEUROSURGEONS

The long training that a neurosurgeon must undergo before he is a competent, let alone an experienced, practitioner, and the large number of cases that now come into his hands, compel him to devote his time exclusively to their study and treatment. The Society of British Neurological Surgeons, whose planning committee under the presidency of Sir Hugh Cairns has recently issued a report on the provision and training of neurosurgeons,<sup>1</sup> is therefore to be congratulated on emphasizing that recruits to this important specialty should have obtained the F.R.C.S. and spent another year in the practice of general surgery. As the committee points out, "The neurosurgeon must be on familiar ground when he operates on the neck, the back, and in the retroperitoneal and extrapleural spaces." He would also gain valuable experience from spending six months as a house-officer in a department of medical or surgical neurology. Training the apprentice in neurosurgery is the next stage, and the committee considers that 4½ years are required—perhaps less for a man experienced in some other branch of surgery.

The first year of this period should be spent as a senior house officer in neurosurgery, and the second in gaining experience of the physiology of the nervous system, or its anatomy, pathology, or bacteriology. Six months' training in medical neurology follows, and in the third year the apprentice acts as registrar in the department of neurosurgery. In the fourth year the registrar works also as a "domiciliary consultant." The last is a particularly interesting recommendation, for it would keep the registrar in close touch with the clinical problems of his specialty and at the same time help to relieve the shortage of neurosurgeons available for home visits. The committee forestalls criticism that a relatively junior man would be doing this work by pointing out that most consultations in neurosurgery are requested to decide whether the patient needs treatment in hospital or not. A training such as this leading to a career of arduous and sometimes excessive work, is not a rosy path as the committee frankly admits: it is perhaps strewn with rarer flowers, though, and may in future be less hazardous financially than has been the case hitherto.

Over the last 20 years the work of the neurosurgeons has increased steadily and the committee suggests that a centre of about 50 beds is necessary to serve the needs of a million people. Regional and area centres should be created in association with the universities and the teaching or large general hospitals, not in isolation; the regional centre would have two complete surgical teams and about 50 beds, the area centre about 25 beds. The neurosurgical team would have at its head a director holding the university post of reader or professor, an assistant director also on the university staff, associate neurosurgeons, a chief assistant (registrar), and house-surgeons. There would also be anaesthetists, a neuropathologist, and special facilities for radiography and electroencephalography. Auxiliaries trained in massage and occupational and speech therapy would be required, a nursing staff rather larger than that in other branches of surgery, social workers, and a secretariat.

Medical neurologists and psychiatrists must be readily available for consultation. A scheme of this magnitude might have seemed a luxury before the recent war, but there can be no doubt of its necessity now, when there are many thousands of cases of head injury alone every year—a high proportion of them sustained in road accidents.

### BIOCHEMICAL CHANGES IN HYPERTENSION

The search for humoral factors in hypertension continues unabated. The possibility that the suprarenal cortex may be involved has been considered from time to time because of the occurrence of high blood pressure in Cushing's disease. In a recent report Fisher and Hewer<sup>1</sup> draw attention to an unduly high frequency of suprarenal cortical hyperplasia in patients with high blood pressure. Perhaps allied to this is the temporarily beneficial effect of a low salt diet in reducing the blood pressure. Selye<sup>2</sup> has shown that experimental animals treated with desoxycorticosterone develop hypertension associated with an increase in the ratio of sodium to chloride in the serum. This was caused mainly by a decreased chloride value, though there was an occasional increase in sodium. In a series of 38 hypertensive patients it was found that the Na/Cl ratio in the serum was increased above the normal upper limit of 1.4 up to figures as high as 1.6 and over. In addition to this, the glyco-corticoids formed by the suprarenal cortex were present in the urine in increased quantities though the 17-ketosteroids were low. The administration of ammonium chloride in doses of 6 g daily was sometimes effective in changing the serum sodium chloride ratio towards the normal. No favourable responses, however, were obtained in hypertensive patients over the age of 50 with diastolic pressures less than 100 mm. This group probably contains those patients with arteriosclerosis affecting mainly the large vessels. Selye includes in his paper a chart showing the progress of a patient with malignant hypertension whose blood pressure fell to normal while he was being treated with ammonium chloride. This report is interesting, but there is rather too much speculation about the connexion between hypertension and rheumatism. None the less, the biochemical facts, if substantiated, should be further investigated. There is a hint here of a possible new method of treatment.

### IMPROVEMENTS IN ARTIFICIAL LIMBS

Research work on artificial limbs must be very satisfying, and at the same time embarrassing, satisfactory because if one idea fails it is possible to try again with the same patient, and embarrassing because the amputees themselves are so full of ideas. According to the Second Report<sup>3</sup> of the Standing Advisory Committee set up by the Ministry of Pensions, no fewer than 153 suggestions were received during the year, 82 of them were worth serious consideration, the rest being discarded as impracticable or referred elsewhere because they were outside the scope of the research department's activities. Yet every proposal, even though not immediately or remotely acceptable, is acknowledged and recorded, so that nothing is lost and full credit may be given to the inventor of a useful device. Particular attention has been paid to development of the suction-socket leg which enables a patient with an above-knee amputation to dispense with suspensory apparatus. Experiments carried out in Great Britain eighteen years ago were unsuccessful, but the Germans have had better fortune and the committee was favourably impressed with the appliances in use in Germany. There are two problems, the socket and the valve. The fit of the socket must be accurate, and, since

<sup>1</sup> Notes on the Neurosurgical Needs of the Population and the Training of the Neurosurgeon.

<sup>1</sup> J. Path. Bact. 1947, 59, 605.

<sup>2</sup> Canad. med. Ass. J. 1947, 57, 325.

<sup>3</sup> Published by H.M.S.O. Price 4d.

the stump is liable to changes in shape, adjustment must be easily possible. In this respect the wooden socket is the best so far, and thirty are now on trial. The disadvantage of the one-way outlet valve is that a gradually increasing negative pressure develops in the socket which ultimately damages the stump. The research department has now devised a double-acting valve and has determined what are the most satisfactory positive and negative pressures. Valves can be tested and set to give the proper pressure variations, and it is now possible to replace a valve without requiring the patient to attend the limb-fitting centre.

Great ingenuity has been displayed for many years past in the design of mechanical hands, but hitherto the controlling mechanism has been too complicated and the hand itself too heavy. However, one inventor who was given the full facilities of the research workshop, though himself failing to produce a satisfactory appliance, left his designs with one of the Ministry's contractors, who has now succeeded in producing what may prove to be a useful hand. A working liaison with research departments in the United States has led to the development of another type of mechanical hand in which only the three lateral digits are mechanically controlled, this appliance is under trial. Much care has been taken with the design of ancillary appliances such as crutches, sockets for holding tools, the tools themselves—pliers, combs, etc., telephone fixtures, and rubber sleeves for double below-elbow amputees. These sleeves enable a double amputee to bath and wash entirely unaided, and in common with many other products of the research department were most favourably received when Dr Craft, the officer-in-charge, demonstrated them in the course of his visit to the United States and Canada last year. Preoccupation with the design of artificial limbs and appliances has left little time for the investigation of new materials in the construction of limbs, but in certain situations nylon webbing and cord have proved much superior to leather.

This second report, written with clarity and modesty, shows that this country is determined to maintain its pre-eminent position in the provision of appliances for those who have had the misfortune to suffer amputation. It is easy to say that more work could have been done had the establishment of the research department been larger, but perhaps it is best that its growth should be gradual—it is not yet three years old—and the strong advisory committee responsible for these investigations will no doubt press for expansion if and when they think it desirable.

### GLANDULAR FEVER AND THE NERVOUS SYSTEM

For many years it has been appreciated that glandular fever may be complicated by signs indicating infection of the nervous system. Perhaps suspicion is most frequently aroused by severe headache. In these cases it is usual, as Lumsden's<sup>1</sup> experience has shown, for the cerebrospinal fluid to be unaltered, but very rarely a neutrophil meningeal reaction may occur.<sup>2</sup> Less uncommon than this is a lymphocytic pleocytosis accompanied by meningitic, meningo-encephalitic, or encephalitic symptoms. Tidy<sup>3</sup> has found five examples recorded, and he has made the suggestion that "benign lymphocytic meningitis" is, in fact, frequently due to glandular fever. A varied assortment of cranial and peripheral nerve palsies have been noted as complicating this disease, but these nervous sequelae cannot be fitted into any clinical classification. A recent

report has added yet another complication. Ricker<sup>4</sup> and his colleagues have described two examples of the association of glandular fever with what they term the Guillain Barré syndrome. In both patients glandular fever was complicated by a rapidly ascending flaccid paralysis, with little or no sensory loss and without sphincter disturbance. Within a week of onset respiratory paralysis caused the death of both. Neither showed the albumino cytologic dissociation Guillain<sup>5</sup> has claimed as characteristic of his syndrome, and perhaps it is wiser not to apply the eponymic label. Nevertheless here is another and a serious neurological complication to be added to the heterogeneous collection already noted during the course of glandular fever.

### ROCKEFELLER BENEFACTIONS

In his report<sup>1</sup> on the work of the Rockefeller Foundation in 1947 Dr Raymond Fosdick, the president, says that representatives of the Foundation in that year visited practically every country in the world with the exception of Bulgaria and the Soviet Union. Visas for these two countries could not be obtained, nor was it possible to establish contact with their scholars and scientists. Since the end of the war the Foundation has budgeted for the expenditure of \$5,500,000 on various activities in the war crippled countries of Europe. The aim has been first to get research started again by providing equipment or support to a few universities, libraries, and research centres, and secondly, through conferences and improved circulation of specialist journals, to re-establish the contacts of those institutions with each other and with the rest of the world.

The Foundation works in five divisions—namely, natural sciences, medical sciences, humanities, social sciences, and public health—and all have taken part in the post-war effort. The largest grants were made to Britain, France, Denmark, Holland, Norway, Sweden, and Switzerland. The recipients of grants in Britain included the Burden Neurological Institute, Bristol; Edinburgh University, for research in neuro surgery, neurology, and psychiatry; the Medical Research Council, for the purchase of scientific equipment; Cambridge University, for research in cell physiology at the Molteno Institute; King's College, London, and Leeds University, for research in molecular biology; Oxford University, for research in organic chemistry in the Dyson Perrins Laboratory and on antibiotics in the Sir William Dunn School, and for studies in agricultural economics, the Royal Institute of International Affairs, towards the expense of producing a history of the war and of the peace settlement, and the British Museum, for the establishment of a micro-film library. The Foundation had to decline 2,500 applications for financial aid during 1947. These included 18 public health projects and 70 "cures, remedies, investigations of theories, and inventions."

The largest grant the Rockefeller Foundation made in 1947 was \$10,000,000 to the China Medical Board. This is one of the Foundation's oldest interests. The China Medical Board, which was created in 1914 as an operating division of the Foundation, was responsible for the erection and development of the Peking Union Medical College, one of the world's important medical training centres. The college has lately been reopened, after its deterioration in the hands of the Japanese, though it is working under far from perfect conditions. The China Medical Board is empowered to give financial support to other similar institutions in the Far East or even in the United States, but so long as opportunity remains for effective work in the College in Peking that is its first responsibility.

<sup>1</sup> *British Medical Journal*, 1943, 1, 567

<sup>2</sup> Shafar, J., and Weir, J. C. R. *ibid.*, 1943, 1, 218

<sup>3</sup> *Lancet*, 1946, 2, 819

<sup>4</sup> *Blood*, 1947, 2, 217

<sup>5</sup> *Arch Neurol Psychiat*, Chicago, 1936, 38, 975

<sup>1</sup> *The Rockefeller Foundation—A Review for 1947*, 49, West 49th Street, New York

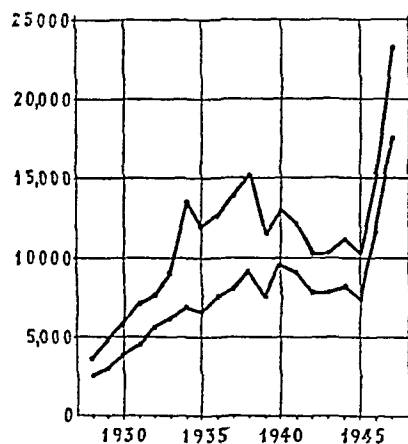
## MEDICINE AS A PLANNED ECONOMY THE BIOCHEMIST'S VIEW

BY

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In a recent paper entitled "Where Are We Going?" Roberts (1948) has commented on the extraordinary increase in the number of patients submitted to x-ray examination, and he very aptly describes the work of an x-ray department as "accelerating towards infinity." The biochemistry department suffers in the same way and in this laboratory we have encountered a similar extraordinary increase in the number of specimens submitted for analysis. The graphs shown here are exactly comparable to those in Roberts's paper. The total number of



Total number of analyses (upper graph) and total number of blood analyses (lower graph) during the period 1928-47

analyses carried out annually reached a steady level about the year 1933, and maintained this level, averaging about 12,000 per annum, without much fluctuation until 1945. In 1945 the total number of analyses was 10,384, in 1946 it rose to 15,203, and in 1947 it rose again to 23,218.

During the last two years the process of "acceleration towards infinity" has forged ahead to such an extent that one is forced to draw the only logical conclusion—that, unless this acceleration stops, the doctors of the near future will be concerned solely with the problem of collecting specimens to the exclusion of all other forms of practical medicine. This is a far more serious threat to the art and practice of physic than any Government legislation, and to the non-clinical onlooker it is a tragedy that the teachers of to-day do so little to arrest this degeneration of modern medicine. The taking of a good history and the recording of the results of a careful clinical examination should be the main duty of every junior clinician; the collection of a large bundle of assorted laboratory reports ought to be regarded as an indication that the doctor's clinical knowledge and powers of observation are deficient in certain respects. Some laboratory examinations are so valuable that they now form an essential part of medical practice, but they are comparatively few in number. It is the duty of every clinician to find out what these methods are to use them properly and to avoid the others.

There are many factors at work in this recent development of hospital biochemistry, and it is interesting to classify the main sources of the trouble.

### Factors in the Biochemist's Burden

First, there is the natural desire for the clinician to produce as complete a case history and examination as possible. This leads to the sending of specimens to the pathologist, bacteriologist, biochemist, and haematologist departments with sundry requests,

while the patient is sent to the x-ray department with instructions to have an electrocardiogram done on the way back to the ward. This type of investigation often has its origin in the self-recrimination undergone by the doctor who has, at a less experienced stage in his career, failed to detect a lesion which might have been spotted had he carried out some simple laboratory examination. He is, quite rightly, determined not to make the same mistake twice. But he should remember that no case history can ever be complete.

Secondly, there is the type of doctor who must have as much laboratory confirmation as possible for every clinical diagnosis, irrespective of any signs or symptoms. If a patient is in the terminal phase of chronic nephritis there is little point in taking a specimen of blood for determination of urea, creatinine, cholesterol and alkaline phosphatase. Even the teaching value of such analyses is small.

Thirdly, there is the clinician with an inquiring turn of mind who would be better described simply as a "figure-collector"—a snapper-up of unconsidered analyses. All biochemists are painfully familiar with the type who approaches him at frequent intervals with a request to churn out a series of analyses of, say, the blood lactic acid in a thousand consecutive cases of pro-lapsed polycystic kidney. The number of such workers unacquainted with the *Index Medicus* is remarkable. A variant of this species is the investigator who refuses to accept the standards quoted in the literature. He is determined, at any cost, to have a series of analyses of his own, although quite prepared to use the established methods on a series of cases exactly similar to those studied by other workers.

Fourthly, there is the group who wish to practise venepuncture. They are to be commended, not condemned, for they are endeavouring to master a technique. But is it necessary to send the sample to the biochemist with a request that he determine the "BUN" (*anglice* blood urea nitrogen)?

Fifthly, there is the type of clinician who annoys the laboratory with analyses under the impression that the results are of diagnostic or prognostic importance, when in actual fact the results are of neither scientific value nor clinical significance. The biochemist certainly bears the brunt of this type of work. A barium meal on an elderly gentleman with some gastric disturbance may be negative, but the negative result is of great value to both doctor and patient. A blood urea estimation is of absolutely no value whatever in 95% of the cases in which it is done.

Lastly, there is a comparatively small group who can give no reason whatever for having sent a request for certain analyses, and when the matter is discussed with them they are quite agreeable to the specimens being discarded.

There are many other subsidiary causes of the extra burden placed on the modern laboratory. Analyses which are repeated at regular time intervals arouse no enthusiasm in the scientific mind unless the time interval corresponds to some alteration in the metabolism of the patient. And yet a clinician who repeats an analysis every twenty-four hours would be highly indignant if anyone were reckless enough to suggest that he is really trying to correlate metabolism with the movement of the solar system.

Biochemical forms which detail the amount of blood required for the commoner analyses may help to eliminate technical sources of trouble, but they are a psychological blunder, since they suggest analyses which are of no real value in the case which is being investigated. There is always the type of mentality which says "We might as well have the potassium done at the same time." This argument is valid only in the examination of the cerebrospinal fluid, where every additional lumbar puncture carries the risk of a meningeal infection, however careful the operator.

The biochemistry department suffers from another peculiar disadvantage—it expresses its results in terms of simple figures, and in the various branches of general medicine one is frequently (or shall we say always) as far away from things mathematical as it is possible to get without entering the field of pure philosophy. The attempt to correlate the patient's changing condition with a series of changing numbers is a natural one, but it is seldom very helpful.



The final result of all these factors may be summed up in one sentence the truth of which cannot be denied *If this "acceleration towards infinity" continues unchecked without a simultaneous and corresponding increase in laboratory facilities and staff then the accuracy (and hence the value) of all biochemical analyses will accelerate towards zero*

### A Pernicious Trend

The pernicious effects of the modern trend to reduce clinical work to a series of reports has its repercussions in the ward and in the operating theatre as well as in the laboratory. A pathologist who recently visited Edinburgh from a distant part of the Empire produced the startling information that the surgeons with whom he is associated will not operate on any case unless the patient's blood sugar and blood urea have first been determined. In consequence he has had to employ an all-night staff so that these estimations may be made before even an emergency operation for acute appendicitis will be carried out.

In this country it is a common procedure to determine the blood urea before certain types of operation—e.g., suprapubic drainage, prostatectomy, etc. Whether or not these results are ever taken into *serious* consideration is a point on which I am not quite clear, but it is a solemn thought that some unfortunate patient may have the question of operation partly decided by a skilled technician who is fighting an increasingly hopeless battle against time and who is surrounded by a multitude of requests for analyses 90% of which can be classified only as rubbish. A colleague recently returned from abroad, tells me that in some of the hospital laboratories which he visited the biochemistry department is divided into two sections: a small part of the work which is judged to be of importance is carefully carried out by a highly trained and experienced staff, the rest is dealt with by junior trainees. It is a pity that a scientific subject should be driven to such practices. Many would reply that the obvious procedure is to extend laboratory facilities as much as may be required to cope with the work. This is no answer. Geometrical progressions are tricky things to handle: once the indices are removed and the answer reduced to a simple number the result is astounding.

### Unfulfilled Hopes

Nor can this recent fantastic increase in the number of biochemical analyses be defended on the grounds that more reliable procedures for investigating disease have been evolved in the last few years. The reverse is the case. Thirty years ago, when biochemical investigation was getting into its stride, great hopes were entertained that here we would have a truly scientific method of investigating and assessing disease reliably. These hopes have not been fulfilled, and the disappointment is not a reflection on biochemistry. Experienced biochemists realize that very little (c. 5%) of the so-called "routine biochemistry" is of any value to anyone, and since the task of collecting specimens is a self-imposed one the clinician who raises a complaint against the increasing number of forms to be filled up receives little sympathy from the biochemist who receives more than his fair share of them.

The argument that the clinician sees the patient while the laboratory staff do not is an argument which often carries far too much weight. Consider the following typical case:

Patient Male, aged 36 Specimen oxalated venous blood  
Diagnosis Myocarditis Investigation required plasma proteins

The biochemist accepts the diagnosis as correct. So far as he is concerned, it is quite sufficient that the patient's symptoms even suggest the diagnosis which is given. If the patient has an infective condition such as myocarditis it can safely be assumed that the plasma albumin will be a little below normal, the globulins will be normal or slightly raised, and the fibrinogen will be normal. We may therefore ask three questions: Irrespective of the actual figures obtained on analysis (i.e., the extent of the deviations, if any, from the normal), will the report (a) modify or cancel the physician's diagnosis? (b) affect in any way the physician's prognosis? (c) affect the treatment of the patient in any important detail? The answer in each case is an emphatic "No!" Such examples could be multiplied several thousand times over per annum.

A wholesale condemnation of modern biochemical analyses may lead the clinician to conclude that laboratory staffs regard their departments as superfluous hospital appendages. There is a germ of truth in the conclusion. Most departments dread the day when hospital laboratories will be open to the outside consultant and to the family doctor. If these two classes of doctor send in an amount of work proportional to their numbers (and there is no valid reason why they should not), then every laboratory in the country will be reduced to complete chaos.

### The Question of Blood-urea Analysis

Much of the congestion in the biochemistry department is caused by a multiplicity of requests for determinations of the blood urea. During the past 20 years blood-urea estimations have formed about one third (22–39%) of the total number of biochemical analyses in this laboratory. Of the first thousand reports sent out at the beginning of this year no fewer than 533 contained blood-urea analyses. An examination of the diagnoses sent on the accompanying forms is of some interest.

	Total	Percentage
No diagnosis given	62	12
Prostatic hypertrophy	29	95
Other diseases of the renal tract	66	
Hypertension	74	137
Other cardiovascular diseases	63	
Other diagnoses not included above	239	45

In only two of these 533 analyses was the blood urea part of a van Slyke urea-clearance test. The 239 unclassified diagnoses were described under 64 different diseases or symptoms. The commonest were pre-eclamptic toxæmia (21 analyses), diabetes (20), thyrotoxicosis (15), haematemesis (13), peptic ulcer (11), jaundice (8), hepatic cirrhosis (7), bronchitis (7). Other diagnoses included iritis, sciatica, asthma, hysteria, dyspepsia, sarcoidosis, silicosis, epilepsy, leukaemia, polycythaemia vera, anaemia, spondylitis ankylopoietica, exfoliative dermatitis, scurvy, trigeminal neuralgia, and abdominal pain.

A random blood-urea analysis is probably the most useless and, at times, the most misleading of all laboratory examinations. Its great popularity appears to rest on the following points: (1) No other constituent of blood is so definitely associated in the mind with an anatomical system as the urea is with the renal tract. (2) The renal system cannot be examined adequately at the bedside. (3) A complete examination of the renal system *must* include certain laboratory tests—e.g., examination of the urine. (4) There is a popular impression that the blood urea is a measure of the patient's renal function. This belief was abandoned about 30 years ago by biochemists. (5) The blood urea is elevated in so many diverse pathological conditions that it is the laboratory test *par excellence* which is most likely to give an abnormal result when done at random. Of the 533 blood-urea-nitrogen analyses referred to above, 62% were over the normal upper limit of 15 mg per 100 ml.

There is little space left to consider two other important aspects of this problem. First, a laboratory inundated with routine analyses has no time to spend on the more elaborate methods used for research: the quickest methods are the best. Secondly, there is the question of expense.

### Conclusions

Everyone must agree that the alarming increase in the number of laboratory examinations must stop or be stopped before things reach the stage of becoming a farce. It would give rise to a good deal of acrimonious debate whether the process should be stopped by the clinician, by the laboratory staff, or by the hospital authorities, and whether it should be stopped by innuendo, persuasion, coercion or compulsion. I do not propose to allow myself to become entangled in this delicate point.

It is a great pity that there is not more collaboration between clinical and laboratory staffs. Active co-operation could do much to root out obsolete and unnecessary work, and in other cases investigations which are of importance could be substituted with advantage to all.

### REFERENCE

Roberts, F (1948) *British Medical Journal*, 1, 485

## RADIOACTIVE ISOTOPES FOR CLINICAL RESEARCH

The Medical Research Council has made arrangements to obtain from the United States Atomic Energy Commission limited quantities of certain radioactive isotopes for medical research including therapeutic investigations. Further, it is expected that regular supplies will soon become available from Canadian sources and later from British sources.

The Medical Research Council now invites institutions to submit for consideration detailed programmes of research in the clinical field. The application should include adequate information on the following matters:

- (a) Specification of the radioactive isotope required
- (b) Quantity desired (Radioactive isotopes with half-lives of less than 30 days may be allocated in fulfilment of one request, in amounts sufficient for six months' needs, with arrangements for shipments at intervals of not less than one week.)
- (c) Date and rate of deliveries desired
- (d) Name of institution at which the materials will be used
- (e) Names and research experience of investigators who will use the materials. This list should include the names of the radio-therapist and physicist who will collaborate in the research.
- (f) Purposes for which the materials will be used, with methods of administration and the dosage required.
- (g) Protection and safety measures to be employed to safeguard the health of the workers. (Useful guidance will be found in *Introductory Manual on the Control of Health Hazards from Radioactive Materials* which may be obtained from the Medical Research Council on application.)
- (h) Proposed financial arrangements, including the sources from which the applicant will defray the cost of the materials.

Information under these headings except (h) is required by the United States Atomic Energy Commission as a condition for the supply of the isotopes. The Commission supplies isotopes only for accepted lines of research of which the results are fully published and which are conducted in institutions open to visits from investigators in this field of all nationalities. The Medical Research Council should for this reason be notified of any such visits by workers from other countries to any institution receiving the isotopes through its agency.

Progress reports must be made to the Medical Research Council every six months. In the case of therapeutic investigations the institution supplied with radioactive isotopes must undertake to register the patients treated according to the cards and system of the Statistical Department of the General Register Office.

In its application to the Medical Research Council for radioactive isotopes the institution must give the following undertakings:

- 1 That the materials supplied will not be used in any manner other than that disclosed in the application.
- 2 That the institution will maintain all necessary protection and safety measures to avoid the special hazards to health arising out of possession, handling and use of radioactive isotopes, and will allow inspection of all such protection and safety measures by representatives of the Medical Research Council.

The Medical Research Council wishes to emphasize that the supplies of radioactive isotopes are at present limited and that the materials are costly, especially on account of charges for transport.

It is expected that the isotopes in greatest demand will be radio-phosphorus  $P^{32}$  and the radio iodine,  $I^{131}$ . The following information about the preparations of these two isotopes available is given by the United States Atomic Energy Commission:

**Phosphorus<sup>32</sup>**—Half-life 14.3 days. Beta radiation 1.71 mev. Supplied as phosphate ion probably in the form of  $NaH_2PO_4$  in a solution containing 0.5 to 3 millicuries per millilitre. Chemical analysis is furnished with each shipment. Material will meet the following specifications:

Concentration	Greater than 0.5 mc/ml
pH	7-9
Total solids	Less than 10 mg./ml
Non-radioactive material	Less than 5 mg./ml
$P^{32}$ (net)	Approximately 0.025 mg./mc added (Carrier-free material is available if desired)
C	Less than 5 mg./ml
Fe	Concentration so low that no precipitate is formed at pH 7-9

**Iodine<sup>131</sup>**—Half-life 8 days. Beta radiation 0.6 mev. Gamma radiation 0.367, 0.080 mev, and probably also 0.65 mev (10-15%). Carrier-free, in neutral or weakly basic solution containing 0.3 to 2 millicuries per millilitre. Chemical analysis is furnished with each shipment. Material will meet the following specifications:

Concentration	Greater than 0.3 mc/ml
pH	7-9
Total solids	Less than 1 mg./ml
Ie inactive	0.1 mg./ml
Ie active	Less than $1 \times 10^{-4}$ mc/ml

The Medical Research Council will not accept responsibility for the accuracy of the statement as to radioactive content which will accompany each sample or for the freedom of the sample from toxicity.

The cost of the materials will depend on various factors, including the extent of the demand, but is unlikely in the first instance to be less than £1 per millicurie for  $I^{131}$  or 10s per millicurie for  $P^{32}$ .

While every effort must be made to utilize these therapeutic developments and possibilities to the full, there can be little doubt that, from the long-term point of view, the treatment of cancer and allied diseases is most likely to be advanced by the encouragement of tracer investigations, using both radioactive and non-radioactive isotopes. Materials for this purpose are also obtainable from the Medical Research Council, and at present, in view of the small quantities involved, no charge is being made.

*The need for extreme caution in the clinical use of radioactive isotopic tracers cannot be overemphasized.* The safety of non-radioactive tracers should recommend their use in clinical investigations.

### Dangers and Limitations of Radioactive Isotope Therapy

Certain dangers inherent in radioactive isotope therapy are becoming recognized, especially in the case of radio-phosphorus administered internally as inorganic phosphate. The most serious of these are possible injury to the reproductive organs, genetic damage, the induction of leukaemias and the hastening of the appearance of leukaemic conditions, and the production of malignant tumours. The leukaemogenesis and carcinogenesis including induction of sarcoma of bone, are likely to be delayed effects, with a long latent period of possibly five years and probably often longer. Accordingly, in the present state of knowledge it is usually unwise to employ radio-phosphorus in the treatment of patients of either sex in the reproductive period of life or in patients whose expectation of life exceeds five years.

In general, it must be concluded that therapeutic trials of radioactive isotopes should be limited to cancer and allied diseases and to polycythaemia vera. With rare exceptions radioactive isotope therapy should not be used in non-malignant conditions. Further, the opinion has been expressed that, in the present state of knowledge radioactive isotopes should in no case be used in the treatment of children suffering from non-malignant diseases.

Despite these limitations, there is an important field of investigation of the therapeutic applications of radioactive isotopes. At first it will be necessary to develop techniques and to confirm and extend the results of the American workers while profiting from their experience. Subsequently it seems likely that the development of selectively concentrated organic compounds containing radioactive isotopes may be a promising line of investigation. Probably there will be an immediate though rather limited field for the use of external applicators containing sources of beta rays. Experience of the use of artificial gamma-ray sources, such as radio-cobalt (cobalt<sup>60</sup>) in radio-therapy is at present very restricted, but this is a matter for experimental development when adequate regular supplies become available.

All correspondence should be addressed to the Secretary Advisory Panel on the Allocation of Radioactive Isotopes for Clinical Research, Medical Research Council, 38, Old Queen Street, London, SW 1.

Iodine has been added to Part 1 of the Poisons List and to the 1st and 4th schedules to the Poisons Rules. The percentage limit in respect of codeine in the 1st schedule to the Poisons Rules has been raised from 1 to 1.5.

## INDUSTRIAL MEDICINE

## NINTH INTERNATIONAL CONGRESS OPENED

The Ninth International Congress on Industrial Medicine, which met from Sept 13 to 17, is the first to be held in Britain. Their Majesties the King and Queen are patrons. Congresses have been held under the auspices of the Commission Internationale Permanente pour la Medecine du Travail every four years, with intervals only during the two world wars, since the International Commission was founded in 1906 by Luigi Devoto in Milan. Lord Moran, PRCP, was in the chair and introduced the two speakers who delivered the inaugural addresses—the Rt Hon G A Isaacs, MP, Minister of Labour and National Service, and Mr T E A Stowell, President of the International Commission. Over 900 delegates from 44 countries had assembled in the Central Hall, Westminster.

Lord Moran started by saying that Their Majesties had sent a telegram expressing sincere thanks for the message of loyal greeting from the Congress and their best wishes for its success. Some of the delegates had come to learn what the others could teach them from their own particular experience and some to study the organization of an industrial medical service. We now had a health service available to all, we hoped presently to have a universal industrial health service for all who needed it. That service would come under the Ministry of Health.

They were all interested in the education of doctors who were going to take part in industrial medicine. Some thought the medical education of the undergraduate should include training for industrial work, but he could not agree. Medical education should be general and specialization should come later. He was surprised that so little attention was paid to the teaching of normal psychology in medical schools, but he disagreed with people who said that medical practice of that kind was inefficient only because of inadequate training. Often it was not lack of training so much as lack of imagination that prevented men from taking an interest in the psychology of the worker. It was necessary to study the minds of workers, and he gave as an instance the present shortage of nurses. Recent reports had shown that the nursing profession was receiving an inadequate number of recruits partly because of the working conditions, yet who was responsible for advising about those conditions but the medical staff? He then pleaded for more fundamental research to be done, and pointed out that the research worker who did not concentrate on finding the solution to a particular problem was nevertheless generally the man who solved our everyday problems. However, the Industrial Health Research Board had produced some 80 papers on industrial fatigue and hours of work, yet when the second world war came their conclusions had been completely ignored.

Turning to the question of incentives in industry, a problem much discussed at present, he thought that perhaps the best incentives lay not in wages but in human relationships, which he likened to the spirit that pervades a battalion in wartime. The industrial medical officer had a unique opportunity for studying group morale. Why had some men failed to adapt themselves to their surroundings? Medical officers must investigate and assess such factors as loss of interest and boredom. They must find the explanation for loss of harmony, for if men were contented you got increased production.

Mr G A Isaacs said that on looking through the programme of the Congress two things in particular had impressed him—the wide range of the diseases to be discussed and the fact that papers were not limited to strictly medical problems. Discussion was not intended to be narrow or academic. Medical officers working in special climatic environments—whether hot or cold or, as in Britain, sometimes hot and sometimes cold and always wet—would have the opportunity of exchanging views. Though appreciating the practical approach to the problems of industrial medicine shown by the Congress, he did not minimize the importance of the academic side. He knew how desperate the need was for more trained men and women. Industrial medicine had long received a good deal of attention in Britain. We had been first in the field in the development of industry and the first in dealing with the diseases that arose from it.

He strongly supported the formation of a national industrial medical service, and said that it was part of the Government's

policy. It depended on how soon they could get enough doctors. The mere appointing of doctors to factories did not make a service, for it depended much on specialized teamwork. At present the shortage of suitably qualified medical men was a grave obstacle. Facilities should be provided for postgraduate study, and he emphasized in particular the part that universities might play.

Mr T E A Stowell welcomed the delegates and displayed a scroll of greeting from the University of Paris, he also read a telegram from Professor E L Collis, who wished that the harvest the Congress would reap should be not British but international. Ours had been the first country to introduce legislation controlling conditions of work, and during the 36 years that he had practised industrial medicine he had noticed a considerable change of attitude to it on the part of employers. The Congress would allow the delegates to learn about each other's work and enable them to move towards the light of fresh understanding.

## Reports of Societies

JOINT MEETING OF AMERICAN, BRITISH, AND  
CANADIAN ORTHOPAEDIC ASSOCIATIONS

In spite of dollar difficulties the American, Canadian, and British Orthopaedic Associations for the first time held in Quebec in June a joint meeting. By the generosity of the Nuffield Foundation and the American Orthopaedic Association and other friends 13 of the younger British orthopaedic surgeons were enabled to attend the meeting and to undertake a magnificently organized six weeks' tour of North American centres. Those fortunate enough to attend have returned with a lively appreciation of Canadian and American hospitality and a determination that something should be done towards returning it on this side of the Atlantic in the not too distant future. Dr R I Harris (Toronto), President of the American Orthopaedic Association, Mr Alan S Malkin (Nottingham), President of the British Orthopaedic Association, and Dr Edouard Samson (Montreal), President of the Canadian Orthopaedic Association, presided.

## Joints

In a discussion on the treatment of slipping of the upper femoral epiphysis Dr S KLEINBERG advocated early elimination of the epiphysal plate by drilling and Dr BECKETT HOWORTH by bone pegging. Dr PHILIP WILSON (New York) advocated the Smith-Petersen nail for this purpose, and Dr ALBERT KEY (St Louis) considered that it should be placed as low and as far back as possible. Dr CLARENCE H HEYMAN (Cleveland) confirmed the good results of early epiphysal fusion. In late cases Drs ARMIN KLEIN, ROBERT J JOPLIN, JOHN A REIDY and JOSEPH HAMELIN (Boston) advocated osteotomy at the site of the epiphysal plate through an anterior incision.

Dr A B LE MESURIER (Toronto) reviewed developmental coxa vara, which was much less common than congenital dislocation of the hip and might be satisfactorily treated by intertrochanteric osteotomy, which was usually followed by speedy closure of the gap in the femoral neck. Dr WILLIAM T GREEN (Boston) thought that this treatment should be accompanied by an adductor myotomy in order to ensure sufficient adduction. In adult cases Dr ALBERT KEY had chiselled away the great trochanter without much further weakening of the adductors.

Dr ALEXANDER GIBSON (Winnipeg) reviewed 104 cases of vitallium-cup arthroplasty of the hip carried out through a Kocher's posterior approach. The results were good 55, satisfactory 21, poor 14, and unclassified 14. Dr PAUL C COLONNA (Philadelphia) doubted whether a posterior approach would allow the anterior tissues to be dealt with adequately, and Dr M N SMITH PETERSEN (Boston) expressed a similar doubt about the acetabulum. Mr H A BRITTAIN (Norwich) demonstrated his method of ischio-femoral arthrodesis, saying that bony fusion was obtained in 84 out of 95 patients. He mentioned some of the complications, and other speakers emphasized the vulnerability of the sciatic nerve, especially in cases with flexion deformity.

Dr JUAN A FARILL described an operation for open reduction of cases of congenital dislocation of the hip otherwise irreducible. Wide exposure of the joint was followed by sub-trochanteric femoral shortening and, if the acetabulum was shallow, by an extra-articular shelf. Some commentators thought the operation too drastic. Mr F C DURBIN (Exeter) advocated arthrography in congenital dislocation of the hip as part of the examination in every case, because of the importance of pathological anatomy both before and after reduction.

Dr W E GALLIE (Toronto) described a method of arthrodesis of the ankle-joint by the insertion of tibial grafts as mortises. Dr DALLAS B PHEMISTER (Chicago) and Dr THOMAS BEATH had carried out a similar operation on the knee and Dr ALBERT KEY (St Louis) in the sub-talar joint. Mr JOHN CHARNLEY (Manchester) had performed compression arthrodesis of the knee after the manner of Dr Albert Key and had found the junction to be solid as early as the twelfth day after operation.

In a discussion on arthroplasty of the knee it was emphasized that careful selection was imperative, then the results of the operation were usually satisfactory, though functional adaptation might take five years, after which the condition usually remained stable for a long time. Until the advent of penicillin gonorrhoeal arthritis had proved the commonest indication. Ankylosis from rheumatoid or tuberculous arthritis or from old osteomyelitis was unsuitable. The limb must have good musculature and the patient a stout heart.

Mr T J FAIRBANK (Oxford) had studied the changes in the knee following meniscectomy and had found radiological changes, described as a marginal ridge, flattening of the femoral condyle, and narrowing of the joint space. In the normal person the thickness of the articular cartilages diminished with weight-bearing and recovered in the intervals. Mr I S SMILLIE (Edinburgh) had interpreted as discoid menisci 28 among 1,300 menisci removed. He discussed the causes of "snapping knee". Tears were much commoner, particularly ones complicating a horizontal rift which resulted from the grinding action exerted by the condyles on the more primitive and complete type of discoid meniscus.

Dr ROBERT I HARRIS (Toronto) and Dr T HEATH (Columbia) had found that many cases of spasmodic flatfoot presented a developmental anomaly—namely, a talo calcaneal bridge which could be revealed by postero superior radiography.

#### Trauma

Dr EDWARD L COMPERE (Chicago) opened a discussion on aseptic necrosis of bone after injury by referring to the slow union after fractures in which an intermediary fragment of cortical bone is deprived of its blood supply. Dr DALLAS B PHEMISTER (Chicago) discussed the results of aseptic necrosis of cancellous bone as exemplified by the femoral head. In such cases he had tried to accelerate revascularization by inserting tibial grafts in addition to threaded wires. Results were encouraging and were confirmed by Mr JAMES PATRICK (Glasgow) who combined Smith-Petersen nailing with grafting.

In a paper on the treatment of cervical fractures and fracture-dislocation, Dr WILLIAM A ROGERS (Boston) advocated the use of skull traction, supplemented in most cases by wire fixation of the involved vertebrae and grafting with bone chips. Twenty of twenty-one grafts underwent fusion in a period averaging four months. In the treatment of fracture-dislocation of the pelvis, Mr F W HOLDSWORTH (Sheffield) combined traction with the use of an encircling sling. The results were much better if the sacro-iliac joint had escaped dislocation.

Dr E HOWARD WILSON (Columbia) advocated screws and when necessary, plates as the treatment of choice in fractures of the shaft of the femur or for fixation after limb-shortening operations. Full movement was restored within six months. Dr E C JAMES (Hamilton) had found the use of external pin fixation a solution of many of the problems presented by infected war wounds with compound fractures. Mr W GISSANE (Birmingham) described the organization of an accident service as exemplified by the Birmingham Accident Hospital.

#### Neuro-orthopaedic Conditions

Professor STEN FRIBERG (Stockholm), in an anatomical investigation of lumbar disk degeneration, had confirmed the instability between vertebrae bordering a ruptured intervertebral

disk. Degenerative changes were most pronounced in the anterior part of the disks except the fourth and fifth, in which they were mainly posterior. One or other of these two disks showed protrusion in 11 of 100 spines of patients of various ages examined after death.

Dr K G MCKENZIE and Dr F P DEWAR (Toronto) had found that in scoliosis with paraplegia the scoliosis was usually severe and congenital, though sometimes idiopathic or, less often, due to poliomyelitis, rickets, or neurofibromatosis. If there were no early response to conservative treatment the paraplegia called for surgical division of the dura mater.

Mr F G ST CLAIR STRANGE (Canterbury) showed the result of a case of ulnar and median nerve defect, too great for end-to-end suture, in which he had bridged the median nerve defect with a pedicled nerve graft from the ulnar nerve, with a success equal to the best which could be expected from end-to-end suture.

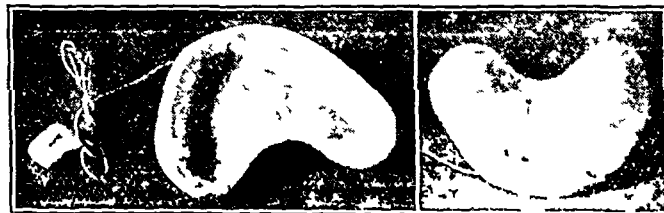
Dr MARY S SHERMAN (Chicago), speaking of oestrogens and bone formation in the human female, referred to the hypercalcaemia associated with ovulation and the formation of an egg-shell in certain birds. This was preceded by intramedullary hyperossification, and was not a parathyroid function, the ionized blood calcium being unaltered, but could be produced by oestrogens. Post-menopausal osteoporosis might result from deficiency of these and be relieved by their administration.

## Preparations and Appliances

### A MOUTH-SHIELD FOR USE WITH THE BRONCHOSCOPE OR LARYNGOSCOPE

Dr JOHN HALLAM of Liverpool, writes. Injury to the upper teeth or alveolus is at times an almost inevitable mishap with the use of a bronchoscope, and rather less often with a laryngoscope. The more common accidents are, in order of frequency: (1) the dislodgment of loose teeth, especially deciduous teeth which are about to be shed; (2) chipping of the enamel of one or more of the upper teeth, usually an incisor, or dislodgment of crowns and inlays or even, on occasion, sound teeth; and (3) in edentulous patients, bruising or crushing of the upper alveolar margin by the bronchoscope as it is moved around the bronchial tree. While many of the accidents in the first group can be avoided by pre-operative dental treatment, this procedure is not always possible, nor, occasionally, is it in the best interest of the patient. For example the extraction of all slightly loose teeth in a patient who is found on bronchoscopy to have an inoperable bronchial carcinoma is only going to add to his burden.

To circumvent these mishaps a series of mouth-shields of various sizes and shapes, suitable for all classes of dentition, have been made. They are constructed from soft plastic into



Mouth shield for edentulous case

Reverse side of mouth-shield

which is embedded stainless-steel gauze. This gauze provides the necessary rigidity without bulk, and it increases the value of the buffer action by spreading the thrust of the instrument over several teeth. In case the shield itself should become dislodged (this eventuality has not yet been met with) a plated silk ligature is attached to it and left hanging over the table, a small lead weight having been tied to the distal end. The shields may be sterilized by boiling and no injuries have been encountered since they were taken into use several months ago. Various shapes and sizes can be made and dental impression trays have been found useful for the making of suitable models. It should be possible for any dental laboratory to make them.

## Correspondence

### Scientific Medicine in Britain To-day

SIR,—There is much to command assent in your leading article on "Scientific Medicine in Britain To-day" (Sept 4, p 479), but I ask your permission to make two critical comments thereon, one historical and the other on general grounds.

Historically, your survey, though of necessity brief, is presumably intended to be comprehensive. It tells the reader that "fifty years ago clinical medicine was for the most part, a subject separate from or unconnected with physiology," and that clinical work of scientific quality was being pursued "almost in isolation for twenty years" by Sir Thomas Lewis. May I therefore bring to your notice the achievements of the British school of clinical neurology, a school now some eighty years old and in continuous and fruitful scientific activity since its foundation? It has made contributions of fundamental quality to the anatomy and physiology of the nervous system, to pathology, and to nosography.

I do not propose to burden your pages with the record of the labours of this school, but the present generation has seen in the field of the physiology of sensation the work of Henry Head and his collaborators, of Holmes, and of Trotter and Davies, in the analysis of cerebellar function and of the cortical representation of vision that of Holmes, and in the study of the basal ganglia that of Kinnier Wilson. In the field of nosography its clarifications, clinical and pathological, are scarcely less noteworthy.

It has to be admitted that all this has been the work of practising clinicians, amateurs if you will, carried on with neither salaries nor subsidies, nor with that growing multitude of secretarial and technical assistants that now seems to be essential to even the most modest of medical research projects. Nevertheless, a survey of the field of scientific medicine that omits mention of it can hardly be regarded as balanced or as giving a true perspective, while the quotations from your article that I have given show that it is inaccurate and historically unjust. It is not necessary thus to seek to enhance the distinction of Lewis's work, the brilliance and quantity of which stand in no need of the fictitious background of a scientific void in clinical medicine which, with more artistry than accuracy, you have created for it. Secondly, I submit that your article betrays, both historically and philosophically, an artificial conception of the relations between clinical medicine and physiology, between physicians and physiologists. They are not separable in the naive fashion you propose.

The few instances I have given of the work of clinical neurologists constitute discernments and rational formulations of dynamic properties of the human organism elicited in the course of clinical work, and to imply that they are parts of physiology but not of medicine and that those who did this work are rather physiologists than physicians is surely no more than a misleading linguistic exercise seeking to produce distinctions where they do not exist and to make medicine appear as a derivative of physiology. I submit also that "habits of deep thought and scholarly reflection" are not to be thought of as the necessary fruits of a deliberate consecration to "research discipline." Is there no discipline of accurate observation and logical induction in medicine apart from research?

In brief, I suggest that your article places too much reliance upon planning and takes too little cognizance of the human material being planned for over its head. The theme you adumbrate is indeed of vital importance to such future as British medicine can now look forward to under its new regime of external organization, but it surely needs to be more profoundly contemplated and more clearly expounded if it is to bear fruit.—I am, etc,

London W1

F M R WALSHE

### Globin Insulin—A Criticism

SIR—In your issue of July 24 (p 191) Dr G M Wauchope published a paper strongly extolling globin insulin, one daily injection, as the ideal treatment for almost all insulin cases. Professor D M Dunlop and Dr J B Donald (Aug 14, p 352) from Edinburgh have criticized her optimism. I would add my

fairly wide experience of globin insulin to support their opinion.

Dr Wauchope states that globin insulin is identical in its delayed action with Dr Hagedorn's original protamine insulin (retard, 1935). This I am sure is true and makes me ask her how it can act for 24 hours without grave risk of hypoglycaemia, which I have too often seen before the midday meal or in the afternoon, with a heavy relapse of the diabetes at night. Animal tests too show that the delay in its action is very little different from ordinary soluble insulin. The Danes and Hagedorn were factual enough to know in 1935 that their new "retard" insulin (= globin insulin) was an impossible treatment given once a day to severe diabetics, and they gave it in the evening with soluble in the morning. Globin insulin once daily, as Professor Dunlop says, is good for mild insulin cases—any type is almost equally good—but P Z insulin is probably better. But without full detail I merely want to record my opinion that one morning dose of globin insulin is a poor treatment for severe diabetics—I am, etc,

London W1

R D LAWRENCE

### Streptomycin and Insulin

SIR,—A patient who has both diabetes mellitus and pulmonary tuberculosis has made two comments on his streptomycin treatment. 1 While taking streptomycin (0.5 g twice a day intramuscularly) his insulin requirements, to avoid glycosuria with the same diet, have increased from 55 or 60 units daily to 77 units daily. 2 Whenever he has injected ordinary insulin and streptomycin within an inch or two and within a few minutes of each other he has had severe pain between the sites of injection, but if kept further apart in time or in space neither is unduly painful. The severe pain is burning "like a hot iron," and prevents sleep. One evening the streptomycin dissolved in 15 ml of 1% procaine was given in proximity to insulin. The pain appeared, but not until about five hours later, and he had no more sleep that night. Publication of this may save others trouble pending further observations.—I am, etc,

St Leonards on Sea

E A WOOD

### Renal Complications in Diabetes Mellitus

SIR—In their discussion of renal complications in diabetes mellitus in your issue of July 24 (p 194) Drs W R Gauld, A L Stalker, and A Lyall make no mention of the condition of the renal arteries in their post-mortem cases. When an attempt is made to correlate hypertension with pathological changes in the kidneys the investigation has little value without a thorough examination of the renal arteries, in view of the work initiated by Goldblatt on the hypertension produced by ischaemia of functional renal tissue from constriction of the renal arteries. I have seen three cases of the syndrome which the writers describe, one in a young subject. While all showed conspicuous intercapillary glomerulosclerosis, this lesion was inconspicuous measured against the bore of the renal arteries, which in all cases was at some level reduced to a microscopic slit from severe atherosclerosis. There was also universal gross narrowing of the branches in the pelvis.

If a Goldblatt mechanism obtains in those cases, much more weight must be put on a lesion in the renal arteries than one at glomerular level. It is to be hoped that any future publication on the subject will give due prominence to this point. I have read some of the references which the authors cite. None mentioned the condition of the renal arteries.—I am, etc,

Regina Saskatchewan Canada

NORMAN G B McLEITCHIE

### Diabetic Coma

SIR—Professor D M Dunlop and Dr J B Donald (Aug 14 p 352) are harsh in their criticism of Professor R H Micks's valuable article. The high death rate in the UK in cases of diabetic coma is attributable to the insufficient insulin dosage recommended in British textbooks. How many deaths has Professor Dunlop had in his last 54 cases of diabetic coma?

Surely no physician should treat diabetes without the facilities for blood sugar estimation? If he has not such facilities

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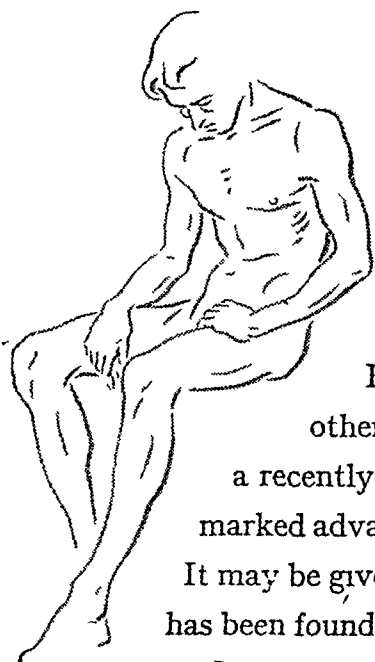
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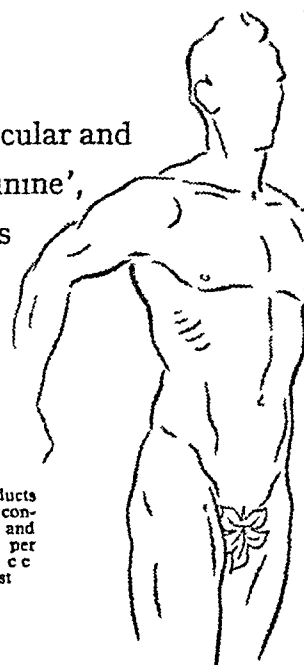
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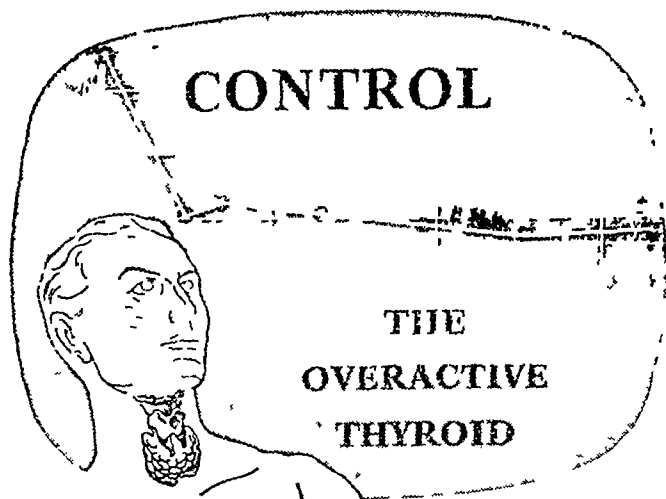
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and may have to treat the disease he should purchase the equipment and learn to use it. There is no room for lazy men in the treatment of diabetes—I am, etc,

Tel-el Kebir Egypt

D HAMILTON,  
Capt R A M C

### Prevention of Dental Caries

SIR—A masterly review of the distribution among the tribes and nations of the world of dental caries, and possible causes, by H H Neumann, of New York, was published last year as a letter in the *Lancet* (1947, 1, 806). He concluded that "the factors commonly blamed, such as mineral deficiencies, fluorine deficiency, poor dental hygiene, inadequate sunshine, constitutional factors, vitamin deficiencies, and overuse of starch and sugar in the diet, have little effect on endemic dental decay, and do not explain the peculiar geographical distribution. The consistency of the food, the table manners of the people, and the extent to which cutlery is used are far more important. The disuse of odontoporosis which leads to dental caries can be prevented and to some extent treated by restoring to the teeth their proper work of chewing by adding sufficient toughness to what we eat." Earlier in the letter he suggests that the addition of some hard breadcrust (old Swedish or Italian type of bread) to the daily diet would suffice to maintain fairly good teeth with a reasonable low caries incidence."

What a simple way of saving an enormous amount of suffering and waste of money on tooth-brushes and powders, stoppings, extractions, and artificial dentures. Teach, in the mothers' clinics, to use as little as possible cutlery and soft food and give children tough crusts to chew. Lady Mellanby has laid great stress on dietetic factors. Can she lend her authority to the spread of the use of toughness in the diet?—I am, etc,

Smallfield Surrey

LEONARD HILL

### Pioneers of Social Medicine

SIR—Sir Arthur MacNalty's generous review of my Heath Clark Lectures (Sept 4, p 476) gives me an excuse for commenting on the publication itself. With rare exceptions, of which a course by a professor emeritus of epidemiology and vital statistics is not one, academic lectures do not pay the cost of publication. Sales merely slightly reduce the bill to be defrayed from trust funds. I should therefore have supposed that in these days of austerity it would have been sufficient to issue the lectures in paper wrappers and to put them on sale at less than the cost per copy of publication. That any member of the public, other than a lunatic at large, would be tempted by a green cover with gilt lettering and crest to pay 12s 6d for a booklet which can be read through in a couple of hours is, to me, incredible. However, the disgust with which I look at this ugly little trollop is partly due to injured vanity. Even medical statisticians dream of having readers other than personal friends—I am, etc,

Loughton Essex

MAJOR GREENWOOD

### Genu Valgum

SIR—In discussing the aetiology of genu valgum in Mr H A Brittain's excellent article (Aug 21, p 385) omission is made of a simple mechanical observation. I have had opportunity of observing many infants who have developed knock knee as a direct sequel to tibial bow legs. Many babies have bow legs at birth due to a cramped position *in utero* often an example of a large foetus in a small mother. If these cases are followed up during the first two years it will be found that as spontaneous correction of the bow legs takes place in the lower half of the tibial shafts the tibial arc straightens and the ankles diverge, resulting in genu valgum.

During the transition stage a familiar picture is seen comprising persistent femoral anteversion, genu valgum, slight tibial bowing, and an intoed gait. The intoeing is due to the combination of the femoral anteversion and the internal rotation of the tibial bow legs. With natural development the femoral anteversion and the tibial bowing are usually corrected, with resultant disappearance of the intoed gait. The residual deformity is now the knock knees, with prominent internal femoral condyles and widely separated malleoli. We must not

assume that all children pass through the stages described, but careful follow-up from babyhood will show that it is not uncommon. This development I described in greater detail in *Physiotherapy* (June, 1948)—I am, etc,

Birkenhead

HORACE DAVIES

### Reactions to Intravenous Sclerotics

SIR—I should like to report the following acute allergic reactions following intravenous injection of venous sclerotics. I understand that such reactions are uncommon, out of many hundreds of injections of varicose veins by sodium morrhuate (usually 5%, occasionally 10%), I have seen only these two.

*Case 1*—A man aged 64, nervous type and given to alcohol, was given 1.75-ml doses of sodium morrhuate (5%) over a period of 14 months (1935–6). In 1943, owing to recurrence of the veins, he was given further injections of 5% sodium morrhuate as follows: Sept 18, 2 × 1.75 ml; Oct 16, 2 × 1.75 ml. Half to one hour following the last injection he had the following symptoms: tingling of hands and feet, marked generalized itching, and collapse. This was regarded by me when reported as a nervous reaction aided by the fortification with alcohol before and after the injection, but he reported the same symptoms after the next injection. I therefore ceased using sodium morrhuate and gave him five subsequent injections, 3 ml of 10% sodium salicylate, without any after effect.

*Case 2*—A man aged 48 was given 24 injections of sodium morrhuate. The first was of 2 × 1.75 ml (5%), the subsequent ones being increased owing to the poor reaction to 2 × 1.25 ml 10% sodium morrhuate. These were given over a period of three years. He was not a particularly nervous type, nor particularly given to alcohol.

At the 24th injection he had the following reaction. Within 10 minutes he complained of tingling and itching in the hands and genitals. This increased after he had gone half a mile, and the itching became general and intense. He collapsed about a mile away, fortunately outside the ambulance station. He was taken to hospital, where I saw him 50 minutes after the injection was given. He had an acute generalized urticarial rash. Pulse was good. He was given an injection of 0.4 ml of liq adrenaline hydrochlor, and in two hours he had recovered.

Fourteen days after this reaction he was given an intravenous injection of 4 ml of 30% sodium salicylate and had a precisely similar allergic reaction, together with a feeling of swelling in the windpipe, this time in the consulting-room, where he had been kept. He was given the same treatment and he recovered in the same manner.

Acute allergic reactions following the intravenous injection of sodium morrhuate are uncommon. In the second case reported above the recurrence of an allergic reaction after changing to a completely dissimilar chemical substance must be even rarer—I am, etc,

Purley Surrey

C E TAYLOR

### Fibrositis

SIR—Surely the aetiology and pathology of fibrositis and its clinical manifestations were settled and agreed on long ago—since the days when Rabagliati termed it "perimyositis rheumatica," and Gowers gave it the name of "fibrositis," and Stockman, fully 50 years ago, expounded the whole matter, and demonstrated microscopically the lesions in the white fibrous tissue and how best to feel the nodules when the skin is lubricated with vaseline. But it is needless to say more. Thousands of doctors are satisfied, and have been for many years, as to what fibrositis is its cause, its alleviation if not cure, and its treatment. It is an important and interesting subject, but a thing quite apart from the lesions of an intervertebral disk—I am, etc,

St Andrews

R O ADAMSON

### Fibrositis and the Weather

SIR—Whatever fibrositis is or is not, it is real enough to those who suffer from it. Many are able to tell with monotonous regularity when the weather is about to change for the worse. In Palestine, with its rapid succession of dry heat and damp cold in certain regions, it was common, often in the form of headache. The Arabs, who are presumably tough and uninhibited, would often ask for aspirin for this condition.

The point has been raised before, but I still do not know, and no pathologist has told me, why an old wound aches in damp weather. I have often thought that the fibrositic tissue was in some way structurally impaired, similarly to scar tissue. If the effects of weather are so striking in this condition it

should not be difficult to experiment with fibrositic subjects in artificial climates. At the risk of being tedious I suggest that the effects are not due entirely to temperature, pressure, or humidity, but, that the electrical changes in the air should also be considered.

The awareness of temperature and climatic changes seems to vary much from one person to another. Some quite suddenly discover that they are much too hot or chilled right through. In my student days I sometimes started work in a warm room, to be discovered by a relative some hours later chilled right through, with the fire out, and quite unaware that this had happened until I was bundled into bed and warmed up. I cannot concentrate so well now—I am, etc.,

Hadley Wood Herts

G C PETHER

### Cerebral Aneurysm

SIR,—Cases of ruptured cerebral aneurysm are, one under stands, by no means rare, yet sufficiently so that I do not recollect in 20 odd years of practice being reasonably convinced of being in the presence of one. Nevertheless I have lately seen two which were confirmed at necropsy. Both were men about 30, both had recently been discharged from the Forces, one having seen active service in the Tank Corps and the other in the Infantry, which prompts one to speculate how far the vigorous training called for in both these units led to these aneurysms bursting when they did, and causing one to wonder why, under the stress and strain of training and active service, they did not do so before.

I was called out at midnight to the first case and found him in bed complaining of the sudden onset of violent occipital headache and of loss of power in his legs. He had also been sick. He felt rather better next morning and had regained the use of his legs, but the headache persisted. BP was normal, Kernig's sign was positive, and there was some nuchal rigidity. He survived two or three weeks in hospital, but eventually succumbed. His wife informed me that his original attack had come on during sexual excitement.

In the second case the patient had on the previous evening been to a regimental reunion and had collapsed in the street just after leaving. He admitted that he took "a few beers," but denied any excess of conviviality. He also complained later of occipital headache and vomiting, and within a day or two he had a positive Kernig's sign and nuchal stiffness. He refused to go to hospital and was away from work for six to eight weeks, when he returned to work apparently quite well. One morning about four months later, just as he was cycling past a hospital on his way to work, he collapsed off his cycle and was already dead when picked up or died shortly after being admitted.

As stated above, post-mortem examination confirmed the presence of ruptured cerebral aneurysm in both these cases—I am, etc.,

Hove

G L DAVIES

### Shipping the Sick

SIR,—Shipping of the sick on a British ship is a nightmare. May I give this example? I managed to send a girl missionary to England—? tuberculous caecum (two outside surgical opinions)—for domestic, financial, and climatic reasons. I might have been trying to send a case of plague home. I gave full case notes, chest radiograph, sputum reports, and the almost certain guarantee that she would require no medical attention. Finally, when I was lucky enough to guarantee that if she required medical attention there was a missionary doctor on board who would take full responsibility, she was accepted with bad grace. Comparisons are odious, but the difference on American ships is astonishing. Friendliness, delight at receiving case notes, and willingness to accept responsibility have been my experience. Unfortunately these ships do not use British ports.

If shipping companies want "protection," it should be possible to have a medical board to decide the suitability and circumstances of a patient to be sent home. The laity of the shipping companies cause the initial obstruction. And again I know of cases where the doctor has not disclosed that the patient has been ill—in the patient's interest—and they have gone as ordinary travellers. Personally I am nervous of taking

any risk and prefer to face the music, and have the remark as in the above case, "I'm not having shore doctors push their responsibilities on to me."

British men and women abroad should be entitled to expert opinion and treatment in their home country if thought advisable, and the courteous and correct handing over of a case history should not be considered as a "shifting of responsibility"—I am, etc.,

Colombo

B M NEWBY

### Stainless Steel Wire

SIR—I was most interested in the paper by Messrs A Lawrence Abel and Alan H Hunt (Aug 21, p 379) and should like to add a few observations in support of this excellent suture material. Two years ago Mr Alan Hunt initiated me into the use of stainless steel wire, and I have employed this suture for every abdominal section since. The unverified total is between five and six hundred cases, and I have nothing but praise for stainless steel wire.

In a Hunterian lecture recently published in the *Lancet* (July 17, p 85) I drew attention to the importance of early ambulation in the avoidance of post-operative complications. There is no doubt that stainless steel wire enhances the confidence of a surgeon and his team in getting patients out of bed the day after operation. Nothing but good has accrued from this, and the incidence of fatal pulmonary embolism in my cases in the last two years has been one case. This occurred in a woman who had multiple abdominal sinuses following an operation some two years previously and in whom the ultimate diagnosis was actinomycosis. It was interesting to note that she was too ill to be given ambulant treatment after operation, and a post mortem examination demonstrated a large clot in the pulmonary artery arising from the internal iliac veins, presumably of septic origin. There have, however, been a number of cases of leg thrombosis and/or pulmonary infarction successfully treated by heparin, in spite of early ambulation. This is mentioned because early ambulation, though helpful, is not the final answer in the prevention of phlebo-thrombosis and thrombo phlebitis.

The test case for stainless steel wire was a recent one in which a straightforward total hysterectomy was followed by paralytic ileus. The patient's abdomen was enormously distended for 14 days, and the suture line was put to a test which I feel sure that no other material than stainless steel would have withstood. Any surgeon who uses catgut must sooner or later have a burst abdomen, no matter how carefully he ties his knots or spaces his interrupted sutures. In 1944 I performed a myomectomy on a member of the WAAF and sewed the rectus sheath with interrupted catgut. For no reason at all she burst her abdomen on the fourth day, and examination of the suture line revealed a necrosis of the sutures, which were incompetent to hold the tissues in place. Such a case is unlikely to occur with stainless steel wire when properly employed. On one occasion my wound has been taken down by another surgeon for an acute appendicitis developing some weeks after hysterectomy. He reported a sound, clean, first-intention healing of the original incision.

I have been asked on many occasions what would happen to the stainless steel sutures if the patient were to receive diathermy treatment or x-radiation. This is a question that ought to be answered.

Finally, I can only say that since I have employed stainless steel wire the instance of wound sepsis has decreased almost to vanishing point, and that any sepsis which has occurred I think can be fairly blamed upon the use of catgut to tie subcutaneous bleeding points—I am, etc.,

London W 1

JOHN HOWKINS

### Prevention of Venereal Disease

SIR—I have only just seen the *Journal* of Aug 21, and the letters (p 400) from Drs W B Laing and F R Curtis commenting on mine in your issues of July 31 (p 269) and Aug 7 (p 313). May I reply in one letter?

The fact of the existence of VD is a side issue to the main problem. If this disease could be entirely removed, or an infection immediately cured, a devastating illness would be thankfully banished. But if injustice, exploitation, disloyalty, and unchastity remain in the relation of individual human beings

to one another, or in the relation of State and people, the root of mental and bodily ill still exists. Countries which have practised that State regulation of prostitution recommended for our adoption by Dr Laing have turned from it not only because its uselessness in controlling V.D. is apparent but because the proved results—degradation of men and women, and especially of youth, appalling injustice, the tentacles of vested interests, the traffic in women and children, the militancy of the whole system against justice and love—have finally revolted the human spirit.

The scope of law should be strictly limited, especially in relation to sexual morality. But there is a tendency to-day in every country and in every political party to formulate legislation on what seems expediency rather than on strict principle. Then very soon laws are made which apply to particular classes of persons only, regulations which no one can keep track of, undermine rather than clarify law, and the power of the executive continues to grow.

I know enough of the work of V.D. and other clinics to appreciate and respect the enormous care that has always been taken to attract and retain the confidence of sick persons. I know also that the medical profession does not need legal sanctions to force it to keep the confidence reposed in it. Whatever the law, or lack of it, as I said in my previous letter, no doubt all concerned with V.D. patients will do all in their power to maintain confidence and keep information confidential. But with the removal of the statutory requirement of confidence they may not be able to do so. Even with this requirement a doctor can be called to give such evidence in a court of law, but this is very rarely done. The power to keep medical information confidential seems to be rapidly going in this country as Sir Ernest Graham-Little has pointed out, and it has gone in some countries.

Under Defence Regulation 33B the legal requirement of confidence ceased to apply with regard to certain persons known or alleged to have V.D. I did not hear that any member of the medical profession objected to giving evidence or to sending his medical reports on such V.D. patients, whose confidence, presumably, was as worthy of respect as that of any other patient. The law allowed and required such information, and it was given. If the law allows breach of medical confidence in relation to V.D. patients at public clinics, as it now does, it will in a very short time require it for certain classes of persons, and the medical and allied professions will be in a very difficult position. The patient loses not only some guarantee of medical confidence but also a very real protection against the casual or malicious gossip of acquaintances.

The World Health Organization has plans for various World Conventions relating to health and disease. There is much that is good and necessary in these proposals, though the tendency to mass compulsion of all sorts is apparent. Certain of the V.D. proposals, particularly, seem to be in many respects dangerous to justice and liberty. They provide for an international "black list" of certain defaulters, compulsory hospital detention, investigation of suspected or alleged sources of infection, and so on. The past and present history of such attempts, on a smaller scale, shows that officials (medical and police) are thus given almost unlimited power over certain individuals known, suspected, or informed against, or whose alleged way of life suggests that V.D. may be present. Very little thought is needed to appreciate the acute danger of such power, both to those who have it and those who have to submit to it, or to see that confidence must be non-existent in such proposals.

The World Health Organization has unique power, in that any resolutions it may adopt come automatically into force for all member States unless objection is registered within a certain period. My Association considers that the public should know as much as possible about the national and international legislation to which it is, or is being, committed. With regard to V.D., for instance, why should the public be misled by the Minister's continuing propaganda and advertisements guaranteeing secrecy and confidence? It cannot now be guaranteed, however much the staffs of the public clinics may and do desire to keep that confidence. A test case is bound to arise, and then it will be known if, in Dr Curtis's words, 'secrecy is now so strongly entrenched by custom in the minds of the public and clinic staffs that a statute is unnecessary to buttress it

Many people in every country are appalled by the denial and disintegration of justice and of individual freedom. It is this Association's business to seek to know and to fight for justice in its own specialized but fundamental work, and that it is doing—I am, etc.,

KATHARINE B. HARDWICK,

General Secretary  
The Association for Moral and Social Hygiene

London S.W.1

SIR—All your correspondents on both sides err in regarding venereal disease as a moral problem. Venereal disease is a social problem. It is caused by the failure of so-called civilized society to settle its problems other than by war, to pay its young people a wage adequate to enable them to marry at the physiological age for marriage, child-bearing, and parenthood, and to provide its young people with homes for themselves and their children.

If a young man is doing a job which is necessary to the community he is entitled to the wage and to the house which will enable him to support a wife and family. Without his children to carry on his job when he is done society will not survive.

Attempts to prevent venereal disease by continence or by condoms are alike futile and the result of muddled thinking. Like all therapeutic measures they do nothing to remove the cause of the problem and so do nothing to prevent its perpetuation—I am, etc.,

Tavistock Devon

JOHN SLEIGH

SIR—This hoary quinquennial is always productive of the larger prejudices, moral, medical, social, humanitarian and religious, but in the interests of accuracy the more extreme examples cannot be allowed to pass unchallenged.

That provision and knowledge of prophylaxis control, or other measures increase or decrease promiscuity and/or numbers of infections is admittedly debatable, but to affirm, as does Dr R. C. Webster (Sept 4, p. 499), that "there is no method of prophylaxis which affords any significant degree of protection" is contrary to all accepted evidence. The 1922 Trevethin Committee's findings on this point have never been seriously challenged.

It all depends on what is considered significant, but that the medical and general staffs of all the Allied Forces would have permitted a not inconsiderable portion of their manpower, preventive organization, accommodation, and equipment in every theatre on land and sea throughout the war and after to have been wantonly wasted in a futile endeavour seems, to say the least of it, somewhat improbable. Venereologists are truly "incredulous," not least of alleged use of P.A.C.s, etc., by their patients.

That closure of brothels in Cairo and elsewhere resulted in a diminution in the incidence of disease is an accepted fact. The old B.A.O.R., in which I had the fortune to serve 1/c the Connaught Hospital, Wiesbaden, in 1927 and 1928, and the French Army in 1930 somewhat to its surprise, made the same observation, the latter over an experimental year in a typical garrison city, Metz. (It should always be remembered that peacetime conditions are not comparable with war.)

To allege, however, that supervision, where it existed, was everywhere cursory and futile is an exaggeration. Such control could and did eliminate the grosser macroscopic, sometimes condylomatous, varieties of disease, and where conscientiously exercised, as it was within the observation of venereologists in many areas of the B.E.F. in 1939 and 1940 by the French Army and civilian medical services, was a great deal better than none at all, and to its efficacy may be attributed at least in part the relatively low incidence of disease in the B.E.F.

Most will agree with Dr Robert Forgan's (July 31, p. 269) melancholy reflection, and will regret that so far from having any further powers, so cogently demanded by Dr Laird recently, even the timid wartime advance of 33B has now been withdrawn—I am, etc.,

London S.W.1

W. H. DICKINSON PRIEST

SIR—Colonel P. F. Chapman (Sept 4, p. 498) asks how I protect my hands against infection in examining venereal patients. The answer is obvious by using rubber gloves and/or antiseptics. As adults we are aware that there are certain differences between the conditions of professional examination and coitus. The contacts of examination are brief, the examiner is presumably sober and is not excited,

he exposes certain defined areas, and has technical skill in the removal of his gloves, which protect a wide margin about his fingers. In coitus the exposure is to relatively prolonged frictional contact under pressure the areas involved are freely secreting, the individual is emotional and not necessarily sober, and if chemicals are used they are applied at an indeterminate later time. A condom protects a very limited area: chancres of the root of the penis or the scrotum are not rare.

The question whether an effective method would be opposed on moral grounds is irrelevant—we are asking if such a method does in fact exist. If the application of calomel cream after coitus would prevent syphilis I do not see that it has any moral bearing. That is a non-specialist opinion, and as such of little more or less value than my views on mathematics. Similarly Colonel Chapman's statements in his letter on morals generally and on social anthropology of sex have no special value other than as individual opinions. They have no value in deciding whether effective prophylaxis of venereal diseases is possible.

In fact, as distinct from theory, I know that elaborate plans for prophylaxis in the Services were a failure. I have visited many prophylactic centres, seen the busy traffic of issuing outfits, and like any other venereologist heard all the tales that begin, 'It can't be that, I used . . .'. To the enthusiasts I would say, Ponder a little on the mechanics of coitus, and add to the result of these meditations common-sense knowledge of the actual circumstances of promiscuity, physical and mental, and it will be clear that prophylaxis is not practicable—I am, etc.,

Tadmorden Lanes

R C WEBSTER

SIR—Dr R C Webster (Sept 4, p 499) suggests that "the views of a doctor in his professional capacity as to the value of marriage certificates and chastity as an ideal have no special value". I wish to make it clear that I entered into this correspondence principally to protest at the introduction of the question of morality by Dr G L Russell (July 31, p 268), and to reject as of no practical value Miss K B Hardwick's platitudes (p 269) that "the only sure prevention of VD is chaste living".

The figures provided by Dr A Michael Critchley (Sept 4 p 499) illustrate the value of controlled brothels in Egypt. When the Cairo brothels were in bounds there is no doubt that the majority of exposures to infection occurred there, yet only 52% of the VD cases were infected in this way. That the number of men having intercourse outside of brothels was small is confirmed by the drop in the apparent exposure rate to one-tenth which followed their being put out of bounds. The corresponding fall in incidence of VD, however, was only one-quarter. From these figures it is obvious that in the Cairo area it was very much safer to have intercourse in a controlled brothel than elsewhere.

I object, however, to the assumption that Egypt provides a satisfactory example of the controlled brothel. Doubtless an attempt to enforce chastity in military personnel will have a certain degree of success in the prevention of VD in countries like Egypt where, by putting certain areas out of bounds, the opportunity for promiscuity is reduced almost to nil, but I think Dr Critchley is wrong in attributing the drop in promiscuity, and especially the improvement in "the general conduct, morals, and morale of the troops," entirely to the fact that in October, 1942, the brothels in Cairo were put out of bounds. The victory at El Alamein, (October, 1942) and the glorious advance of the 8th Army which followed should, I feel, be given some of the credit—I am, etc.,

Edinburgh

W B LAING

SIR—The recent series of letters on this subject has been a source of considerable interest, if only to observe the generations-old conflict of ideas voiced again in yet another form: abstinence v biological urge, prophylaxis and education v increased promiscuity, the licensing and medical inspection of brothels v their increased use and subsequent suppression, sympathy v punishment for the sufferers, and notification v the liberty of the subject are the basic chords, but the whole has become hopelessly entangled and indeed has always been so. The tragic part of the whole business is that so diverse are the views which are so sincerely held by their proponents

we appear to have a number of agencies all professing to work to the same ends yet quite unable even to consider working together. As a result nothing really worth while is done and we muddle on as before.

A study of the issues involved leads at any rate to one inescapable conclusion which, once realized, holds out real hope for the future. That is that case-finding is the only essential for venereal disease prevention. If all persons infected with venereal diseases were placed under treatment it would not matter in the slightest how monastic or promiscuous persons were, or how hygienic or otherwise their sexual behaviour. Neither, strictly from the VD standpoint, would it matter whether brothels in any form existed or not, or whether, or no troops should be discouraged from visiting them. Granted this thesis—that case finding is the kernel of the problem—here is the common denominator for the agenda of the National Society for the Prevention of Venereal Disease, the Association for Moral and Social Hygiene, the Central Council for Health Education, and all similar bodies interested in these diseases, not to forget the Ministry of Health and the doctors working in the clinics.

Here then is the means—for the necessity of case-finding cannot be gainsaid. The members of all the above bodies must unite on this to solve the one remaining conflict, that of notification v personal liberty, and in this will be found scope for all to produce a formula which is satisfactory to the British way of life. The thought of notification and a "venereal police" is quite abhorrent to the majority, but existing methods are inadequate for their purpose. The contact slip as used in the clinics achieves some success for known contacts, but what, if anything, should be done, either individually or collectively, for those that are unknown is the real crux of the matter and deserves the attention of all. Let case finding be the number one aim, but at the same time the propaganda of these societies and bodies should still preach their favourite subsidiary methods. As long as these are kept subservient to the main issue there can be no great disharmony.

In order to quell any criticism that it is easy to write generalizations I will conclude with a practical suggestion. In recent years propaganda trains, such as the penicillin train and the atomic energy train, have toured the railway stations of the country. Let the above mentioned educational bodies together sponsor a VD train with the accent on case finding. Within it the individual factions can each also advocate their chosen auxiliary measures.

I apologize, Sir, for coming in at the end of what is now a very lengthy correspondence, but hope you will permit this contribution to be published before blowing the final whistle—I am, etc.,

London W 2

R R WILLCOX

\* \* This correspondence is now closed—ED B M J

### Shortage of Nurses

SIR—Dr N Strang, in his recommendations (Sept 4, p 500) for nursing recruitment, has placed in a nutshell what the Working Party has failed to do in a volume. May I add that not only should the student nurse be given a professional salary on qualification but that during her training she should be given the same status as any other university student. To suggest that inflexible rules and regulations, still so prevalent to-day are necessary for hospital discipline does, in my opinion, reflect darkly on the ability of those charged to maintain it.

If the same methods are used to attempt to attract girls to the nursing profession as are regularly used to draw them to under-manned industries, then it seems to me that those qualities of initiative and responsibility—the hall-mark of any profession—will gradually disappear from the nurse as they have done from the industrial worker since the standard methods of recruitment were started at the time of the Industrial Revolution—I am, etc.,

Birmingham

JAMES R CROSS

SIR—Dr N Strang's programme (Sept 4, p 500) for dealing with the chief menace in the hospital world to-day is refreshingly constructive. It omits, however, practical suggestions for dealing with a major cause of reluctance to enter the nursing life—viz, the attitude of parents who become experts in steering their girls to other channels of employment not without reason, though their thoughts are often camouflaged. They are conscious of the too high sickness rate that is common during training years. This factor in shortage has never received due attention.

Even this year a young nurse in a London teaching hospital can lie in a sick-bay for some eight weeks with no care at a higher level than that of a young R M O who tells the parents not to fuss as all tests are negative. When at last convalescence is arranged and three weeks at the sea are over the girl can return to duty and be put on 'night' with no further investigation. Further breakdowns need surprise no one. Such handling of nurses' health is not good propaganda, but it seems nobody's business to raise the general standard of care for the rare and precious human material that our hospitals lack—I am, etc

Northwood Middlesex

ESTHER CARLING

## POINTS FROM LETTERS

### Low Back Pain

Dr F W INMAN (Wallasey) writes: In my time low back pain has been consistently called lumbago, and has been blamed on the liver not turning uric acid into urea. The treatment has been always by large doses of salicylates and colchicum. With experience in a busy surgery extending over fifty years I have found this treatment sufficient in most cases. True there are residual cases, which can be recognized by their failure to respond, but these are a comparative rarity and no doubt should be investigated with a view to surgical treatment. In the old days when gout was more often seen the connexion with severe lumbago would be more easily recognized. In one of his books Dr Thomas Inman, of the old Royal Infirmary, Liverpool, gives a most graphic account of an attack. As port medical officer he had been on board a ship in the Mersey and had strained his back getting on board. Whilst being rowed back to the landing stage he took an opium pill, and the coxswain read the label. Climbing up the rope ladder he cricked his back again and had to be helped up. On the stage he was unable to speak, and the men, at the direction of the coxswain, ran him up and down the stage thinking that he was suffering from opium poisoning.

### Dangerous Talc

A correspondent writes: I was interested to read in the article in the *Journal* of June 5 (p 1077, *et seq*) and in the annotation on page 1090 that it has been discovered that talc can cause granulomata. Not so many years ago I was lying in a sanatorium bed suffering from pulmonary tuberculosis, and every day I was religiously washed, rubbed with spirit, and dusted with scented talcum powder. I remember wondering at the time whether talcum powder was likely to cause silicosis, because every time I turned over in bed I inhaled a shower of it, blown up from between the sheets. I used to console myself with the thought that the Superintendent would not have allowed its use if it had been harmful. What simple faith one had in those days! However, I made an uneventful recovery in spite of the talc. But in view of these recent disclosures I think doctors might well discourage its indiscriminate use by enthusiastic nurses, especially where such a delicate thing as a tuberculous lung is concerned.

### Fourth Attack of Mumps

Dr W W NEWTON (Birmingham) writes: I have seen a young woman aged 17½ years in my surgery this morning with a swollen and tender left parotid gland and general headaches and malaise. Her temperature was normal. In May, 1946, she had typical mumps, and also twice in childhood during school attendance. To have mumps four times in about 12 years is surely very unusual and worth reporting.

### Spraying Fruit

Dr JAMES FORREST (London W 1) writes: Always partial to raw and cooked fruit, I ate my first basket of strawberries with relish, but an hour later I was overcome by a feeling of nausea so strange as to be mystifying. Not until a fortnight later did I eat other strawberries which occasioned a nausea that three hours later was followed by vomiting so violent and instantaneous that before I could reach the lavatory my stomach emptied itself. Assuming that the reaction was a recent allergy it was without apprehension that I ate red currants and raspberries, but similar symptoms were induced and suggested that some poison introduced by spraying the trees or the fruit after it was picked was responsible, which was confirmed by the fact that from a garden in which no chemical is used I ate similar fruit in large quantities without the slightest ill effect. So prevalent are gastric disturbances this summer that according to the Press some councils have issued circulars warning the public against consuming fruit or vegetables that have not been thoroughly washed. But more informative and more valuable would be the opinion of general practitioners upon a subject that is so far-reaching in its significance.

## Obituary

S W WHEATON, M.D., F.R.C.P.

Dr Samuel Walton Wheaton, a former medical officer of the Ministry of Health, died on Sept 5 at the age of 86. He was born in Salisbury in 1861, and received his medical education at St Thomas's Hospital, where he held appointments as house-physician, resident accoucheur, and as demonstrator of physics. Before becoming a medical student he had acted as personal secretary to Sir Henry Fawcett, the blind Postmaster General, and he continued these duties while a student, frequently studying for long hours at the House before taking Sir Henry back to his home near Vauxhall after late night sittings. Nevertheless he won the Mead Medal for Practical Medicine and gained a *proxime accessit* in the Murchison Scholarship.

Dr Wheaton qualified in 1886, obtained the London M.B. with honours in medicine and forensic medicine in 1887, and proceeded M.D. in 1888. He took the D.P.H. of the English Conjoint Board in 1889, was admitted M.R.C.P. in the same year, and elected F.R.C.P. in 1906. He was a councillor of the Royal College of Physicians from 1926 to 1928. Early in his career his interests lay in diseases of women, and he obtained the post of physician to the Royal Waterloo Hospital for Women and Children, and contributed articles on obstetrics and gynaecology to clinical societies and medical journals. He maintained this interest throughout his long life, contributing a chapter on maternity and infant welfare centres to the *Practitioner's Encyclopaedia of Midwifery and Diseases of Women* which was published in 1921.

At the end of the last century Dr Wheaton gave up his hospital appointments and became a full-time member of the public health service, first as an inspector of the old Local Government Board and later as a medical officer of the Ministry of Health on its formation. He was a member of the Epidemiological Society before its fusion with other societies to form the Royal Society of Medicine. He served as medical assessor to the Miners' Welfare Committee and took an active interest in, for example, the provision of pithead baths. For more than thirty years Dr Wheaton was engaged in Governmental inspections and inquiries directed to the control of epidemics and to the improvement of local public health administration, claiming to have visited nearly every village in Wales on foot in connexion with his work. More than twenty of his official reports have been published.

He was a keen naturalist, with a great interest in geology in its relation to water supplies. Painting was his lifelong hobby, and he had considerable skill, his colour sense being developed to an unusual degree. He never failed to bring back from his tours of inspection a number of watercolour sketches, later to be interpreted in oils. He exhibited frequently in the exhibitions organized by the Ministry of Health and other civil service art clubs and associations. Dr Wheaton retired from the Ministry of Health in 1927, but was extremely active to within a few days of his death. His two sons are both members of the medical profession.

Dr J Alison Glover writes: Greatly to my advantage I shared a room with Dr Wheaton for the last six years of his official career. He was one of the great age of Victorian sanitary reformers, retaining alike the side-whiskers and the morning tail coat of that era, and might have passed for the typical father of 1900. Before I knew him I thought his appearance formidable, but he proved invariably kind. He was a great pedestrian, walking to the office and back daily from Streatham Hill, and his unrivalled acquaintance with the details of the sanitary circumstances of this country was due not only to his retentive memory, keen observation, and long experience but especially to his rule of making all his inspections on foot. He seemed to have walked over every rural district in Britain. He was a competent geologist, and his knowledge of almost every gathering ground had a lasting influence on the policy guiding the water supply of this country with its particular emphasis on the purity of the source, an emphasis which has been wholly beneficial. By the time I knew him his views were naturally somewhat conservative, but to the last he was a ways



ready to adopt well-proven new methods, and he had been an early pioneer in the introduction of the maternity and child welfare service. On by-laws, particularly those relating to conservancy, nuisances, and offensive trades, his was the final opinion. I shall not forget the impression he made upon a deputation from the Ministry of Health of Czechoslovakia which visited this country soon after the first world war. It was my duty to conduct them during their visit, when they met many of the prominent public health authorities. None impressed them more than Dr Wheaton, with whom they were frankly delighted. Dr Wheaton's death removes one of the last of the great environmental reformers, whose valuable services to his country have scarcely received the recognition they deserve.

#### A W GILL, MD, FRCP

Dr A Wilson Gill, one of the leading members of the profession in North Staffordshire, died in the North Staffordshire Royal Infirmary at the age of 60 on Aug 30. Alexander Wilson Gill, a native of Edinburgh, was educated at the Royal High School there and at Edinburgh University, where he graduated in 1909. After qualifying, Dr Wilson Gill became a house-surgeon and later house-physician at Addenbrooke's Hospital, Cambridge, and subsequently resident medical officer at the City Infirmary, Birmingham. In 1912 he proceeded MD, his thesis being on the study of auricular fibrillation using electrocardiographic methods, which were still in the early stages of their development. In the same year he went into general practice as an assistant to the late Mr Reginald Alcock at Hanley and subsequently was in partnership. During the 1914-18 war Dr Wilson Gill was in charge of the medical arrangements at a poison gas factory for two years before being commissioned in the RAMC and serving in France and Belgium with the 53rd Field Ambulance. In the closing stages of the war he was regimental medical officer to the 6th battalion of the Dorsetshire Regiment. During the war Dr Wilson Gill became increasingly interested in neurological problems. He experimented with hypnotherapy, and subsequently published a number of papers on the problems of neurosis. At the same time he maintained his interest in cardiology and took charge of the cardiographic department of the North Staffordshire Royal Infirmary. His connexion with the infirmary began with his appointment as an honorary medical registrar there, and not long afterwards he became one of the assistant physicians and later physician to the hospital. He also served on the honorary staff of the Burslem Haywood Hospital and for a period of eight years the Staffordshire General Hospital. Until the time of his retirement he was in charge of both the neurological and cardiological departments of the North Staffordshire Royal Infirmary. He took the MRCP in 1927 and was elected FRCP in 1944, by which time he had been in consulting practice for some ten years. He was at one time president of the North Staffordshire Medical Society, and was president of the Staffordshire Branch of the British Medical Association in 1935-6. As a young man he was a keen tennis player, and later in life he fished for trout regularly in the River Dove. The sympathy of his many friends and colleagues will be extended to his widow, formerly Miss Edith Mary Johnson, of Congleton.

#### THOMAS GWYNNE MAITLAND, MD, DPhil

Dr J C Matthews writes. The obituary notice of Gwynne Maitland (Aug 28, p 445) revived my memory of my first meeting with him in a BMA committee-room in the middle 'twenties. It is of a courteous English gentleman with an encyclopaedic knowledge of affairs in general and of all branches of medicine in particular. He was already the much-valued medical superintendent of the Cunard Line, and we met as members of an *ad hoc* committee appointed to consider the status and training of the ship doctor, Courtenay Lord was secretary to the committee. At that time Maitland was *au fait* with all the problems, his own company and several others had already instituted very necessary reforms, leading to the establishment of a definite and worthy branch of the profession. His contribution to the work of the committee was therefore outstanding. I have not seen Maitland during the war years, previously we met from time to time,

usually on trains, and his wide interests made him a delightful travelling companion.

Dr Fergus Armstrong writes. Dr Gwynne Maitland was known to many doctors for his genial personality and great help in transatlantic voyages. For five voyages he was surgeon in the *Franconia* for the cruise round the world, and in America he was truly a real British ambassador. Thousands of Americans who voyaged with him found him a great gentle man, and always spoke of him in the highest terms. Deck tennis owes him its first rules, and he was an excellent exponent of lawn tennis and deck tennis. I first met him in 1915 when he was medical director of Lady Paget's Hospital of the Serbian Relief Fund in Serbia. He surrendered the hospital to the Bulgarians and was a prisoner of war for six months in Serbia with our unit. In those days he was the life and soul of the hospital and kept all our spirits up during those trying days. Medical travellers across the Atlantic will miss his guidance, for he was a great help to all the profession who went to America.

Dr STANLEY DUNN METCALFE who died in May this year at his home in Newcastle-upon-Tyne, aged 63, was born in Sunderland and trained at the Durham College of Medicine, graduating MB, BS in 1907. After serving as junior and senior house-physician in the Royal Victoria Infirmary, Newcastle-upon-Tyne, he became assistant to the late Dr Neil MacLay at Wallsend for some two years. He spent the next eighteen years in general practice in Newcastle, after which he became a regional medical officer with the Ministry of Health. In that capacity he worked in Middlesbrough, Preston, Darlington, and finally in Newcastle. In 1946 he suffered from a coronary thrombosis but was able to resume his duties, and he carried on until the day of his death from a further thrombosis. A man of retiring habits and high ideals, Dr Metcalfe was beloved by his patients, whom he served so well. An omnivorous reader, his chief interest was in archaeology, his holidays were spent in visiting cathedrals and churches in Britain. To those who had the privilege of knowing Metcalfe in his home life his loss comes as a heavy blow. For it was especially there that his quiet and sound philosophy was most apparent, and it was there that his valuable advice, culled from his vast store of human experience and understanding, was so readily available to all who sought it. Many young students and professional men will have in their minds a picture of Metcalfe sitting in his chair against the background of the books he loved, and will recall the memory of one who enjoyed life in his own quiet way and gave of his best to others.

Dr HENRY FRANCIS BELL-WALKER died in July at his home in Cape Colony at the age of 72. Entering Guy's Hospital with a scholarship and graduating in 1903, he proceeded MD three years later. He was successively clinical assistant and medical registrar at Guy's Hospital, resigning the latter appointment in 1907 to go to South Africa to a practice at Bedford. He served with the SAMC in the first world war and went through the South West African Campaign, during which time he wrote *A Doctor's Diary in Damaraland*. In 1931 he left Bedford and went to farm in the Kat River valley, but still found time to practise medicine among the natives and poorer people of the district. Throughout his farming life he kept in close touch with his profession and in 1938 was awarded the Hamilton Maynard Medal for his article on the prognosis of heart disease, which was published in the *South African Medical Journal*. He was a member of the Medical Council for five years, and, being particularly interested in medical education, was appointed an examiner. He again served with the SAMC from 1941-5, and was appointed physician specialist at the Military Hospital, Durban. Latterly Henry Bell-Walker became convinced of man's dependence upon the soil and of the impossibility of building a sound civilization without true husbandry. Briefly his articles of faith were "There is no life without food or food without life. There is no health without good food. There is no good food except from good earth. There is no good earth without good care. There is no good care but what you give yourself." And it is as he was in this last phase of his long life that those who knew him best will always remember him.

Dr EMRYS DANIEL OWEN died at Swansea Hospital on July 21 at the age of 50. He had been engaged in general practice at Neath for the last twenty-two years. Emrys Owen entered Aberystwyth University in 1916 after winning the premier entrance scholarship. After two terms he was called up and spent two years in the Army and Flying Corps. From

1919 he continued his medical studies at the Welsh School of Medicine in Cardiff, taking the BSc in 1921. He completed his medical training in 1923, and was one of the first four students to qualify from the Cardiff Royal Infirmary, which had by then been recognized as the parent hospital of the Welsh School of Medicine. His career at Cardiff was a distinguished one. He gained the Alfred Hughes gold medal in anatomy, and the gold medal in obstetrics and gynaecology. He held several resident appointments at the Royal Infirmary, and the surprising thing is that he did not continue in hospital work, his record and abilities were such as to assure him a future as a consultant on the staff of the hospital. He chose, however, to go into general practice, first as an assistant in Maesteg and then at Neath, where he spent the happiest years of his life, being loved not only by his family but by all his friends and patients. Emrys Owen was a good doctor and an outstanding personality. He was always so humble, and those of us who realized his capacity appreciated his unostentatious ways and manner of expression. He was an active member of the executive branch of the Swansea Division of the BMA, a member of the local medical committee for Glamorgan, and a past president of the Neath Rotary Club. He was a founder member of the Neath Medical Society, and just before his death he was appointed to the West Glamorgan Hospital Management Committee. His death has meant a great loss to the profession, and above all to his widow and two young sons, to whom the sympathy of all his colleagues will be extended.—R D O

qualities as well as for his professional skill. He was public vaccinator for the Wimborne Rural Area, medical officer to the Wimborne Infirmary, and medical officer to St Christopher's Children's Home. There the children watched eagerly every Tuesday afternoon for Dr Parmiter's car. The shyest of them would be put at ease, and laughing and talking to him in a very few minutes. He entered into all their fun and will be sorely missed. The older children will always carry with them memories of his unfailing kindness. Outside his purely professional work he found time to be a member of the town council and its chairman in 1928-9, a churchwarden of Wimborne Minster, and president of the local branch of Toc H. His happiest recreation and interest was perhaps the Boy Scouts, of which he was the district president. For many years he spent part of his holiday in camp with them, and had always been closely associated with the movement. Last April he was invested on behalf of the Chief Scout with the gold medal of merit for forty years' outstanding service. He served on the Dorset Panel Committee and Dorset Medical Service Committee for many years until stricken in 1945 with the malady which was later to cause his death.

## Medico-Legal

### DAMAGES AGAINST AN ORTHOPAEDIC SURGEON

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

A mishap with plaster-of-Paris resulted in an action in the Manchester Assize Court being settled for £7,000 damages against Mr Ian Douglas Kitchin, a surgeon of the Lancaster Royal Infirmary. Dr Cecil Gould, a general practitioner, was also sued but exonerated. The evidence showed that the father of a boy of five consulted Dr Gould about the child's knock-knees and was referred to Mr Kitchin. The boy was admitted to the infirmary, and the father was assured that the operation would be a perfectly simple manipulation of the knees and an encasement in plaster. After a week the boy came home. He was obviously distressed and was awake during the night, constantly kicking out with his right leg. The father found the toes were white and the foot cold, and saw signs of gangrene. Dr Gould examined the boy and said that he could not do anything about the leg, the plaster was tight but it was the surgeon's job, it would be all right and he would return in 'the morning'. He paid another visit the next day and said the plaster seemed to be tight. When the father returned from work the boy was in agony, and he cut away part of the plaster to give him relief. Next day he took him back to hospital. Mr Kitchin was very angry that the plaster had been touched and said that the child must come in again. Four days later the new plaster was covered with blood. For a month after discharge the child was taken regularly to the hospital as an out-patient and about four new casts were put on the leg. The father by this time was in something like despair and asked that Professor McMurray be called in, but Mr Kitchin would not agree, saying, "You need not worry when I have made a mistake I will let you know." In the result the boy's foot was paralysed and the calf muscle practically wasted away.

Mr Henry Poston, a Manchester surgeon, said that the cause of the boy's condition was the tight fitting of the plaster. If the plaster had been removed on the day after the boy first returned from the hospital there would have been no disability but if it had been left until the next day a pressure ulcer would have formed. Mr D L Griffiths, an orthopaedic surgeon, said that there was a strong chance that the right leg would have to be amputated.

Mr Kitchin giving evidence, said that when the boy was first discharged there was a chance for his recovery. After seeing the leg later he realized that some damage had been done but thought that a good useful leg could still be obtained. He agreed with the judge's suggestion that the seed that had brought about the present condition of the boy had existed on his return to the hospital three days after his first discharge. The treatment when the boy was in hospital for the second time was to allow the abscess to drain and continue if the drainage was clear. Asked whether it would not have been a good idea to try penicillin earlier, he replied that at that time he would not

Dr DAVID ALEXANDER MURRAY who died suddenly on Aug 9 while on holiday at Dornoch, his birthplace, will be sadly missed both in his native Sutherlandshire and by his patients and friends in Helmsley, where he had practised for many years. He graduated at Edinburgh University in 1925, but before even matriculating he had during the 1914-18 war the unusual experience of leaving school and getting to the French front. He was still so young that when the authorities noticed his age he was sent home to start school again. He was one of the best of country doctors, with a good knowledge in medicine applied with much common sense. He knew the family and background of each patient, and every one of them he treated as a friend. When winter in the dales was too severe for normal transport he would set off cheerfully by tractor, sledge, or on foot. His main recreations were racing and golf. At the former he declared he was always in the end successful as a punter, at the latter there was no doubt about his excellence. He learned his golf in his native Dornoch, and there are many stories of his battles royal with champions visiting there, battles in which he by no means came off worst. His friends will miss greatly his cheerful good humour and his unselfish ways. It is difficult to think that we will not meet him again by the bedside or on the links, and that affectionate memories are all that remain.—D R C

Dr ONG CHONG KENG was murdered on the evening of Aug 31 while answering a call to attend a sick person. Dr Ong was one of the most prominent members of the medical profession in Penang. He was born there in 1904, and was educated at the Penang Free School. He took his MB, BS at Hong Kong University in 1928, and returned to Malaya to practise. He had always taken an active part in the public life of the settlement, where he served as municipal commissioner. He was nominated to the Advisory Council of the Malayan Union in April, 1946, and continued as a member of the Federal Legislative Council after its formation. He was also a member of the Federal Executive Council. He had been President of the Penang Rotary Club, and served as an officer of the Chinese Company of the Penang and Province Wellesley Volunteer Corps. Last year Dr Ong attended the United Nations Organization Educational Conference in Nanking as a delegate from Malaya. Dr Ong had been a member of the British Medical Association for many years.

Dr BERNARD RAYNE PARMITER died in Wimborne Cottage Hospital, of which he was a medical officer after a short recurrence of a previous illness on Aug 19, at the age of 62. Educated at Dover College and Guy's Hospital, he qualified LRCP MRCS in 1911 and graduated MB BS in the following year. He held house appointments at Guy's Hospital, the Evelina Hospital for Sick Children and at the Brompton and Lewisham Hospitals. During the 1914-18 war he served as a captain in the RAMC for four and a half years in Egypt, Gallipoli, Macedonia, Palestine, and after the armistice in Constantinople and Asia Minor. Coming to Wimborne as a partner in general practice in 1920 he took a keen interest in many aspects of the life of the community and became greatly loved by the people around for his personal

use it until he could locate the abscess, but now it was used blind. When the boy was brought back with the plaster cut there was no sign of an abscess, though he thought one was present. Later it presented on the lateral side of the calf. When he first saw the boy he thought an osteotomy for knock-knee would be necessary, but after some months there was an improvement and only manipulation was required. When the boy was discharged for the first time he was perfectly well and did not complain of pain. Some restlessness during the night was caused by the rubbing of the plaster at the top of the leg. The circulation was good and the plaster not tight. When his father brought him back he was obviously ill; he was flushed and had a well-marked bronchitis. The toes of the right leg were slightly swollen and faintly bluish. The leg which was swollen had been under tension, but Mr. Kitchin could not find a cause for the pressure. Some damage had been done at that time, and he decided to watch the leg. There was some blistering of the leg after removal of the plaster, a not uncommon happening. He could not recall the father pressing for a second opinion. When the child was brought back as an in-patient for the third time the foot was reinfected.

On entering judgment for the amount agreed, the judge remarked that it was always an extremely painful matter to try a case against a professional man. Everyone, with the best will in the world, made mistakes. There had been no complaint here of lack of professional zeal. Mr. Kitchin might have formed an erroneous conclusion but there was no scintilla of suggestion of any sort of unethical conduct from start to finish. Obviously Dr. Gould, against whom the case had been withdrawn, was not in any way responsible. He had nothing to do with the operation, the plaster, or the treatment. The boy had come out of a first-class hospital with the highest specialist treatment and technical skill, and he would have been taking a very grave risk if he had taken the law into his own hands and done anything with the plaster.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

George Fulton Roberts, M.B., B.Chir., and Norman Boyne Finter, M.B., B.Chir., have been appointed University Demonstrators in Pathology for three years from Oct. 1.

Raymond Seidehn, B.M., B.Ch., has been elected to an Elmore Medical Research Studentship from Sept. 1.

### UNIVERSITY OF GLASGOW

George Lightbody Montgomery, T.D., M.D., Ph.D., F.R.F.P.S., has been appointed to the St. Mungo-Notman chair of pathology, associated with the Royal Infirmary, Glasgow, in succession to Professor John William Stewart Blacklock, M.D., F.R.F.P.S.

### ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow held on Sept. 6, with Professor Geoffrey B. Fleming, president, in the chair, the following were admitted Fellows of Faculty *qua* Physician: J. B. Cochran, J. E. A. David, M. M. Desai, T. Jack, P. MacArthur, R. C. MacGillivray, W. G. Manderson, R. A. Peebles Brown, N. Sher. The following were admitted Fellows of Faculty *qua* Surgeon: J. T. S. Buchan, R. W. Busschau, T. L. Chapman, G. L. Clark, J. R. Hutchinson, J. D. Joubert, A. B. Kothari, W. S. Mack, Pearl A. I. MacLeod, A. M. Porter, W. Rankin, C. J. Slight, W. B. Stirling, A. E. Wilkinson, R. B. Wright.

The Nurseries and Child Minders Regulation Act recently received the Royal Assent, and in Circular 143/48 the Ministry of Health draws the attention of local health authorities to their duties under the Act. From now on all premises used as day nurseries must be registered, and persons who take children under 5 into their own homes for the day and receive payment for this must also be registered. Local health authorities may lay down conditions about the administration of day nurseries, and about the number of children who may be received in a daily minder's home. Similarly requirements about medical supervision of the children and the taking of precautions against infectious disease may be imposed. This new duty of local health authorities will stand referred to the health committees recently set up under the National Health Service Act.

## Medical News

### World Medical Association

At the meeting of the General Assembly of the World Medical Association in Geneva last week Dr. Charles Hill, Secretary of the British Medical Association, was made President Elect for the year 1949-50. The General Assembly will meet again in London in the autumn of 1949.

### W M A Bulletin

Dr. Morris Fishbein, Editor of the *American Medical Association*, has agreed to serve as Editor of the *W M A Bulletin* which will be published in the U.S.A.

### Higher Pay for Student Nurses

The Nurses and Midwives Whitley Council has agreed that student nurses, pupil assistant nurses, and pupil midwives employed in the National Health Service shall receive increased allowances from Sept. 1. A first-year student in general training receives £200 a year plus dependants' allowances and meals on duty. The cash allowance is £100 (an increase of £30), and the emoluments are valued for superannuation at £100. Dependants' allowances are 10s. a week for an adult and 5s. for the first child. Payment in the second year of training is £210 plus £5 on passing the preliminary examination. In the third year it is £225. The first year rate for pupil or probationer assistant nurses is £200 plus dependants' allowances, and for the pupil midwife who is a State-registered nurse £230 (not State registered, £205). The provisional rate for the post-registration student nurse with three years' training is £230 in the first year. Students living out are allowed free meals on duty, uniform and laundry in addition to their allowances. A special committee is considering the remuneration of student mental nurses and student nursery nurses.

### Rockefeller Travelling Fellowships in Medicine

The Medical Research Council announces that Rockefeller Travelling Fellowships in Medicine for the academic year 1948-9 have been awarded as follows: Dr. K. W. Donald, Medical Professional Unit, St. Bartholomew's Hospital, London; Dr. L. P. R. Fourman, Nuffield Department of Clinical Medicine, University of Oxford; Dr. R. H. Girdwood, Department of Medicine, University of Edinburgh; Dr. A. Isacs, Department of Medicine, University of Sheffield; Mr. A. I. S. Macpherson, Department of Surgery, University of Edinburgh; Dr. H. B. Stoner, Department of Pathology, University of Sheffield; Mr. S. F. Taylor, Department of Surgery, Postgraduate Medical School of London.

### Study of Tumours

The Committee on Pathology of the American National Research Council has appointed a subcommittee on oncology with the following members: Dr. Shields Warren (chairman), Dr. Baldwin Lucke, Dr. Fred Stewart, Dr. Harold Stewart, Dr. Arthur P. Stout, Dr. Milton C. Winternitz, Dr. Howard T. Karsner (chairman of Committee on Pathology, *ex officio*). Brig.-Gen. Raymond C. Dart, Director of the Army Institute of Pathology, is co-operating with the committee and making the institute's facilities and resources available and is providing office space for the permanent secretary. The aims of the subcommittee are: (1) improvement in the teaching of oncology, (2) dissemination of information on oncology to clinical pathologists, students, and teachers of oncology, (3) the establishment of criteria for diagnosis of tumours, (4) the simplification of terminology by recommending a single term for each tumour and listing separately the appropriate synonyms.

### Oculist to the Princess Royal

Mr. B. W. Rycroft has been appointed oculist to H.R.H. the Princess Royal.

### Mental Health of Children

To help the development of an international organization for the mental health of children an office has been opened at 30, West 58th Street, New York City, to which inquiries should be addressed. The following officers of the council have been elected: Dr. Leo Kanner, Johns Hopkins University School of Medicine (president), Dr. M. Trauer, editor of the *Internationale Zeitschrift für Kinderpsychiatrie* (vice-president), Dr. Ernest Harms, editor of the *Nervous Child* (acting secretary).

### Wills

Sir George Francis Blicher, of Frensham, Surrey, late of University College Hospital, left £44,424. Dr. John McMyn, of Kirkcudbright, left £3,852. Dr. John Gutch, of North Walsham, Norfolk, left £53,474.

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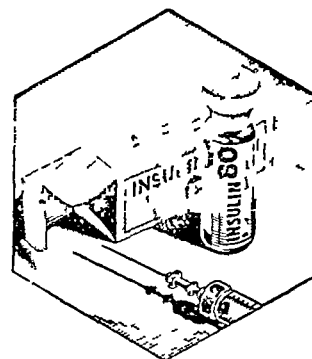
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## COMING EVENTS

## Conference on Dust in Industry

The Society of Chemical Industry has organized a conference on Dust in Industry to be held at the University of Leeds from Sept 28 to 30. On Thursday, Sept 30, commencing at 9.30 a.m., the following papers relating to medical subjects will be delivered: 'Tetryl Dermatitis and Its Prevention,' by Professor W. M. Cumming and I. A. Brownlie; 'Recent Advances in the Study and Treatment of Silicosis,' by Professor E. J. King, M.A., D.Sc.; 'Manganese Pneumonia,' by Dr. T. A. Lloyd Davies; 'Arsenical Dust in Industry,' by Dr. A. M. Currie, M.A.; 'A Positive Method for the Determination of Free Silica in Dusts,' by Professor A. L. Roberts, Ph.D.; 'La Pénétration Pulmonaire des Toxiques Industriels. Exemple du Bioxyde de Manganèse,' by Le Doyen Professor R. Fabre; 'Cancer of the Lung and Cancer of the Nose,' by Dr. A. J. Amor; 'Idle Thoughts on the Pneumoconioses,' by Dr. E. R. A. Merewether, C.B.E., M.D., F.R.C.P., F.R.S.E. Attendance at the conference is free to members of the Society, who may obtain a set of preprints of the papers for 10s. 6d., others will be admitted on payment of £2.2s. for a set of preprints. Those wishing to attend are asked to advise the general secretary of the Society at 56, Victoria Street, London, S.W.1, as soon as possible, and also to state whether accommodation will be required. A special dinner will be held at the Queen's Hotel, Leeds, on Tuesday, Sept. 28, for those attending the conference. Tickets (price 21s. including wines) are available from Dr. J. E. Garside, at Leeds University, and early application is desirable.

## Smoke Abatement

The annual conference of the National Smoke Abatement Society will be held at Cheltenham from Sept. 30 to Oct. 1. The Minister of Fuel and Power, Mr. Hugh Gaitskell, will address it. The Society will present a preliminary report on the survey of the sources and incidence of atmospheric pollution. Particulars may be obtained from the Society, Chandos House, Buckingham Gate, London, S.W.1.

## Royal College of Obstetricians and Gynaecologists

Dr. Emil Novak, Associate in Gynaecology, The Johns Hopkins Medical School, Baltimore, U.S.A., will deliver a lecture "On Certain Functioning Tumours of the Ovary" at the College (58, Queen Anne Street, London, W.), on Friday, Oct. 1, at 2.15 p.m. The lecture is awarded under an endowment by a Fellow of the College for "a lecture to be given every fourth year by an American gynaecologist of merit to cement more closely the bonds of friendship between the British Empire and the U.S.A., and as a token of gratitude for their help in the darkest hours of the World War." Admission is by ticket only, obtainable from the secretary of the College.

## William Blair Bell Memorial Lecture

A William Blair Bell Memorial Lecture will be delivered by Newell Willard Philpott, M.D., C.M., F.A.C.A., F.R.C.S. (Can.), F.R.C.O.G., Professor of Obstetrics and Gynaecology, McGill University, Montreal, Canada, at the Royal College of Obstetricians and Gynaecologists (58, Queen Anne Street, London, W.) on Saturday, Oct. 2, at 10 a.m. His subject is "Rhesus Factor Isoimmunization and Haemolytic Disease of the Newborn." Admission is by ticket only, obtainable from the secretary of the College.

## Hunterian Society

The annual party of the Hunterian Society will be held at Gunters Restaurant, 6, Stanhope Street, Park Lane, London, W., on Monday, Oct. 4, from 6 to 8 p.m. Fellows are asked to apply as soon as possible for invitation cards, price 15s. each, for themselves and their guests to Dr. Kenneth McFadyean, 74, Herne Hill, London, S.E.24.

## Postgraduate Lectures on Modern Therapeutics

A course of ten postgraduate subscription lectures on modern therapeutics will be delivered at the Society of Apothecaries of London (Black Friars Lane, Queen Victoria Street, E.C.) at 5 p.m. beginning on Oct. 18 and ending on Nov. 5. The fee for the whole course is £3.3s. single lectures 7s. 6d. Details will be published in the diary column of the *Journal* week by week.

## Annual Harveian Commemoration

The Royal College of Physicians of London will hold a dinner at the College, Pall Mall East, S.W., on St. Luke's Day, Monday, Oct. 18, at 7.30 for 8 p.m. The contribution payable by each Fellow is 10s. and those wishing to attend should notify the Registrar not later than first post on Oct. 1. The dinner is confined to Fellows and there will be no guests.

## SOCIETIES AND LECTURES

## Wednesday

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE—At 28, Portland Place, London, W. Sept. 22 3 p.m. *The Surgical Treatment of Gastric Ulcers*. The Bengue Memorial Award Lecture for 1948, by Dr. Paul Banzet.

## Friday

BIOCHEMICAL SOCIETY—At Department of Biochemistry The University, Sheffield, Sept. 24 11.30 a.m., 269th meeting. Papers will be read.

SURREY COUNTY MEDICAL SOCIETY—At Farnham County Hospital Sept. 24, 7 p.m. Clinical meeting.

## APPOINTMENTS

Drs. E. Y. Laurent, C.M.G., A. E. De Chazal, O.B.E., and J. M. Cure have been appointed Members of the Legislative Council of the Colony of Mauritius.

Alexander James Smith McFadzean, M.B., Ch.B., M.R.C.P., has been appointed Professor of Medicine in the University of Hong Kong.

Dr. McFadzean, who is 34, qualified in 1936 at Glasgow University and took the M.R.C.P. Lond. in 1946. He is at present lecturer in medicine at Glasgow University.

Brian Brendan Hickey, M.A., B.M., M.Ch., F.R.C.S., has been appointed Director of Surgery to the Morriston Emergency Hospital, Swansea.

Mr. Hickey graduated in 1935 after training at Oxford University and the London Hospital. For the last two years he has been Surgeon to the Iraq Government. He recorded a case of blast injury in this *Journal* in 1945 2 218.

BENTHAM F. M.B., B.S., D.P.H., R.C.P.S. Medical Officer of Health for Kettering.

EASTWOOD C. G. B.Sc., M.R.C.S., L.R.C.P., D.P.H. Medical Officer of Health for Cambridge.

JONES D. J. B.Sc., M.B., B.Ch., D.P.H. Medical Officer of Health for Rugby and medical officer and divisional school medical officer.

PATERSON M. B. M.B., Ch.B. Temporary Assistant Medical Officer of Health for Lanarkshire.

WALES W. T. H. M.R.C.S., L.R.C.P., D.P.M. Deputy Medical Superintendent of Monmouthshire Mental Hospital.

WILDMAN J. H. M.R.C.S., L.R.C.P., D.P.H. Medical Officer of Health East Herts Combined Sanitary District.

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

Brownridge—On Aug. 23 1948 to Phyllis wife of Dr. C. E. Brownridge of Farnhale Almondsbury near Bristol a son.

Burgess—On Sept. 11 1948 at Ballard Lodge Alverstoke Hants to Phyl (née Hewitt) wife of Surgeon Commander P. G. Burgess R.N. a son.

Cutts—On Sept. 1 1948 in London to Ailsa wife of Dr. J. G. Cutts a daughter.

Davis—On Sept. 11 1948 at St. Helier Hospital Carshalton to Marjorie wife of Dr. H. Davis a daughter—Roslyn Celia.

Deacon—On Sept. 2 1948 at the Birmingham Maternity Hospital to Sybil wife of Mr. A. L. Deacon F.R.C.S. Ed. M.R.C.O.G. a second son—Andrew Robert.

Middlemiss—On Sept. 5 1948 at Charing Cross Hospital to Maria (née van Sasse van Ysselt) wife of Capt. J. L. Middlemiss R.A.M.C. a daughter.

Rutter—On Sept. 2 1948 to Anne wife of Dr. W. Rutter of Netherfield House Seghill Northumberland a son.

## MARRIAGES

Brown-Hardy—On Aug. 27 1948 at Great Sampford Saffron Walden Essex Wilfred Stuart Brown M.R.C.S. of Shrodsall Hospital Watford to Betty Stella Hardy of Great Sampford.

Sears-Conn—On Sept. 4 1948 at University Chapel St. Andrews Dr. Harold Trevor Newton Sears M.B., M.R.C.P. Lond. of Tresidder Mullion Cornwall to Dr. Janet Sorley Conn M.B., Ch.B. (St. Andrews) of Kilburn House East Newport Fife.

## DEATHS

Banks—On Sept. 9 1948 at Hadlow Down Sussex Alfred Banks F.R.C.S. aged 86.

Brooks—On Sept. 9 1948 at Manchester Royal Infirmary Peter Brooks M.B., Ch.B. aged 25.

Elder—On Sept. 7 1948 at 60 Rawlinson Road Southport George Tatham Davison Elder M.R.C.S., L.R.C.P. aged 73.

Kempster—On Sept. 7 1948 at 46 Portland Court Great Portland Street London W. Christopher Richard Kempster M.R.C.S., L.R.C.P.

M Vean—On Aug. 31 1948 as the result of a railway accident near Arbroath Ronald Henderson M Vean M.B., Ch.B. Captain R.A.M.C.

Pulling—On Sept. 9 1948 at 11 Old Steine Brighton Herbert John Pulling M.R.C.S., L.R.C.P. aged 88.

Soni—On Sept. 7 1948 suddenly at his residence 30 Wilmslow Road Withington Manchester Mul Raj Soni B.A., M.B., Ch.B., D.P.H. beloved husband of Edith Constance Soni.

Tuxford—Recently at Mayday Hospital Reginald Tuxford of Lower Addiscombe Road Croydon Surrey aged 75.

Wheaton—On Sept. 5 1948 Samuel Walton Wheaton M.D., F.R.C.P. of 16 Palace Road Streatham Hill London S.W. aged 86.

Willis—On Sept. 12 1948 at Barnes Convalescent Hospital Chesham Cheshire Euxemie Leeson Willis F.R.C.S. of 31 Wilmslow Road Withington Manchester second daughter of Captain F. R. Willis R.N. (Ret.) and Mrs. Willis of the Knapp Portesham Dorset aged 38.



No 35

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug 28

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland

Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	29	4	14	1	—	32	4	32	2	2
Diphtheria Deaths	123	11	34	10	5	164	15	37	10	3
Dysentery Deaths	70	9	55	5	—	85	8	12	—	—
Encephalitis lethargica acute Deaths	2	1	1	—	—	2	—	—	—	—
Erysipelas Deaths	—	—	28	15	1	—	—	35	5	2
Infective enteritis or diarrhoea under 2 years Deaths	24	—	10	40	2	69	7	20	107	2
Measles* Deaths†	3 774	149	25	11	15	2 114	110	49	155	3
Ophthalmia neonatorum Deaths	55	6	10	—	—	51	5	21	—	—
Paratyphoid fever Deaths	17	3	1 (B)	—	—	33	4	4 (B)	—	2 (B)
Pneumonia influenzal Deaths (from influenza)‡	240	16	—	2	3	229	10	3	1	1
Pneumonia primary Deaths	99	9	95	16	3	19	112	14	6	7
Polio encephalitis acute Deaths	7	—	—	—	—	45	3	1	—	—
Polio myelitis acute Deaths§	70	6	3	2	—	612	77	172	10	15
Puerperal fever Deaths	—	2	5	—	—	—	3	16	—	—
Puerperal pyrexia   Deaths	100	8	10	—	—	122	11	12	—	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	812	42	191	52	17	436	34	83	18	18
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	12	1	3	—	—	11	3	3	2	1
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping cough* Deaths	3 162	248	60	48	8	1 618	193	75	59	6
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	247	32	37	10	7	330	44	70	24	16
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	3 955	619	533	134	91	3 678	578	561	159	106
Live births Annual rate per 1 000 persons living	7 298	1234	903	398	236	8 377	1331	1001	392	259
Stillbirths Rate per 1 000 total births (including stillborn)	222	18	30	—	—	227	25	37	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only

† Deaths from measles and scarlet fever for England and Wales London (administrative county) will no longer be published

‡ Includes primary form for England and Wales London (administrative county), and Northern Ireland

§ The number of deaths from poliomyelitis and polio encephalitis for England and Wales London (administrative county) are combined

|| Includes puerperal fever for England and Wales and Eire

## EPIDEMIOLOGICAL NOTES

## Typhoid at Oswestry

The cause of the outbreak of typhoid fever at the Shropshire Orthopaedic Hospital at Oswestry has not yet been established. The investigators have been handicapped by the fact that so far it has not proved possible to type the infecting organism. One nurse who has had no symptoms has been shown to be excreting typhoid bacilli, but at the moment it does not seem likely that this was the original source of infection. There have been no cases in the nearby town or in the area surrounding the hospital. Up to Sept 13 there had been 33 cases isolated. 25 of these patients are members of the resident staff—the majority of them nurses or ward-marks, 5 are bed patients, and 3 are members of the non-resident staff of the hospital.

## Discussion of Table

In England and Wales there was a fall in the number of notifications of measles 837, whooping-cough 98, and dysentery 41, and the only rise of any size was 76 for scarlet fever.

Variations in the local trends of scarlet fever were quite small and the increase in incidence was mainly in the northern section of the country. The largest decreases in the returns for measles were Yorkshire West Riding 133, Gloucestershire 95, Northumberland 92, Bedfordshire 79, and Essex 64. The notifications of whooping cough in London were 67 fewer than in the preceding week, but in all other areas little change was reported. The returns of diphtheria showed no variation of any size from the preceding week.

The decrease in the incidence of dysentery was mainly contributed by Lancashire, where the notifications declined from 40 to 9. The largest returns of dysentery during the week were Yorkshire West Riding 15 (Sheffield CB 12), and Surrey 10 (Coulson and Purley UD 8). The increase in the notifications of acute poliomyelitis recorded last week was maintained. The largest centres of infection were Lancashire 7, London 6, Essex 6, Surrey 4, and Middlesex 4.

In Scotland increases were reported in the notifications of scarlet fever 57, whooping-cough 36 and diphtheria 11. Most of the increased incidence of diphtheria was contributed by Glasgow, where over one-third of the total cases were notified. A rise in the incidence of scarlet fever was reported from most areas of the country.

In Eire infectious diseases were less prevalent during the week, and the falls included whooping-cough 66, measles 28 and scarlet fever 22. The notifications of diarrhoea and enteritis were 5 fewer for the whole country, but an increase of 5 was reported in Dublin CB.

In Northern Ireland falls were recorded in the notifications of measles 10, whooping-cough 9, and scarlet fever 5. The first two diseases reflect the trend in Belfast CB, but the incidence of scarlet fever increased by 5 in this city during the week.

## Quarterly Return for Scotland

The birth rate during the second quarter was 20.7, which was 0.5 above the average of the five preceding June quarters. The infant mortality was 43 per 1,000 registered live births and was 11 below the five years average. Maternal mortality was 2.0 per 1,000 live births, being 0.1 above the rate for the June quarter of 1947 but 0.9 below the five years average. The general death rate was 11.4 per 1,000 and was 0.8 below the rate for the second quarter of 1947 and 0.6 below the average of the five preceding June quarters. Deaths from the principal epidemic diseases included 25 from measles, 19 from influenza, 14 from whooping cough and 10 from cerebrospinal fever. The death rate for all forms of tuberculosis was 84 per 100,000 and for respiratory tuberculosis 71. The former rate is 2 below that for the second quarter of 1947, but the latter is 3 above.

## Week Ending September 4

The notifications of infectious diseases in England and Wales during the week included scarlet fever 734, whooping-cough 2,996, diphtheria 105, measles 2,962, acute pneumonia 246, cerebrospinal fever 29, acute poliomyelitis 70, dysentery 64, paratyphoid 11, and typhoid 9.

The annual report for 1947 of the Medical Research Council in Ireland gives some account of the work of a number of special committees, notably those concerned with chemotherapy, goitre, and BCG. The Council's grant for general research has been increased from £5,000 to £10,000 a year and there is also a special grant of £6,000 for investigation into the chemotherapy of tuberculosis. It is expected that the scheme for BCG vaccination recommended to the Minister for Health will be put into operation this year.

## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

### Infestation by "Harvesters"

**Q**—Is there any effective protection against infestation by harvesters which makes life in the country in the late summer quite miserable for many people? The insects, which I presume are in the larval stage seem to be harboured by rough grasses they burrow under the skin particularly in the axillae upper arms and other parts where the skin is soft and set up intense irritation. The very fine thread-like larva can be removed with a needle. All the usual insect repellents have been tried but none of them seems to be effective.

**A**—Attacks of harvest mites (*Trombicula autumnalis*) certainly cause great discomfort to sensitive people, who probably constitute the great majority. The larvae of these mites are parasitic on wild rodents and birds and sometimes attack other animals or man. They crawl up the limbs and usually halt where a tight constriction of the clothing obstructs their further progress, here they embed their mouthparts and feed. After a few days they drop off the host to the soil and pass the remainder of their lives in a harmless free-living state. The repellent dimethyl phthalate should be effective against this pest. An ointment containing about 40% of dimethyl phthalate should be rubbed over exposed limbs, this should prevent attacks for several hours or perhaps a day. Alternatively, undiluted dimethyl phthalate can be smeared over the socks or stockings, and perhaps also the cuffs, collars, and other openings of the clothing. The liquid should not be applied to artificial silk.

### Delivery after Operation for Prolapse

**Q**—A woman now in the sixth month of her third pregnancy had an operation for prolapsed uteri and lacerated cervix one year after the birth of her second child four years ago. The cervix is normal in size and position but there is a fibrosed scar along the anterior surface. Should she be delivered in her own home?

**A**—Several considerations are involved here, and much depends on what operation was performed on the cervix. If it was amputated, and particularly if the amputation was high, premature labour is likely to occur. Difficulty in dilatation of the cervix is a rare but nevertheless real possibility, irrespective of the height of the amputation. Other operations on the cervix are less likely to interfere with uterine function, although any scar which extends deeply may cause premature labour. Another important aspect of this case is the need to take all possible steps to minimize the chances of a recurrence of prolapse. These include a liberal episiotomy (even though it appears unnecessary) followed by its accurate repair and the avoidance of delay in the second stage of labour. Difficulties to be anticipated are the care of a premature baby (possible), cervical dystocia (rare) and repair of an extensive episiotomy incision (inevitable). The disposal of the patient depends on where these difficulties can be most efficiently overcome, and this in turn depends on the conditions of the patient's home, the availability of assistance, and the standard of the hospital facilities in the neighbourhood. Assuming the latter are good, then as a general rule it would not be in the best interests of the mother or child for the confinement to take place at home.

### Undulant Fever

**Q**—What is the latest treatment for undulant fever contracted in England? The patient is an elderly doctor who periodically suffers great discomfort and pain with the raised temperature.

**A**—No really long and well-controlled series of cases of brucellosis has been investigated. The following drugs have been known to bring about the termination of symptoms: (1) Neosphenamine two or three injections intravenously

at weekly intervals (2) Sulphonamides, especially sulphadiazine 6 g a day for three weeks occasionally brings about cure (3) Sulphadiazine and streptomycin combined streptomycin, 2 to 4 g daily for 7 to 25 days, sulphadiazine, 4 g initially followed by 1 g four-hourly for three weeks (Spink, Hall, Shafer, and Brande, *J Amer med Ass* 1948, 136, 382) (4) "Antrypol" (suramin) 1 g intravenously once a week (contraindicated if the kidneys are not healthy).

### Prevention of Ringworm of the Scalp

**Q**—A number of cases of ringworm of the scalp are occurring in the district and as M.O.H. I wish to circularize the local barbers and advise them what to do should they accidentally clip a sufferer's head. Is there any reliable information on percentage strengths of and minimum immersion periods in commonly available disinfectants which will effectively destroy the ringworm fungus on barbers' instruments?

**A**—In an article by Schwartz and others (*J Amer med Ass* 1946, 132, 58) it is suggested that clippers could be sterilized without damage by working them for 10 seconds while immersed in petroleum oil (boiling-point 150 to 200° C) at 100° C, by boiling them for three minutes in a 2% saponated solution of cresol, or by immersing them in a 10% solution of this in the cold for 15 minutes. These methods of control led to a drop in incidence of ringworm of the scalp.

### Difficult Delivery

**Q**—What is the obstetric condition in which the baby is presenting by the vertex, occipito-anterior, and there is no evident disproportion but the mother fails to deliver herself? On application of the forceps with more force than is conducive to one's peace of mind the baby emerges with the marks of the blades under the angle of the jaw on one side and over the parietal bone on the other suggesting that the baby's head is inclined over towards one of its own shoulders rather than presenting squarely. I have delivered dozens in this condition and would rather deal with a straightforward occipito-posterior position which if diagnosed before the head becomes moulded to the wrong shape is manually rotated and delivered with comparative ease. I have asked several eminent obstetricians about this condition which I cannot find mentioned in any textbook and they talk learnedly but vaguely about the head not being "properly flexed" but they make no suggestions about causation or what should be done.

**A**—The suggestion that in these cases the foetal head is laterally flexed on the trunk, with the occiput fully rotated anteriorly, is difficult to accept. This state of affairs is not likely to occur except when the foetal neck is deformed, and experiments carried out on a doll and pelvis indicate that if it were as described merely locking the forceps would suffice to correct it. The probable explanation of the observations recorded is the pelvic application of forceps when the foetal head is incompletely rotated—i.e., when it is still lying with the sagittal suture in one or other oblique diameter. This is a common experience and results in forceps marks on the foetal head roughly in the sites described in the question. The treatment of this condition depends on accurate diagnosis of the position of the foetal head followed by a cephalic rather than a pelvic application of forceps, with or without preliminary manual rotation of the occiput to the front.

### Pteroyldiglutamic Acid in Malignant Disease

**Q**—Are pteroyldiglutamic acid and pteroyltriglutamic acid of value in malignant disease? Has any work similar to that of Leuchtenberger and Farber been done in the United Kingdom and is any hospital now working along these lines?

**A**—While earlier reports conveyed some indication of ameliorative effects from the treatment of malignant disease with pteroyldiglutamic acid and pteroyltriglutamic acid, such effects do not seem to have been confirmed in later clinical work whether in this country or in the United States. Demonstrable even if slight activity of this kind would still be of interest for the problem of tumour chemotherapy from the experimental aspect, but it seems clear that any such activity which these compounds possess is far short of rendering them of value in clinical practice.

### Venereal Disease

**Q**—What has been the peak rate of syphilis and gonorrhoea in the B A O R since the end of the war? Is the increase in the incidence in venereal disease shown in the Ministry of Health Report for the year 1946 likely to be a peak figure or has there been a further rise in 1947? Can any explanation be offered for the fact that this expected post-war rise in venereal disease is delayed as compared with the corresponding rise after the 1914–18 war? Is it true that the spirochaete can be transmitted in the seminal fluid for three to five years after a supposed "cure"? How long after the cure of syphilis is marriage permissible?

**A**—Figures for syphilis and gonorrhoea rates in the B A O R up to date are not available, but probably the highest were reached in 1946, when for one quarter they were in the neighbourhood of an equivalent annual ratio of 80 to 90 per 1,000. The civilian rates in this country for fresh infections with syphilis and gonorrhoea during 1947 fell well below those for 1946. If it is admitted that the expected post-war rise in VD was delayed longer after the 1939–45 war than after the 1914–18 war, and it is not so clear that it was, there are many possible explanations, none of which is very convincing. Spirochaetes have been demonstrated in the seminal fluid of latent syphilitics some years after the date of infection, such persons would presumably be able to transmit their infection. It is usually considered safe to allow a syphilitic person to marry when five years have elapsed from the time of infection, but in the case of a syphilitic woman it is wise to recommend antisyphilitic treatment during any pregnancy in order to ensure the birth of a non-syphilitic child.

### Treatment of Diverticulitis

**Q**—How should one treat loss of weight and increasing constipation in a case of diverticulitis of the lower colon? A man aged 57 had been diagnosed by a competent radiologist as suffering from diverticulitis. He still plays golf and tennis. Most of his teeth have been extracted and it is only within the last year that he has suffered from increasing constipation. He now complains of flatulence and abdominal discomfort after defaecation—his bowels never seem to be properly emptied. He has lost over 1 st (6.35 kg) and his weight is now 10 st 5 lb (65.77 kg). Myalgia and weakness are present in both groups of extensor muscles of the thighs. He eats anything except food containing roughage and takes emuls paraffin and phenolphthalein two dessertspoonfuls every night. Is there any other treatment and what is the prognosis?

**A**—The general symptoms of which this patient complains are severe for simple diverticulosis even when accompanied by diverticulitis obviously the possibility of carcinoma must be considered. The description suggests that the lesion would be within view of the sigmoidoscope. Provided malignant disease has been excluded the indications are to maintain regular evacuations with liquid paraffin and a low residue diet. It sounds as though these measures were now losing their efficacy and that recurrent episodes of partial obstruction were taking place, hinting at a progressive stenosis of the bowel's lumen. If this is so, surgical treatment will become necessary, and it would be advisable to consult a surgeon before complete obstruction supervenes and the patient's health deteriorates further.

### Dangers of Cinchophen

**Q**—I have been warned of the danger of using cinchophen for the removal of excess uric acid in the blood. Can you suggest any safer alternative? What are the principal dangers of cinchophen?

**A**—Cinchophen is the only efficient substance to increase the excretion of uric acid. Its principal danger is that it may cause hepatitis, and this has been known to go so far as to cause jaundice and death. This is, however, a very rare occurrence. In 1931 White estimated the annual consumption of cinchophen in the United States to be 90,000 lb (40,823 kg), so that the proportion of cases in which liver damage occurs must be very low. Cinchophen irritates the stomach, therefore while it is being used sodium bicarbonate should also be given (though not simultaneously), on the first day 15 g (225 gr) of sodium bicarbonate and 5–10 g on the following days. This also keeps the urine alkaline. Plenty of fluid should be taken.

Other points about the toxicity of cinchophen were discussed in a question and answer published on Aug 28 (p 450).

### Hypoplastic Anaemia

**Q**—Are x-ray therapy electrotherapy sulphonamides or residence or a visit to the Tropics contraindicated in cases of hypoplastic anaemia?

**A**—In cases of hypoplastic anaemia there is no contraindication to electrotherapy. Residence in the Tropics is contraindicated only in so far as it carries some additional risk of disease—e.g., amoebic dysentery—which a person with hypoplastic anaemia could less well support. X-ray therapy is contraindicated, although evidently there are circumstances in which it would be better to have x rays and risk the possible ill effects on the bone-marrow rather than go without them and suffer still worse effects. Much the same considerations apply to the use of sulphonamides, certainly one would not use them unless the patient had an infective condition which had failed to respond to penicillin and other measures.

## NOTES AND COMMENTS

**When was Hughlings Jackson Born?**—Dr E H DERRICK (The Queensland Institute of Medical Research, Brisbane) writes. Although authorities agree that Hughlings Jackson was born at Green Hammerton, in Yorkshire, they disagree as to whether this auspicious event occurred in 1834 or 1835. Supporters of 1834 are Power and Thompson's *Chronologia Medica*, Garrison's *History of Medicine* and Dorland's and Gould's Medical Dictionaries. On the other hand the obituary in the *British Medical Journal* (1911, 2, 950) and Bailey and Bishop's *Notable Names* give 1835. The Section of Neurology of the Royal Society of Medicine celebrated the centenary on April 4, 1935 (*Journal* 1935, 1, 769). This disagreement about such an illustrious figure is surprising. Can it be authoritatively settled?

**Air Conditioning**—Lieutenant-Colonel H G G ROBERTSON writes from Hamburg. In "Any Questions?" (Aug 14, p 363) a correspondent asks about air conditioning. Perhaps the following brief outline of the principles of air conditioning may be helpful. By means of a pump air is drawn from outside through a filter which rids it of gross particles. It is then passed through a screen of sprayed water at a temperature well below that which is finally required of the air. This washes it, cools it, and raises its humidity to saturation point. The air is then heated to the desired temperature, and, as hot air is capable of absorbing more water vapour than cold air and the actual amount of water remains the same, the relative humidity falls. By suitably adjusting the temperature of the cooling water it is possible to obtain almost any desired temperature and relative humidity in the air that enters the room. It is, of course, essential that doors and windows be kept closed to prevent the entry of the outside air.

### Corrections

In amplification of its statement on the "Streptomycin Treatment of Tuberculosis" the Ministry of Health adds that streptomycin will nevertheless still be available for the treatment in any hospital of cases of acute military meningitis, and ulcerative tracheo-bronchitis and laryngeal tuberculosis, but in special instances applications for it should now be made to one of the Regional Distribution Centres instead of, as formerly, to the Ministry of Health.

Messrs Henry Kimpton inform us that they are the English agents for *Clinical Laboratory Methods and Diagnosis* by R B H Gradwohl, noted in "Books Received" (Sept 4, p 478), and that the price is 10 guineas.

We regret that owing to a printing error the name of Mr John Gilroy, who painted the presentation portrait of Sir John Herbert Parsons (Sept 11, p 529), was mis-spelt.

Dr M H Logg (Medical Superintendent, Grove Park Hospital, London, SE 12) writes. Referring to the announcement regarding the distribution of streptomycin in your issue of Sept 11 (p 527), I would call your attention to the fact that the telephone number of Grove Park Hospital is Lee Green 1077—and not as printed Lee Green 1547 (which happened to be the earlier telephone number until 1946).

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atto's* Westcent London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Britmedads* Westcent London. MEMBERS SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. Telegrams: *Medisecra* Westcent London. B.M.A. SCOTTISH OFFICE: 7 Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 18 1948

## FREE HOSPITAL PLAN IN THE TRANSVAAL OPPOSITION BY THE MEDICAL PROFESSION

The Provincial Council of the Transvaal—in the Union of South Africa it is the Provincial and not the Union Government which undertakes such legislation—has enacted an Ordinance known as the Public Hospitals Ordinance (Transvaal) 946 coming into operation in the present year, which provides free hospital treatment for all members of the community. The free treatment extends to out-patients and to patients attending detached clinics, as well as those in hospital beds. Such public patients, their hospital charges being met, will be given free choice of having also the medical services which the hospitals will again provide without payment or, alternatively, of selecting their own medical attendants and paying them. There is no means test.

Hitherto about 70% of European patients and practically all non-European patients have received free hospital service, including medical treatment. The remaining 30% of Europeans have paid their hospital charges and doctors' fees. Henceforth the service will be free for all in the sense in which any service is free which is paid for out of taxation.

At the same time it is admitted that there is a shortage of hospital beds and nurses, so that all patients cannot be accommodated. The Ordinance provides that the determining factor in allocation shall be the urgency of the medical need of the patient—in other words, medical necessity, not financial hardship, shall be the criterion for free treatment. The medical profession in the Transvaal, on the other hand, while in favour of a comprehensive health service, is protesting against the Ordinance on the ground that a means test ought to be imposed. The means test suggested is that single persons with an income over £500 and married couples with an income over £1,000 should not be eligible for free hospitalization. The issue really concerns those 30% of Europeans who have hitherto paid for their hospital accommodation and also for their medical services while in hospital. During the two years that the Ordinance has been in the offing there have been negotiations between the representatives of the medical profession and the Provincial department, and a good deal has been achieved, but this one bone of contention—the means test—remains.

Opposition to the Ordinance has been voiced by the three Transvaal Branches of the Medical Association of South Africa. In a plebiscite in which 79% of the profession voted there was a 91% overall majority against the Ordinance (1,016 against, 93 for), the majority was rather less (86%) among the practitioners of Johannesburg and Pretoria, and rather more (96%) among those in the rest of the country. The Federal Council of the Medical Association met in Pretoria at the end of July and passed a motion advising members and non-members of the Association not to accept appointments under the scheme nor to assist in any way in the implementation of the Ordinance while serving on hospital boards or committees or advisory councils unless the conditions of their present contracts made this unavoidable. They were also advised to continue to serve temporarily under the conditions of the earlier Ordinance of 1928 in order that poor persons in hospital should not be debarred from essential medical services. The motion rejecting the Ordinance was carried *nemine contra-*

*dicente* one member not voting. It was also resolved to approach the Union Minister of Health, asking him to intervene.

The Ordinance is supported apparently by the various political parties and labour organizations but the likelihood is that it will be worked by only a part of the medical profession, and that most general practitioners will be out of it. There is some talk in the latest advices received from South Africa of a further approach to the administrator of the Ordinance. One difficulty seems to be the outlying hospitals, where the medical service is sometimes indifferent, and it is the intention of the administration to tighten things up.

### The Medical Position

The position of the medical profession calls for careful statement. The profession has repeatedly expressed itself in favour of a comprehensive health service to include free medical care for all sections of the community. Apparently such a scheme is not yet practicable in the Transvaal, and meanwhile the profession is willing to assist in the rational development towards such a scheme. Until the whole profession can be absorbed into an organized health service, however, it is maintained that free services in hospital should be limited to the provision of accommodation, nursing, food, and ancillary services, and that free medical treatment should be confined to those who cannot afford to pay for it.

It is pointed out that with free medical treatment in hospitals, out-patient departments, and clinics there will be nothing left for the private medical practitioner except domiciliary services, on which many practitioners cannot make a living. Moreover, the virtual exclusion of the private practitioner from the public hospitals, owing to the availability for the patient of the free medical services of the hospital itself if he chooses to have them, will result in a lowering of the standard of professional skill and ability among private practitioners.

The profession accordingly proposes that as there is an acknowledged shortage of hospital accommodation the Ordinance should be amended to provide that, pending an improvement in this respect, where there is alternative accommodation in private institutions or where the conditions of patients permit of their being cared for adequately at home, preference in the allocation of the available hospital beds should be given to the poor.

As a means of dealing with persons of the middle-income group who are liable to be embarrassed by the expense of serious illness, it is suggested that they should insure themselves against such contingencies. It is stated that in the Transvaal already there are several hundred thousand persons enjoying the benefits of such insurance. For those not insured the Association has offered to work out a formula which would take into account the person's circumstances in relation to the costs of his medical care together with a tariff of medical fees beyond which it would not be permissible for a practitioner to charge a private patient in hospital. An offer to do this was actually made to the administration before the Ordinance was enacted, but it was rejected, and the Ordinance specifically precludes the administrator from prescribing fees or charges payable to private medical practitioners in respect of in-patients who may elect to be treated by them.

In a statement drawn up by the Action Committee of the Southern Transvaal Branch of the Medical Association of South

Africa it is pointed out that the Ordinance itself lays down that people will be received into the public hospitals only in so far as adequate accommodation is available. It therefore seems to suggest that there will not be accommodation for all who require it. It is argued on behalf of those who support the Ordinance that the administrator should take into consideration the home circumstances of patients in determining the urgency of their medical need for treatment. This seems to the committee to substitute a less definite criterion than the means test and one which does not really protect the poor patient.

"If the Province is really in earnest about providing free hospital services for all who need them, it should be prepared to subsidize all sick persons who are excluded from public hospitals by virtue of any existing shortage of beds, and who for this reason are compelled to go to private institutions. This would be equitable and would be supported whole-heartedly by the medical profession."

As it is, some people will undoubtedly still be forced to seek and pay for accommodation in private institutions while others who are equally or better able to afford the expense will be admitted free to public hospitals.

The local medical profession has proposals for amending the Ordinance which are in keeping with the principle of free hospitalization and which, it is claimed, would if accepted confer great benefits on the public by providing such accommodation, nursing, and ancillary services free for all, and ensure that the fees charged to those who could afford to pay for medical treatment would be regulated in a reasonable manner.

## N.H.S. SUPERANNUATION SCHEME

### OPTION TO RETAIN RIGHTS

*The Ministry of Health has issued the following leaflet (S D A) for the guidance of officers transferred to the National Health Service who may exercise an option to retain rights corresponding to those enjoyed under their previous superannuation schemes*

1 Many persons who are transferred to the National Health Service on July 5, 1948, will have been subject to one of the following schemes immediately before that date

- (a) the Superannuation Acts, 1834-1946 (Civil Service),
- (b) the Asylums Officers' Superannuation Act 1909,
- (c) the Local Government Superannuation Act 1937,
- (d) a local Act Superannuation Scheme, or
- (e) the Insurance Committee Officers' Superannuation Scheme

2 The National Health Service Superannuation Scheme (for all those who come into it) provides benefits which, taken as a whole, are at least equal actuarially to those enjoyed immediately prior to transfer. But the actual benefits are different in some cases: thus, compared with the local government scheme, there is a smaller pension but there are compensating advantages—a lump sum retiring allowance, a death benefit, a widow's pension, a minimum incapacity pension, and a short-service gratuity. Any transferred person with existing rights under the provisions referred to in paragraph 1 is free to continue, if he wishes, with rights corresponding to those he has now, at the same rate of contribution (if any), instead of coming on to the terms of the new Scheme. If a transferred employee wishes to exercise this option he must submit a notification within three months after the date of transfer (July 5, 1948) that he does not wish to avail himself of the benefits of the new Scheme.

3 The purpose of this leaflet is to bring this to the notice of those who may be interested so that they can give notice of their choice by Oct 4, 1948, if they do not wish to have the benefits and contribution rates of the Health Service Scheme. Before deciding on this it would be wise first to compare the benefits of the existing scheme with those of the new Health Service Scheme with the help of the explanatory booklet<sup>1</sup> which has been issued to all employees who are to be transferred on July 5, 1948. The new scheme has a greater range of benefits than any of the existing schemes to which this leaflet refers.

<sup>1</sup> Superannuation Scheme for those engaged in the National Health Service. An Explanation. H.M.S.O., London.

4 Thus, officers from the local government or Insurance Committee service may see considerable advantage in the cover provided by the death and short-service benefits, payable after only five years' service, in the widow's pension, in the minimum limit to the incapacity pension, and in the return of contributions in all cases with interest except where an officer leaves on grounds of fraud or misconduct. The same points apply to the officer in a mental hospital or in a mental deficiency institution, with the added one that all contributions (including past contributions) will be returnable on resignation. To make the new benefits actuarially equivalent to the old ones, the lump sum retiring allowance payable to an officer who decides to accept the Health Service Scheme (i.e., does not exercise the option of continuing subject to the conditions of his existing scheme) will be increased by  $\frac{1}{2}\%$  in respect of each year of past contributing service and  $\frac{1}{4}\%$  in respect of each year of past non-contributing service under the old scheme, if that scheme did not provide for a death gratuity; this recompenses him for the fact that he has not had a death cover over his earlier years of service as would have been the case if the Health Service Scheme had applied to him throughout his service. If the officer is married and the retiring allowance in the Health Service Scheme is reduced because of the widow's pension liability, the  $\frac{1}{2}\%$  and the  $\frac{1}{4}\%$  will be increased to  $1\frac{1}{2}\%$  and  $\frac{3}{4}\%$  respectively.

5 A special word must be said about officers in the mental health service. Under the Health Service Scheme provision is made whereby those who come within the category of "mental health officer" may qualify for a pension at 55. The term "mental health officer" means a member of the staff of a hospital or an institution for the treatment of defectives who devotes the whole or substantially the whole of his time to the treatment or care of mental patients or defectives. It is possible that certain persons who are ranked as officers or servants of the first class under the Asylums Officers' Superannuation Scheme may not come within the mental health officer category. Any such person who wishes to retain the benefits of early retirement under the Asylums Officers' Scheme must, to do so, exercise his option. That option if exercised, will cease to have effect if he becomes at any time employed otherwise than for the purpose of a hospital or part of a hospital used for the treatment of mental patients or an institution used for the treatment of defectives.

6 Each person must himself make the choice. The rates of contribution and the benefits of the National Health Service (Superannuation) Regulations, 1947 are set out in Sections B and C of the explanatory booklet. Examples I and III in Section K of the booklet are also of particular interest.

7 The regulations themselves can be purchased direct from H.M. Stationery Office or through a bookseller, price 1s 10d net (by post 2s).

8 Any person desiring to exercise the option which has been described can obtain the appropriate form of application from his employer on request. The form, to be effective, must be completed on or after July 5, 1948, and, as has already been stated, it must be submitted to the officers' National Health Service employing authority within the period July 5, 1948, to Oct 4, 1948.

9 Contributions at the appropriate rate under the new Scheme will be deducted from pay as from July 5, 1948, until an option to continue on the terms of an existing scheme is received. When an option is exercised those contributions will be adjusted back to July 5, 1948.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), WallSEND

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Portslade, Redditch (restricted to new appointments), Tyldesley

## National Health Service News

### Income Tax and Superannuation

We are informed by the Inland Revenue Department that, in cases where a practitioner opts out of the superannuation scheme the 8% contribution paid to the practitioner by the Government towards the maintenance of his insurance policies will be treated as income chargeable for income tax, and the position will not be affected by the use to which the practitioner puts the contributions.

The full premiums on the policies will thus continue to be paid by the practitioner out of his income as computed for income tax purposes, and the question of relief in respect of these premiums under Section 32 of the Income Tax Act, 1918, will not be affected by the fact that the Minister contributes towards the cost. Premiums on deferred annuity policies and endowment assurance policies will rank for relief subject to the present statutory restrictions.

In cases where the practitioner contributes to the superannuation scheme the 8% contribution of the Government is not received by the practitioner and will not be chargeable to income tax. The 6% contribution made by the practitioner will rank for income tax relief but the earned income relief to which he is entitled will be affected to the extent of the amount of this contribution. In other words, the earned income relief will be assessed on the income of the practitioner less the 6% deduction.

## Correspondence

### Tenacity and Leadership

SIR—With reference to Dr W A Bourne's letter (*Journal* Sept 4, p 499), there is one point which is so often repeated but which is so obviously wrong that I feel that it should be contradicted lest future generations should believe it to be true. I refer to the statement that 'a majority of practitioners opposed the health service in the second plebiscite'.

The facts are that nearly 9,600 general practitioners were not in favour of entering the service, whereas assuming there are 21,000 general practitioners, over 11,400 were in favour or did not vote. But the 9,600 were not in favour knowing that they would be released from any pledges unless their number reached a certain safe percentage. Only one thing, therefore, was certain from the plebiscite, and that is that over 5,700 general practitioners had decided to join this service and it is more than likely that those numbers would have been greatly swelled if the safeguard clause had been omitted.

I have always opposed the health service as it stands to day, for I feel that it can only lead to a gradual lowering of standards in general practice, but the lot of the G P is far far better than I dared hope it would be, and for this we have to thank the tenacity and leadership of our Association and Negotiating Committee—I am etc,

Newport Pagnell Bucks.

A A CLAY

### Obstetric Committees

SIR—Mr E Farquhar Murray (*Supplement* Sept 4, p 105) considers that something is radically wrong and impracticable in the present attempt to improve the midwifery service by dividing doctors into those who are on the special list and those who are not. He also deprecates the publishing of the names of 'special list' doctors only, in post offices. He goes on to say that the teaching and practical experience given students are sufficient to give them a reasonable working knowledge and yet he shall I say objects to the public having available such information as will enable them to differentiate between a doctor who has a reasonable knowledge and one who has attained efficiency in all aspects of the confinement by post-graduate study or by working as an assistant to a special list doctor.

Mr Farquhar Murray illustrates the grief of the newly qualified and keen doctor who finds he has not been appointed to the special list. Does he refer to the young doctor who is

keen to make money quickly or is keen to become an efficient doctor? If the former I feel that the obstetric committee will in the long run be his best friend, if the latter he will be more interested in acquiring further experience before entering general practice on his own. Most of the letter referred to has been in the nature of destructive criticism of obstetric committees throughout the country, who are conscientiously trying to improve the standards of domiciliary midwifery but the unfortunate reference is apparent when the author states that the vast majority of midwives calls are for such minor things as lacerations. Lacerations of the perineum are probably the commonest accidents in obstetrics, and, although not in themselves serious, their consequences, if neglected or carried out by the young doctor who has performed few if any repairs before qualifying, may be far-reaching in predisposing to uterine displacements, associated chronic ill health, and reduced efficiency. I will readily admit that answering nurse's call gives the young doctor confidence and experience, but I consider that the young doctor, and the young mother, would be more confident if a 'special list' more experienced doctor was at hand to supervise the case.

I sincerely trust that, with regard to future applications obstetric committees throughout the country will not include a doctor on the obstetric list for the area until he satisfies them that he is capable either by experience or special qualifications of taking full charge of domiciliary midwifery, and that they request their executive council to bear this in mind especially when considering applications from doctors for vacancies in single-practice areas—I am, etc,

Malton Yorks

C OGILVIE MARR

SIR—I must thank Professor Farquhar Murray (*Supplement* Sept 4, p 105) for his very dispassionate arraignment of what I have come to refer to as the affair of the obstetric sheep and goats. Not only is there something radically wrong here but there appears also to be something potentially very dangerous. The dangers arise especially from two angles. The first is that these committees might be used to enforce uniformity in treatment either as a result of directions from above or misguided enthusiasm on the part of individual members—in other words, clinical interference. The second danger is that this method of approach might be employed in other spheres of medical practice. We might have pneumonia committees, measles committees, and heaven knows what else. The truth seems to be that in the past we all with our varying interests and capabilities have tended to do the work which our consciences told us we were capable of and to pass on or avoid the rest, and, if we have not, our patients have soon found us out. This on the whole has worked reasonably well and at any rate has worked better than the type of planning foreshadowed by the obstetric committees is ever likely to do—I am, etc,

Wolverhampton

R S V MARSHALL

### Mileage Fund

SIR—In a note appended to the letter from Dr A Kellie Brooke (*Supplement* Aug 14, p 84) the Secretary of the Association writes, "To double the number of persons in respect of whom mileage is paid is not to double the number of miles travelled. Accordingly a doubling of the mileage fund means an increase in the payment per mile travelled."

No one will contest the fact that previously the mileage grant has only been a part payment for travelling expenses in a country practice. The remainder (estimated by Dr A Kellie Brooke as 2½ times the number of panel patients on whom the practitioner claims mileage) were the private patients of the doctor, and from them he made a special claim for mileage in the assessing of his fees. In this way as in all private practice the private patient was in fact subsidizing the panel patient. Now, when the private patient has been to all intents and purposes abolished, the country practitioner has a right to expect a substantial increase in the mileage rate per mile of those on his list.

But there is more in it than merely the matter of miles travelled. It is obvious that where patients are situated near the surgery of a doctor or on convenient bus routes they will be able far more easily to attend at the surgery for minor treatment than when they are at a distance and a long way from a bus route. The number of domiciliary visits in the country is therefore necessarily increased in comparison with an urban



practice, and the time taken in making these visits is very much longer. All this should be taken into consideration in the assessing of the mileage grant. We feel most strongly that to make the mileage grant a call on the capitation rate is unfair. This should be a separate and independent fund as it was under the NHI.

The Secretary also states in the same note that after the inducement fund has been divided between England, Wales, and Scotland "applications will be invited for special inducement grants for consideration by the medical practices committees." As we read this, the inducement fund is not to be used to attract practitioners to unpleasant places or into arduous practices but is to be a fund held by the medical practices committee, who are to be induced into parting with it by those general practitioners who may consider themselves sufficiently unhappy in their practices to justify their making an application. The man who puts up the best case will get the greatest grant. How unfair! How like begging for charity it all is! Surely criteria can be laid down which will enable executive councils in co-operation with the local medical committees to distribute the fund as originally intended.—We are, etc.,

R M S MCCONAGHEY  
A J EDGCOMBE ROWE

Dartmouth

SIR—The answer of the Secretary of the Association to the letter from Dr A Kellie Brooke (*Supplement* Aug 14 p 84) indicates one assumption as regards rural mileage which is surely not justified by the actual facts. The payments from the mileage fund before July 5 1948, did not represent an adequate return for the time spent in visiting the insured patients nor for the car expenses, but that did not matter very greatly, as this loss was subsidized by adding to the fees charged for private patients. As this no longer applies and the suggested total mileage fund is no more than an increase proportionate to the increased number of State patients an adequate remuneration will still not be provided for the rural doctor for the time taken and for his increased car expenses.

This mileage question raises one very important matter which so far as I can remember has not been ventilated in any of the columns of the *Journal*. It is surely quite unreasonable to expect any rural patient to walk 4 5, or 8 miles to a doctor's surgery and back again even if the lesion is only a finger ache, as otherwise the rural patient is unfairly penalized. Could we have some authoritative statement on this point and also on the question of the delivery of rural medicines?—I am, etc.,

Moretonhampstead Devon

W D GLYNN JONES

### Free Drugs for Private Patients

SIR—May I join Dr Humphrey Foxell (*Supplement* Aug 21, p 90) and many others in asking that the B M A should insist that the Minister be compelled to stand by his printed word and that private patients should be given their rights in being allowed drugs under the NHS? It is obvious that the Minister is using the cost of drugs, deliberately inflated by a purchase tax, as a lever to force patients into the Service in the same way as the compensation for goodwill was the lever that so surely forced many unwilling practitioners into the net. Surely there is some effective action we can take to ensure that our private patients get a square deal. They will never get fair treatment from the Minister unless his hand is forced.—I am, etc.,

Bournemouth

ROBERT RISK

### Obstetrical Service

SIR,—It is deplorable that the much-vaunted obstetrical service of the NHS should oblige practitioners to perform only two antenatal examinations on each pregnant woman. Discussing this question recently with a Ministry official I was told, in effect, that the Service depended on the professional integrity of the practitioner to perform the right and proper number of such examinations but that the minimum of two was stated because of the low composite fee. Why not give the British mothers the promised service with routine antenatal examinations at the recognized intervals and paid for at the rate of half a guinea? Then we would at least feel that there was less of an imposition on our professional sense of responsibility.—I am, etc.,

Sleaford, Lincs.

ROLAND CUBITT

### Charges for Hospital Beds

SIR—I think it was possible before the war to find accommodation in private nursing-homes around six guineas a week, the really lavish ones naturally charging more. There have lately been many complaints from patients and doctors regarding the excessive charges made for private rooms under the control of regional boards. I feel that this matter may be taken as a test of sincerity. If the Minister really intends to play fairly with private doctors and private patients he will make certain that those paying for private accommodation are not, as might now appear, subsidizing public patients. Not long ago one of your correspondents rightly pointed out that it was his own business if he cared to go without drinks and smokes to make his sick relative more comfortable. In my opinion this is one of the numerous issues which the B M A should now fight, and win. In no case should private accommodation be charged above cost, and there seems much to show that many charges are now cruelly exorbitant.—I am, etc.,

Hadley Wood Herts

G C PETHER

### Too Many or Too Few?

SIR—Could you please tell me whether there are too many doctors or too few? I ask this somewhat naïve question simply because I am genuinely bewildered about the matter. On the one hand we have the sponsors of the National Health Service warning the public not to expect the full benefits of the scheme just yet owing to the grave shortage of doctors, nurses, health centres, etc., while on the other hand it is pretty obvious to those of us who are not hypocrites that newly established practitioners who joined the Service after the general rush to "sign on" with doctors are likely to be in for a lean time. I know that this view is shared by at least one important official employed by the London Executive Council, and I myself know of several such newly established practitioners who are still sitting in their newly painted surgeries with very little to do, very few patients on their list, and very little money to support their families on.—I am, etc.,

London S W 3

VICTOR CONSTAD

### Guidance from the Past

SIR—The following extract from the Presidential Address delivered at the Norwich meeting of the British Medical Association in 1874 by my great-uncle, Dr Edward Copeman, F R C P, seems to have some interest in connexion with recent events.

He said "So Gentlemen I believe it will be in the future, only establish principles which are just and of undoubted benefit to the profession, and the powerful agency of this great society, more and more powerful as the years roll on, will most assuredly at last secure the favourable consideration of the Government and force upon it the necessity of granting such reasonable demands as we may unitedly urge upon it. At any rate I feel perfectly assured that no act of the legislature which we as a body feel to be detrimental to the profession, or to the community, will have a chance of passing into law in the face of such influence as that now beginning to be possessed by the British Medical Association."—I am, etc.,

London W 1

W S C COPEMAN

### Ophthalmic Certificates

SIR,—While agreeing with your correspondents, Drs B Sandler and T R Thomson (*Supplement*, Aug 14 p 87), that the ophthalmic certificate is yet another imposition on the general practitioner, I would point out that in the wider sphere it has its uses. One of the Minister of Health's slogans is "Harley Street for All," and by starting a service which offers consultation with an ophthalmic medical practitioner or an ophthalmic optician and of which initial advance can only be taken after obtaining a medical certificate, he surely produces a bias (even if "you are not bound to take my advice") towards the ophthalmic medical examination.

This must be in accordance with medical policy, and by the conscientious issue of certificates—which are only necessary once in the lifetime of each patient—the general practitioner is helping his specialist colleague towards the ideal of medical eye examination for all.—I am, etc.,

London W 1

H MELHUIS

**Doubt about Capitation Fee**

SIR—It is impossible to ignore the note of anxiety for our financial futures running through the letters from members which you publish week by week in the *BMJ*. With less than a month before our first payment is due under NHS none of us appears to know what capitation fee we are to receive. All we know is that it will be "somewhere between 15s and 18s. Doctors, like other members of the community, have bills to settle, and they cannot be settled without money. A number of us are going to suffer considerable financial loss under the health service at a time when everybody else is either getting an increase in wages or asking for one. The financial side of the health service, as far as it affects the doctors who are to run it, is receiving far too little attention. Is the B.M.A. doing anything about it?—I am, etc.,

Brookmans Park, Herts

JAS J DWYER

**H.M. Forces Appointments****ROYAL NAVY**

Surgeon Captain F L H MacDowel has been placed on the Retired List.  
Acting Surgeon Lieutenant-Commander A C Hamer to be Surgeon Lieutenant-Commander

**ROYAL NAVAL VOLUNTEER RESERVE**

Surgeon Lieutenant J D Stride to be Surgeon Lieutenant-Commander

Temporary Surgeon Lieutenant M D Kipling has been transferred to List I of the Permanent R.N.V.R., in the rank of Surgeon Lieutenant

Temporary Surgeon Lieutenants E G Shaw and P W E Sheldon have been transferred to List II of the Permanent R.N.V.R., in the rank of Surgeon Lieutenant

Temporary Acting Surgeon Lieutenant O C A Scott to be Temporary Surgeon Lieutenant

**ARMY**

Colonel H G Winter, M.C., late R.A.M.C., has retired on account of disability and has been granted the honorary rank of Brigadier.  
Colonel E C Lang, D.S.O., late R.A.M.C., has retired on retired pay.

Colonel G H Haines, M.C., late R.A.M.C., having attained the age for retirement, is retained on the Active List supernumerary to establishment.

**ROYAL ARMY MEDICAL CORPS**

Lieutenant-Colonel G W Crimmin, O.B.E., has retired, receiving a gratuity, and has been granted the honorary rank of Colonel.  
Lieutenant Colonel H H Atkinson has retired.

Major E H P Lassen, D.S.O., to be Lieutenant-Colonel.

*Short Service Commissions*—Captain A C Pinkerton, from Emergency Commission to be Captain. D J Cowan to be Lieutenant. Captain H M S G Beadnell has retired receiving a gratuity and has been granted the honorary rank of Major. The notification regarding Lieutenant A D Roy in a *Supplement* to the *London Gazette* dated May 11, has been cancelled.

**TERRITORIAL ARMY****ROYAL ARMY MEDICAL CORPS**

Lieutenant-Colonel J G Morgan, C.B.E., T.D., has been granted the acting rank of Colonel.

Captains F C Mayo, K C Mackelvie and R De Soldenhoff to be Majors.

Lieutenant S F Seelig to be Captain and has been granted the acting rank of Major.

Lieutenants W Duncan, M A O'Sullivan, R T G Craig and E Pringle to be Captains.

R P R Allan to be Lieutenant.

**TERRITORIAL ARMY RESERVE OF OFFICERS ROYAL ARMY MEDICAL CORPS**

Captain W J E Phillips, from Active List to be Captain, and has been granted the honorary rank of Major.

Captain G H A Robinson from Active List to be Captain.

**REGULAR ARMY EMERGENCY COMMISSIONS****ROYAL ARMY MEDICAL CORPS**

Lieutenant-Colonel P Drummond has relinquished his commission and has been granted the honorary rank of Lieutenant Colonel.

Lieutenant (Acting Lieutenant-Colonel) C D Bruce has relinquished his commission and has been restored to the rank of Lieutenant-Colonel, late R.A.M.C., T.A.

Major C H Bentley has relinquished his commission and has been granted the honorary rank of Major.

War Substantive Major W S Charlton has relinquished his commission and has been granted the honorary rank of Lieutenant-Colonel.

War Substantive Captains D R Cairns, W Fabisch, T L Tan, R J Stout, N H Rutledge, and E A Fiddian have relinquished their commissions and have been granted the honorary rank of Major.

War Substantive Captain H R McNair has relinquished his commission on account of disability and has been granted the honorary rank of Major.

*Short Service Commission Specialist*—War Substantive Major P Forgacs has relinquished his commission and has been granted the honorary rank of Lieutenant-Colonel. Captain W O Spence has relinquished his commission.

Captains J M Stowers and M A Cooke have relinquished their commissions on account of disability and have been granted the honorary rank of Captain.

Captain J Flintner has relinquished his commission and has been granted the honorary rank of Captain.

War Substantive Captains V P Poonosamy, L Allen, J C McNeilly, and T E Marshall have relinquished their commissions and have been granted the honorary rank of Captain.

War Substantive Captains O D Cuthbert, H E De Wardener, J S Marshall and A B Wood have relinquished their commissions on account of disability and have been granted the honorary rank of Captain.

War Substantive Captain R M Saleh has relinquished his commission.

Lieutenant (War Substantive Captain) T E Harvey has relinquished his commission and has been granted the honorary rank of Captain.

Lieutenants P L H Davey and S Eden have relinquished their commissions on account of disability and have been granted the honorary rank of Lieutenant.

J Lintner to be Captain.

Lieutenants W C MacPherson, R J Mitchell, R Armatage, J C Batten, D G Breeze, N H Birch, W J H Butterfield, A Blench, J Butler, D F Barrowcliffe, G M Colson, H Caplan, J Cox, P E A De Caestecker, J J Duffy, G Fyfe, H B Farrell, R H Freeman, D W S Gordon, R J Howat, G Hughes, C W L Jones, J G Kendall, J R Leslie, J D Lumsden, G H Luffingham, H S Levy, J Moss, D McI Maxwell, S Moller, M C McLeod, W H Oldenshaw, B W Orchard, C MacL Ogilvie, J P Pracy, G S Plaut, A G Pollen, F W Richards, F L Rawson, J C Rogers, C G Sim, G W Storey, T B Sturling, R J H Smith, M K Towers, N Weiner, P Wise, J T H Wise, F E Webb, P R J Williams, L Walkden, G T Watts, J R May, B P Hill, M L Sacks, S C Harper, G Adam, S Cope, A M Davies, J Dillon, P J D Heaf, R E Jenkins, R H N Lake, P A R Lorne, A C Milne, J L Middlemiss, H M Park, D A Petrie, J H Raphael, J A Reynolds, R E N Tattersall, F W Thomas, R W Lawrie, S G M Mackay, A C Allin, H I O Armstrong, P J Burdon, J M Dunbar, K G Gadd, H Howell-Jones, A Holmes, N Harrison, D W K Kay, J W Lewis, J R McCallum, I J MacDonald, A J Merry, P G H T Pollitt, H N Reed, G McM Smibert, B L L Rygate, G A Readett, J P Rogan, S Pickford, B Schneiderman, D H Woodhead, M A Ansari, S Mattingly, A E Smith, W Marshall, A P Bentley, A J F Crossley, J O Doyle, J Hewet, A C Jacob, C S Kirkham, J M Lewis, D R Morgan, M G McEntegart, J T Marcroft, B W Pay, J H S Perrett, A G Quinn, M R Sheridan, L F Tinckler, D M Zausmer, A Mack Mathewson, J B Lynch, A H Dawes, W Rodger, J F Cogan, C K Brown, F M Parsons, R Pracy, and M J Whelan to be Captains.

To be Lieutenants J A Chisolm, E T Dakin, R French, J L Hardman, W Littlestone, J B Morrison, J R S Paterson, J H Pendered, P Rhodes, J R Scholey, J A Stewart, D G A Wesbury, G H Blair, P H Brasher, I W Crown, N H Dray, M J Forth, N M O'C Hewett, W H Lloyd, B W Meade, J N Mickerson, W Peters, P Read, W C D Richards, L F W Rowe, G C Ambrose, C J Burrows, A C Davies, J Davis, J E Drabble, H S Eyre, T J Felix, K M Fergusson, M Harrington, J S H Inglis, C W G Irvine, D P Keith, C A Martin, J M S McCoy, R C MacGillivray, N E Nathanson, A Paton, P Barr-Taylor, W E Watson, F G Anderson, J M Barritt, A J Borkin, J A Carr, E P Cooke, T H Donaldson, N G O Gourlay, R A Hunter, H M Kirkpatrick, M Paneth, J C Phemister, J J Pollock, A I Rowe, M Senk, C H Thompson, J C Turner, W B Waddell, A L Warlow, J R Watson, H H Whincup.

**WOMEN'S FORCES****EMPLOYED WITH THE R.A.M.C.**

Lieutenants M R Biggs and M J McNabb to be Captains.

**ROYAL AIR FORCE**

Squadron Leader A R C Young to be Wing Commander.  
Flight Lieutenants T H Redfern and W L Price to be Squadron Leaders.

Flying Officers M E Fearnley, G L Leathart, J McE Neilson, I R D Proctor and W B Browne to be Flight Lieutenants.

Flying Officers L S Smith and S Rose have relinquished their commissions on account of medical unfitness for Air Force service retaining their rank.

The notification concerning A M Hewat in a *Supplement* to the *London Gazette* dated July 6 and in the *Supplement* to the *Journal* dated Aug 21 (p 92) should have read R M Hewat.

## ROYAL AIR FORCE VOLUNTEER RESERVE

Flight Lieutenant G F French has resigned his commission  
and is available

## WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Flight Lieutenant M Robertson to be Squadron Leader

## COLONIAL MEDICAL SERVICE

The following appointments have been announced: E Azzopardi M.D. Medical Officer Federation of Malaya, T Crisp M.C. M.R.C.S. Medical Officer Uganda, A G P Hansen D.T.M.&H. Medical Officer Tanganyika, B L C Phillips M.R.C.S. L.R.C.P. Medical Officer Hong Kong, A H Bartley, M.R.C.S., Medical Officer British Honduras, B J Chelmecki M.B. Medical Officer, Gold Coast, B N V Wase Bailey, M.D., D.T.M.&H. D.P.H., Assistant Director of Medical Services Sierra Leone, A B Raper, M.D. M.R.C.P. Senior Pathologist Uganda, T Clunie M.B. R W D Maxwell M.B. and K R Steenson M.B. Senior Medical Officers Fiji

Sheldon J H The Social Medicine of Old Age 1948  
Sheridan M D Child's Hearing to Speech 1948  
Smout C F V and Jacoby I Gynaecological and Obstetrical Anatomy Second edition 1948  
Sulzberger M B and Wolf J Dermatologic Therapy in General Practice Third edition 1948  
Thomson D and Thomson R Oral Vaccines and Immunization by Other Unusual Routes 1948  
Tizard L J Guide to Marriage 1948  
Todd J C and Sandford A H Clinical Diagnosis by Laboratory Methods Eleventh edition 1948  
Vischer A L Old Age its compensations and rewards 1947  
Watson L F Hernia Third edition 1948  
Weinmann J P and Sicher H Bone and Bones fundamentals of bone biology 1947  
Wheeler C E Introduction to the Principles and Practice of Homoeopathy Third edition 1948  
White B V and Geschickter C F Diagnosis in Daily Practice 1947  
Winterton, W R Aids to Gynaecology Tenth edition 1947

## B.M.A. LIBRARY

The following books have been added to the Library

American Medical Association Useful Drugs Fourteenth edition 1947  
Angrave H S Remedial Exercises for Certain Diseases of the Heart and Lungs Second edition 1948  
Association of British Chemical Manufacturers Safety Rules for Use in Chemical Works Third edition Part I 1947  
Bendall C M A Picture Book of Evolution Fourth edition 1947  
Brailsford, J I Radiology of Bones and Joints Fourth edition 1948  
Brown A M Modern Plastic Surgical Prosthetics 1947  
Buxton O V and Mackay, P M M The Nursing of Tuberculosis 1947  
Cristofani A A History of Medicine translated from the Italian and edited by E B Krumpholtz Second edition 1947  
Christopher, F Minor Surgery Sixth edition 1948  
Clayton S G A Pocket Gynaecology 1948  
Colwell A R Diabetes Mellitus in General Practice 1947  
Cosslett V F The Electron Microscope 1947  
Crossen H S and Crossen, R J Operative Gynecology Sixth edition 1948  
Devine Sir H and Devine J The Surgery of the Colon and Rectum 1948  
Eastwood, C G A Handbook of Hygiene and Health Education Second edition 1947  
Farrington H S Gynecological and Obstetrical Urology Second edition 1947  
Ferguson I K Surgery of the Ambulatory Patient Second edition 1947  
Fisher, A G T Treatment by Manipulation Fifth edition 1948  
Ford R Chronic Ill Health Relieved by Drainage of the Piriform Sinuses 1948  
Freilich I B and Cee G C Manual of Physical Diagnosis Third edition 1947  
Grenblatt R B Office Endocrinology Third edition 1947  
Harvey W C and Hill H Milk Products Second edition 1948  
Hewer C I Recent Advances in Anaesthesia and Analgesia Sixth edition 1948  
Hill P H and Knight R P (Editors) Epilepsy 1948  
Hill T G Diseases Transmitted from Animals to Man Third edition 1947  
Hill F Diseases Affecting the Vulva Third edition 1948  
Jenkins W D Dermatoses Among Gypsies and Tar Workers 1948  
Jennings A W and Russ S Radon its technique and use 1948  
Johnston R W A Textbook of Midwifery Thirteenth edition 1948  
Kagan S R (Editor) Victor Robinson Memorial Volume essays on history of medicine 1948  
Kendall H H Cineplasty 1947  
McIntyre J W (Editor) Modern Trends in Diagnostic Radiology 1948  
Marschall J The Venereal Diseases Second edition 1948  
Morton C R A Practical Food Inspection Third edition Part I 1947  
Morton Leake M Everyday Dietetics 1948  
Maxwell J The Care of Tuberculosis in the Home Second edition 1947  
Miles F Manual of Leprosy 1948  
Miles D P Congenital Malformations Second edition 1947  
Nelson J F Normal and Abnormal Psychology 1948  
Paisley H J Bacterial and Virus Disease 1948  
Paton R Treatment of Malignant Disease by Radium and X Rays 1948  
Pineau C Into the Atomic Age 1948  
Pruitt F and Lancel R (Editors) Constitutional Medicine and Endocrinology 4 Volumes 1944-7  
Seligman D and Boyd L J Cardiovascular Diseases Second edition 1947  
Seligman S Symptomatology of Neuroendocrinology Second edition 1947  
Seligman H Textbook of Endocrinology 1947

## Association Notices

## MIDDLEMORE PRIZE

The Middlemore Prize consists of a cheque for £50 and an illuminated certificate and was founded in 1880 by the late Richard Middlemore F.R.C.S., of Birmingham to be awarded for the best essay or work on any subject which the Council of the British Medical Association may from time to time select in any department of ophthalmic medicine or surgery. The Council is prepared to consider the award of the prize in the year 1949 to the author of the best essay on 'The Value of Orthoptics in the Treatment of Squint'. Essays submitted in competition must reach the Secretary British Medical Association, B.M.A. House Tavistock Square London, W.C.1 on or before Dec 31, 1948. Each essay must be signed with a motto and accompanied by a sealed envelope marked on the outside with the motto and containing the name and address of the author. In the event of no essay being of sufficient merit the prize will not be awarded in 1949.

## KATHERINE BISHOP HARMAN PRIZE

The Council of the B.M.A. is prepared to consider an award of the Katherine Bishop Harman Prize of the value of £75 in 1949. The purpose of the prize, which was founded in 1926 is to encourage study and research directed to the diminution and avoidance of the risks to health and life that are apt to arise in pregnancy and child bearing. It will be awarded for the best essay submitted in open competition, competitors being left free to select the work they wish to present provided this falls within the scope of the prize. Any medical practitioner registered in the British Empire is eligible to compete.

Should the Council of the Association decide that no essay submitted is of sufficient merit the prize will not be awarded in 1949 but will be offered again in the year next following this decision, and in this event the money value of the prize on the occasion in question will be such proportion of the accumulated income as the Council shall determine.

The decision of the Council will be final.

Each essay must be typewritten or printed in the English language must be distinguished by a motto and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address. Essays must be forwarded so as to reach the Secretary to whom all inquiries should be addressed at B.M.A. House, Tavistock Square, London, W.C.1 not later than Dec 31, 1948.

BIRMINGHAM REGION  
CONSULTANTS AND SPECIALISTS

A meeting of all consultants and specialists in the Birmingham Region to discuss current problems will be held on Friday Sept 24 at 5.30 p.m. at Nuffield House Queen Elizabeth's Hospital Birmingham 15.

CHARLES HILL  
Secretary

## Branch and Division Meetings to be Held

NORTH WALES BRANCH—At the Watford Hotel Bury, Bedfordshire, Wednesday, Sept 22, 2.30 p.m. Ninety-ninth annual meeting to be addressed by Dr H. Guy Durr, Chairman of Council.

## THE PRESENT POSITION OF NEUROSURGERY IN GYNAECOLOGY\*

BY

ALBERT DAVIS, MD, ChM, FRCS, MRCOG

*Gynaecological Surgeon Prince of Wales's French Dulwich and St Giles Hospitals London*

The advent of autonomic surgery and its specific application by the Lyons School (Leriche, 1925, Cotte, 1925, Molin and Condamin, 1929a) twenty years ago marked an epoch in gynaecology, and since that time a variety of operations mainly designed to interrupt sympathetic pathways from the uterus, but all concerned with the relief of pelvic pain, have been carried out by a variety of surgeons. A sufficient time has now elapsed and a large enough number of cases have been so treated, to allow of assessment of their relative value, and it is my purpose to examine the nature of the procedures involved, their specific indications, and the long-term results of their application. The operations which have survived the initial enthusiasm are presacral, ovarian, and utero-sacral sympathectomy, cordotomy, pelvic alcohol block, and various types of spinal injection, and it will be convenient to discuss these seriatim.

### Resection of the Presacral Nerve

This operation was first described by Cotte in 1925, and has since established itself as the prime pelvic sympathectomy. A logical extension of Leriche's (1925) pioneer periarterial and lumbar resections, it was based largely on the new conception of the pelvic nervous system arising from Rochet and Latarjet's (1913) brilliant anatomical description of the presacral nerve. They showed that here, in one easily accessible bundle, was concentrated practically the whole sympathetic supply to the pelvis, and that uterine denervation could be accomplished almost completely and relatively easily by resection of this main trunk.

**Rationale**—The sympathetic nerves to the uterus carry motor contractile fibres, so that their section diminishes the muscular spasm which is the basic cause of spasmodic dysmenorrhoea. They also contain the majority of the sensory fibres from the organ, so that their resection will relieve not only the pain of dysmenorrhoea but also that arising from other uterine conditions. It has been shown, too, that in many cases of dysmenorrhoea and uterine carcinoma the pain is primarily due to pathological changes in the peripheral uterine sympathetic nerves (Davis, 1938, Dargent, 1948), division of which removes a constant source of irritation.

**Indications**—The operation is curative in cases of severe spasmodic dysmenorrhoea and is indicated in those patients who remain unrelieved by medicinal treatment, cervical dilatation, and alcohol injection. It is also of great value

as an adjunct to other gynaecological procedures, particularly where pain has been a prominent and long-standing symptom. The pain of pelvic carcinoma, either primary or secondary to radiotherapy, is relieved by this method, but only when it is purely visceral in type, spinal pain is naturally unaffected by sympathetic resection.

### Technique

Absolute relaxation is essential, so that spinal analgesia is the ideal method. In nervous patients the pentothal-curare-cyclopropane sequence is satisfactory. The highest Trendelenburg position is also necessary to secure freedom from bowel interference. The incision is placed in the midline midway between umbilicus and symphysis and need not be more than 1 in (2.5 cm) in length. The Dan to Beersheba gynaecological incision is unnecessary in uncomplicated cases, and serves mainly to convert a relatively minor operation into a major one. The sacral promontory and aortic bifurcation are identified and the posterior parietal peritoneum covering the space between is picked up and incised longitudinally for 2 in (5 cm). The whole of the neuroareolar tissue between the common iliac vessels is systematically separated and gathered into a median bundle, care being taken to strip the under-surface of the peritoneum, to which large nerve bundles are often attached. The presacral nerve is occasionally identifiable as a single narrow cord but it usually consists of several parallel fibres of varying size, so that wide mass dissection is preferable to individual removal. During separation several lateral filaments will be exposed, particularly one from the fourth lumbar ganglion, and these must be divided. The nerve bundle is now elevated with an aneurysm needle and further separated above and below for a distance of 1 in, then divided at each end. This wide excision is necessary to ensure a permanent effect, for regeneration as Haxton (1947) has shown, can be remarkably rapid and complete in sympathetic nerves.

Ligation is unnecessary, any small haemorrhage being controlled by tampon pressure. It is also unnecessary and indeed unwise, to transgress the limits of the operative field for vascular damage is easily accomplished and very difficult to control. The peritoneum is then sutured the pelvis explored, and any minor abnormality corrected.

The operation is relatively easy, and quite safe provided careful attention is paid to the anatomical relations of the area. The ureter occasionally lies near the middle line in this position, and the pelvic mesocolon sometimes transgresses it, but neither abnormality should cause trouble if properly identified. There are also no adverse

\*A postgraduate lecture given at the Chelsea Hospital for Women on Dec 6 1947.

effects apart from an increase in the menstrual flow. The pain of subsequent parturition is in fact much minimized. In 1947) has reported a case of two consecutive painless labours following presacral neurectomy.

#### Results

The prime indication for presacral neurectomy is dysmenorrhoea and it is in this condition that the best results are obtainable. But just how good these are is much disputed and the figures given by different writers reveal very considerable variation. Cotte the inventor of the operation is naturally an enthusiastic advocate and in a recent personal communication states that it is always successful in his hands. Greenhill (1942) is similarly optimistic and Curtis and his associates (1942) are emphatic about the permanence of their cures. Cannon (1937) reports 100% cure in 10 cases. Cannaday (1938) complete or marked relief in 37 out of 40 cases, and Pike (1942) in 14 out of 15. All of De Courcy's (1934) 21 cases were cured and similar results in smaller series have been reported by Tirelli (1928) Waters (1946) and others. Some reports are less satisfactory. Counseller and Craig (1934) in an evaluation of the end results of the Mayo Clinic cases found only nine of 15 cases completely cured, though the remainder were much improved. Meigs's (1939) 20 cases of presacral resection alone showed 15 complete cures, two partial and three complete failures and Masson and Shoemaker (1938) obtained only five cures in 10 cases though the remainder were improved. Donaldson (quoted by Bourne and Williams 1945) gives his results in 54 cases as good in 18, fair in 16, and bad in 20, and the experience of Bourne and Williams (1945) leads them to the caustic conclusion that the operation is not so universally successful as some would have us believe.

My own experience covers 86 cases extending over 16 years and the results in later cases show a considerable advance over the earlier. The patients operated on before 1934 showed a cure rate of 54% and those up to 1945 of 71%. Of eight patients operated on since that time, however, only one is not cured and she admits to considerable improvement. This progression is due to a variety of causes—more extensive denervation, more careful peritoneal stripping and more extensive coincident surgery but the main factor has been increased care in the selection of cases. It has now been established that the only dysmenorrhoea for which presacral neurectomy is basically indicated is the primary spasmic type. Congestive secondary cases may be improved, but the result is always problematical. It is accordingly my practice to limit the operation to those patients suffering from intolerable colicky pain centred over the hypogastrium and in whom all minor and operative measures—exercises, antispasmodics, cervical dilatation and alcohol injection—have failed. Under these circumstances the results achieved are excellent and it is possible practically to guarantee a permanent cure in the properly chosen case.

The importance of careful choice cannot be over-emphasized for it is unwarrantable to subject an otherwise normal young woman to operation for pain alone without a fair certainty of success. Cases of intractable primary dysmenorrhoea are not common and the average gynaecological surgeon will see perhaps 10 a year. Masson and Shoemaker (1939) found only 15 such cases in 682 cases of dysmenorrhoea—an incidence of 2.2% and though my own figures show the rather higher rate of 4.8% both emphasize the comparative rarity of the indication.

In secondary dysmenorrhoea the operation is less successful and it should not be undertaken for this condition alone. But as an adjunct to operative procedures for the

correction of gross pelvic pathology, particularly where pain is a prominent symptom, presacral resection is invaluable and should be carried out as a routine in these cases. It is naturally difficult to apportion the pain relief after such composite operations but there is no doubt of the superiority of the combination.

The visceral pain of incurable pelvic carcinoma may be relieved by the operation though the spinal pain often predominant naturally remains unaffected. It is consequently important to make a careful differentiation in each case, and to limit sympathectomy to those with a minimum of somatic pain. Leriche (1939), Todd (1937) and Greenhill (1941) have described the visceral pain as being characteristically diffusely spread over the hypogastrium and lower lumbar region with rectal tenesmus and cystalgia as a frequent accompaniment. Radiation into the thighs and vulva is common but remains diffuse and non-somatic. Somatic pain may present as a girdle pain or be referred along the affected nerves (sciatic, pudendal, obturator) and is usually easily identifiable. True visceral pain is relieved by sympathectomy and Greenhill (1933), who has done most to popularize this application, states that it will yield almost perfect results if restricted to appropriate cases. As early as 1933 he reported complete relief in 10 patients suffering from cervical carcinoma, and similar success has been claimed by Wetherell (1933), Prolocchi (1928), Pereira (1946), and others. Of Behney's (1934) 21 cases, 16 were relieved for the remainder of their lives over periods from four weeks to 13 months. Other surgeons however have not been so fortunate. Cotte (1936) himself says that pain in the bladder and rectum is not always relieved. Atlee (1935) was successful in two out of five cases, and Dargent (1948) in one out of three. Verbrugghen (1940) says that relief is obtained only while the growth is limited to the body of the uterus while Cutler (1938) states that only 50% of cases will show a good result 'in spite of the loud clamour of the gynaecologists'.

My own experience in eight patients has not been encouraging. The operation was technically impossible in two because the malignant mass encroached on the promontory, in two the pain was unaffected, one was slightly relieved (this might easily have been psychological), and the remaining three were definitely improved though for only three weeks in one of these. Such failure is probably explained by several factors. Pathological change in the sympathetic nerves adjacent to a carcinoma is early and extensive (Pereira 1946, Dargent 1948, Jiano *et al.* 1928) and may have already spread proximal to the operative site. Sensory impulses might also be conveyed by way of the lumbar sympathetic chains and the sacral parasympathetics both of which remain intact and high lymph nodes may cause local pressure on the lumbar and thoracic cords. These same trunks may also be the site of interstitial sclerosis—a common result of deep radiotherapy—and this intraneural pressure is undoubtedly a cause of intractable neuralgia referred to the pelvis. Too much should therefore not be expected in these cases but in suitable patients the operation is well worth a trial.

#### Ovarian Sympathectomy

In some cases of dysmenorrhoea the cause of the pain is ovarian as shown by its characteristic distribution, its persistence after uterine denervation and its elicitation on bimanual compression. For this syndrome which Browne (1939) states accounts for nearly 12% of all cases of dysmenorrhoea he advocates section of the ovarian nerves. The operation has also been applied successfully to cases of severe ovulgia and as a palliative in ovarian endometriosis.

**Technique**—The ideal operation postulates a systematic dissection of the ovarian nerves as they lie within the folds of the infundibulo-pelvic ligament, but this is rarely possible, for they lie intertwined with the complicated ovarian venous plexus, and haemorrhage is an invariable accompaniment. Apart from obscuring the operative field, this is usually uncontrollable by individual ligation, so that the ligament itself must be tied at a higher level. The only practical procedure, therefore, is to divide the whole ligament near the pelvic brim after mass ligation, and this is the one generally adopted.

**Results**—There is no doubt of the value of the operation in some carefully selected cases. Browne reports cures in 10 of 16 patients with ovarian dysmenorrhoea, and though most surgeons will disagree with his estimate of the frequency of the condition the occasional case encountered is gratifyingly relieved. The operation is also useful as an adjunct to conservative operations on the adnexae, particularly where pain has been a marked factor, as in endometriosis, and I have had good results in three such cases. Severe ovulalgia—"mittelschmerz"—is a rare condition, and is due to tubal hypercontraction, excessive follicular spill, or pressure on the circular nerves which embrace the distended follicle (Davis, 1939). Where this last factor is the cause ovarian denervation gives an immediate and surprisingly complete cure.

It is, however, questionable whether the advantages of this operation outweigh its possible dangers. It certainly delays follicle development in dogs, and, though the hormonal function of the human ovary appears to be independent of its nerve supply, the latter is so rich that it must be assumed to have some important controlling role. Interruption of the main vascular supply to the organ must similarly exert an adverse effect on its function. The operation should therefore not be undertaken in young non-parous women, except for the most urgent indication, and should generally be reserved for the few selected types described above.

#### Alcohol Injection of the Pelvic Plexus

This operation was originally introduced (Davis, 1936) with the object of blocking the nerve pathway to the uterus at its nearest externally accessible point.

**Rationale**—The pelvic plexus is the main uterine ganglion, receiving the bulk of the nerve supply designed for that organ. It is formed by the confluence of the inferior hypogastric plexus and the nervi erigentes, the former carrying abdominal sympathetic and the latter, sacral parasympathetic fibres, and the nerves are distributed to the uterus in the form of several fine strands emerging from the anterior border of the plexus. It thus presents an ideal site for direct and complete interruption of these pathways, for practically the whole of the uterine nerve supply is here concentrated in a comparatively small area.

The plexus is a large flattened mass of nervous tissue lying in a fairly compact sheet at the side and in front of the ampulla of the rectum. From here it stretches forward to the uterus in the form of long tough fibres which enter the organ just above the cervix. It lies immediately beneath the floor of the pouch of Douglas at its postero-lateral angle and above the corresponding lateral vaginal fornix, the lowest part being contained within the folds of the utero-sacral ligament. The ureter crosses its superior border, and the uterine artery lies close to its lateral surface, the internal iliac vessels passing behind and below.

**Indications**—The method is primarily of value in cases of severe spasmodic dysmenorrhoea which have failed to react to medical treatment. In these it should be combined

with cervical dilatation, which, as I have shown elsewhere (Davis, 1933), is itself a type of sympathectomy, for the external os is surrounded by a circular sympathetic plexus rupture of which is the basic factor in the pain relief obtained by this simple procedure. It is also indicated in cases of painful parametritis and vaginal neuralgia, and as an adjunct to cervical cauterization in Young's syndrome of iliac-fossa pain.

**Technique**—Under intravenous anaesthesia the cervix is pulled to one side and the opposite lateral fornix exposed by retraction. A strong spinal needle is inserted into the vaginal mucosa at its highest point, 1 cm lateral to the cervix. The needle is then passed laterally and posteriorly at an angle of 45 degrees to both the vertical and the horizontal planes for 2 cm, being guided to the side of the rectal ampulla by a finger placed in that organ. The needle is then withdrawn for 0.5 cm and, after preliminary aspiration, 1 ml of absolute alcohol is slowly injected, the point being kept moving throughout. The needle is then almost completely withdrawn and reinserted into the lateral parametrium just by the side of the supravaginal cervix and a further 1 ml infiltrated into this area. This last injection, originally advocated by Bloss (1929), effectively deals with any fibres which have escaped the original block. The whole procedure is then repeated for the other side. It is important to avoid perforation of the rectum, for cellulitis may follow. This is avoided by keeping the needle-point 0.5 cm from the organ, as determined by the internal finger. Both the ureter and the uterine artery are medial to the operative field, but constant movement of the needle-point will eliminate the danger of damage to these structures. The amount of alcohol employed is also important, for if the suggested quantity is exceeded there is danger of complete destruction of the plexus, with subsequent urinary retention, for the motor fibres in its upper portion are indispensable for normal bladder function.

**Results**—Of 61 cases of primary spasmodic dysmenorrhoea recently reviewed 43 (nearly 70%) were permanently and adequately relieved (It should be mentioned that five of these had the injection repeated for recurrence after a short interval, but the effect of the second operation was permanent). Eleven patients were relieved to the extent that the subsequent periods, though still painful, were tolerable, and in the remaining seven there was no appreciable change. These results, though far from perfect, show a considerable advance on those obtained from simple cervical dilatation, which cures an average of 20% of patients, and the operation should be utilized for all primary spasmodic cases which remain unrelieved by medical and physiotherapeutic measures.

#### Intrathecal Alcohol Injection

Intraspinal alcohol injection was introduced by Dogliotti in 1931 for the relief of intractable neuralgia, and it has since been applied successfully by Stern (1934), Greenhill and Schmitz (1936), Todd (1937), and others to cases of cervical carcinoma.

**Technique**—The patient lies on the side, with the body inclined to the prone position and the back arched as much as possible. The table is tilted to an angle of 15 degrees, the head end being lower. A procaine wheal is raised over the interspace between the fourth and fifth lumbar spines and a spinal needle inserted into the subarachnoid space. Absolute alcohol is then injected very slowly to a total quantity of 0.5 ml without admixture of cerebrospinal fluid. The patient remains in the same position for an hour before being returned to bed, and the whole procedure is repeated for the other side after an interval of 10 days.



The method is an extremely easy one, requiring the minimum of preparation and apparatus and it has the additional advantage (as emphasized by Greenhill) of being applicable to bed ridden patients at home. But it carries several disadvantages: incontinence of faeces and urine is a not infrequent sequel and other paralytic complications resulting from cord damage are occasionally seen. The operation is therefore restricted to cases of inoperable carcinoma. Complete relief of pain is also by no means guaranteed in spite of the somewhat optimistic reports of some of the earlier workers (Saltzstein, 1934; Stern, 1940) and it is noteworthy that Greenhill (1947), one of the pioneers in this field, has reduced his estimated relief rate from 92% in 1935 to somewhat "more than half" in 1947. However when the operation is successful the completeness and permanence of the pain relief are extremely gratifying and the patient is in addition saved from the depression and mental stultification incidental to prolonged morphinization.

Subarachnoid alcohol injection is therefore indicated in all cases of visceral pain arising from incurable pelvic carcinoma. I have recently advocated reinforcement of this procedure with simultaneous alcohol injection of the pelvic plexus, and the combination, where practicable, seems to give considerably better results.

#### Intraspinal Sulphate Injection

To circumvent some of the difficulties inherent in alcohol injection Bates and Judovich (1942) substituted magnesium sulphate. While adequately destructive to nervous tissue it is much less so than alcohol, and therefore may be used in larger quantity and over a greater area.

The technique consists in the intraspinal injection of 250 mg of ammonium sulphate dissolved in 5 ml of sterile water after preliminary spinal procaine analgesia to minimize the pain of injection. The third interspace is employed, and the patient subsequently sits up to allow of caudal diffusion of the heavy solution.

The originators of this method are optimistic of its permanent benefit, but in two personal cases the pain of injection was worse than the original complaint, and in neither was there a reasonable degree of subsequent relief. Bourne and Williams (1945) cite similar disappointing results in their own cases, but, as they state, it is yet too early to form a final opinion, particularly as other workers have been more favourably impressed.

#### Section of the Utero-sacral Ligaments

This is the original pelvic sympathectomy, and was first advocated in 1899 by Jaboulay, who ruptured the pelvic parasympathetic nerves by serum injection and blunt dissection of the retrorectal space. It was at first received enthusiastically, but rapidly fell into desuetude as the result of the frequent and severe complications following the somewhat crude avulsion technique of the earlier surgeons. The operation was revived and modernized by Condamin in 1927 and since then this worker, together with Molin, has published several reports describing excellent results in a variety of painful pelvic conditions.

**Rationale.**—The posterior parametrium of the utero-sacral folds contains the utero sacral ligaments proper, some smooth muscle, fine blood vessels and lymphatics, and numerous nerve bundles lying in loose fibro-fatty areolar tissue. The nervous element consists of the lower border of the pelvic (Lee Frankenhauser) plexus and its forward branches to the uterus and so comprises the main supply to that organ. These postganglionic nerves are easily accessible in the anterior part of the utero-sacral ligament and intervention at this level would appear to be the ideal uterine sympathectomy.

**Technique.**—The ligaments may be divided from above but this is justifiable only when laparotomy has been performed for the correction of some basic pathology. Otherwise the vaginal approach is indicated. In this the posterior lip of the cervix is seized with vulsellum forceps and pulled downwards and forwards so as to put the utero sacral ligaments on the stretch. A semicircular incision is made through the vaginal epithelium at the level of the cervico vaginal junction from the base of one broad ligament to the other. The subjacent parametrium behind the uterus is separated by finger-swab pressure, leaving the utero sacral ligaments free and more clearly defined. They are then cut away with scissors from their somewhat wide insertion into the uterus, and the free ends further separated by blunt dissection to prevent subsequent regeneration. The operation is technically very simple, but haemorrhage from small vessels is usually troublesome and difficult to control. Ligation is complicated by retraction of the cut end, and the tedious swab pressure required is a poor substitute. Sometimes this is quite ineffective, and blood collects in the posterior parametrium, forming a large haematoma which usually becomes infected.

**Indications.**—Utero sacral resection is of value in intractable dysmenorrhoea, but is mainly indicated for the relief of what may be called the "posterior parametritis syndrome." The basic pathology of this condition is a utero-sacral lymphangitis secondary to cervicitis, with diffuse inflammation, perineural sclerosis, and smooth muscle spasm. The prime resulting symptom is chronic low backache aggravated by walking, menstruation, and coitus, and examination reveals the tender, contracted cord-like ligaments.

**Results.**—The efficacy of the operation is controversial. Louros (1927) obtained 12 cures in 14 patients with posterior parametritis, Molin and Condamin (1929a) give no definite figures, but claim success in "the majority" of cases, and Freund (quoted by Cotte, 1929) in a review of the literature states that on the whole the results are satisfactory. Schockaert (quoted by Cotte, 1929), on the other hand, gave up the procedure after six attempts, in none of which was he successful in producing the slightest symptomatic benefit, while Molin and Condamin (1929b) have reported two cases of subsequent re-formation of the divided ligaments by a painful fibrous band, so that the patients were actually worse than before. Cotte (1929) reports similar failure in 12 cases. This discrepancy is probably due to variation in the depth and extent of the sympathectomy. The nerves are distributed over a fairly wide area within the utero sacral folds, and unless the dissection is thorough the majority will escape intact. Most surgeons are chary of this type of blind manoeuvre, and are inclined to limit it to the visible minimum, with the result that the actual neurectomy is a relatively small one. Individual anatomical variations also undoubtedly play a part. My own results in four cases have been disappointing, probably as a result of these factors.

In spite of these deficiencies, however, utero sacral resection retains some of the best features of the ideal sympathectomy, for it is an easy, minor, and relatively safe procedure. In carefully selected cases, and after preliminary procaine analgesia to test the ultimate result, its efficacy is undoubted, and if the dissection is kept well forward there should be little danger of inclusion of vesical or rectal filaments or of damage to the ureters and uterine arteries. Remote complications are rare for menstruation, pregnancy, and parturition are unaffected and as the ligaments appear to play little part in supporting the uterus (Segond 1926) prolapse is not a sequel. The operation therefore seems worthy of more extended trial.

### Utero-sacral Alcohol Injection

This is a good though temporary substitute for resection, and is indicated for the same conditions. It is also a useful adjuvant to pelvic plexus injection, catching any filaments that may have escaped the primary needle.

The technique is simple, and consists merely in the injection of 0.5 ml of absolute alcohol into the uterine end of each ligament, identified by strong anterior traction on the cervix. The alcohol must be placed superficially, to avoid involvement of the adjacent ureters, and medially, to escape the uterine vessels.

I have found this procedure particularly valuable in cases of painful utero-sacral spasm complicated by coitus interruptus. The dyspareunia disappears immediately and relief of the spasm allows of resolution of the contained subacute inflammation.

### Epidural Block

Epidural procaine analgesia, used extensively in obstetrics, has been employed with moderate success in cases of uterine carcinoma by Todd (1937) and, more recently, by Kenny (1947), the latter using a long-lasting preparation.

**Technique** (Kenny)—With the patient in the left lateral position the skin and deep tissues over the caudal opening of the sacral canal are infiltrated with 2% procaine. A stout 3-in (7.5-cm) needle is directed to the aperture at an angle of 45 degrees to the skin and the fibrous membrane covering it pierced, the needle is then depressed to an angle of 15 degrees and pushed steadily on until about 1 in (2.5 cm) of its length is lying freely movable within the canal. Then 50 ml of warmed procaine (a 1.5% solution of procaine in arachis oil) is very slowly injected, the procedure lasting about 10 minutes.

This method has the advantage of relative safety, but anatomical variation in the configuration of the sacral canal often makes the approach difficult and sometimes impossible. In addition the relief obtained is generally of short duration, though Kenny's results show that the prospects of more permanent amelioration are better when longer-acting analgesics are employed.

### Paravertebral Block

It has been shown experimentally by Cleland (1933) that the afferent sympathetic fibres from the uterus enter the cord through the 11th and 12th thoracic roots, and that section of the corresponding roots and their rami communicantes in dogs has no apparent adverse effect on parturition. Shumacker noted by chance that a patient with bilateral lumbar sympathectomy underwent an almost painless labour, and he and his colleagues (1943), Jarvis (1944), Cleland, and others have since produced a similar analgesia by procaine block of the sympathetic chain at the level of the first and second lumbar ganglia. (The method was originally described by Dellapiane and Badiano in 1927, and the credit of originality must be given to these workers, but unilateral block only was then advocated, with correspondingly incomplete effect.)

**Technique**—With the patient sitting up and bent forward a spinal needle is inserted at a point 5 cm lateral to the first lumbar spine. It is then inclined inwards towards the spine at an angle of 60 degrees to the skin and passed between the transverse processes of the first and second lumbar vertebrae until the vertebral body is touched. The depth of this point varies from 7 to 11 cm (Jarvis), but it is fairly easily identified. The needle is then straightened to an angle of 90 degrees to the skin and passed by the side of the body for a further 1.5 cm, 2.5 ml

of a 2% solution of procaine is injected into this area after aspiration and the whole procedure repeated on the other side. As a rule it is only necessary to block the second ganglion, but in cases presenting technical difficulty or in which analgesia is imperfect the third and fourth should also be done (Flothow, 1935).

The great disadvantage of this procedure is its impermanence, for the longest period of analgesia obtained is two hours. During labour it can, of course, be repeated and adequate relief provided, but for the generality of painful conditions this temporary analgesia is obviously useless. Its main indication would seem to lie in the determination of whether pain is of visceral origin or not. If the pain of dysmenorrhoea, pelvic neuralgia, or carcinoma is abolished by paravertebral analgesia it will very likely be permanently relieved by presacral neurectomy, if not, the operation is contraindicated.

Paravertebral alcohol injection in the same situation has been suggested by Pereira (1946) for the relief of neuralgia secondary to pelvic malignancy, but as yet no surgeon has been intrepid enough to attempt it. In quite hopeless cases, however, where the expectation of life is very short the method might well be worthy of trial.

### Cordotomy

Section of the lateral spino-thalamic tracts, one of the earliest neurosurgical procedures, is advocated by Shannon (1945) as the ideal operation for pain due to pelvic carcinoma. Complete and permanent relief is certainly ensured by this procedure, but, involving as it does a tedious laminectomy and delicate intraspinal manipulation, it is doubtful whether the operation is applicable to any but a very few cases.

### Conclusions

The initial enthusiasm with which most of the operations discussed above were greeted was bound to provoke a compensatory disappointment, particularly when it was found that pain of all types was not inevitably cured by sympathectomy. But the third phase of critical analysis has now been reached, and this leaves no doubt of the permanent value of these procedures. They are themselves easy of performance: the secret lies in careful case selection. Given this, and the equally careful application of the appropriate operation, the great majority of cases of pelvic pain can be adequately relieved in one way or another, and it is more than justifiable to give these patients the benefit of such relief. Too many women suffer from much unnecessary pain, and the results of sympathectomy are now good enough to warrant its more extended application.

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## PETHIDINE AND SCOPOLAMINE IN LABOUR

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Pethidine and scopolamine have been used for obstetric analgesia in the obstetric department of the Postgraduate Medical School of London during the past two years. Scopolamine was employed in addition to pethidine in order to secure a more certain analgesia than can be obtained with pethidine alone. The experience of others has demonstrated the safety of pethidine but at the same time it has become apparent that in a relatively high proportion of cases the analgesia induced by it alone may be inadequate (Barnes, 1947; Cripps, Hill, and Haultain, 1944; Gillen and Prescott 1944).

Our aim has been to provide rest and sleep during the latter and more painful part of the first stage of labour and to give relief during the second stage without impairing the patient's power of co-operation. There has been no hesitation in complementing the pethidine and scopolamine with gas and air or trilete inhalations if necessary during the second stage or during the actual delivery. There were 2,651 deliveries in the department from Oct 1 1946, to Dec 1 1947 and in 885 of these the mothers received pethidine and scopolamine. 500 of the latter group were personally observed and these form the material of this communication.

Except for five cases of toxemia of pregnancy, one patient with hydramnios and mitral stenosis and two cases of mild ante partum haemorrhage of undetermined origin, all the cases were normal. We do not regard pethidine and scopolamine as contraindicated in toxemia. In fact it is only in eclamptic cases that pethidine and scopolamine are not given because these need a more intensive sedation.

The 500 cases include four twin pregnancies and one set of triplets making 506 infants in all. There were 378 primiparae and 122 multiparae.

### Dosage

When the administration of pethidine and scopolamine was first introduced into this department the following rules were laid down for guidance: (1) Labour must be established before administration of analgesia. Uterine contractions must be of good amplitude and occur at regular intervals. (2) Dilatation of the os uteri must have reached at least three fingers in a primipara and two fingers in a multipara.

The first dose consists of pethidine, 100 mg, and scopolamine, 1/150 gr (0.43 mg), intramuscularly. A second similar dose is given one hour after the first but its administration must be judged according to the merits of each case and in relation to (a) the rate of dilatation of the os uteri, and (b) the degree of dilatation one hour after the first dose. If the os is rather more than three quarters dilated it is not advisable to give the dose unless pethidine alone is given.

Subsequent doses can be given at intervals of four to six hours; however, if possible scopolamine is not given within two hours (at least) of delivery, as it may promote some non-cooperation of the mother and some respiratory depression of the infant. The maximum dosage of scopolamine in this series was three doses each of 1/150 gr, and it was given over a period of 18 hours together with 400 mg of pethidine. The labour lasted 33 hours altogether. It has been found that the intervals between the doses are lengthened as time and labour go on, the amount and frequency varying with each patient. The maximum amount of pethidine used in a single case in this series was 500 mg, and this was given over a period of 30 hours together with two doses of scopolamine, each of 1/150 gr.

### Route of Administration

The drugs were generally given intramuscularly, but if the patient was suffering unduly and immediate relief was required the first dose was given intravenously, at least three minutes being taken over the injection. Subsequent doses were given intramuscularly. Schumann (1944) recommends intravenous administration if the patient is expected to be delivered in two hours. For three months pethidine has been administered intravenously at full dilatation of the os and also in the second stage up to within 10 minutes of delivery, without adverse effect on the foetus. The dose of 100 mg is diluted with either sterile distilled water or sterile normal saline to double its former volume and is given over a period of three minutes or more to avoid the subjective symptoms of nausea, vomiting and dizziness. This was used to show that women need not be deprived of adequate relief from pain although they might be well advanced in labour on admission to hospital, and this method was found to be very satisfactory. The patient is eased of her pain to a marked degree, and gas and air or gas and oxygen is given during the delivery if necessary.

Two years' continued use of pethidine and scopolamine as an analgesic during labour has shown that a large percentage of the cases require only the first dose or the first dose plus 100 mg of pethidine one hour later. An analysis of the dosage given to the 500 cases is shown in Table I. It will be seen that the majority of cases required only the smaller doses of pethidine and scopolamine; this is particularly noticeable in the multiparae although at least 13 primiparae who received pethidine 100 mg, and scopolamine, 1/150 gr, would have benefited from another dose of 100 mg of pethidine.

TABLE I—*Dosage*

Pethidine	Scopolamine	Primiparae	Multiparae
100 mg	1/150 gr	153	70
100	1/100 ,	77	33
200	1/150 ,	75	8
200	1/100	19	6
200	1/150 (twice)	26	5
300	1/150	12	
300	1/150 (twice)	6	
300	1/150 , (twice)	3	
400	1/150	2	
400	1/150 (twice)	3	
400	1/150 (thrice)	1	
500	1/150 (twice)	1	

**Degree of Analgesia Obtained**

The degree of analgesia obtained has been classified as follows

*Good*—This includes (a) complete relief from pain and complete amnesia (b) complete relief from pain and partial amnesia, and (c) almost complete relief from pain and no amnesia

*Satisfactory*—Here the pain was relieved to such an extent that although the patient could feel it to a mild degree her labour seemed easy

*Fair Only*—In this group the patient gained some relief, but not enough to make the labour easy. Frequently this was due to the fact that the patient had not received enough pethidine and scopolamine, these cases are mainly primiparae who had pethidine, 100 mg, and scopolamine, 1/150 gr, only, and occurred in our early trials

All the patients came under one of these headings, so that all of them obtained some relief (Table II). This classifica-

TABLE II—*Degree of Relief Obtained*

Relief Obtained	Primiparae	Multiparae
Good	306	105
Satisfactory	55	14
Fair only	16	2
Difficult to assess	1	1

tion of the degree of relief has been compiled from personal observations of the patients during labour and from their own opinion the next day when questioned. They were encouraged to describe the relief in their own way, and not to give answers to leading questions. The two cases under the heading "difficult to assess" are here described.

A 1-para aged 31 was hysterical on admission. She became settled for a few hours after an intramuscular injection of pethidine, 100 mg and scopolamine, 1/150 gr, but at full dilatation of the os she became unmanageable again and a forceps delivery was necessary.

A primigravida aged 33 was hysterical on admission. She slept after an intramuscular injection of pethidine, 100 mg, and scopolamine 1/150 gr. The pethidine was repeated with effect. However she became very uncooperative on reaching the second stage of labour and forceps were applied because of this.

**Co-operation of the Patient during Labour**

The majority of the patients were co-operative, and even though a large proportion of them were sleepy in the second stage they would "push down" when encouraged. However, it was noticed that patients allowed to lie quietly on their side would push down automatically when the second-stage pains occurred even though they were very sleepy, and labour proceeded without any encouragement from the midwife.

An analysis of the varying degrees of co-operation in the 500 cases showed that 466 patients were co-operative, 27 fairly co-operative, and 7 non-cooperative.

Of the 27 fairly co-operative patients nine became non-cooperative and tired in the second stage where mechanical difficulties impeded the advance of the head and all ended

as forceps deliveries, one was a primipara breech delivery, 16 would have been more co-operative if more pethidine had been given to increase the degree of analgesia, and one had had three 1/150-gr doses of scopolamine, which is regarded as a large amount, and she was completely disorientated.

The 7 non-cooperative patients were as follows. One was a Russian who did not speak English. The foetal head was held back by a rigid perineum. When questioned the next day she did not remember anything of her labour. One had a reaction to scopolamine although only two 1/150-gr doses were given. Two were hysterical on admission, and have been described. Three had a reaction to scopolamine after only one dose of 1/150 gr. They had complete amnesia.

*The Excitement Factor in Scopolamine Administration*—It has been explained that four cases were non-cooperative during labour owing to the administration of scopolamine. In these cases the dosage was comparatively small. Three other patients were completely disorientated during the first stage of labour and tended to wander about the labour ward, but they were quite amenable to treatment and have been grouped under the heading of "fairly co-operative" in the second stage. It has seemed to me that the patients who became excitable after the administration of scopolamine were those who had a naturally excitable nature. Therefore the scopolamine is given according to the temperament of the patient and her reaction to the first dose. Complete amnesia is not the object of good analgesia, in fact, it is best if the mother can remember the major part of the labour. The most satisfactory result is where she realizes what is happening but does not feel the pain. Scopolamine is given only to increase the effect of the pethidine and not to produce the marked amnesia of the old twilight sleep.

**Condition of the Infants at Birth**

Since the introduction of pethidine and scopolamine into the obstetric department of this hospital there has not been an increase in the foetal mortality, and in cases of foetal morbidity the cause could not be attributed to the analgesia given during labour. Among the 506 infants there were three foetal deaths and 37 cases of foetal asphyxia.

*Foetal Deaths*—There were two stillbirths and one neonatal death. One stillbirth, the second of twins, had a very rapid delivery, breech presentation, the first twin was in good condition. The other stillbirth was involved in a long second stage (3 hours 20 minutes) and the cord was tightly round its neck. The mother had had 400 mg of pethidine and two 1/150 gr doses of scopolamine over a period of 20 hours. The last dose of pethidine was given 3 hours 35 minutes before delivery. The neonatal death occurred in a premature infant of 34 weeks, it was very feeble at birth and lived only 11 hours.

*Foetal Asphyxia*—There were three cases of "white asphyxia" and 34 cases of "blue asphyxia". The cases of "white asphyxia" were as follows: (1) The mother was the Russian referred to above. Pethidine 200 mg, and scopolamine, 1/150 gr, was given. (2) There was a show of meconium-stained liquor in the early stage of labour although the foetal heart was satisfactory until the end of the second stage. (3) This case was due to a very rigid perineum. All three recovered in a few hours. The "blue asphyxia" babies were quiet at birth and rather slow to breathe, or respiration was impeded by the presence of mucus in the air passages. Thus any baby who did not breathe and cry spontaneously at birth has been included in this group. They all recovered completely within 10 minutes. The probable causes of the asphyxia were as follows: prematurity, 4, cord round the neck several times, 4, rigid perineum, 2, forceps delivery for some mechanical obstruction, 11, triplets, 1, and mucus in the air passages in considerable quantities 10. The maternal mortality was nil. However, some patients suffered from either all or some of the

subjective symptoms which occur after the administration of pethidine—i.e. nausea, vomiting and dizziness—but the proportion was very small. There were no other reactions suggesting idiosyncrasy to pethidine.

### Effect on Length of First and Second Stages

Comparisons have been made between the length of the first and second stages of normal cases receiving pethidine and scopolamine analgesia and similar patients having only gas and air or trilene inhalations. They have been classified

TABLE III—Duration of Labour

Date		No.	Mean Hours	Difference Between Means	S.D. of Diff. Between Means	t
<i>Primiparae First Stage</i>						
1944-5	Gas etc.	816	15.99	3.04	0.57	5.33†
1946-7	Gas etc.	563	12.95			
1946-7	Pethidine and scopolamine	619	16.08	3.13	0.54	5.80†
<i>Primiparae Second Stage</i>						
1944-5	Gas etc.	816	1.005	0.016	0.040	—*
1946-7	Gas etc.	563	0.989			
1946-7	Pethidine and scopolamine	619	1.109	0.120	0.044	2.73†
<i>Multiparae First Stage</i>						
1944-5	Gas etc.	946	9.17	1.29	0.31	4.16†
1946-7	Gas etc.	737	7.88			
1946-7	Pethidine and scopolamine	199	11.06	3.18	0.54	5.89†
<i>Multiparae Second Stage</i>						
1944-5	Gas etc.	946	0.323	0.012	0.105	—*
1946-7	Gas etc.	737	0.335			
1946-7	Pethidine and scopolamine	199	0.381	0.046	0.024	1.92*

\* Not significant † Significant at 1% level

as follows: (1) All cases receiving pethidine and scopolamine between Oct 1, 1946, and Dec 1, 1947. (2) Patients having gas-and-air or trilene inhalations only during the same period of time. (3) Patients receiving gas-and-air or chloroform, using the Young Simpson inhaler, between Oct 1, 1944, and Dec 1, 1945, during this time pethidine and scopolamine were not used in the department. Each group has been divided into primiparae and multiparae. The results are shown in Table III.

The four groups of patients seem to follow much the same pattern, and will be considered together. The significant difference between the mean of 1946-7 patients receiving gas, etc., and that of the 1946-7 patients receiving pethidine and scopolamine seems at first to show that the latter combination lengthens labour. But the difference between the mean of 1944-5 patients receiving gas, etc., and that of 1946-7 patients receiving gas, etc., suggests that in fact the 1946-7 patients receiving gas include an unduly large proportion of short labours. Hence the pethidine and scopolamine group contains a correspondingly increased proportion of cases of long labour. When the 1944-5 patients are compared with the combined 1946-7 patients, it appears that the combined mean labour time of the latter would be less than that of the former. Thus there is a suggestion that pethidine and scopolamine in fact have the effect of *shortening* labour, if anything. To prove this an experiment designed to show up this effect on its own would be required.

The length of the third stage in the 500 deliveries has been grouped and is shown in the form of a graph (Fig. 1). The incidence of post partum haemorrhage was 15, two

following forceps deliveries, and there were three retained placentas requiring manual removal.

### Other Effects

**Effect on Uterine Contractions**—In order to investigate the effect of pethidine and scopolamine on the frequency and amplitude of uterine contractions recordings were made on a kymograph with the aid of an abdominal

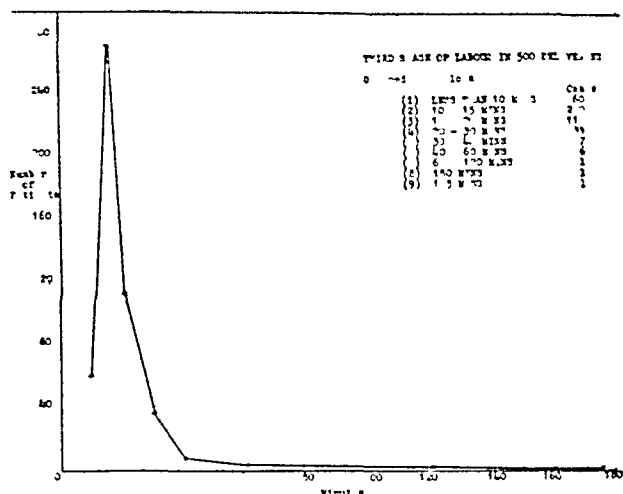


FIG. 1—Showing the duration of the third stage of labour in 500 cases.

tambour. The abdominal method was used in preference to the intrauterine in order to avoid any false stimulus to the uterus. In some cases the recordings showed a lengthening of the time interval between the first two or three contractions after the injection of pethidine and scopolamine, but there did not seem to be any alteration of rhythm or amplitude. The patient became quieter and

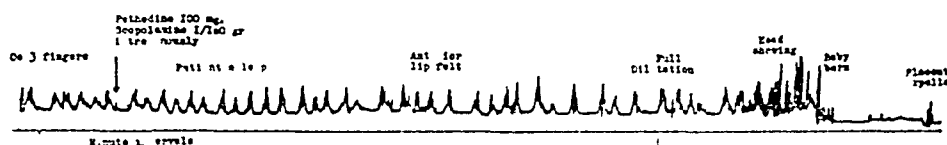


FIG. 2—Showing the uterine contractions during the first, second, and third stages of labour in a primipara. The relief obtained after the injection of the pethidine and scopolamine was good, the patient was co-operative in the second stage, and the baby was in good condition at birth. The third stage was normal.

slept after the injection, so there were fewer extrauterine excursions recorded on the drum and the picture presented a smoother appearance. When a recording was being made the majority of the initial doses were given intravenously in order to produce the maximum effect in a short time. Figs 2 and 3 are typical of the results obtained from 35 patients.

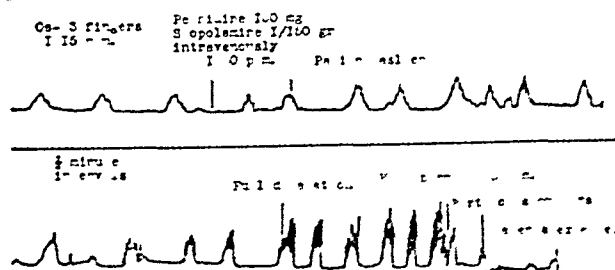


FIG. 3—Showing the uterine contractions of the first, second, and third stages in a multipara. The patient co-operated well, the baby cried before the shoulders were born, the placenta was expelled satisfactorily, and effective analgesia was obtained.

**Blood-Pressure Changes**—In a number of cases blood-pressure readings were taken at intervals of one and two minutes before, during, and after the administration of pethidine and scopolamine, some patients being given intravenous injections and some intramuscular. These records show a short elevation varying between 5 and 30 mm Hg in the systolic and a smaller rise in the diastolic pressure. After 10 minutes the blood pressure returned either to normal or to a slightly lower level (Fig 4). Hori and Gold (1944)

delivery were obstetric causes, 19, maternal distress, 3—2 were hysterical and 1 was of pre-eclamptic toxæmia, and foetal distress, 1—on delivery it was found to be a deep transverse arrest and a lateral placenta prævia. Meconium-stained liquor was the first indication of foetal distress. In none of these cases could the application of forceps be said to be due to the analgesia.

### Conclusions

Observations made on the analgesic effects of pethidine and scopolamine during labour have shown that this method is very effective in relieving the pains of childbirth. Provided that labour is established and the dosage is given according to the stage and the rate of progress of the labour no untoward results occur. The addition of scopolamine increases the effect of the pethidine, and its usefulness far outweighs the very occasional excitement which may occur. If the dose of scopolamine is small, co-operation can be elicited from most patients in the second stage with a little encouragement from the midwives. The fact that the midwives working in the labour ward in this hospital have been and are most enthusiastic about the administration of pethidine and scopolamine during labour shows that their work has not been complicated by uncooperative patients and asphyxiated babies.

The results from both the maternal and the foetal aspects are gratifying, and a large number of women have expressed their delight at childbirth being made so pleasant. It is important to emphasize that the amount of pethidine and scopolamine given should be the minimum that will afford effective relief, and each patient is judged according to her reaction to the first dose. Encouraging words and an explanation of what is being done go a long way towards making the analgesia a success.

### Summary

A series of 500 cases receiving pethidine and scopolamine during labour have been observed. The degree of relief obtained was good in 82.2%, satisfactory in 13.8%, and fair only in 3.6%. Two patients were difficult to assess. The results do not show any increase in either maternal or foetal mortality rates, and the incidence of post-partum hæmorrhage is not raised.

I would like to express my gratitude to Professor James Young for permission to publish these cases and for the advice and encouragement he has always given. I am indebted to my assistant, Sister K. Krue, midwife analgesist to the department, whose conscientious and loyal help has made this investigation possible, and to the nursing staff of the labour ward, who have shown themselves anxious to relieve the pain of childbirth. My thanks are due to Dr. Wootton, of the Department of Biochemistry, for help and advice with statistics.

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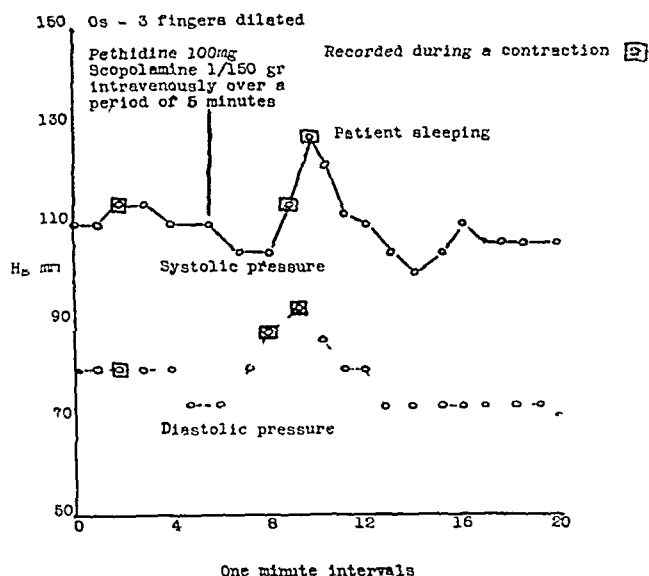


FIG 4—Typical graph showing blood pressure changes on intravenous administration of pethidine and scopolamine during labour.

found that pethidine and scopolamine caused a fall of 40 mm Hg in the systolic pressure and an acceleration of the pulse rate when given intravenously. Perhaps these occur with rapid intravenous injection, as such fall in blood pressure and rise in pulse rate are common to any form of rapid intravenous assault.

**Respiratory Changes**—According to Batterman and Mulholland (1943) respiratory depression is rare in patients treated with ordinary doses of pethidine. In the present series no maternal respiratory depression was noticed and Fig 5 shows the respiratory excursions of a

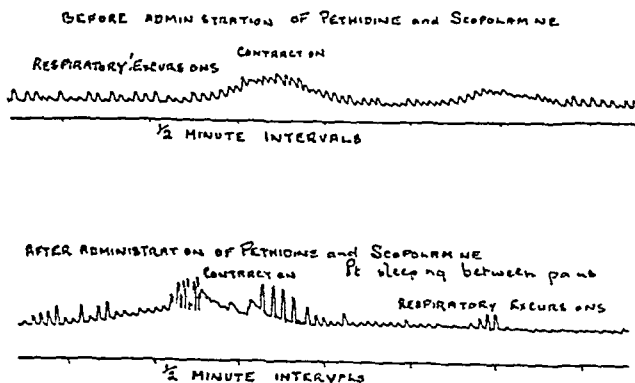


FIG 5—Showing the respiratory excursions before and after administration of pethidine and scopolamine. When the patient was sleeping the abdominal respiratory movements were quieter but she showed no signs of respiratory depression.

patient who had received pethidine and scopolamine. These are typical of the results obtained.

**Incidence of Forceps Deliveries**—In the 500 cases there were 23 forceps deliveries. The reasons for instrumental

The International Hospital Federation has invited Capt J. E. Stone, consultant on hospital administration and finance to King Edward's Hospital Fund for London, to become honorary secretary and treasurer, and the Fund has agreed. The Federation's secretariat will be established temporarily in the Fund's offices at 10, Old Drury, London, E.C.2. The Federation is an international organization established to collect national literature on hospital work and hold congresses, set up commissions, and publish reports in order to improve hospital development and administration. The first international hospital congress will be held in Holland in June, 1949.



## COELIAC DISEASE\*

BY

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Few conditions in childhood have maintained their challenge more persistently than has coeliac disease. A satisfactory explanation of the fault that underlies this malady has yet to be made, the course is long, usually extending over years, treatment is apt to be a prolonged trial to all concerned, and the eventual outcome is by no means invariably satisfactory, for, apart from a mortality rate of roughly 10%, in those who survive some permanent dwarfing of height may be a legacy, and in a few cases steatorrhoea may continue into adult life.

## Coeliac Syndrome

Coeliac disease is not the only cause of steatorrhoea in young children. Occasionally if tuberculous infection of the mesenteric glands is sufficiently widespread mechanical interference with fat absorption may lead to steatorrhoea the stools closely resembling those of coeliac disease, and in addition there is likely to be both wasting and some degree of abdominal distension. The history, the presence of palpable gland masses in the abdomen, the response to tuberculin skin tests, and perhaps the evidence of calcification in the mesenteric glands in the x-ray film will, however, facilitate the differential diagnosis.

Steatorrhoea with diarrhoea and some abdominal distension may also be associated with infection by *Lambia intestinalis*. The degree of wasting never reaches that of severe coeliac disease, and examination of the stools for *Lambia* cysts will distinguish the two conditions. There is also a group of children who exhibit steatorrhoea as an accompaniment to severe and prolonged infection, and in such the character of the stools and the degree of wasting may simulate coeliac disease. As a rule, however, a reduction in dietary fat quickly checks the steatorrhoea, and when once the chronic infective stage is passed the fat in the diet can be restored within a few weeks.

Lastly, the clinical state that results from fibrocystic disease of the pancreas mimics very closely that of coeliac disease, for steatorrhoea, severe malnutrition, and abdominal distension are common to both, yet the two conditions are in fact unrelated, and on clinical grounds alone it is usually possible to distinguish them.

The several conditions enumerated above share in common the symptoms of fatty stools, wasting, and abdominal distension, and it has become fashionable in paediatric parlance and literature to speak of young children who exhibit them as suffering from the "coeliac syndrome". This implies that coeliac disease is not a separate clinical entity but a state compounded of a group of symptoms which can be broken down into various causes. It can, however, be contended that by clinical investigation and laboratory aids it is possible to separate the other causes and to leave a residue of children whose illness conforms to the original clinical concept of coeliac disease. Although it must be confessed that coeliac disease remains an idiopathic condition, the retention of the name is advantageous if only to avoid confusion with other causes of steatorrhoea in young children—a confusion which the term "coeliac syndrome" encourages.

## Fibrocystic Disease of the Pancreas

This is the illness most easily confounded with coeliac disease, and the two conditions may therefore be contrasted. The identification of pancreatic fibrosis may be said to date from 1938, when Andersen reviewed the literature and collected a group of 49 cases. Since then the disease has become widely recognized and the literature on the subject has rapidly expanded.

In contrast to coeliac disease, pancreatic fibrosis has a definite tendency to affect more than one member of a family, indeed, a familial incidence occurs in roughly a quarter of the cases. It is rare for coeliac disease to do this, and for more than one child of a family to be affected must be regarded as probably fortuitous. The age of onset is notably different, for, while coeliac children develop normally for several months up to a year or more after birth, those with pancreatic fibrosis present symptoms from birth, and the underlying pathological process probably originates in most cases during intrauterine life. The effect of the disease is to reduce, often to vanishing point, the external secretion of the pancreas, and when this occurs before birth the meconium may be of such stiff consistency as to give rise to symptoms of intestinal obstruction within a few days of birth, often with fatal results. The name "meconium ileus" aptly describes this state of affairs. Among the 49 cases of pancreatic fibrosis collected by Andersen there were two instances of meconium ileus, the first having been described by Landsteiner in 1905. In addition, two infants showed intestinal atresia.

Another point of contrast lies in the state of the appetite. Coeliac children have a notoriously fickle appetite, but infants with pancreatic fibrosis have a good, even voracious appetite, although in spite of this they persistently fail to thrive, and by the time they reach the age of 1 year may be several pounds below their expected weight.

Malnutrition and abdominal distension are notable features in the pancreatic group, becoming apparent within a few months of birth, while the stools tend to be large, loose, pale, and decidedly offensive. These symptoms also characterize coeliac disease, and it can be readily understood that if a child with pancreatic fibrosis is not seen until the age of 1 year or more these features may at first lead to confusion with coeliac disease, although a careful history should suggest the correct diagnosis. A small point, but of some help to those with experience of both conditions, is that the odour of the stools in pancreatic fibrosis is even more repellent than that of the coeliac stool, probably by virtue of the fact that while both stools contain an excess of fat and starch the pancreatic stool also contains unabsorbed and decomposed dietary protein.

In both conditions a barium meal shows a loss of the normal feathery pattern of the small intestine, which is replaced by a clumping of the barium into separate masses of varying size. The rate of passage of the barium to the caecum tends to be accelerated.

## Pulmonary Complications

There is, however, a further point of contrast between coeliac disease and pancreatic fibrosis, for in the latter condition sooner or later, and often within a few months of birth, chronic pulmonary suppuration develops. There may be a history of one or more attacks of bronchopneumonia in infancy from which recovery has been all too tardy, in others the lung infection develops without a definite history of acute illness, but eventually the clinical picture is that of bronchiectasis, with production of purulent sputum, breathlessness, cyanosis, and perhaps finger-clubbing. Once this state has developed, the previously

\*Read in opening a discussion in the Section of Radiology at the Annual Meeting of the British Medical Association, Cambridge, 1948.

good appetite is likely to be lost, treatment of the lung condition is thoroughly unsatisfactory, and the state of the child steadily deteriorates until in a matter of months or a few years the disease in the chest kills the patient

Various reasons have been put forward to account for the proclivity to pulmonary complications. These infants have a flat vitamin-A absorption curve, and lack of this vitamin has been supposed to contribute to the liability to respiratory infection but coeliac children also have a flat vitamin-A absorption curve (May *et al.*, 1942), which in both conditions is ascribed to failure to absorb fat, and yet gross lung disease is not particularly encountered in the coeliac child. It is more probable that the respiratory troubles of the child with pancreatic fibrosis are in the main due to congenital cystic disease of the lungs, the lesions in lung and pancreas being due to a common foetal pathology

Respiratory infection is so prominent in children with pancreatic fibrosis that it seems probable that, prior to Andersen's article in 1938, children with this condition were regarded as suffering primarily from bronchiectasis or chronic lung infection rather than that they were confused with cases of coeliac disease

### Laboratory Findings

In addition to the clinical distinction between the two diseases, laboratory investigation also reveals decisive differences. Thus Farber *et al.* (1943), in 150 analyses of the pancreatic enzymes obtained from the duodenal contents of infants and children, showed that trypsin, lipase, and amylase were produced in normal amounts by coeliac children but were either absent or very much reduced in children with pancreatic fibrosis. Herein lies an important method of differentiation. As regards lipase, the technical difficulties in its estimation and the wide range of values obtained from control cases prevent the assay of this enzyme from being used for the routine confirmation of the diagnosis of pancreatic fibrosis. As to amylase, its very low production by infants under 6 months of age and the fact that amylase from the saliva may be recovered from the duodenum, particularly when gastric hypochlorhydria is present as often happens in coeliac children, make the evaluation of this enzyme unsuitable as a diagnostic aid. The presence of trypsin is however, easy to estimate by its digestive effect on a standard solution of gelatin and at the present time lack of trypsin in the duodenal juice is the criterion upon which a diagnosis of pancreatic fibrosis is acceptable

Further evidence of failure to digest protein has been furnished by West *et al.* (1946), who showed that there is a normal blood amino-nitrogen curve following ingestion of such proteins as casein and gelatin. Infants with coeliac disease have a normal curve, those with pancreatic fibrosis have a flat curve after ingestion of either casein or gelatin, although the curve is normal after ingestion of casein hydrolysate, and a combination of pancreatin with casein tends to restore the curve towards normal

The advantage of pancreatin in the treatment of pancreatic fibrosis was also pointed out by Shohl *et al.* (1943), who showed that this preparation tended to lower the nitrogen content of the stools but considered that it did not benefit fat digestion, although Andersen (1945) contended that it reduced both the total faecal excretion and the amount of faecal fat. She regards an optimum diet for children with this disorder to be one in which protein provides 25% of the calories, the fat content is low, and carbohydrate is given mainly as sugar, with small amounts of starch for older children. There is clearly an advantage in making casein hydrolysate a regular feature of the diet

and even in infancy not less than 60 gr (4 g) of pancreatin (enteric-coated) should be given daily with the meals

Apart from dietetic management, treatment of pancreatic fibrosis has also to contend with infection in the lungs. This complication affects the prognosis so adversely that every attempt must be made to prevent its occurrence. Good hygienic surroundings and the avoidance so far as possible of droplet infections are obvious measures. It is as yet too soon to assess the prophylactic value of oral penicillin

### Clinical Manifestations of Coeliac Disease

These are too well known to require reiteration, but a review will be given of some commonly held views in the light of recent investigations. Of the many excellent and authoritative clinical descriptions tribute must be paid to Gee's original article in 1888 on the coeliac affection, to Still's Lumleian Lectures delivered in 1918, and to Parsons's Rachford Memorial Lectures of 1932. Still drew attention to the small size of the liver as a common characteristic, and although later authors seldom refer to this feature it is a clinical detail of some diagnostic value owing to its constancy

Parsons completely summarized our knowledge of coeliac disease up to 1932, and at that date the condition was generally regarded as a well-defined entity. The onset is usually between 6 and 18 months of age (see Chart), and

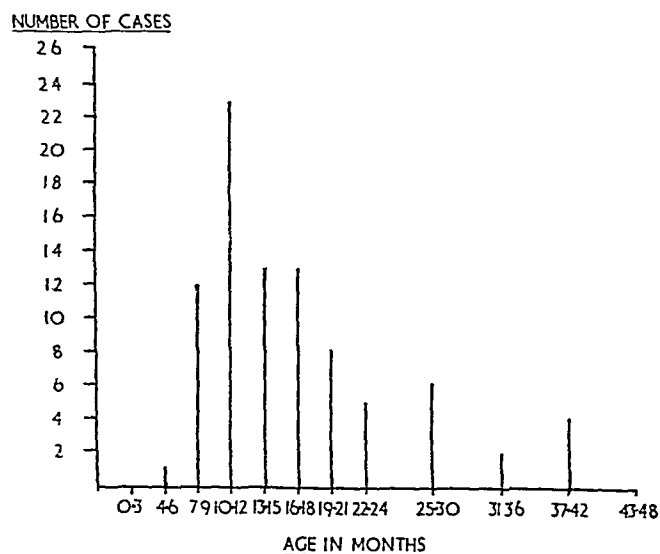


Chart showing age of onset in 87 cases of coeliac disease

the clinical picture is characterized by a group of symptoms the most prominent of which consist of severe wasting, a striking degree of abdominal distension, and the passage of large, unformed, pale offensive motions containing an excessive quantity of fat, mostly in the form of fatty acids and soaps

Although it has for long been generally appreciated that starchy foods are badly borne, and indeed Howland in 1921 regarded a failure to manage carbohydrate as the primary trouble, the view that failure to absorb the products of digestion of fat is the principal fault in coeliac disease, other digestive and absorptive errors being of a secondary nature has for many years had popular support. This view has largely dictated the lines of treatment, of which the first principle has been a severe curtailment of dietary fat. The effect of this has been to diminish the amount of fat excreted in the stools, and the maintenance of a low faecal-fat excretion has been regarded as advantageous. A reduction of starchy food has also proved to be necessary in order to avoid troublesome diarrhoea

Consequently the dietetic management of coeliac disease has consisted of giving in the first place an almost purely protein diet, followed by the cautious addition of starch—a stage usually difficult to establish because of the liability to diarrhoea. The final stage has been the reintroduction of fat. These stages have always taken months, and sometimes even years, to attain. Throughout treatment the addition of vitamin concentrates has largely abolished the development of deficiency complications, which were at one time a common feature of coeliac disease.

### Aetiology

The view that coeliac disease itself, apart from its complications, might be in part a deficiency disorder, has been put forward by May *et al* (1942), who claimed that the intramuscular administration of crude liver and vitamin B restored the vitamin-A curve to normal and improved the glucose-absorption curve. These substances were much less effective by mouth, suggesting that their absorption from the intestine was defective. In this country Paterson *et al* (1944) reported favourably on this method of treatment, but others have been less successful, and as daily intramuscular injections are undoubtedly irksome to the children this form of therapy has not gained popularity.

There are certain points in the history of coeliac disease which should be borne in mind when seeking for an adequate aetiology. For example, it has already been pointed out that in the early months of life, before the illness develops, the infants thrive satisfactorily on a diet of either breast milk or cows' milk, and clearly at that stage the digestion and absorption of the various elements of milk present no difficulty. As there is no starch in milk, amylase is not required by the young infant, but both trypsin and lipase must be present. If failure to utilize fat is eventually to appear, there is no hint of this in the early months, nor does the history of the feeding of coeliac children in early infancy depart in any respect from the routine methods applied to infants in general.

The age of onset of coeliac disease in most cases coincides roughly with the stage when the diet is expanding from milk to mixed feeding. This means the introduction into the diet of new types of protein and fresh forms of animal and vegetable fat, but the greatest change at this age is the addition to the diet of starch in rapidly increasing amount. In this connexion it is of interest that analyses of duodenal juice (Farber *et al* 1943, Andersen, 1945) have shown that while trypsin and lipase are present from birth the amount of amylase is negligible in the first three months, but then gradually rises to reach a maximum at about the age of 3 years.

### Fat Intake

The view that coeliac children fail to absorb fat is based upon the excretion of excessive amounts of fat in the stools, and the flat vitamin-A absorption curve has been regarded as corroborative evidence of this view. It is, however, open to argument whether the results of faecal-fat analyses justify a sharp reduction of the dietary fat. Fat balances show that in health at least 90 to 95% of dietary fat is absorbed, and at the same time stool analyses in healthy infants and children show that fat accounts for from one-quarter to one-third of the dried stool. Even if the amount of faecal fat were doubled (as often occurs in coeliac disease) it would still be possible for at least three-quarters of the ingested fat to be absorbed, therefore, unless it can be shown that the steatorrhoea of the coeliac child is harmful and must at all costs be reduced, it would seem illogical to deny them fat in their diet.

The striking degree of abdominal distension in the coeliac child can hardly be due to the high faecal-fat excretion, for

in young infants fed on a diet containing more fat than they can tolerate gross abdominal distension is not a clinical feature, nor does it accompany the steatorrhoea associated with liver damage in older children. The distension may be due to some extent to loss of muscle tone, but in the main results from excessive fermentation of carbohydrate, and the diarrhoea to which these children are so notoriously prone is due to carbohydrate fermentation rather than to steatorrhoea.

For the above reasons, while accepting the fact that coeliac children pass an excessive amount of fat in their stools, the view that fat in their diet should be severely reduced is difficult to maintain, indeed, the evidence would suggest that attention ought to be directed primarily towards their difficulty with starches. This attitude has been developed by Andersen (1947), who considers that the steatorrhoea of coeliac children is not part of the basic process but that the long-recognized clinical intolerance towards starch is of primary importance. She contends that the production of pancreatic amylase is deficient, that feeding of starch leads to excessive excretion of faecal starch in extracellular form, and that a good clinical response follows the elimination of starch from the diet, which should otherwise contain a normal proportion of fat and a relatively high amount of protein. In passing, it is of interest to note that Gee, in his original description, recommended giving good fresh butter and even advised a trial of cream.

The whole question of fat absorption in coeliac children has become further complicated by the new views on the physiology of fat absorption put forward by Frazer (1943). He regards as untenable the older view that all fat requires breaking down to fatty acids and glycerol before being absorbed into the intestinal cell, where it is resynthesized before passing into the lacteal system. He has demonstrated that a proportion of the dietary fat is finely emulsified in the upper intestine and is absorbed as fat particles into the lacteals, then passing via the thoracic duct to the various fat depots in the body, the proportion of dietary fat which escapes this process is digested to fatty acids and glycerol, these substances being absorbed into the portal system and passing to the liver.

If Frazer's views are accepted, it remains to determine which system of fat absorption is at fault in coeliac children or whether both are defective. In any case, for the reasons given above, the estimation of total faecal fat and its division into split and unsplit proportions loses much of its significance as a guide to treatment, although it may retain some diagnostic importance. Clearly a knowledge of the amount of dietary fat which a coeliac child absorbs is of far greater value than estimations merely of faecal-fat excretion, but for this information fat balances must be carried out. As a guide to treatment these should replace the customary estimations of faecal fat.

Mention must also be made of the flat oral-glucose absorption curve which is so characteristic of coeliac disease. Intravenous glucose given to coeliac children is metabolized at a normal rate and the flat oral curve is generally taken to indicate difficulty in the absorption of glucose from the intestine. This view has been attacked by Emery (1947). He has shown that, while in coeliac children the fall in blood sugar induced by insulin follows the usual pattern, the subsequent return to a normal level fails to materialize, although it can be restored by giving glucose orally. The effect of adrenaline on the blood-sugar level gives a smaller and slower response in coeliac children than in normal controls, although if glucose is given by mouth at the same time as the injection of adrenaline a normal response ensues. For these reasons he argues that coeliac children absorb glucose normally and utilize it

normally, he explains the flat oral-glucose curve as being due to lack of available glycogen in the body, with the result that oral glucose is utilized by the liver as fast as it enters the portal system

### Summary

It is contended that coeliac disease maintains to day its position as a clinical entity, and can be distinguished from fibro-cystic disease of the pancreas and from the other causes of steatorrhoea in childhood. To group all these conditions under the term "coeliac syndrome" is confusing. The facts regarding excessive faecal-fat excretion and the flat oral-glucose absorption curve in coeliac children are not disputed, but their significance requires reconsideration.

The view that coeliac disease is due to a defect in the absorption mechanism of the intestine does not as yet rest on a sure foundation. It may still remain to identify the varying clinical conditions that result from a failure to produce any one of the several enzymes required for complete digestion.

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## A STUDY OF BREAST-FEEDING IN A MINING TOWN

BY

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This work is a study of the incidence of breast-feeding during the five war years, 1941-5, in Newbiggin-by-the-Sea, a small town on the coast of Northumberland, and continues a similar study of the babies born in 1940 (Hughes, 1942).

Many previous surveys of this problem have been weakened by the fact that they cover only part of the community. This is an attempt to study a whole community. Newbiggin lends itself to such an inquiry, as there is a very large attendance at the infant welfare clinic, so that a picture has been obtained of nearly 90% of the infant population. There was no social distinction at the welfare. The curate's wife and the doctor's daughter brought their babies as did the miners' wives and local "ne'er-do-weels".

### The Community Studied

Newbiggin-by-the-Sea—once a fishing village—is now a small town with a population of just over 9,000, mostly concerned in mining. The war did not hit the village very hard. There was frequent passage of enemy planes, and one stick of bombs was dropped (known locally as "Werblitz"). The population was temporarily swollen in 1943-4 by private evacuees from the South and in 1942 the call-up began to affect the fathers of the infant population. In 1941 62% of the fathers of the babies here recorded were miners and 11% were in the Forces, in 1942, 49% were

miners and 25% were in the Forces, and in 1945 the figures were 46% miners and 35% in the Forces.

There was no real poverty throughout the period studied, but the larger families were perhaps less well catered for than in other places, since there are no school meals in Newbiggin. The miners' canteen was not well patronized, so that in a large family the mother's nutrition was likely to suffer.

An increase in the number of hospital deliveries is very evident over these five years. In 1940 (Hughes, 1942) midwives delivered 77% of the babies, 11.5% were doctors' cases, and 11.5% were born in nursing-homes or hospitals. By 1943 the figures were 71% midwives cases and 25% hospital deliveries. In 1945 62% were midwives' cases, 5% doctors' cases, and 32% hospital deliveries. This change was mainly due to the difficulty of getting help in the home. Even so, it will be seen that the great majority of deliveries were by midwives.

### Present Investigation

The babies here studied are those born of Newbiggin parents in 1941-5 inclusive and continuing to live there till at least 6 months old. (This excludes the babies dying before the age of 6 months, evacuee babies born elsewhere, and babies whose mothers came to Newbiggin for the birth and moved soon afterwards.) Of the babies thus defined, 89.4% attended the clinic regularly enough over these five years for details to be recorded of their dates of weaning. The actual numbers are given in Table I. (The drop in 1943 is due to my illness and absence from work for several months.) The figures for 1940, previously published, are included for comparison.

TABLE I—Proportion of the Infant Population Studied in each Year

Year	No Born and Lived 6 Months	No Included in Records
1940	117	112 (95.4)
1941	114	105 (92.4)
1942	137	124 (90.2)
1943	116	98 (85.2)
1944	146	131 (90.2)
1945	100	90 (90.2)

The time of weaning is recorded in Table II, including also the 1940 figures. Figures of those completely breast-fed at 3 months are included. Comparison with the percentage weaned by 3 months will give the percentage who had their babies partly on the breast at this age.

TABLE II—The Incidence of Weaning

Year	No Recorded	Percentage Weaned by				Percentage Completely Breast-fed at 3 Months
		2 Weeks	1 Month	3 Months	6 Months	
1940	112	31		57		32
1941	105	32	40	67	81	30
1942	124	36	45	65	83	25
1943	98	25	34	47	80	30
1944	131	23	37	57	83	30
1945	90	27	40	59	83	24
1941-5	548	29	39.5	59	82	29

This is a very high and maintained proportion of early weanings, and exceeds any other published figures I have seen.

Among those weaned by 2 weeks there is the same proportion of first babies (47%) as among the whole number recorded. It is usually stated that babies delivered by midwives are breast-fed more successfully than babies born in hospital. Here, however, 32% of all the babies delivered by midwives and 20% of those delivered in hospital were weaned by 2 weeks.

## Reasons for Very Early Weaning

An attempt was made to assess the reasons for weaning before 2 weeks (162 cases, 29%). The mothers were not pressed for an explanation if they seemed unwilling, nor was there time for a detailed history of the failure of lactation. In some cases undoubtedly the full story was not given by the mother, as reference to her midwife afterwards showed. Table III gives the reasons as stated by the mothers. Some points about this table are of interest.

TABLE III—Reasons for Early Weaning

Illegitimacy	12
Mother's serious illness	12
Child's illness or abnormality	3
Mastitis or trouble with nipples	12
Fear of recurrence of illness (usually mastitis)	7
Difficulties with baby at breast	13
Worry	4
Mothers' refusal to breast feed	7
Domestic demands	13
Reason difficult to establish	79
Total	162

Of the 12 who weaned on account of mastitis or trouble with the nipples, eight were primigravidae. This seems important, as the fear of a repeated mastitis is a potent discouragement in attempting to feed a second child. When the baby had difficulties at the breast—e.g., sleepiness or fighting with the breast—breast-feeding was often given up after only three or four days of trial. Of the women who said they did not want to breast-feed four were primigravidae. Reasons given were, "Want to get about," "Too embarrassed," "Too old at 46." However, the most striking thing is that for nearly half the women who weaned by 2 weeks no reason was satisfactorily established.

It was felt that the views of the "people on the job"—i.e., the midwives—were important in studying this problem. There are three midwives working in Newbiggin. Two are employed by one nursing association, towards which the colliery subscribes. The elder of these midwives has been working for 22 years in Newbiggin and the patients "are able to tell her anything." She and her young assistant are quite sure that a large number of young mothers do not wish to breast-feed because it ties them, prevents them going to dances and the pictures, and may spoil their clothes. She thinks this began when the dried milk became cheap. She knows many cases where the young mother is quite open in her determination before the confinement not to feed her baby. In her experience trying to overrule this results only in a breast abscess, as the mother will resort to a bottle when the nurse is not there, and if hospital-confined will wean immediately on coming out of hospital. "They know breast-feeding is the right thing but they won't be tied."

The third midwife is employed by another nursing association and has perhaps a slightly different clientele from the other two. She was a highly trained hospital sister before coming on the district, and has been working here seven years. Although she thinks there is a large element of truth in the views just set out, she sees a social background to much of this early weaning. In her opinion early weaning is much more likely where the mother is living with her in-laws. In such cases there is little chance of privacy, the mother is embarrassed at exposing her breast before her mother-in-law (and possibly other members of the family). The sense of outraged modesty affects the baby, who begins to "winge" (whimper), and in a few minutes the mother-in-law will say, "That's not feeding the bairn, you'll want to get summat that'll satisfy it. Give it summat in a bottle."

She also points out that in these colliery houses where several men are working shifts there is nearly always a man in bed trying to sleep. The baby must be kept quiet. The baby, in a pram, is usually in the living-room, as these

houses generally open on to the pavement and have very small backyards. An older woman may encourage the mother to bottle-feed, as then there is "always a way of hushing the child if the mother is out." This midwife states also that it is "quite impossible" for fisherwives to feed their babies, as the custom is for them to start work on the nets directly they are out of bed.

On this question of the fisherwives, I am indebted to Dr. Stephenson, who has been in general practice in Newbiggin for many years, for the following information: "I fear that some of the young fisherwomen now wean early, but their mothers and grandmothers did not wean until 12 months. So far as I can remember, and from questions put to fisherwomen, these amazingly hard-working women brought up all their children on the breast. They baited at least one line a day (700 hooks), cooked the family meals, produced the children, fed them on the breast, helped to pull the boats up when the men came back with the fish about 11 a.m., helped to carry the fish up, baked the bread, did the washing and ironing, cleaned the house, bathed the children, went to bed about 9 p.m. and got up again about 4 a.m. to get the men ready for the morning's fishing. In the palmy days before the mine, when Newbiggin was a holiday resort, some of the fisherwomen even acted as wet-nurses for the delicate children of visitors."

## Comparison with Other Parts of the County

How does Newbiggin compare with other colliery districts? Are these early weanings as common in the rural areas of Northumberland? In order to throw light on these questions a survey was made of the health visitors' records in six areas in the county, covering all the children born in 1944 and 1945 (wherever they were born) and now living—i.e., aged 3 and 4 years—in these areas (620 cases). These records are comparable with each other, but not strictly comparable with the Newbiggin cases, which related to all babies who lived to 6 months.

The information sought was whether the baby was weaned before or after the age of 1 month. It was found, however, that in most districts only 70 to 80% of the cards could give this information, and it was not considered that this was an accurate picture. In one district, however—Allendale, a rural hilly area—96% of the cards had this information, and in one mining area—Shiremoor—with a population very similar to that of Newbiggin, 83% of the cards gave the desired information. These figures are given in Table IV.

TABLE IV—Comparison of Rural and Mining Areas (Health Visitors' Records) Northumberland

District	Total No Born 1944-5 now Living in District	No Weaned Before 1 Month	No Weaned After 1 Month	No of Incomplete Records
Allendale (rural)	92	20 (22%)	68 (74%)	4 (4%)
Shiremoor (mining)	138	51 (37%)	64 (46%)	24 (17%)

It is clear that these numbers of cases are too few to carry much weight, but it is highly suggestive that Shiremoor, with a mining population very like Newbiggin, has at least as great a proportion of early weanings, and that this is in great contrast to a rural district. It is interesting that in the Allendale district the health visitor reports that most young couples manage to have a place of their own and to avoid living with "in-laws." Not only does this mean privacy but it means that there is no older woman to keep house and give a bottle if the mother goes out. It is obvious that there is no statistical evidence here either to support or to refute this as a predisposing factor in early weaning, and that many other factors may be involved.

### Discussion

The large numbers of early weanings in Newbiggin contrast forcibly with other investigations on the subject. The Ministry of Health Report (1944) estimates that 95% of babies born in the district are wholly breast-fed when the midwife leaves. Finlay, quoted by Spence (1938), in a home-visit investigation of 3 000 cases in Edinburgh found that 87% of the babies were breast-fed at the 10th to 14th day. Robinson (1939), analysing 439 Liverpool welfare cases found that 86% were breast-fed at 2 weeks.

A report to the British Paediatric Association, 1942, on breast-feeding in Birmingham (with special reference to female labour) shows similar figures—e.g., in 1937, in 13% of 4,378 cases the children were not breast-fed at the first visit. Similar figures occur in 1941 and 1942. These investigations, however, do not cover whole populations but deal with selected groups.

Why, then, the Newbiggin figures? In the main work described here the data were collected by me from the mothers at the infant welfare centre. Nearly all the dates of weaning were noted within a few weeks of the occurrence and in the many cases of weaning by 2 weeks it was noted at the first attendance, usually at 3 to 4 weeks of age. This was done simply as an easy way of getting the facts as soon as possible. Later, however, I began to wonder if it were not a rather important point. In asking several mothers about the feeding of previous children two or three years back I was able to check their accuracy with the week-to-week records kept at the time, and the replies very often diverged from the recorded facts—i.e., the child would be said to be weaned at 3 months when it was actually 5 weeks. Indeed, my own figures for 1943 (see Table II) are open to this doubt, since illness prevented me from collecting some of the data as promptly as usual.

This experience raises a doubt about the accuracy of dates of weaning recorded in large-scale investigations relating to a year or two back. So long as breast-feeding is held to have the moral value referred to in the Ministry of Health Report, so long surely will mothers tend to give an "acceptable" reply when asked about the weaning of their children. Indeed, this moral atmosphere probably colours all replies on the subject. My experience of analysing health visitors' records suggests, too, that the first visit may be at a very variable time after the birth.

Attention has been directed by the work of Robinson (1943) and of Waller (1946) to the physiological mechanisms inherent in lactation. No attempt has been made in this work to assess the factor of overloading (Waller, 1943, 1946) in the early weaning, and it may exist in cases unsuspected even by experienced midwives.

Undoubtedly there seems here to be a large social element. Custom or fashion, overcrowding, lack of privacy and the presence of an older woman who will quite literally "hold the baby" are all possible contributory causes.

Do colliery districts in other parts of England present similar problems? Is overcrowding a factor elsewhere? Is the desire "not to be tied" an unexpressed but important cause? And is there support in other counties for the suggested difference here between mining and rural areas?

### Summary

The incidence of breast-feeding has been studied over five years in a mining town in Northumberland (548 cases forming 99.4% of the babies born and living there 6 months). It was found that 29% of these babies were weaned by 2 weeks and 70.5% by 1 month of age. These figures are supported by health visitors' records for 1944-5 in another mining area and contrast, as suggested with a rural area. Further investigation of these differences seems advisable.

The cause of the large number of early weanings is discussed.

I wish to thank Dr Stephenson, of Newbiggin, for the information quoted, and the health visitors and midwives for their ready help and co-operation. I also thank Dr Jamieson, county maternity and child welfare officer, for the interest she has shown, and Dr Tilley, county medical officer of health, for permission to publish this work.

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## SURGICAL SIGNIFICANCE OF AORTIC DISSECTING ANEURYSMS

### REPORT OF THREE PERSONAL CASES WITH TWO CORRECT ANTE-MORTEM DIAGNOSES

By

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The symptoms caused by aortic dissecting aneurysms occasionally suggest surgical abdominal disease. Although about half the sufferers from this condition succumb in less than 12 hours, it is not uncommon for death to be postponed for over a week, and recovery for a varying period, though infrequent, can occur. Hence a correct diagnosis, or, at the worst, recognition of the condition at operation, would be of great assistance from the point of view chiefly of prognosis and also in the event of any reasonably successful form of treatment being devised.

The condition has rarely been diagnosed ante mortem. Shennan (1934) could find records of only six such cases, although about eight others have been described since. It is possible that more frequent correct diagnoses could be made were the condition borne in mind, and it is felt that a brief summary of the pathology, symptoms, and physical signs, together with the details of three personal cases, would be of value.

### Pathology, Symptoms, and Physical Signs

**Pathology**—The condition probably arises from a tear in a diseased medial coat (Moriani, 1910), the immediate exciting factor being a temporary rise in blood pressure. Less commonly an atheromatous plaque may determine the site of rupture. Syphilis is rarely associated. The split is most commonly situated in the ascending aorta and occurs less often as the vessel is traced downwards. The dissection is rarely localized and sacular, but usually spreads for a variable distance downwards, and has been known to reach the popliteal arteries (Tessier, 1842). Proximal dissection, though usually slight, may be extensive. Death is usually caused by rupture, most commonly (70%) into the pericardium, but also into the mediastinum, pleural space, peritoneal cavity, or retroperitoneal tissues. The aneurysm may rupture back into the lumen of the vessel, although this course does not necessarily prevent rupture to the exterior. There is little relation between the site of the tear, the length of the dissection, and the time of survival.

**Symptoms and Signs**—The onset is rapid, and is often associated with physical or emotional strain. There may be a feeling of something suddenly giving way in the thorax, with a sensation of choking. Sudden pain may be felt in the thorax, abdomen, or back and it may be substernal, epigastric, or, characteristically, girdle in type. The pain is frequently intermittent, resembling colic, and may be accompanied by nausea or faintness. These attacks of pain



may last for a few hours, and relief is usually gradual. Intervals between attacks may be of hours, days, or even weeks. Attacks of pain probably coincide with extension of the dissection or external rupture. Dysphagia may be an early symptom, but vomiting, haemoptysis, and haemorrhage from the bowel are not common. The onset and subsequent attacks of pain are usually accompanied by a varying degree of collapse.

Other symptoms may be produced by involvement of branches of the aorta or pressure by the aneurysm on surrounding structures. Hence cerebral symptoms, disorders of sensation, gastro intestinal disorders, weakness, or paralysis may all occur (Moosberger, 1924). The pulse may show some irregularity and there may be a difference between the two sides. Absence or irregularity of the pulse on one side may be of temporary duration only. On the whole, little information is to be got from this examination. Similarly the heart rarely gives helpful physical signs. Left ventricular hypertrophy is usually but not invariably present.

In view of the severity of the symptoms, the abdominal signs are not striking. Slight tenderness and guarding, with perhaps some distension, may suggest abdominal disease. If the abdominal aorta is involved then the aneurysm may be palpable, abnormal pulsation may be present, or the clot arising after rupture may give a detectable mass.

**Diagnosis**—The picture is so variable that there are only a few common points which could be labelled as diagnostic criteria: (1) A sudden onset is invariable and usually occurs during conditions which could cause a temporary rise in the systolic blood pressure, (2) the pain is often intermittent, disappearing gradually, (3) abdominal pains are usually epigastric, radiating through to the back, or of the girdle type, (4) symptoms and signs may shift downwards in recurrent attacks, (5) there may be a palpable aneurysm or clot or abnormal pulsation, (6) there may be associated neurological or cerebral symptoms, and (7) thoracic symptoms may be anomalous—e.g., anginal with no history of previous attacks, or resembling those of a coronary thrombosis with a persistently high blood pressure.

### Case 1

A man aged 69 was admitted on Feb 20, 1944. During a fit of coughing on the day before admission he had a sudden attack of pain in the lower abdomen, left groin, and back, associated with nausea, faintness and numbness of the left leg. A left inguinal hernia, previously reducible, came down and he could not reduce it. The pain was severe at its onset but had since eased considerably. He had not vomited.

The patient was a well built man and appeared moderately shocked. The temperature was 97° F (36.1° C), pulse 85, respirations 25. The heart was enlarged to the left. The blood pressure was 110/60. The hernia was irreducible but did not appear to be the cause of his symptoms. The upper abdominal aorta was markedly enlarged, and there was slight tenderness to the left of the umbilicus. No definite mass could be felt. No neurological signs were elicited. Leaking dissecting aneurysm of the abdominal aorta was diagnosed. His general condition slowly deteriorated. Three days later his scrotum was discoloured and a vague mass could be felt in the left half of the abdomen extending into the left loin. He died next day.

Post-mortem examination disclosed a dissecting aneurysm involving the whole of the abdominal aorta, with rupture into the peritoneum and hernial sac and into the retroperitoneal tissues. The coronary arteries and aorta showed marked atheroma and the heart left ventricular hypertrophy.

### Case 2

A woman aged 48 was admitted on Nov 9 1945. She had a sudden onset of pain two days before admission while putting on her coat. It was in the left subcostal region and radiated

through to the back, and was stabbing in character. Next day she vomited several times.

The patient was a well built woman, rather collapsed. The temperature was 100° F (37.8° C), pulse 80, respirations 20. The heart was enlarged to the left. The blood pressure was 145/100 and later increased to 244/100. There was tenderness and guarding in the left subcostal region. Albumin was present in the urine. No definite diagnosis was made. The pain gradually diminished but three days after admission it recurred over the left chest posteriorly, and three days later this spread to the left lumbar region. The blood pressure was now 190/120. Her condition began to deteriorate, and nine days after admission she was semicomatose. She could just be roused, and complained only of dimness of vision. A pericardial friction rub now became audible and persisted for ten days, while her general condition did not alter much. Radio-graphs of her chest first showed any change 17 days after admission when both bases were obscured. Thirty days after admission she became pyrexial and showed signs of congestive cardiac failure, and she died six days later. Numerous investigations were done, with no results worth reporting.

Post-mortem examination showed a fibrinous pericarditis with a hypertrophied heart. The aorta was grossly atheromatous and a dissecting aneurysm started in the transverse aorta and re-entered the vessel 8 cm above the bifurcation. At the latter point there was a large thrombus in the inferior vena cava. The lungs were oedematous and the liver showed nutmeg changes.

### Case 3

A man aged 65 was admitted on Jan 31, 1946. Two hours before admission, while hurrying to work, he had a sudden onset of severe pain across the upper abdomen, and collapsed in the street. The pain persisted, with occasional acute exacerbations, and radiated through to the back. He had nausea but did not vomit. He was a well built man showing signs of collapse. The temperature was 97° F (36.1° C), pulse 66, respirations 22. The lungs were normal. The heart was enlarged to the left. The blood pressure was 200/140. There was tenderness in the epigastrium and left hypochondrium with slight guarding. His symptoms diminished over the next two days but then he began to get further severe attacks mostly at night lasting about two hours each. These were felt mainly in the epigastrium and radiated through to the back, and made him very restless. By the fifth day after admission his abdomen became rather distended, and as his bowels had not been opened, he was given two enemata. No result was obtained and a diagnosis of large-bowel obstruction was considered. However, a further enema produced a good result. The next day the case was thoroughly reviewed. The maximum abdominal tenderness was just to the left of the umbilicus and for the first time abnormal pulsation could be felt at this point. The blood pressure was 200/125 in both arms and there were no chest or neurological signs. His general condition was good.

The diagnosis of dissecting aortic aneurysm was then made on the following grounds: (1) sudden onset of pain during exertion, (2) site of the pain and its radiation through to the back, (3) signs of collapse on admission, (4) pulse rate (66) and blood pressure (200/140) excluding a coronary lesion, (5) the difficulty in diagnosing any abdominal disease, (6) the detection of abnormal pulsation to the left of the umbilicus, (7) the shifting downwards of the tenderness, and (8) the intermittency of the attacks of pain and their gradual disappearance. The patient later continued to have severe attacks of pain, partly controlled by morphine, and he died suddenly during an attack nine days after admission.

Post-mortem examination showed a dissecting aneurysm starting in a transverse slit 2 cm long in the posterior surface of the upper part of the descending thoracic aorta and extending to the bifurcation. There was moderate atheroma of the aorta and coronary arteries. A large clot of blood (1500 g) filled the posterior mediastinum and extended behind the left pleura.

### Comments

In Cases 1 and 3 the diagnosis could be made without much difficulty. The symptoms remained such that had a correct diagnosis not been made persistent search

for a surgical abdominal lesion might have resulted in a laparotomy. As it was, the prognosis given to the patients' relatives was rather more than guarded. Case 2 was obviously not a surgical case a week after admission. Being wise after the event, it seems strange that this case was not diagnosed, and reference to the case histories of other patients admitted to medical wards with the same condition suggests that correct diagnosis was not impossible.

### Summary

Patients with aortic dissecting aneurysms are sometimes admitted into surgical wards.

A brief summary is given of the pathology, symptoms, and signs of this condition.

Three case histories are given, in two of which a correct antemortem diagnosis was made.

It is suggested that a correct diagnosis could be made more often.

Free reference has been made to the excellent symposium on the subject by Shennan (1934).

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## LIQUOR PICIS CARBONIS (B.P.)

### A CARCINOGENIC AGENT

BY

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From our knowledge of occupational tumours in man and from results of animal experiments, coal-tar must be considered among the most potent carcinogens for skin epithelium. Possible dangers arising from its incorporation in therapeutic preparations for dermatological use cannot, therefore, be ignored.

In the early studies of experimental carcinogenesis several investigators (Sternberg, 1923, Lipschutz, 1924, Berghoff, 1928) examined a number of tar-containing therapeutic preparations in use on the Continent and found these to be carcinogenic for mouse's skin. The preparations tested were carbeneol (a solution of coal-tar in carbon tetrachloride), lithanthrol (a solution in ethyl chloride and ethanol), and carboterpin (a solution in a mixture of terpenes).

The corresponding preparation in use in this country is liquor picis carbonis (B.P.), which consists of a 20% solution of coal-tar in ethanol. In view of its wide use in dermatological practice an experimental investigation of its carcinogenic properties was thought desirable. (This was suggested by Dr J. R. Squire, of the MRC Industrial Medicine Research Unit, Birmingham Accident Hospital, and by Dr E. H. Capel, late medical officer to Joseph Lucas Ltd., Birmingham.)

### Carcinogenicity Tests on Mouse's Skin

Twelve white mice were painted twice weekly for 41 weeks with undiluted liquor picis carbonis (B.P.) on a small area of skin in the interscapular region. Papillomas appeared in the treated areas of skin in seven out of the 12 mice after the following intervals (counted from the beginning of applications): 10, 17, 18½, 25, 25½, 26, and 40 weeks, respectively. Thus the 50% tumour yield was

reached in 26 weeks, representing a carcinogenic potency (Berenblum, 1945a) of Grade VII. This potency is comparable to that of cholanthrene, and is higher than that of 1,2,5,6-dibenzanthracene.

Of the seven mice with tumours, four subsequently developed malignant growths, which were found histologically to be all squamous carcinomas with atypical growth and local invasion. There were no metastases.

### Benzpyrene Content

Although 3,4-benzpyrene—the potent carcinogen originally isolated from tar (Cook, Hewett, and Hieger, 1933)—is not the only carcinogen present in tar (Berenblum and Schoental, 1947), the fact that it can be identified with ease by fluorescence spectrography (Hieger, 1930) and its concentration in complex mixtures readily estimated (Berenblum and Schoental, 1943) made it desirable to determine the benzpyrene content of liquor picis carbonis.

Using the method of estimation of Berenblum and Schoental (1943), the preparation was found to contain 0.02% of benzpyrene, thus representing a 0.1% concentration in the tar itself (since the pharmaceutical preparation in question is a 20% solution of tar in ethanol). This value of 0.1% is much lower than that found in many of the carcinogenic tars previously tested (Berenblum, 1945b). It would seem, therefore, that benzpyrene accounts for only a small part of the high carcinogenic potency of the preparation observed in the biological tests.

### Discussion

The observation that liquor picis carbonis (B.P.) possesses a pronounced carcinogenic action on mouse's skin accords well with the earlier tests on tar-containing pharmaceutical preparations in use in dermatological practice on the Continent (Sternberg, 1923, etc.). This raises the important question whether its clinical use is not without danger to the patient.

The crux of the problem is no doubt the length of time the patient is exposed to such potentially carcinogenic action. It may well be that no significant danger is associated with its use in short-term treatments. On the other hand, in the case of chronic skin diseases of various types, for which applications of liquor picis carbonis are often continued for many years, the possibility of a late carcinogenic effect may be a real one. Probably the most serious hazard may arise from its continued use by the patient without medical supervision, to alleviate, for instance, some of the recurrent symptoms of occupational dermatitis in industry.

The true hazard, however, can be assessed only by a clinical follow-up of all patients submitted to this form of treatment. In the meantime, avoidance of long-continued application of liquor picis carbonis would be a wise precaution.

### Summary

Liquor picis carbonis (B.P.) as used in dermatological practice, has been found to possess carcinogenic activity when painted on mouse's skin.

The clinical implications of this finding are discussed.

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## Medical Memoranda

### A Case of Bilateral Stress Fracture of First Rib

Mass radiography of the chest has called attention to various abnormalities which formerly were found only rarely. Among these is stress fracture of the first rib, usually attributed to the muscular pull of the scalenus anticus during strenuous and often unaccustomed physical exertion.

Roxby Alderson (1944) in 55,451 routine fluorographic examinations found 35 examples among naval personnel, the majority of whom had recently undergone energetic physical training. All but five were seen in males below the age of 25. The fractures were situated just proximal to the scalene tubercle. A notable feature was that only five of the 35 presented any significant history and symptoms—two had "sudden pain" in the shoulder shortly after strenuous physical training, two admitted direct trauma to the affected side of the chest some years previously, and the fifth had complained of a 'sore shoulder' after carrying sacks of coal.

Among 3,000 routine chest radiographs Cohen (1943) found three isolated fractures of the first rib, all without referable symptoms. In one case there was a history of a blow on the chest three months before; in another no cause could be found, and in the third the lesion was attributed to the patient's occupation of carrying heavy boxes on the affected shoulder. Garber (1944) described a man of 54 who had sudden pain in the region of the right shoulder while lifting a heavy milk-container. Subsequent radiographs showed an isolated fracture of the first rib. In his search of the literature Garber found about 64 reported cases of isolated fracture of the first rib due to various causes of which four were due to the muscular pull of the scalenus anticus.

The following case is of interest because of its presenting features and because the stress fracture was bilateral.

#### CASE HISTORY

A Palestine policeman, an Irishman aged 19, was admitted to a military hospital with a story of malaise for three days, with cough and sharp pain in the right upper chest. He had produced a small amount of greyish green sputum. The pain was worse on taking a deep breath and on coughing. There had been no haemoptysis and no night sweats; his weight was steady at 140 lb (63.5 kg) and his appetite good.

Examination showed him to be well developed. The temperature was 101.5° F (38.6° C), pulse 84 and respirations 22. There was no finger clubbing. Movements were slightly reduced in the right upper chest. The percussion note was normal. Scattered moist rales and rhonchi were heard in both sides of the chest.

No pleural friction sound was heard. The other systems of the body were normal to routine examination.

His condition was diagnosed as acute bronchitis and treated as such. After three days his temperature had fallen to normal and auscultation revealed only a few rales in the right chest. But he complained persistently of the sharp pain in the right upper chest and shoulder, worse on breathing and coughing. A radiograph of the chest revealed fractures of both first ribs, symmetrically situated on the two sides and passing through the scalene tubercles (see illustration). On the right the fracture ran transversely across the whole width of the first rib, with a rather jagged line that isolated a tiny island of bone in its middle portion. On the left the fracture extended from the scalene tubercle across about half the width of the rib and the line was smoother. There was no callus formation. It was found that the fractures were better demonstrated if a film was taken while the patient stretched his neck upwards, at the same time drawing the shoulders downwards by pulling on a fixed object.

Further direct questioning revealed that as a commercial traveller in civilian life he had indulged in very little physical

exercise. He had joined the Palestine Police four weeks before admission and had undergone a course of physical training which included an hour of P.T. and a three mile run every morning. Furthermore, he admitted noting pain and discomfort in the right upper chest three days before the onset of the cough. With the coughing the pain had become more severe and stabbing in nature. Pressure over both first ribs, especially the right, produced acute pain. No lesion of the brachial plexus was demonstrable.

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### Ruptured Uterus

It is well known that spontaneous rupture of the uterus in labour occurs after previous caesarean section, and that the results to both mother and baby are serious—so serious that some say, "Once a caesarean always a caesarean." If it were usual for rupture to occur this would be the rule everywhere. Fortunately it does not always occur, and there is justification for some modification. If the operation has been for some permanent indication or if the puerperium has been pyrexial, then a subsequent operation is advisable, if not, then admission to hospital is obligatory, but the case may be treated as a trial labour. Such a case is reported—for they are rare enough—to show how rupture can still occur and how insidious it can be.

#### CASE REPORT

The patient, a gravida-2 aged 27, was admitted to the Memorial Hospital, Woolwich, for her second confinement on Dec 4, 1947. Thirteen months previously she had had a classical caesarean section on account of the extended breech presentation. The puerperium was reasonably satisfactory—a rise of temperature on the 8th, 9th, and 10th days could have been caused by mammary engorgement, and indeed, probably was. The present pregnancy was quite uneventful. The presentation at her last visit was vertex, position R.O.P., and the head was not engaged.

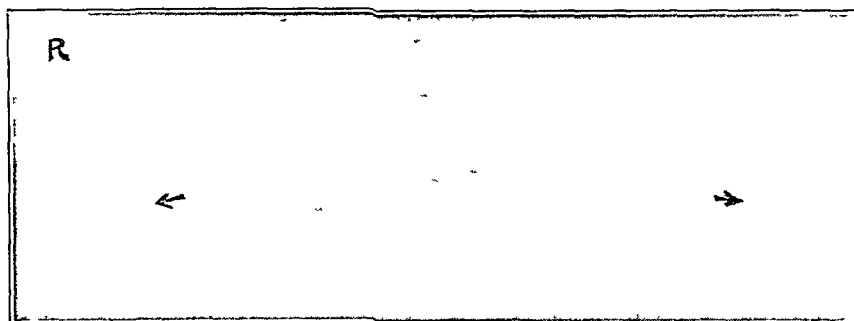
She was admitted at 6.55 a.m. (9 days "late"). Uterine contractions were fair. At 4.30 p.m. contractions were occurring every five minutes. Foetal heart rate was 140. At 5 p.m. she complained of constant pain; the foetal heart was not heard, and the house surgeon was notified. During the next two hours the pain persisted; the pulse remained stationary at 100 but became weaker.

When I saw the patient for the first time at 7.15 p.m. the condition was so striking as to make any other diagnosis impossible. She was white, the pulse was feeble and rapid, the abdomen was distended and tender, and the foetal heart was inaudible. Transfusion and immediate laparotomy were carried out. The abdomen was full of fluid blood, the child and most of the placenta were free and the uterus was gaping from fundus to cervix.

When the child and placenta were removed the uterus contracted, the abdomen was bled out, and the uterus was removed by subtotal hysterectomy, from which operation the patient recovered quite satisfactorily. The baby's heart was beating at birth but it ceased shortly afterwards.

#### COMMENT

There is little doubt that the rupture occurred two and half hours before the laparotomy. The bulk of the bleeding must have occurred then for the abdomen was generally tender from the start and the pulse rate remained constant. The diagnosis of internal haemorrhage was there all the time (probable cause ruptured uterus). KEITH VARTAN F.R.C.S.



## Reviews

### MODERN DERMATOLOGY

*Modern Trends in Dermatology* Edited by R M B MacKenna, M A, M D, F R C P (Pp 432, illustrated £2 2s) London Butterworth and Co 1948

The importance of dermatology as a branch of medicine has been increasingly recognized in recent years. Above all, the authorities responsible for public health have become aware of the large amount of sickness and disability and the tremendous waste of man power caused both in peace and war by skin trouble, and perhaps for the first time in the history of the world corresponding efforts are being made to lessen its effects. These efforts are encouraged by the great advances in treatment provided by the modern chemists and physicists. At the same time those whose mission it is to work in experimental pharmacology and therapeutics appear to be grateful for the opportunities afforded by the easily accessible testing ground offered by the skin for proving, or perhaps disproving, their theories. Again, the vast complexity of the physiology of the skin has of late been increasingly understood. Besides mechanically protecting the underlying structures, it seems also to have the equally important function of providing humoral and chemical antibodies to the countless infections of all kinds. It does much in regulating salt metabolism and in regulating the body temperature, a subject still much more shrouded in mystery than it should be. Another facet of modern dermatology is the recognition of the intimate interdependence of the skin with the rest of the organism. Not only do changes in the skin reflect many general diseases, but severe skin affections also cause disturbances in metabolism. We must, however, make the reservation that the skin is so large an organ that much of it may be put out of action and yet enough remain to carry out its duties fairly efficiently. Of late years too, much has been made of the relation between morbid changes in the skin and the central nervous system, and a causal connexion between them has been eagerly sought. All these aspects of dermatology are considered in the volume before us.

Dr MacKenna has brought together an excellent team of contributors, and the mere recital of their qualifications and the posts they hold demonstrates the interdependence of dermatology and every other department of clinical science. Plenty of problems about the skin remain for everyone to work at. The editor remarks that it is difficult to get young men to study problems of the commoner diseases such as psoriasis and seborrhoeic dermatitis but when we read the work of Professor Stuart Harris on the bacteriology of the skin and that of Stokes and Beerman on the dermatology of to day and tomorrow we begin to see why they prefer contemplating the rarer dermatoses to studying the commoner but less exciting conditions which fill the out-patient departments. The complexities of the subjects which require investigation there are infinite, and it needs the highest scientific acumen to define the right question to ask even before one begins to devise the experiment to answer it. But already much is being done, and those who are interested in all aspects of dermatology will peruse this volume and be in all probability, fascinated by it. For dermatologists it is nearly indispensable, but it is also to be recommended to other physicians who may not be always particularly sympathetic towards this specialty.

To some extent the relative importance attributed to a branch of medicine may be measured by the number of beds allotted to it, and judged by this criterion dermatology in the voluntary hospitals is indeed small beer. Its real claim to consideration in national hygiene may be better calculated by the provision made for treating skin diseases in the fighting Services. It is to be hoped that in the national hospital scheme now slowly coming into operation more justice will be done to it.

To review a book like this in the ordinary way is impossible, but there is one chapter the subject of which has a universal appeal and must be mentioned, and that is the psychological aspects of dermatology. Like other writers Dr Wittkower has been unable to find any principle governing the relation

between neuroses and dermatoses. To the reviewer it seems probable that in many cases skin disease, which always causes great distress of mind to the sufferer, may be the cause and not the consequence of neurosis.

H HALDIN-DAVIS

### A DISTINGUISHED LIFE

*My Life in General Practice* By H W Pooler (Pp 194, illustrated 15s) London Christopher Johnson Publishers Ltd

As the author of this book is an old friend of mine I should have declined to review it if I had not liked it so much, but my critical conscience gives me no qualms when I say that, after reading many books purporting to depict life in medical practice, I put it among the best. It presents the life story of a veteran general practitioner told with art and with gusto. The overriding impression left is that of a modest and happy man successful in his chosen sphere. His interests are wide—for example, he played a distinguished part on the Birmingham City Council, where he was prominent in the building up of its scheme of child welfare in which the city was a pioneer. His work in this sphere led to his being sent on several deputations to the Continent to see and report on what was being done there. His chapters on these visits reveal the author as an acute observer and a ready and interesting letter writer. Like many pioneers he suffered a rebuff at the hands of his constituents, who declined to re-elect him to the council. When he left Birmingham for general practice in Derbyshire, partly country, partly mining, he was a disappointed man. His incurable optimism (this diagnosis of his character is proved correct not only by his own words but by the whole book) soon made him as happy and as useful in his new career as he had been in the city.

Dr Pooler entered his profession in "the hard way" as an apprentice to his uncle, to whom he pays generous tribute. As a dispenser assistant he earned his way through his college career at Queen's College, Birmingham where he was a successful student as he had been at school. After qualification he served in several house appointments. His reminiscences of his old teachers—Sir Walter Foster, Jordan Lloyd, Lawson Tait, Priestley Smith, and others—will be enjoyed, I hope, by many old Birmingham men. But the book should make a strong appeal to all, whether medical or lay, who like to read of the experiences of a man good at his work and devoted to it and always with an interest in the people around him. To members of the B M A Dr Pooler is well known for his long service to the Association as divisional secretary, representative, member of Council and of many committees. The vice-presidency conferred on him last year evidently gave him great pleasure, as it did his friends all over the country. The book contains many good illustrations, some of the best are contributed by a schoolboy grandson of the author and show great promise.

ALFRED COX

### PULMONARY TUBERCULOSIS

*Die Lungentuberkulose beim Erwachsenen Klinik und Therapie für die Praxis* By Dr Hermann Weber Second edition (Pp 417, illustrated 75 Swiss francs) Vienna Verlag Wilhelm Mauddrich 1948

This study of "Pulmonary Tuberculosis in the Adult" was originally conceived by Professor Wilhelm Neumann, but owing to his sudden death the work was undertaken by his pupil, Dr Weber. It is intended primarily for those interested in diseases of the lungs, but the author rightly insists throughout on the necessity of co-ordinating this subject with general medicine. The book is divided into two sections, one on diagnosis, the other on treatment. In the former the author surveys the whole field of pulmonary tuberculosis, primary and post-primary. His views are orthodox, up to date, and by and large acceptable to British workers. He emphasizes the importance of a detailed clinical history and a complete systemic examination in diagnosis, but somewhat exaggerates the significance of physical signs and forces it to tally with the radiological picture. While he acknowledges the use of mass radiography, he pays scant attention to the clinically

silent asymptomatic lesion. He discusses pathological investigations in the greatest detail and the lack of space devoted to chest radiology is therefore the more surprising, however the book is copiously illustrated by radiographs of the chest. Something might have been said of the anatomy of the bronchial tree and the segmental distribution of the bronchi which workers in this country have shown to be important in thoracic surgery.

The chapter on differential diagnosis is excellent. The author discusses non-tuberculous lung infiltrations and cavitating lesions such as the pneumonias, lung abscess, bronchiectasis, cystic lung, the pneumomycoses, benign and malignant lung tumours, Hodgkin's disease, the leukaemias, Boeck's sarcoidosis, etc. The section on treatment covers present trends in relation to general management, sanatorium regime and collapse therapy in all its forms in a balanced, orderly manner. The section on drug therapy is below standard and there is no mention of streptomycin for example. The space given to tuberculin therapy may be considered by many in this country to be out of proportion to its merits. On the other hand the author gives a balanced appraisal of prophylactic immunization against tuberculosis.

The book is of unusual interest because it probably represents the views of the post-war Viennese medical school on pulmonary tuberculosis. Its references are fairly complete, but curiously enough there is only one to British literature. One cannot help thinking that some of the chapters might have been better compressed, but the book is a careful study of a vast and significant subject.

PHILIP ELLMAN

### TRICHOMONIASIS

*Trichomonas Vaginalis and Trichomoniasis*. By RAY E. TRUSSELL, M.D. With an introduction by E. D. PLASS, M.D. (Pp. 277, illustrated 30s.) Oxford: Blackwell Scientific Publications 1947.

This account of trichomoniasis by R. E. Trussell is essentially a critical review of the literature together with an account of the author's observations. The book contains 277 pages but some idea of the magnitude of the work involved in its compilation can be realized by the fact that there are no fewer than 1,586 references. In spite of this many of the main problems remain unsolved: how does *Trichomonas vaginalis* gain entry to the human body? Does it constitute a venereal infection? Why are females apparently infected so much more frequently than males? Is the organism a true pathogen? These and other questions are not yet answered, but a study of this work will be found most interesting, especially by all those who have to deal with women's diseases.

The organism is difficult to grow in pure culture and there is some evidence that its existence, or at any rate its power to flourish in the tissues, depends on the presence or absence of certain other organisms. There is a good deal of doubt about whether it forms cysts, and it appears to reproduce itself by division into two. It is difficult to inoculate human beings artificially and no doubt the organism is often present in women in a 'carrier' state. Diagnosis is best carried out with a wet specimen, which must be fresh and preferably kept warm; the author recommends various diluents, of which the best seems to be Ringer's solution.

The number of methods used in treatment by various workers is evidence that none is outstandingly effective: the subject occupies as many as 70 pages and the author lists and discusses nearly 200 methods in alphabetical order from acetanilide to zinc sulphate. In general it is necessary first to cleanse the vagina dry as far as possible and then apply the chosen remedy: jellies or creams are favoured as the best media. The object should be to restore the normal flora, and there is little doubt that the disease would be easy to cure if it were possible to adjust the pH of the vagina to the optimum. Insufflation is an effective method of applying a drug, but may be dangerous if force is used. Lactobacilli are well reported on by a number of observers. Many of these and other problems still remain unsolved but the author is convinced that neither oral nor intestinal *Trichomonas* ever infects the vagina. A study of this volume will convey a large amount of information and provide much food for thought.

T. E. OSMOND

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Mesmerism*. By Dr Mesmer. (Pp. 63 6s.) London: MacDonald 1948.

The first English translation of Mesmer's *Memoire sur la Decouverte du Magnetisme Animal*.

*Vascular Diseases in Clinical Practice*. By I. S. Wright, M.D. (Pp. 514 41s.) Chicago: The Year Book Publishers 1948.

A manual for general practitioners and senior students.

*The Science of Athletics*. By F. A. M. Webster. (Pp. 333 15s.) London: Nicholas Kaye 1948.

A scientific study of many branches of athletics.

*The Principles of Physical Education*. By J. F. Williams, M.D. Sc.D. 5th ed. (Pp. 377 17s. 6d.) London: W. B. Saunders 1948.

An account of the aims and methods of physical education.

*Treatment of Heart Disease*. By W. A. Brams, M.S., M.D. Ph.D. (Pp. 195 17s. 6d.) London: W. B. Saunders 1948.

A systematic guide for the general practitioner and medical student.

*The "Peléus" Trial War Crimes Series*. Edited by J. Cameron, D.S.C., K.C. Vol. 1. (Pp. 247 18s.) London: William Hodge 1948.

An account of the trial of members of a U-boat crew.

*Practice of Allergy*. By W. T. Vaughan, M.D., and J. H. Black, M.D. 2nd ed. (Pp. 1,132 \$15.00.) St. Louis: C. V. Mosby 1948.

The manifestations of allergy discussed from the clinical standpoint.

*Troubles of Children and Parents*. By S. Isaacs, C.B.E., D.Sc., M.A. (Pp. 238 8s. 6d.) London: Methuen 1948.

Answers to the questions parents ask about young children.

*Archives of Neurology and Psychiatry*. Edited by A. J. Lewis and S. Nevin. Vol. 15. 1946. (30s.) London: Staples Press (for L.C.C.) 1947.

Articles reprinted from the journals of 1938-40.

*Reticulosis and Reticulosarcomatosis*. By P. van der Meer and J. Zeldenrust. (Pp. 83 40 francs.) Leyden: Universitaire Pers Leiden 1948.

An account of disorders of the reticulo-endothelial system characterized by cellular proliferation.

*Aids to Embryology*. By J. S. Baxter, M.A., M.Sc., M.D., F.R.C.S.I. 4th ed. (Pp. 181 5s.) London: Baillière Tindall and Cox 1948.

The book has been largely rewritten to incorporate recent knowledge.

*Fortschritte der Biochemie*. By F. Haurowitz, M.D. (Pp. 364 40 Swiss francs.) Basle: Karger 1948.

An account of recent advances in biochemistry.

*Lehrbuch der Augenheilkunde*. By J. Babel et al. (Pp. 858 85 Swiss francs.) Basle: Karger 1948.

Textbook of ophthalmology, with many illustrations.

*The Clinical Apprentice*. By J. M. Naish, M.D., M.R.C.P., and J. Apley, M.D., M.R.C.P. (Pp. 200 15s.) London: Simpkin, Marshall 1948.

A guide to the student starting clinical training.

*The Royal Society Empire Scientific Conference Report*. June/July, 1946. (Vol. 1 pp. 828 Vol. 2 pp. 707 42s. for both vols.) London: Morrison and Gibb 1948.

A report of the conference with the papers read.

*Psychology of Personality*. By R. Stagner. 2nd ed. (Pp. 485 30s.) London: McGraw-Hill 1948.

The author discusses chiefly the normal personality and its development.

*Aids to Ophthalmology*. By P. McG. Moffatt, M.D., M.R.C.P., F.R.C.S., D.O.M.S. 10th ed. (Pp. 266 6s. 6d.) London: Baillière Tindall and Cox 1948.

Includes new material on chemotherapy, and on the treatment of war injuries.

## BRITISH MEDICAL JOURNAL

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## WORLD MEDICAL ASSOCIATION

The second meeting of the General Assembly of the World Medical Association was held at Geneva from Sept 5-7 under the presidency of Professor E Marquis. The first meeting, held in Paris last year, of which an account was given in this *Journal*,<sup>1</sup> was enlivened by incidents that made some observers doubt whether this new international organization would reach maturity. All such doubts were removed by the conduct of the business of the second General Assembly. The World Medical Association during the past year has through its Council put its hand energetically to the tasks it has set itself. These were stated in the Articles of Association adopted at the meeting in Paris and now printed in a booklet entitled *The Constitution of the World Medical Association*. The first object of WMA is "to promote closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available. Another of the stated objects of WMA is the establishment of relations with the World Health Organization, Unesco, and other appropriate bodies." WHO, which now has its permanent headquarters in Geneva, has been quick to respond, and the General Assembly listened with close interest to an address read to them by Dr Calderone, who is in charge of the New York office of WHO. In his address, which appears elsewhere in this issue, Dr Calderone said that "by the act of affiliating with the World Medical Association, WHO acknowledges the debt it owes to the medical practitioner." He stressed the identity at certain points of the aims of these two international organizations. The aim of both is, in the words of Object No 5 of WMA, "to assist all peoples of the world to attain the highest possible level of health," and both organizations recognize that the achievement of this is a step towards the promotion of peace in the world. This again is a further example of the growing belief that contact between similar professional groups of different countries may do much to counteract the aggressive designs of politicians.

While medical men may hope that the millennium will be reached with the conquest of disease and the achievement of maximum health, they may temper their optimism by noting that wars have often been started by nations at the peak of their prosperity. As Dr Calderone observes, Medicine has forgotten to measure the effects upon the social structure of the peoples of the world of the great achievements of medical science and public health during the past fifty years. He points out that if the world population continues to increase at its present rate there will in forty years' time be "another billion hungry bodies and souls over and above those it has to-day." If Medicine has forgotten to measure the effect of its achievements the

creation of WHO and WMA does at least show its awareness of the problem. In the work of these two bodies, and of FAO, medical men have been foremost among professional groups in stepping across national frontiers. At Geneva this month doctors from India, Pakistan, China, Europe, South America, and, last but not least, from the USA overcame the limitations of space and language because they had at heart a common aim.

The President of this year's Assembly was to have been Dr Stuchlik, of Czechoslovakia, and the meeting of the Assembly was to have been held in Prague. After the Communists seized power in Czechoslovakia the Council of WMA decided for obvious reasons that the meeting would have to be held elsewhere, but hoped that it would still be possible for Dr Stuchlik to be President. But another effect of Communism in Czechoslovakia was the abolition of the Czechoslovak Medical Association. This arbitrary act of elimination made it impossible for Dr Stuchlik to be President, although fortunately he was able to be present at the meeting. It is perhaps unnecessary to state that the USSR has not joined the WMA, although it is a member State of WHO, nor has the USSR joined Unesco or FAO.

The General Assembly had before it a document on German medical war crimes, and it was this undoubtedly that prompted it to draft for submission to its member organizations a pledge taking its inspiration from the Hippocratic Oath. This can be ridiculed, and has been by the *Manchester Guardian* as an attempt to subvert this famous medical code. But those who indulge in the tempting and facile game of ridicule might reflect that most national groups would to-day feel disinclined to pay homage to Apollo, and the injunction in the Oath against cutting for the stone would evoke in the mind of the modern doctor merely amused bewilderment. Probably very few medical men know the Hippocratic Oath, and it is rare to find it recorded in histories of medicine. Garrison, for example, refers to it, but does not reproduce it in what is the most authoritative standard work on medical history. We therefore print the pagan version elsewhere in this issue. It is, perhaps, misleading to describe the pledge which has been drafted as a modern version of the ancient Oath. In these days of shifting values a cogent case can be made for drawing up in short and simple terms an ethical code to which medical men and women in any part of the world could respond. If the WMA can succeed in doing this, and if adoption of the pledge could be made part of the ceremony of qualification, it might have the force possessed by the ancient Oath, now merely a curiosity of medical history. The WMA, however, might be well advised to have second and third thoughts on the content of this modern pledge, and if agreement is reached on this by the various member associations great care should be taken in phrasing the different translations. The English translation of the French version that was submitted to the Assembly was not without imperfection.

Another matter that engrossed the attention of the WMA Assembly was social security and its bearing upon medical practice. The Assembly adopted the recommendation of the Council that information on the position

<sup>1</sup> *British Medical Journal* 1947 2 498



of social security in each country should be obtained by means of a questionnaire, that on the basis of this an outline should be made of the "status" of social security in each country, and that the Secretary-General of the WMA should be kept informed of proposed or actual changes in the social security laws of the countries represented in WMA. The Assembly also adopted the recommendation that a permanent committee on social security should be set up. The meeting had before it a number of principles which might be adopted by those countries in which medical care was part of the social security scheme. Of these principles only three were recognized by the USA delegates as generally applicable to the practice of medicine—namely, freedom of choice of physician by the patient and freedom of the patient to change his physician, no intervention of any third party between physician and patient, all medical services to be controlled by physicians. What came out of the discussion on this theme was a general apprehension of State intervention in medicine, opposition to a full salaried service, and doubt whether medical care should be made available free of charge to those who could afford to make a direct payment for it. In addition to setting up a committee on social security it was also decided to set up committees on medical care, ethics, publications, and postgraduate education. These committees will prepare statements to submit to the meeting of the Council of the WMA in Madrid in April next year, which will be followed by the General Assembly in London in the autumn.

It is possible here to make reference to only some of the work of the WMA, but the document presented to the Assembly showed that the Council, through the able guidance of its Chairman, Dr T C Routley, and the hard work of the Secretary-General, Dr Louis H Bauer, had made it possible for the General Assembly to conduct its affairs with efficiency and harmony. It is a commonplace to state that one of the most valuable features of an international gathering lies in the fact that men from different parts of the world can get to know each other. This was indeed true of the meeting at Geneva, and the WMA was much indebted to the abounding hospitality of its Swiss hosts, the Federation des Médecins Suisses and the Medical Association of the Canton of Geneva, and to the indefatigable efforts of WMA's treasurer, Dr Leuch, of Zurich. The WMA is now firmly established on the basis of a sound constitution and efficient administration. It will soon have that necessary outward and visible sign of its existence, a journal, to be edited by Dr Morris Fishbein, the Editor of the *Journal of the American Medical Association*.

## MEDICINE IN THE COMMONWEALTH

A number of medical men from all parts of the British Commonwealth met last week at BMA House at a conference presided over by Sir Lionel Whitby. Most of them had attended the General Assembly of WMA at Geneva during the previous week and were eager to follow the example of the larger organization in fostering personal and professional relationships and in meeting to discuss common problems. The proposed British Commonwealth

Medical Conference is in no sense an offshoot of WMA and certainly does not represent an attempt to form a body within the world organization. The Dominions either have branches of the BMA, or form national medical associations affiliated with it. There is, therefore, this obvious common link between medical men and women in the Commonwealth. Medical men and women in the Dominions have drawn their inspiration from Britain and often return to what they call "home" for postgraduate education and distinctions. They speak a common tongue, and those present at last week's meeting listened with admiration to the fluent and idiomatic use of it made by doctors from India and Pakistan. All these natural bonds hold strongly together those medical men who work in countries belonging as equal partners to the British Commonwealth of Nations. But until now there has been little attempt to foster a spirit that already exists, or to integrate in corporate form the separate units of medical organization in the Dominions. The fact that it is being done now is yet another sign that men and women wish through common association and common aims to stem the forces of disintegration so painfully manifest in a world which modern transport has reduced to the size of a parish.

For two days means of promoting closer contact between doctors of the Commonwealth were discussed by representatives of the national medical associations of Australia, Canada, Ceylon, Eire, Great Britain, India, New Zealand, Pakistan, South Africa, and Southern Rhodesia. To effect this it is proposed to hold an annual conference of representatives of national medical associations or units in conjunction, when possible, with the annual meeting of the association of the host country. The conference, it is suggested, should last three days, and to it each country should send two representatives. The secretary of the host association is to act as the secretary of the conference. If the various Commonwealth medical associations decide to support the project the first meeting will be held in Saskatoon, Canada, in June, 1949, to be presided over by Dr J F C Anderson, the President-Elect of the Canadian Medical Association. In 1950 it is hoped that the conference will be held in Brisbane, Australia, and in 1951 in South Africa.

## RELIEF OF PELVIC PAIN

The object of nerve resection and nerve block for gynaecological disorders is nearly always to relieve pain, and in recent articles in this *Journal* J P Greenhill<sup>1</sup> and Meave Kenny<sup>2</sup> have emphasized the value of these operations in the treatment of inoperable carcinoma. Mr Albert Davis in a paper published elsewhere in this issue now reviews the whole problem, describing the indications, technique, and results of the various operations which have been and still are used to ease the pain of malignant and other conditions. He points out that there have been wide differences of opinion about the value of certain procedures, but that the time is now ripe for an impartial assessment of the results reported both by the enthusiasts for this type of treatment and by those disappointed with the results. Unfortunately the groups of cases treated by sympathectomy, even of common conditions like dysmenorrhoea, are

<sup>1</sup> *British Medical Journal* 1947 2 859

<sup>2</sup> *Ibid* 1947 2 862

<sup>3</sup> *Amer J Obstet Gynec* 1947 53 541

<sup>4</sup> *Ibid* 1948 55 151

small. Moreover, it seems likely that in this as in most things there is a natural tendency to publish good results rather than poor ones, and it is certainly more common to meet verbal than written expressions of disappointment among practising gynaecologists. There seems to be least dispute about the value of intrathecal alcohol injections for hopeless cases of pelvic cancer, though even here the method has the disadvantage that it sometimes leads to urinary and faecal incontinence. Presacral neurectomy is of limited value in this type of case, if only because cancer which is beyond hope of cure is usually causing somatic as well as visceral pain. Moreover, it is open to question whether it is really desirable to carry out an abdominal operation of this kind on a patient who has only a few weeks or months to live. To avoid this difficult decision Greenhill suggested that pelvic sympathectomy should be carried out as a precautionary measure at the initial laparotomy when the findings indicate that the disease is likely to recur and to cause pain at a later date. This can be applied to innocent conditions like endometriosis as well as to cancer.

Perhaps the most difficult problem is to decide the place of presacral neurectomy in spasmodic dysmenorrhoea and of ovarian sympathectomy in painful conditions of the ovary. In the latter connexion Davis mentions that the whole infundibulo-pelvic ligament, including the ovarian vessels, must be cut if all the autonomic nerves are to be divided. This may well affect ovarian function adversely and should not therefore be lightly undertaken in young women. Again, although the ovary is undoubtedly sometimes the site of origin of pain, probably the majority of cases of "ovarian pain" are wrongly labelled. So it is not at all uncommon to see young women who have had not only the ovarian autonomic nerves divided but the whole appendage removed still suffering from the pain which prompted the operation. In his assessment of the value of the presacral neurectomy for dysmenorrhoea Davis reviews the literature and relates his own experience of 86 cases during a period of 16 years, an experience which is probably unrivalled in this country. He claims good results in 54% of his earlier cases, 71% in the later ones, and even better figures for the most recent group. Nervous factors play such a large part in dysmenorrhoea that it is difficult to assess the results of any form of treatment, and it is generally reckoned that all the common procedures—physical exercises, hormones, drugs, dilatation of the cervix, psychotherapy, etc—give about a 60% cure rate. It would be unfair, however, to compare this with Davis's figures, because his cases were selected and he was dealing only with those in which all other methods of treatment had been tried and failed. The rationale of presacral neurectomy for spasmodic dysmenorrhoea also remains open to question. Is it effective because it severs pain-conducting fibres or because it interrupts motor pathways? Davis takes the view that both mechanisms operate. Nevertheless it is clearly established that the operation does not result in quiescence of uterine muscle, labour following the operation proceeds smoothly and normally as a rule. Nor for that matter is subsequent labour painless, or at any rate not unusually so. Some have suggested that the pain of spasmodic dysmenorrhoea is essentially due to muscle ischaemia (secondary to spasm), so it may be that presacral neurectomy is beneficial in that it improves the blood supply of the uterus. A popular explanation of dysmenorrhoea is to suppose a zone of spasm or increased resistance in the lower segment and cervix, under the influence of adrenergic fibres of the presacral nerve, which is opposed to the detrusor muscle of the upper uterus. This view may not be correct, or at least may require some modification, for Danforth<sup>3</sup> and Schwarz and Woolf<sup>4</sup> have

recently demonstrated that the cervix does not normally contain much muscle tissue, being essentially fibrous in structure. If it is correct, however, then the cases in which presacral neurectomy should give the best results are those which respond well to simple procedures such as dilatation of the cervix and alcohol injection of the pelvic plexus.

The crux of the problem, then, is the selection of cases of dysmenorrhoea suitable for presacral neurectomy. Davis states, and in doing so probably reflects the general opinion among gynaecologists, that the operation should only be considered when the dysmenorrhoea is of the spasmodic type and when all other forms of treatment (including dilatation of the cervix) have failed. This group of course includes those unsatisfactory patients whose symptoms are essentially psychogenic and whose pain threshold is low. Unless these too are excluded the over-all results for any series of cases are likely to be poor. Unfortunately it is these women who are the most persistent in their demand for "something to be done" and who are most ready to agree to an abdominal operation. It is not always easy to exclude these, and a failure to do so may explain why so many gynaecologists are not very impressed with the value of presacral neurectomy. Certainly a rigid selection of this kind followed by a further elimination of those women who refuse the operation means that any one gynaecologist has a comparatively limited experience of the procedure.

### OBSTETRIC ANALGESIA

Pethidine was originally described by German workers as a synthetic substitute for atropine, but in practice it was soon found to possess analgesic in addition to spasmolytic properties. This combination was obviously likely to prove of value for the relief of pain in labour, and it was not long before the drug was being widely used for this purpose. Its safety and ease of administration have been described by many writers, but it has two disadvantages: its action as an analgesic is apt to be uncertain, the relief given by pethidine alone varying considerably from patient to patient, and it has very little effect in inducing amnesia. For these reasons the combination of pethidine with scopolamine has been suggested as a method of improving both the analgesic and amnesic effects. In 1944 Schumann<sup>1</sup> reported favourably on the use of this combination in 1,000 labours, and Dr Hilda Roberts in a paper published elsewhere in this issue (p. 590) records her experience with this method in 500 cases.

The initial dose in her series consisted of 100 mg of pethidine and 1/150 gr (0.44 mg) of scopolamine. This was repeated after one hour, unless the os was more than three-quarters dilated, in which case pethidine alone was repeated. A total of 200 mg of pethidine and 1/150 gr of scopolamine sufficed for the majority of labours, though as much as 500 mg of pethidine and 1/50 gr (1.3 mg) of scopolamine was given to some mothers without apparent ill-effect. Intramuscular administration was preferred, though pethidine was sometimes given intravenously slowly and in dilute solution if labour was well advanced before treatment was begun. The degree of relief obtained was very satisfactory and much better than that given by pethidine alone. Co-operation in labour was on the whole good, though scopolamine caused excitement in a few mothers. For this reason close observation of patients who have received pethidine and scopolamine is obviously essential. The aim was not to produce the full amnesia of twilight sleep but to permit the mother to remember the major part of her labour without any

<sup>1</sup> *Amer J Obstet Gynec* 1944 47 93  
<sup>2</sup> *Ibid* 1945 50 542

memory of suffering. No foetal deaths or foetal morbidity could be attributed to the method, though a few of the babies were quiet at birth or slow to breathe, a state sometimes observed when pethidine is used alone. Recovery was always rapid and complete. It was not possible to come to any definite conclusion about the effect of pethidine and scopolamine on the duration of labour, though there is a suggestion that it may actually be shortened. A special study would be necessary to clear up this point. Investigation of uterine contractions by means of an abdominal tocograph showed no changes in their rhythm or amplitude. A slight but transient rise of blood pressure was observed after injection of pethidine and scopolamine, but no depression of maternal respiration could be demonstrated with the dosage used.

The results reported by Dr Roberts are remarkably good, and the method is likely to have a wide appeal, though the need for careful supervision must be stressed in view of the occasional case in which scopolamine leads to excitement. Another possible complication is oedema of the uvula. Steinberg,<sup>2</sup> in a series of 400 labours in which pethidine and scopolamine had been used, observed this condition in three patients, one of them having oedema of the glottis as well. All three showed cutaneous sensitivity to scopolamine, as did a fourth patient in whom oedema of the uvula occurred after the administration of "seconal" and scopolamine. This is probably an uncommon happening and does not appear to have been encountered in the large series of cases receiving pethidine and scopolamine in the obstetric department of the Postgraduate Medical School. Nevertheless it remains a possible complication of the use of scopolamine, and one which should be borne in mind by all who make use of this valuable drug.

### CARCINOGENIC ACTION OF LIQUOR PICIS CARBONIS

The discovery of the carcinogenic action of coal tar on the skin of rabbits and mice was of great consequence in experimental cancer research. Many other carcinogenic agents are now known, but coal tar remains one of the most potent. Twenty to thirty years ago several investigators reported that therapeutic preparations of coal tar in use on the Continent produced cancer of the skin of mice. In a paper published elsewhere in this issue Dr I. Berenblum shows that the same is true of liquor picis carbonis (BP). When applied twice weekly, it gave rise to papillomata or carcinomata of the skin in half the mice within six months, this represents a moderately high carcinogenic potency.

The presumption that liquor picis carbonis may lead to cancer of the human skin is justified by the observed similarities between occupational skin tumours of man and artificially induced skin tumours of mice. The occupational tumours are attributable to substances which cause cancer when applied to the skin of mice. Following repeated applications of the carcinogenic agent tumours begin to grow after a latent period which depends on the potency of the agent and the frequency of its application. They may first appear long after the applications are stopped, in general the higher the proportion of animals which develop tumours the earlier the onset. Similarly in occupational cancer long exposure to the harmful material precedes recognizable tumour formation, which may be deferred until many years after exposure has ceased. The outstanding difference is in the speed of the carcinogenic process. Carcinogenic agents of high or moderate potency cause skin cancer in laboratory mice, whose life-span is two to three years, within a few weeks

or a few months, in man the same thing happens only after many years. Latent periods of up to 30 years are recorded for occupational tumours of man, and the proportion of exposed individuals developing cancer is usually low.

It is reasonable to conclude that liquor picis carbonis would induce skin cancer in a proportion of human beings provided the exposure was of sufficient intensity and duration. In short courses of treatment the cancer-inducing properties may be ignored. It may be prudent, as Dr Berenblum suggests, to avoid long-continued application for chronic skin diseases pending a more exact appraisal of the risk by observation of patients who have received prolonged treatment. The follow-up of patients should take account of the expectation that cancer will develop only after prolonged applications, possibly many years after the applications have stopped, and in only a small proportion of the patients, and also of a possible difficulty in apportioning blame for a tumour between the therapeutic agent and the lesion to which it was applied.

### STELLATE BLOCK IN PULMONARY EMBOLISM

New indications are still being found for blocking the sympathetic chain with a local analgesic. One of them is the injection of the stellate ganglion in cases of severe pulmonary embolism. Bageant and Rapee<sup>1</sup> describe two cases in which this injection was followed immediately by a profound relief of pain and apprehension and a lessening of cyanosis and shock. The explanation of this favourable result remains obscure, but it can be compared with the relief of pain and improvement in the peripheral circulation which follow sympathetic interruption in cases of blockage of the main arteries in the limbs. Small lesions of the limb vessels, particularly thrombi, frequently cause a widespread increase in local vasomotor tone, the abolition of which may be the reason for the relief given by paravertebral block of the sympathetic chain. It is likely that a similar mechanism operates in the arteries of the lungs, and that occlusion of branches of the main artery is accompanied by a vasoconstriction which increases the burden on the right ventricle and interferes with the flow of blood to the left side of the heart, thus producing a circulatory embarrassment out of proportion to the size of the arterial block. The pain of pulmonary embolism may be due to ischaemia in the affected area or, if the hypothesis recently advanced by Wyburn-Mason<sup>2</sup> is correct, to stimulation of vasodilator nerves. Whatever the mechanism, it would appear from Bageant and Rapee's report that a great improvement in the patient's condition, and probably also in the chances of recovery, can be obtained by infiltration of the region of the stellate ganglion with a local analgesic. The authors recommend that the procedure should be carried out at the earliest possible moment in cases which do not prove immediately fatal, the injections being repeated if the symptoms return or if further emboli develop.

### DISTRIBUTION OF CIRCULATING BLOOD

Accurate knowledge of the minute volume of circulation has been acquired by different methods during the last decade. It is now known that the cardiac output in recumbent man averages between 5 and 6 litres per minute at rest. Several experimental methods have been used to show that about 12 litres of blood flows through the

<sup>1</sup> *Anesthesiology* 1947 8 500

<sup>2</sup> *British Medical Journal* 1948 1 972

kidneys every minute, and 1.5 litres through the hepatic veins.<sup>1</sup> According to Barcroft and Edholm<sup>2</sup> about 900 ml per minute flows through the skeletal muscles, and the recent ingenious studies of Kety and Schmidt<sup>3</sup> show that the blood flow through the brain is also just under 1 litre per minute. The blood flow through the bones is probably very small, Edholm, Howarth, and McMichael<sup>4</sup> suggest an approximate figure of 100 ml per minute. This adds up to 4.6 litres per minute, leaving the very variable skin blood flow to be accounted for, together with the flow through the endocrine glands.

A closely allied problem is the determination of the volume of blood present at any one moment in the various organs of the body. Weiss and Blumgart<sup>5</sup> calculated that the volume of blood in the lung vessels in man was about three quarters of a litre. This calculation was based on the finding that the mean circulation time through the lungs from the right heart to the left was about 10 seconds. If the volume of blood flowing through the lungs in a minute—i.e., the cardiac output—was 5 litres, then the volume of blood in the lungs at any one moment was clearly 10/60 of 5 litres, or 833 ml. A considerably lower figure of 60 ml of blood exposed to air in the alveoli has more recently been calculated by Roughton,<sup>6</sup> using an entirely different method.

Nylin<sup>7</sup> has recently used red blood corpuscles labelled with radioactive phosphorus to estimate the total circulating blood volume. He took the opportunity during removal of the lung for cancer to estimate the blood volume while the lung vessels were clamped at the root. After allowing several minutes for mixing and sampling he released the clamps and new blood samples were again taken. From the resulting dilution of the circulating blood an estimate of the volume of blood in the occluded lung could be made. In three cases the volume of blood in one lung was estimated to be 14–20% of the total circulating blood volume. In a similar manner the volume of blood in the legs was calculated after the release of occluding cuffs round the thighs and found to be 13.6% of the total circulating blood volume. If Nylin's figures are correct, one third of the circulating blood volume (1½–2 litres) would be present in the two lungs—which would appear to be an excessive quantity. It seems doubtful whether the ingenious method contrived by Nylin was really capable of giving a completely accurate answer.

The circulation during pregnancy and in the puerperium is a special problem. It has often been suggested that the placenta acts like a large arteriovenous fistula. The early part of the puerperium is a particularly dangerous period for the mother with heart disease. Brown and her colleagues<sup>8</sup> have attempted to estimate the load imposed on the heart by labour and to study the changes in the circulation following birth. Deductions were by no means easy to make, owing to the variable strains during labour and to the use of pituitrin and ergot afterwards. Blood-volume estimations by the dye method proved to be difficult, and unsatisfactory samples were frequent. It was found that the venous pressure rose significantly during the first 24 hours after delivery, and this was observed particularly in patients who had received ergot. After the initial blood loss during labour the blood volume appeared to increase again on the second day of the

puerperium, and only returned to normal following a post-partum diuresis. The authors think that their observations support the idea that the placenta acts like a large arteriovenous shunt. In a recent study of arteriovenous aneurysms Cohen and his colleagues<sup>9</sup> have shown that the sudden closure of an arteriovenous fistula does not lead to any great immediate relief of strain on the circulation, and its restoration to normal may take many weeks.

## LEAD POISONING IN CHILDREN

Epidemics of lead poisoning among children have been reported from time to time. Such an epidemic in Australia was traced to the ingestion and inhalation of lead dust from painted verandas, and in Japan to the absorption by infants of toxic amounts of lead from the cosmetics and face powder used by their mothers. More recently the use of disused storage battery casings as fuel in poor homes in the USA has caused lead poisoning, and a number of cases in children have been reported from Baltimore<sup>1</sup> and New Orleans.<sup>2</sup>

Children are more susceptible and react more quickly and to smaller doses of lead than adults. The symptoms and signs may also differ in that the most dangerous manifestation of plumbism, meningo-encephalitis, is more frequent than the peripheral neuritis and lead palsy of adults. Children tend to develop a black deposit of lead sulphide on the teeth, this is not identical with the "blue line" seen on the gums in adult lead poisoning. Furthermore, the most rapid and reliable method of diagnosis in children—radiographic examination of the bones—is not applicable to adults, because lead is deposited in radiographically demonstrable amounts only in actively calcifying bone. The characteristic abnormality seen in the bones of children suffering from lead poisoning consists of zones of increased density where growth is most active—the ends of the long bones, the anterior ends of the ribs, and the iliac crests. The dense areas vary in width up to about 0.5 cm, and the width and density are in proportion to the duration and degree of exposure to lead. With increasing growth of the bones the areas become broader and less dense, and the rapid release of lead into the blood stream following cessation of exposure or acidosis resulting from an infection may be followed by renewed lead absorption, producing double zones of density. Zones of metaphyseal density may be produced by other conditions such as vitamin deficiency, congenital syphilis, treatment of the mother during pregnancy with bismuth, and administration of phosphorus for rickets, but none of these is likely to be confused with lead poisoning.

The epidemic in Baltimore was caused by inhalation of volatilized lead. Nineteen children were examined, their ages ranging from 3 months to 20 years, and in fifteen there were abnormal metaphyseal densities on radiographic examination. In general, the younger the child the more obvious were the skeletal deposits, but strangely enough the density of the shadows was not closely related to the appearance of toxic symptoms, especially gastro-intestinal disturbances. The children with the most marked radiographic abnormalities had no history of toxic illness, while those with slighter bone changes had definite symptoms. There was, however, a close correlation between the intensity of the black deposit on the teeth and the radiographic findings. These deposits appear to be almost as good a diagnostic sign as the areas of density in the metaphyses.

<sup>1</sup>Bradley S. E., Ingelfinger F. J., Bradley G. P., and Curry J. J. *J. clin. Invest.* 1945 24 890.

<sup>2</sup>*J. Physiol.* 1946 101 366.

<sup>3</sup>*Amer. J. Physiol.* 1945 143 53.

<sup>4</sup>*Clin. Sci.* 1945 5 249.

<sup>5</sup>*J. clin. Invest.* 1928 6 103.

<sup>6</sup>*Amer. J. Physiol.* 1945 143 621.

<sup>7</sup>*Amer. Heart J.* 1947 34 174.

<sup>8</sup>*Ibid.*, 1947 34, 311.

<sup>9</sup>*Clin. Sci.* 1948 7, 35.

<sup>1</sup>Cooper G., *Amer. J. Roentgenol.*, 1947 58 129.

<sup>2</sup>Spizer D., *N. Orleans med. Surg. J.* 1947 100 278.

## WHO AND WMA SOME POINTS IN COMMON

BY

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*We print below a slightly shortened version of an address given by Dr Calderone to the General Assembly of the World Medical Association on Sept 9*

Just a few days ago, on Sept 1, the World Health Organization finally emerged from the embryonic form it has had for two years as an Interim Commission. One of the first acts of this new and potentially important health organization is to welcome the World Medical Association and to establish formal relations with this other potentially important health agency.

Public health stems directly from famous practitioners of medicine not only from this generation but from generations past. There come to mind, for instance, such names as Bernardino Ramazzini, of Italy, who as far back as the seventeenth century wrote a treatise on professional hygiene, Johann Peter Franck, of Austria, who was responsible for the introduction in the eighteenth century of State legislation dealing with hygiene, Edward Jenner, Germany's Max von Pettenkofer and his fight against infectious diseases in the nineteenth century, the Frenchman Hyacinthe Vincent and the prophylaxis of typhoid fever, and, of course, Carlos Chagas, of Brazil, and his work on trypanosomiasis, Simon Flexner, one of the pioneer public health practising physicians of the United States, and the Russian Haffkine, whose work on cholera we all know. These were the actual beginnings of public health. It seems strange that at times medicine has been compelled to remind public health of this very important fact.

By the act of affiliating with the World Medical Association WHO acknowledges the debt it owes to the medical practitioner. The 54 health administrators who attended the Health Assembly here just two months ago were well aware of this debt and directed us specifically to co-operate with the professional medical organizations. It is not surprising that the aims of these two organizations are identical, since it is the nature of the medical man that, given certain data, he will draw certain conclusions. Let us look at both constitutions. Both stress that their aim is to attain the highest possible level of health. The areas of responsibility and action which they delineate comprehend research, problems of standardization, medical education, and the dissemination of health information. In addition, of course, WHO has statutory obligations for international activities such as its epidemiological information and statistical services, and the administration of international quarantine regulations and the like. The two organizations come together again at one important point: they are both aware that the health of all peoples is fundamental to the attainment of peace and security. The similarity of purpose between the two organizations—one intergovernmental, the other purely professional—was emphasized when the Rt Hon Aneurin Bevan stated that "the World Health Organization and the World Medical Association are complementary," and the chairman of your Council, Dr Routley, stated "that without the medical profession the World Health Organization is like an electric grid without current." There can be no question that both organizations must work as a team towards the attainment of the objectives to which they have subscribed.

### A Reversible Equation

What is the main problem we all face together? As you must have recognized, it is the one of peace, and is interwoven with the complete social fabric of man. By this I mean not only man's natural environment but the environment he has created for himself. Thus, the problem includes housing, rural and tropical hygiene, education, freedom from want. One of the most vital of its aspects is proper nutrition and adequate food production for two billions of people who persist in increasing their numbers at a rate of 25 million yearly. We must remember that the total population in the last 300 years has seen a fivefold increase, in the last 100 years alone it has increased twofold.

We take it for granted that the earth can support this increasing population. So far it apparently has. But we must remember that this favourable balance which we have struck momentarily is a reversible equation, that where health is deficient men can produce less food so that the cycle begins to reverse itself. Even in the richest countries of the world we are again approaching equilibrium in the matter of nutrition because of population pressure, perhaps, even, the scale has tipped against us. If that is the case, the trend is toward physical degeneration of the less-favoured population groups with consequent mental and emotional instability, this in turn expresses itself in the tensions which lead to wars.

Here, then, is one aspect of the general problem I have described to you: the direct relationship between total health and the social mechanism which, in this instance, governs the production and distribution of food. This problem will not be solved by what we do this year or next year, but by the plan of operations which we make in the next five, ten, twenty, forty years, because in forty years, if this present rate of population increase continues, the world will have another billion hungry bodies and souls over and above those it has to day. In any long range plan total medicine must begin to play its part. The medical man must extend his already broad horizons, he must work as a member of a team of experts who in unison are pooling all their resources to make man's life possible and good. Such a team must consist of doctors, public health administrators, sanitary engineers, food specialists, agriculturists, forestry experts, economists, bankers. An important place in such a team should be reserved for the leaders of the professional societies, who up to now have tended to isolate themselves in their specialized fields. In the past 50 years medicine has gloried in the accomplishments in the field of science and public health. It has been so proud of these accomplishments that it has forgotten to measure their effects on the social structure of the peoples of the world. It reminds me of the exploitation of forests during the past fifty to a hundred years which has created vast and profitable industries but has led finally to critical erosions of land so that great areas in many parts of the world are now nothing but exposed rock or deserts incapable of feeding people. The very fat of the land has been washed into the sea.

### Interdependence of Medicine

The World Health Organization has recognized the interdependence of medicine with other sciences, social, economic, and political. It has close relations with FAO, with Unesco, ILO, the Economic and Social Council, and the Trusteeship Council of the United Nations. It has formal relationships with non-governmental agencies such as yours, for example, the International Council of Nurses, the International Dental Federation, the League of Red Cross Societies, the Inter-American Association of Sanitary Engineering. It is my belief that the World Medical Association should develop, in addition to its relations with the World Health Organization and Unesco, similar relations with many of the other bodies I have mentioned, especially FAO. Let us examine for the moment the practical applications of this concept of team work by experts. Once again I shall take as an example the urgent problem of food. It is quite evident that we can increase production both by developing new lands which are not now being utilized for the production of food and also by releasing for productive use human energy that is now being expended in keeping alive disease-ridden bodies.

The first task is that for the sanitary engineer and the public health man, in conjunction with the agricultural experts, who can open up new areas now infested with malaria, yellow fever, sleeping sickness, kala azar, and schistosomiasis. Let me give you a few figures. There are to day 300 million cases of malaria in the world. In Egypt alone, out of a population of 20 million 13 million are suffering from schistosomiasis. In one belt in China, of an area of 40 miles wide and 200 to 300 miles long 40 million people are suffering from kala-azar. Whole regions of South Africa are uninhabitable because of trypanosomiasis. It is not too simple to state that in order to open up huge areas for food production we must get rid of these infections. Leaving aside the problems of disease control which such a project would encounter, we must consider the danger to the land itself. These regions which to day are unproductive because they

breed disease may be the very areas which protect whole drainage basins against erosion. By stripping these lands of their forests in order to put them into agricultural use we may encourage erosion such as is now washing the friable soils of South America, Africa, and parts of South-East Asia into the sea.

A second task is to take care of people who must now expend perhaps 80 to 85% of their physical energy in combating the parasites which infest their bodies. They are capable at best of using only some 15% of their strength in working the soil to grow food. This extreme example serves to emphasize the positive function of medicine, which is to ensure that men and women will be born healthy and will remain productive as long as possible.

The whole task, as I see it, falls into three natural divisions. In the first, one group of medical problems governmental action has afforded the most practical solution. This is true in making use of modern methods which are now available to combat malaria, yellow fever, kala-azar, water-borne diseases, sleeping-sickness, schistosomiasis, brucellosis, industrial hazards and accidents. Here is where the engineer and the public health administrator, following precepts given to them by the medical profession, can get rid of these hazards to life.

A second group requires close co-operation between the medical profession and the Government health agencies. This includes diseases such as tuberculosis, syphilis, gonorrhoea, yaws, smallpox, diphtheria. It is evident here that public health organizations can aid the doctor by educating the public to co-operate in both prevention and active treatment of these diseases.

And finally there is a group in which facilities for diagnosis, hospitalization, and the like are of great importance to the doctor. Where these facilities are supplied by governmental or other sources they enable him better to apply his skills in the fields of paediatrics, obstetrics, internal medicine, surgery, metabolic disorders, developmental disorders, degenerative diseases and psychiatry. Clearly, the co-operation suggested by this broad outline will take time to develop yet we must begin action without delay. Moreover, there are specific points on which we can act immediately. For instance, probably one of the most important objectives for both the World Medical Association and WHO is the proper use of nomenclature in the morbidity and mortality statistics that have been published the world over. It is only with proper nomenclature that it will be possible to arrive at any conclusions about the efficacy of health measures which we are using. By the same token it is important that you help us, as both constitutions foresee, in the standardization of drugs and biologicals, as well as the revision of pharmacopoeias. It is essential that standards of pathological and bacteriological diagnosis be uniform all over the world, that the sedimentation rate mean the same thing in New York, Geneva, Bombay, and Shanghai, that a blood group, as well as the nomenclature that describes it, have the same meaning for doctors all over the world. Finally, we must work together in medical education.

In what I say now I am putting forward my personal, not official, views for consideration. Certain favoured areas have enough physicians, but in many parts of the world it is common to find one doctor to 20,000, 40,000, or even 100,000 people. In planning standards of education we must have in mind those areas where there is a dearth of doctors. Let us remember, in making our plans that scarcely forty years ago in New York medical practitioners were being graduated with no more than a high school education and two years of formal medical training. Yet some of these very doctors have made outstanding contributions to medicine. Should the medical profession, then, perhaps begin to think of educating two types of medical practitioner: one for areas which lack medical resources—to be a man or woman with elementary medical and public health training—and the other a fully trained physician who can serve as guide and mentor to the first? To go one step further. It is generally considered wasteful and inappropriate to take health personnel out of their environment in order to train them. To give only one instance, it is said that in the Netherlands East Indies nurses who were trained in the larger cities found when they got back to their village that they were unable to boil water for lack of gas. But Hendrick's experiences with the same

people forcefully brought home to the doctors the tremendous value of locally trained women picked right out of their native villages, who proved better able to enter the inhabitants' homes and win their confidence than were the doctors themselves. The "diener" has always been famous in laboratories for his all-round usefulness to the researcher. Perhaps we in the medical profession, short-handed as we are in many areas, may need to learn to develop "dieners" who will serve as medical extensions of ourselves in such fields as health education, hygiene, and nutrition.

The World Health Organization, as it begins its official functional life, needs to be able to count on you in the World Medical Association as the ultimate effectors for any and all projects leading toward total health. In each and every country it is the practising physician who will be making the diagnoses, treating the ill, gearing his efforts into such governmental health projects as are in existence. WHO looks to those physicians to be articulate and forceful figures in their own communities not only as regards good medical practice but also as regards fundamental philosophies of public health, preventive medicine, and the development of sound social thinking. This challenge for all of us, to be in at the beginning of WHO and WMA, opens up such enormous and splendid fields for action that, to me at least, it is exciting and humbling all at once, and I join with you in eager anticipation of what these two organizations, acting in harmony, can achieve.

## LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

It has been pointed out to us that in the postgraduate section of the Educational Number, published on Sept 4, inadequate reference was made to the London School of Tropical Medicine and the facilities which it affords to those seeking the DPH and the DTM & H Eng. This was certainly not due to any lack of appreciation of the work of this great School—the only body which conducts a recognized course for the academic diploma in public health of the University of London. Its work has been described on many occasions in these columns. A long account of its present activities appeared as recently as June 5 (p 1098). As in the case of all the other schools and institutions referred to in the Educational Number, a request was sent for the latest information, and by some mischance no reply was received from the London School, and in the mass of material which was forthcoming from other sources its outstanding position received inadvertently, too scanty notice.

The course of study for the diploma in public health at the School lasts nine months, and the course for the diploma in tropical medicine and hygiene, designed to meet the requirements of the English Conjoint Board, lasts five months. The course in bacteriology lasts one academic year. Special three-monthly courses are given in the principles of medical statistics and statistical methods, and special courses, by arrangement, in physiology as applied to industry. The School's diploma in public health is taken by as many students as those of all the other universities put together. For the DTM & H the School teaches an average of 120 students a year, and for the diploma in industrial health it last year trained 21 students. The prestige of the School with its fourteen full-time professors, was never higher than to-day. In addition to its teaching work, which is continually growing heavier, a great deal of research is carried on under the auspices of the School. A notable instance was the demonstration of an exo-erythrocytic cycle in malaria described in two articles in the *Journal* earlier in the year (March 20, p 547, and June 26, p 1225). A farm at St Albans has been acquired as the field station of the School and here the breeding of laboratory animals on a scale sufficient to supply the wants of the various departments has been undertaken.

Full particulars of the courses at the School and other information are obtainable on application to the Dean, London School of Hygiene and Tropical Medicine, Keppel Street, London, WC1.



## INDUSTRIAL MEDICINE

### INTERNATIONAL CONGRESS

The Ninth International Congress on Industrial Medicine, held at Caxton Hall, Westminster, the opening of which was briefly reported in our last issue (p 570), continued its sessions from Sept 13 to 17. The members attending numbered about 750, of whom 270 were from abroad. The presentation of nearly 200 papers was accomplished only by having three or four simultaneous sessions each morning and afternoon. Reception was given by the Government, the Royal Colleges, the British Medical Association, and other bodies, many exhibitions and visits of technical interest were arranged and there were almost continuous film showings—altogether a very full programme.

#### Organization of Industrial Medical Services

This subject extended over three sessions, chiefly occupied by descriptions of arrangements obtaining in different countries. Dr P MAZEL spoke of the system in France, where a law was passed in 1946 whereby all establishments employing paid workers whatever their number, are compelled to arrange for medical services. Doctors are chosen by the employers and paid at a rate legally fixed. Dr L GREENBURG related the practice in New York State, with its 52,000 factories, and Dr J G TOWNSEND mentioned the very important part played by the Industrial Health Division of the US Public Health Service in assisting the State departments with detailed studies of working environment. Dr A BRUUSGAARD told the Congress about the Industrial Medical Services Council founded by the Norwegian Federation of Labour, the Norwegian Employees Association and the Norwegian Medical Association. Industrial health services in Finland, where there is free medical treatment not only for the worker but for his family, were the subject of papers by Dr A NYSSONEN and Dr L NORO the latter speaking of the new Institute of Occupational Health at Helsinki, established by the Government in 1946 but not working fully until next year. The function of this Institute will be to protect the physical and mental health of the workers by research, training in hygiene, and attention to environment. A body in Italy, known by the initials ENPI dealing with propaganda against industrial accidents and with the hygiene of labour was described by Professor C PANCHERI and finally Dr N L LLOYD outlined the organization of the medical services of the Ministry of Supply, whose full-time, part-time, and sessional medical officers numbered nearly 100, with some 140 nurses. The medical needs of small factory units, he said, especially in isolated districts, could be covered satisfactorily only by the part-time services of a general practitioner.

Dr A J ORENSTEIN gave an account of the health services for South African mine workers. A full time medical service has been in operation in South Africa since 1914. The improvement in mortality from certain diseases was illustrated by graphs. The loss of working days in 1947 per person employed was 2.86 as a result of illness and 2.71 as a result of accident. The cost of the service, including hospital costs, is about 52s a year for each African worker employed. Other speakers gave an account of the organization of industrial medicine in the mines of Northern France, in the factories of the Netherlands, and in the leather and rubber industry of Czechoslovakia.

An Australian member Dr J H GOWLAND spoke on the medical officer's contribution to industrial efficiency. What can a medical man supply to industry which is not available from other sources such as the chemist, the engineer, the safety officer? And, again, in what circumstances will the doctor best be able to supply this service? Dr Gowland's suggestion was that while the doctor cannot be expected to know in detail the technique of a particular industry, his clinical knowledge and his professional prestige are of great importance. In Australian industries the medical service is in its infancy, and the speaker asked for criticism and guidance.

#### Medical Supervision in Industry

A session devoted to medical supervision in industry was opened by an official of the International Labour Organization, Dr H A DE BOER who said that the greatest service rendered by the international conventions and recommendations enacted during the last thirty years had been the making of medical examinations compulsory for certain groups of workers, both industrial and non industrial. Other directions in which medical science had made its influence felt through legal process had been factory inspection and the establishment of medical services. Dr H P DASTUR reported on medical supervision in Indian industries. The Indian Government had enacted an employees State Insurance Act, and the medical profession was urging the Government to start institutes of industrial hygiene. Difficulties of an industrial medical department in India arose from illiterate and migratory labour, the poverty of the country, shortage of food, lack of appreciation of the special needs of women workers, and the lack of industrial nurses.

A Belgian organization, the 'Centre de Medecine du Travail et de Psychotechnique' of Couillet, was the subject of a paper by Dr J NOPPIUS. The organization, which covered about 10,000 workmen, undertook clinical radiographic, and laboratory examinations, and there was a department for psycho-

logical investigation. It did not undertake treatment but handed over its records to the private practitioner. The majority of abnormalities or diseases which it had discovered related to the pulmonary or cardiovascular systems. Dr Noppius added that the records showed that fairly wide deviations from what was regarded as the normal cardiovascular and respiratory condition were compatible with apparently normal working efficiency, but a thorough knowledge of the individual worker was required to estimate the effect of strains and stresses.

#### Student Health Services

From medical supervision in general the discussion passed to the supervision of student health as a somewhat neglected branch of industrial medical care. Dr W G DONALD said that his University of California, which has 24,000 students in its community, had established a health service which diminished the possibility of contagion by compulsory examination on entrance and by vaccination, and controlled epidemics by immediate segregation of the sick in hospital and by putting their quarters in quarantine. It provided facilities for the treatment of the acutely ill and injured. It had a hospital of 180 beds capable of expansion to 430 on emergency, and an adequate medical and surgical staff. An out-patient clinic was open nine hours a day to give care and advice and twenty-four hours a day to deal with emergencies. The cost was borne by the university, and there was no charge to the student.



The Right Hon G A Isaacs, MP, Mr T E A Stowell, Professor Pierre Mazel, and Lord Moran, P R C P, at the inaugural session of the Ninth International Congress on Industrial Medicine

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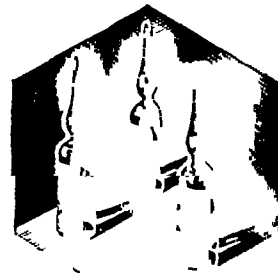
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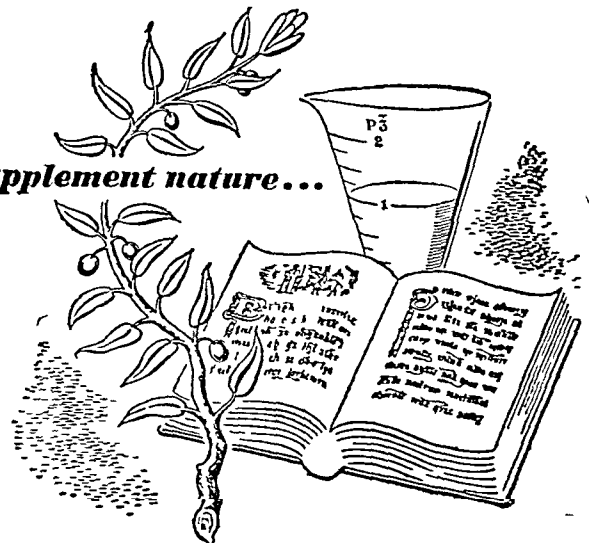
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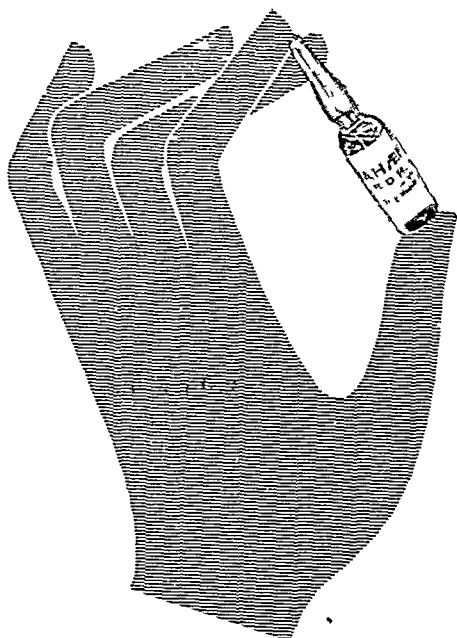
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he was in hospital for more than 30 days. The service also controlled the environment, health, and safety of the living and working quarters, and controlled the choice and preparation of food.

In some discussion it was suggested by medical officers in university centres in this country that the student was subjected to a special occupational stress in the shape of recurrent examinations—a stress to which young people in other occupations were not subject—which often brought about a lowering of health standards and sometimes breakdown. Dr W N LEAK said that the effort to improve student health should begin before the student's university career, and some approach should be made to head masters of county or secondary schools who tended to "push" students.

Dr DE VERICOURT spoke of a student health scheme in Paris which is run by the Ministry of Education. It included preventive medical control of all students, who were examined on entry into the university, and subsequently at certain periods. The examination employed laboratory and x-ray methods, and vaccination was required. In cases of tuberculosis the student was sent to a special sanatorium, where he had the opportunity, if he could avail himself of it, of continuing his studies, and from there he was discharged by easy stages to convalescent homes. In reply to a question Dr DONALD said that of the Californian students who came under the health service 60 or 70% in his judgment, were fit for military training.

#### Training of Industrial Medical Officers

Professor J M MACKINTOSH presided over a session for a discussion on the training of the industrial medical officer. Professor R E LANE said that the whole time industrial medical officer should have spent one year in postgraduate study in preparation for his work. Too narrow a specialization should be avoided. The preventive approach must be stressed all the time. Teaching might be by means of lectures and demonstrations, seminars, symposiums, and syndicates—meaning by this last the splitting up of a class into groups under a leader who, after discussion in the group, formulated their conclusions before the whole class. Drs R HUSSEY and S F MEEK put forward the American standpoint. Their view was that a formal educational programme was necessary for the industrial medical officer and that it should include periods of practical experience in the medical departments of commercial and industrial concerns. Professor R C BROWNE described the department of industrial health initiated by the Nuffield Foundation in the University of Durham in 1944. First priority was given to research and second to teaching, and the departmental effort was distributed about equally to the bedside, the laboratory, and the factory. Surveys on miners' nystagmus and the industrial health of workers were in progress. Throughout the whole of the research and clinical practice of the department there was the closest integration of clinical, industrial and social aspects.

Dr R S F SCHILLING put forward the view that what was needed in teaching was fewer general principles and more detail. He also said that the walls between the departments of public health and of occupational health should be thin, and there should be a communicating door. Dr W J LLOYD mentioned the value of getting undergraduate students to spend a morning at a factory. An Indian delegate suggested that the industrial medical officer should be first required to serve for from three to six months as a lay inspector of factories.

A subsidiary discussion dealt with industrial medicine and the law. Mr MOELWYN HUGHES K.C., and Dr P PRINGLE, expounded English law so far as industrial medicine is concerned in particular the major provisions namely, the Factories Acts and the Acts dealing with shops, ships, mines, and a few specific industries. The minimum requirements of occupational health prescribed by these Acts were supplemented in recent legislation by provisions for developing medical services through joint consultations on matters affecting health. Other speakers reported on labour legislation in Italy and in Argentina. Dr CATHERINE SWANSTON reviewed the protective legislation for women and young persons in industry. Even now the law as it stood in relation to women and young persons was in many respects out of date, illogical, and uneven in its application and required examination and revision.

#### Occupational Health and Rehabilitation Services

Dr G E GODBER gave a brief exposition of the British National Health Service. The greatest commendation the new service had received, he said, was that few people had noticed the change. The service had many gaps, but at least it had begun. Asked whether the available doctor-power and the actual cost of the service had been taken into consideration, Dr Godber said that the new service did not suddenly impose an enormous new burden on either financial or medical resources. It made the best use of what was available, and provided for development as resources increased. At least an even distribution was secured.

Dr G DECHARNEUX gave an account of a factory service at Liège of which he is chief medical officer, and which included, in addition to care of accident cases, specialist consultations and a medico social service. He said there was a cordial relationship between the factory doctor and the general practitioner, the former handed the cases over to the general practitioner for treatment.

The placement of disabled persons was discussed by Dr F E POOLE on the basis of the experiment originally developed at Lockheed, which had been used successfully there in placing over 20,000 'limited' employees. He pointed out that the majority of disabled persons had more ability than disability. Pre-placement examination should take cognizance not so much of any specific defect as of deficiency in the applicant's capacity which prevented him from performing certain types of work with safety. The problem was to match the 'limited' worker to the job he could perform without danger to himself or others. A Californian doctor, Dr B HANMAN pointed out that placement required a knowledge of the education, interests, aptitudes, temperament, and personality of the individual. Within each disability there were variations as wide as those in the general population. It was not sufficient to give a one-armed man a one-armed job.

Professor T FERGUSON described the development on the industrial estate at Hillington, near Glasgow, of a sheltered workshop for severely disabled men. The aim throughout had been to keep medical supervision so far as possible in the background and to run the enterprise on ordinary industrial lines. Benches were arranged so as to accommodate the disabled worker, doors were specified of a certain width to admit invalid chairs, and so forth. After two years the success of the venture was apparent. Over-all absence was only 7.5% of the total number of working days. The output had gradually risen and had become stabilized at about the tenth month. The directors considered that the financial result justified reasonable confidence in continued success. The best testimony was the happiness, enthusiasm, and sense of corporate life of the workers themselves. They worked as a team, helped each other, and developed social interests outside the factory.

#### Toxicology

Five sessions were devoted to toxicology. The first paper, by Dr A JORDI, described cases of psychic disorder observed in Switzerland as attributable to industrial poisoning by lead, mercury, and many organic solvents. The symptoms were loss of memory, slackening of mental processes, and nervous irritability. Treatment by vitamins B and C had proved helpful. Two Italian medical men mentioned the occurrence of epileptic fits in persons handling trimethylenetrinitroamine, an explosive obtained by treating urotropine with nitric acid. Of some 20 workmen exposed to the dust, 17 had convulsive fits or attacks with loss of consciousness, isolated or repeated.

The clinical aspects of hydrogen sulphide poisoning as seen in the Swedish shale industry were discussed by Dr G AHLBORG. During the last five years there had been 100 cases of acute and subacute poisoning, 20 of them with sequelae which could be followed clinically. Dr E BERG spoke of the early diagnosis of lead poisoning in Denmark by means of blood analysis. The blood lead, he said, was the most precise indicator of lead absorption and therefore the most important diagnostic criterion in prophylactic control. In Norway, according to Dr E THISEN-EVENSEN hexanitrodiphenylamine was liable to set up eczema in those working with it. Two Swiss physicians brought forward a few cases of bronchial asthma caused by  $\alpha$ - $\beta$ -dichlorodithiol

ether among workers in a chemical plant who had been exposed to high concentrations of this substance. Another Swiss observation was that high altitude was a means of treatment of chronic benzol poisoning. In 15 cases patients suffering from chronic benzol anaemia had been sent to Montana 1,800 m above sea level with good effect in every case.

Professor RENE FABRE discussed the toxicity of trichloroethylene and the symptoms of chronic intoxication caused by it, and emphasized the importance of determining the trichloroethylene content of the urine as a measure of its penetration into the system. Dr K REJSEK described an allergic illness in employees in a Czechoslovakian factory manufacturing castor oil. The illness was characterized by severe conjunctivitis and acute dermatitis.

British anti-lewisite was reviewed by Professor R. A. PETERS. Clinical trials with B. A. L. had proved effective therapeutically in a high proportion of cases in arsenical dermatitis. It had also an important therapeutic action in poisoning by mercury compounds. Professor S. CACCURI said that poisoning from TNT in munitions factories was often seen in Italy. The chief symptoms were blood changes and hepatitis. Experimental research had shown that TNT produced erythropenia, leucocytosis with eosinophilia, diminution of platelets, and prolongation of clotting time. Professor DERVILLE and Dr ROBERT related a few cases found in France of intoxication by TNT fumes or dust. The pathological effects consisted of nervous and digestive disorders and relapsing dermatitis. An unusual outbreak of mercurialism in an Italian felt-hat factory was described by Professor VIGLIANI and Dr BALDI: the principal symptoms being tremor, psychic excitability, gingivitis and rheumatic pains. Thanks to strict medical control and many hundreds of quantitative analyses of the mercury content of the fur, the water in the shrinking-tanks, the urine of the workmen and the air, new cases now hardly ever appeared.

### The Newer Metals

Great interest was shown in a discussion on the new metals especially beryllium. Professor W. MACHLE defined berylliosis as a general disease, characterized chiefly by pulmonary symptoms resulting from inhalation of finely divided beryllium compounds. He gave a clinical study of 60 cases occurring in the United States. Dr J. M. BARNES described an experimental investigation into the toxicity of beryllium. The average lethal dose, injected intravenously, for mice, rats, and rabbits was 0.75 mg per kilo. Death occurred in two to four days with liver necrosis but small quantities had been ingested for a year by rats and mice without producing any evidence of disease or pathological changes in the tissues. Dr C. R. WILLIAMS analysed the occurrence of about 100 chronic cases in the United States and their relation to the industries in which they occurred. He said that correlation of cases with environment still remained the most important evidence against beryllium.

In further discussion Dr J. N. AGATE suggested that berylliosis might become so serious that it would be well to press for it to be made notifiable. It would be a great advantage to get such legislation through before a really big crop of cases occurred. He also said that the liver biopsy procedure should be used wherever possible. Dr PETER NASH said that until the American experience which had just been related to the Congress no one had discovered any correspondence between the intensity of the exposure and the incidence of the disease. Dr H. LISCO said that in Chicago cases of beryllium poisoning were found in people who had been exposed for a very long time before giving evidence of any pathological manifestation. In his view beryllium should be treated as a radioactive substance so far as air contamination was concerned. Dr NIXON urged that individuals who had been exposed should be followed up for a long time after exposure had ceased. Lesions might appear as long as ten years after exposure.

Dr A. J. VORWALD and other American workers urged caution before applying in the clinical field the results of experimental investigations. There was still doubt whether some additional factor other than beryllium itself was not the precipitating agent. After a number of years' experimentation with beryllium it had not been possible to produce the classical unit lesion in animals. Dr C. R. WILLIAMS, an American worker, said that it did not necessarily require more exposure to produce an

acute case than to produce a chronic one. The maximum allowable concentrations had still to be determined and pending such determination it would be most unwise to give the authorities any figure which they could hang their hats on.

### Occupational Carcinoma of Bladder

Diverse views were expressed on the problem of bladder tumours in the dye industry. Dr G. H. GEHRMANN and two American colleagues presented evidence that aniline does not produce bladder tumours. Beta-naphthylamine was the only compound with which they had been able to produce tumours experimentally. The term aniline tumour of the bladder was a misnomer. Dr G. DI MAIO, who spoke in Italian, had found on urological examination of 186 workers some 34 tumours and 68 cases of congestion, most numerous among those employed in the benzidine department, and decreasing in the other departments, being lowest among the workers with aniline. Two other Italian contributors also said that benzidine had the highest carcinogenic power, beta-naphthylamine coming next, and aniline and the other amines being much less potent. A worker in Basle, Dr A. MÜLLER, on the basis of 132 cases of industrial disease of the bladder, found benzidine and beta-naphthylamine most prominent as causal factors. Preventive measures—combating dust by suitable construction of plant and buildings, replacing dangerous bases by innocuous salts and practising cystoscopy as a routine for all particularly endangered—had brought about the disappearance of several cases; other cases had been discovered in an early stage and timely treatment undertaken. Dr GEORGINA BONSER said that experimental investigation of this industrial disease lagged far behind clinical knowledge, and the reason was the failure to find a suitable experimental animal. Dr C. BELLESINI said that benzidine had been produced in a dye factory in Upper Italy during the last 15 years in such a manner that not a single case of tumour of the bladder had occurred among the workmen. These last two speakers declared that there was no real evidence that benzidine was carcinogenic.

Dr W. M. GOLDBLATT said that this disease was local to an industry. Men died of it and died in considerable numbers. Those who maintained that it had no relation to occupation should undergo a process of corrective education. The time had come when the disease should be compensable. It was most important in defining loss of faculty in relation to this disease not to define it in relation to a particular process. In spite of all the negative experiments the men who died had worked with benzidine or with aniline. To define loss of faculty only in relation to beta-naphthylamine would be cruel and unjust. He knew of one factory where from 14 to 16% of the men had had haematuria at one time or another. Many of them were going to die of carcinoma of the bladder, though by medical supervision and treatment their lives might be prolonged. They should be compensated by law, not left to receive an *ex gratia* payment from employers. Many who left the factory with a completely normal bladder so far as the cystoscope could determine, and showing no symptoms developed a tumour years afterwards. Dr Goldblatt analysed a series of 102 cases, and indicated the relatively early ages at which these tumours appeared as compared with the occurrence of bladder tumour in the general population. He concluded by asking:

Why should it only be the bladder? The answer was that it was not sometimes it was the kidney, as proved by pathological specimens.

### Pneumoconiosis and Other Lung Diseases

Many papers on pneumoconiosis were presented. Professor J. GOUGH and Dr J. E. WENTWORTH spoke on the pathology of the condition among coal workers in Wales and demonstrated a technique they had devised for cutting and mounting as permanent preparations thin sections of the entire lung. Dr A. BRUUSGAARD described a condition found in silicon carbide workers in Norway, 10 out of 32 on a plant producing carborundum showed changes in the lungs which could be detected in chest radiographs. Two Czechoslovakian workers described a pneumoconiosis due to exposure to the dust of stannous oxide. Silicosis in Switzerland was the subject of a paper by Drs F. LANG and A. STOKLY. Out of a total of 1,447 persons notified between 1932 and 1946, about 25% had died.

25% were on pension, and the remainder were still at work. About half the sick ended with an added tuberculosis. Workers from Belgium, Sweden, and the United States gave their experiences.

Dr T A LLOYD-DAVIES described a pneumonitis found in men exposed to the dust of manganese oxide. His conclusion was that the inhalation of the manganese-containing dust, without the operation of any additional factor, caused pneumonitis. Dr K M A PERRY mentioned an acute respiratory illness in which radiographs showed milary shadows throughout the lung fields among workers in a factory using bagasse, which is sugar cane after the sugar has been removed. Finland, apparently, is the country in which mass radiography is most popular. Dr CARL WEGELIUS said that about 70% of the population of Finland over the age of 10 had been examined—the highest known figure in mass radiography to date—and many people had been radiographed five times. The mass radiographs were collected in one central archive, where they were read by competent radiologists.

Metal fever produced by copper dust was described by Dr E H SCHIOTZ. It is a fever resembling "brass-founder's ague." The "copper fever" of Sweden and Norway corresponds to the "zinc fever" of Germany and the United States and the comprehensive designation "metal fever" was suggested. On this point Dr VAN LUUT instanced five cases seen in Holland in men who, while unloading ships, had inhaled a large quantity of the fine dust of copper sulphate snow used in agriculture and had shown symptoms lasting in an acute form for two months.

### Industrial Hazards

The hazards of specific industries occupied three sessions. Dr GEORGE FLETCHER spoke of byssinosis as found among card-room workers in Lancashire; it was an affection of the lungs which gradually developed over the course of years. Dr G BUCHANAN reported on the occupational hazards of the dock worker, more especially his liability to accident: an average of 8 000 accidents were reported yearly in dock labourers. Professor E A PALUCH set out the haemoglobin levels among certain occupational groups in Poland in the immediate post-war period. Industrial groups showed a mean haemoglobin level from 25 to 30% lower than that in corresponding English groups, whereas the haemoglobin level among agricultural workers in both countries was about the same. The leather trades came in for special mention. An account was given of various complaints found particularly among those engaged in shoe manufacture in Czechoslovakia. Dr ALICE STUART gave an account of the incidence of pulmonary tuberculosis in the Northamptonshire boot and shoe industry. She had found that in this industry the incidence of active tuberculosis was not uniformly distributed: men and women employed in large crowded workshops contracted the disease more frequently than those who worked in small rooms or less crowded rooms.

The dust problem in mines was the subject of a series of papers, among which should be mentioned Mr H H WATSON's study of the variation in dust conditions at the coal face. Potential hazards in the handling of radiant energy had a session to themselves. Dr G FAIR of the United States, laid down certain permissible limits of exposure to ionizing radiations. With ordinary x rays or gamma rays he suggested a permissible limit for exposure of the whole body of 0.3 roentgens per week, measured in air, for exposure of the hands only, 1.0 r per week, and for a single exposure of the whole body in a lifetime, 25 r for persons from 21 to 45 years of age and 50 r for persons over that age.

### Surgical Conditions Found in Industry

Mr WILLIAM GISSAN'S outline of the organization of an accident service was followed by a discussion in which Dr R A TREVETHICK and Dr H MOORE gave their experiences. The latter said that he was concerned as he went about the country to find the large number of excellently equipped dressing stations which were being used only for the dressing of simple injuries while all other cases went automatically to the general or accident hospital and often were not seen at the station at all the man coming back certified fit for his job.

He wished to see all cases of incapacity, if they were not of more than moderate degree, treated in industry, and also to see all cases that had been treated as out-patients in hospital coming back to industry for full treatment afterwards, provided the facilities were there. Dr GOEDERTIER said that in Belgium they did not like sending their cases of injury to hospital, preferring to treat them locally if possible.

Dr F FRIEND analysed the radiological appearances in 500 unselected cases of low backache and sciatica seen at Manor House Hospital. He declared that routine examination of the lumbo-sacral region in young people entering industry was as important as x-ray examination of the chest. Professor E D TELFORD discussed the pathology of "dead hand," and illustrated the causes, incidence, and contributory factors by referring to an extensive outbreak in an aero-engine factory. Although there seemed to be at present no means of abolishing the disease, various devices were suggested which might reduce its incidence. Drs S H HARRISON and ELIZABETH TOPLEY reported on an investigation made with a view to defining the value of systemic penicillin in finger-pulp infections. They concluded that there was evidence that local penicillin at operation and systemic penicillin for a complication were both much less effective than systemic penicillin started before operation. Dr R A TREVETHICK described investigations which had taken place at a branch of United Steel Companies into the incidence of sepsis in heavy industry and discussed prevention and treatment.

Professor W MACHLE and Dr F GREGORIUS reported on the occurrence of cancer of the respiratory system in the chromate-producing industries of America. A high death-rate from cancer was found among exposed workers: 23% of all deaths in the industry during the period of study were reported to be due to cancer of the respiratory system. Dr A THELWALL JONES said that among most surgeons there was no doubt at all of the considerable increase which had taken place in the incidence of bronchial carcinoma in men, and Sir CECIL WAKELEY who presided, said that even labourers in orchards were now liable to get this condition in the course of their employment owing to the universal adoption of the use of arsenic, copper sulphate, nicotine, and tar oil.

A number of papers were read on dermatological conditions met with in industry. Two French investigators described intolerable nocturnal pruritus among carpenters using iroko wood or African oak. Dr W BLOOD spoke of the erysiploid of Rosenbach, an occupational disease of the skin usually affecting the fingers or hands, and occurring among workers in the catering and allied trades. He described seven cases which had been successfully treated with intramuscular penicillin. Three workers described granulomatous skin lesions produced by beryllium compounds and showing a marked resemblance to sarcoidosis.

### The Workers' Environment

Sessions were devoted to various questions affecting environment—lighting, architecture, thermal comfort, and other factors. Discussing thermal acclimatization to hot climates, Dr MACDONALD CRITCHLEY said that the pathology of acclimatization was not well understood, and the psychology of it hardly touched upon at all. Tropical acclimatization was far from being a purely physiological mechanism. The acclimatized person had learned to adopt certain attitudes of mind, and the degree of his hardness, the state of his thyroid, and the number and distribution of his sweat glands might all be highly important in determining acclimatization. As for hardening for cold, he pointed out the curious fact that Arctic explorers were very much worse off in their second year in the Arctic than in their first. Acclimatization to the jungle (moist heat) implied some measure of acclimatization also to the desert (dry heat). It had not infrequently been noted that people home from the Tropics stood the cold rather better than the average person in this country. In Scott's expedition to the Antarctic the man who withstood the cold better than the others was an officer of the Indian Navy who joined the expedition in the Persian Gulf.

Illumination in factories and coal mines was discussed, and there was a symposium on colour vision. One contributor, Dr W D WRIGHT, said that from 4 to 8% of the male population had defective colour vision, and therefore pre-vocational tests were highly desirable, to be undertaken either at school



or in industry Dr L G NORMAN suggested that the mass testing of groups of school-children for colour vision would present a number of difficulties and advocated the establishment of centres at which full colorimetric tests might be carried out

Papers were also presented on atmospheric pollution, on the problem of fatigue, on electrical accidents, on job placement and analysis, and indeed on every aspect of industrial health

### Concluding Session

The concluding session was presided over by LORD WEBB-JOHNSON who congratulated all concerned on a successful Congress and paid a tribute to the pioneers in industrial medicine Mr G R STRAUSS M P Minister of Supply said that, although Great Britain was perhaps not the first country to concern itself nationally with the health of the worker he believed there were few countries where so much care was taken to secure health and safety in occupation and to look after the worker when sick and nurse him back to health The National Health Service made no less necessary the Industrial Medical Service and he was sure that medical men in industry would co-operate willingly in the National Health Service Mr Strauss referring to a series of papers on hazards and prevention in relation to radiant energy which had been presented to the Congress mentioned that his Ministry's Atomic Energy Research Establishment at Harwell would soon be producing enough radioactive isotopes to supply the entire medical demand in Great Britain and leave a surplus for export to meet the world demand

Sir EWART SMITH a member of the Advisory Council on Scientific Policy, followed with an address on the contribution of engineering to industrial health, and the Congress closed with complimentary addresses by Professor P MAZEL and Professor L CAROZZI vice-president and secretary-general respectively of the Permanent International Commission for Industrial Medicine which was founded at Milan in 1906 and includes representatives of twenty five countries

## SOCIETY OF MEDICAL OFFICERS OF HEALTH

### MR BEVAN'S ADDRESS

The Society of Medical Officers of Health held its annual dinner—the first since 1938—on Sept 16 The President of the Society, Dr Frederick Hall CBE was in the chair, and the principal guest was the Minister of Health, the Rt Hon Aneurin Bevan, M P

In proposing the health of the Society Mr Bevan referred in congratulatory terms to the launching of the National Health Service The period of controversy, he said, was now behind them, and they were all looking forward to fruitful co-operation This was a great experiment whereby a State-financed machine was co-operating with voluntary administration for the benefit of the public and the advancement of medical science He fully expected that as the months went by many defects, some of them never foreseen, would be revealed, but the usual British capacity for improvisation and adaptation would make them good One section of the community more harassed than any other by the possibility of heavy expenditure in serious illness was the middle and professional classes and Mr Bevan had been afraid that unwholesome propaganda might lead them to stay outside the Act That danger was past Already between 92 and 93% of the population had signed up with the doctors signatures were coming in at the rate of 150 000 a week and it appeared that by the end of the year practically the whole population would be in— This means that the health service will be a classless service, and every section of the community will be in full enjoyment of its benefits

Mr Bevan went on to pay a tribute to medical officers of health who had done a magnificent piece of work in getting ready for the Service and helping to launch it The development of the Public Health Service during the last hundred years was one of the great features of British history The relation of the Ministry with medical officers of health was quite special the Ministry knew the value of these officers and knew that

they would continue to serve as the unifying principle in the administration of the health service

Dr Frederick Hall in response spoke of the great importance of preventive medicine, which must be emphasized all the time if the National Health Service was to succeed in full measure He assured the Minister that medical officers of health would give every support to these new developments In reply to the toast of 'The Visitors,' proposed by Dr J Greenwood Wilson, Dr H Guy Dain, Chairman of Council of the British Medical Association, spoke of the good relations between the Association and the Society Working together they would do everything possible to ensure that the remuneration of medical officers of health was in line with that of other sections of the profession "One thing the Minister has done has been to solidify the profession, and this would enable the best results to be obtained from the Service Sir Wynne Cemlyn-Jones responded for the guests who represented local authorities and said that local authorities also would do everything possible to assist in bringing the new service into full operation

## Nova et Vetera

### THE HIPPOCRATIC OATH

The attempt of the World Medical Association to draft a pledge which can be adopted by medical men and women as a short code of ethics has given some publicity to the Hippocratic Oath, and also to the mistaken idea that this Oath is sworn to by the newly qualified doctor It is reproduced in very few histories of medicine, and so we print below the translation of the Pagan Oath given by Mr W H S Jones in his book *The Doctor's Oath* (Cambridge University Press, 1924) There are other versions of the Oath, one, for example, 'in so far as a Christian may swear it, and also an Arabic version

#### Pagan Oath

I swear by Apollo Physician, by Asclepius by Health by Heal-all and by all the gods and goddesses, making them witnesses, that I will carry out, according to my ability and judgment, this oath and this indenture

To regard my teacher in this art as equal to my parents to make him partner in my livelihood, and when he is in need of money to share mine with him, to consider his offspring equal to my brothers, to teach them this art, if they require to learn it, without fee or indenture, and to impart precept oral instruction, and all the other learning, to my sons to the sons of my teacher, and to the pupils who have signed the indenture and sworn obedience to the physicians Law, but to none other

I will use treatment to help the sick according to my ability and judgment, but I will never use it to injure or wrong them

I will not give poison to anyone though asked to do so nor will I suggest such a plan Similarly I will not give a pessary to a woman to cause abortion But in purity and in holiness I will guard my life and my art

I will not use the knife either on sufferers from stone but I will give place to such as are craftsmen therein

'Into whatsoever houses I enter, I will do so to help the sick, keeping myself free from all intentional wrongdoing and harm especially from fornication with woman or man, bond or free

"Whatsoever in the course of practice I see or hear (or even outside my practice in social intercourse) that ought never to be published abroad, I will not divulge, but consider such things to be holy secrets

Now if I keep this oath and break it not may I enjoy honour, in my life and art among all men for all time, but if I transgress and forswear myself, may the opposite befall me

Mr Jones also gives the oaths adopted by the Faculty of Medicine at Montpellier, and that taken by Glasgow medical students on graduation

## Correspondence

### Prevention of Dust Diseases of the Lung

SIR—Professor A Meiklejohn (Aug 21 p 399) rightly re-emphasizes the urgent need for a definition of the dangerous stage of pneumoconiosis at which a man must be advised to leave a dusty working environment in order to be safe from serious consequences. I do not believe that in defining this stage as 'pin-hole nodulation' Drs A Harper and J M Morgan (Sept 11, p 530) really get us any further for this is another qualitative term like Hart and Aslett's 'reticulation' and leaves unanswered the question: How much pin-hole nodulation? or, 'How much reticulation'?

Drs I Davies and K J Mann have this week presented to the Ninth International Congress on Industrial Medicine a proposed classification of radiographs of coal miners' pneumoconiosis which contains the quantitative element which has hitherto largely been missing from schemes of radiological classification of the pneumoconioses. Instead of giving descriptive terms to the various degrees of simple pneumoconiosis they use four numbered categories of increasing intensity. These categories are not merely defined by verbal definition but by standard radiographs.

In another paper which I and my colleagues contributed to the same Congress we record that out of 103 cases in which we have films showing the earliest stage of progressive massive fibrosis the associated simple pneumoconiosis is of category 3 in all but two cases. In these two cases it is only just below this category. We therefore suggest that men could be almost completely protected against developing massive fibrosis and its attendant disability if they were advised to leave a dusty working environment before they reach category 3 pneumoconiosis. It is because men in this stage are nearly always symptom-free that they can only be detected and given appropriate advice by routine periodical examinations. It should be noted that, with the institution of efficient dust suppression methods leaving a dusty working environment does not necessarily mean leaving underground work.

I still contend that men who have already reached a more advanced stage than category 2 simple pneumoconiosis may be advised to remain at their accustomed work under supervision if they so desire, so long as they have not got open tuberculosis. Some evidence in support of this contention is given in our paper referred to above. Drs Harper and Morgan only confuse the issue by introducing a completely invalid analogy between crush injuries of the hand and pneumoconiosis. If a man will be economically and psychologically better off by staying at work and if there is good evidence that he will not prejudice his health by so doing, then surely he should be reassured and advised to do so—I am, etc,

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Llandough Hospital  
Nr Cardiff

C M FLETCHER

### Control of Dental Caries

SIR—Your leading article (Sept 11, p 522) raises several interesting points concerning a subject that is badly neglected in the medical and scientific world. However, the general conclusions are rather negative and may, I think, be a little misleading. For example, you refer to the 40% reduction in caries incidence resulting from local fluoride applications. It is sometimes supposed that this figure refers to the number, or proportion of some population, who suffer from caries. It really refers to the number of new carious lesions detected in the teeth of American children in a certain time interval—i.e., the rate of caries attack in children, or the incidence of caries on the surfaces of their teeth—not its incidence on the population.

You also refer to claims made for this method of caries control, though it is the only method whose efficacy has been conclusively proved by repeated and rigorously controlled experiments on human material. The evaluating committee of the Michigan conference<sup>1</sup> refers to the findings as facts, not as claims and the Council on Dental Therapeutics of the American Dental Association<sup>2</sup> also regards the facts as conclusively proved. The journal of that Association has advocated

the general adoption of this technique.<sup>3</sup> The apparent reluctance of English dentists to accept this advice does not arise from any serious criticism of the validity of the American findings but from quite other reasons.

You agree with Weaver in regarding postponement of caries as distinct from real prevention, and regard a three- or five-year postponement as relatively brief. But relative to what? How long is the average life of an Englishman's tooth or set of teeth? The bulk of dental suffering in children results from caries of the temporary molars occurring in the last five years of so of their normal period of retention. Postponement of this would be real prevention. Also most permanent teeth are lost from parodontal disease, yet most dental pain results from caries. Even if one considers five years as a brief period by which to prolong enjoyment of a natural dentition, the avoidable suffering from toothache or dental treatment or both is not negligible. Surely prevention need not mean total prevention and a simple, cheap, and harmless method of partial prevention, whose limited efficacy is undoubted, does justify enthusiasm.

To wait for a universal panacea is unrealistic, and if we are to be only moderately satisfied with such a simple and certain method of partial prevention what must our attitude be to ordinary dental surgery, that most unpleasant and expensive of all methods of control? It cannot even be claimed that dentists postpone the loss of teeth from caries as much as fluorine is known to.

In finding no reference in the report to the effect of recent dietary changes you must have overlooked the remarks of Ricks<sup>4</sup> near the end of his paper. He said, "Recent post-war observations in England, Italy, India and Sweden emphasized the fact that the reduced sugar ration actually decreased the caries incidence of the population." You omit to mention what seems to me the most important conclusion of the conference, which is expressed in the evaluating committee's statement that "studies by a number of investigators indicate that the restriction of sugar, either refined or natural, is effective in the control of dental caries." They cite eleven references to support this statement. Dr D A Wallace in his keynote address to the conference stated that though carbohydrate restriction might be the best method of caries control it was not much use as a public health measure since it was not acceptable to the public.

It is paradoxical that while the Americans are too freedom-loving to apply much of their knowledge of caries control we on this side submit to having our diet planned by nutritionists who evidently lack that knowledge. The Ministry of Food's *Manual of Nutrition* favours concentrated starch and sugar foods and only refers to dental health in connexion with calcium intake, although there is practically no support for the theory that this is a factor in caries incidence. The neglect of this subject by English nutritionists is also apparent in a recent report on *Improvement of the National Diet* by the nutrition committee of the Central Council for Health Education. I have criticized this elsewhere.<sup>5,6</sup>

I believe that a policy for the prevention of dental disease is long overdue and I have before suggested that a conference such as that at Michigan University might usefully be held here. By making use of British and Continental as well as American literature it could make even more positive and useful recommendations, and to a Government that might be able and willing to act on them, at least to the extent of educating the public—I am, etc,

London NW 6

R B D STOCKER

### REFERENCES

- <sup>1</sup> *J dent Res*, 1948, 27, 432
- <sup>2</sup> *J Amer dent Ass*, 1947, 34, 700
- <sup>3</sup> *Ibid*, 1947, 34, 411
- <sup>4</sup> *J dent Res*, 1948, 27, 409
- <sup>5</sup> *Lancet*, 1948, 1, 723
- <sup>6</sup> *Ibid*, 1948, 1, 808
- <sup>7</sup> *Publ Hlth Lond*, 1948, 61, 173

### Fibrositis

SIR—With great interest I read the article on fibrositis by Dr Cynrix (July 31, p 251), which to my mind is written from a very one-sided point of view and necessarily invites criticism and many objections. The author writes that the "existence of fibrositis is denied by most pathologists" a statement which is likely to mislead the reader. What most pathologists may and do claim is that the macroscopic and microscopic examination of the diseased muscles does not show (by methods available at present) any morbid changes. But this fact is no evidence that there was no disease during life of the patient. The statement must be objected to that "going back to first principles (taking a detailed history, making a clinical

or in industry. Dr L G NORMAN suggested that the mass testing of groups of school-children for colour vision would present a number of difficulties and advocated the establishment of centres at which full colorimetric tests might be carried out.

Papers were also presented on atmospheric pollution, on the problem of fatigue, on electrical accidents, on job placement and analysis and indeed on every aspect of industrial health.

### Concluding Session

The concluding session was presided over by LORD WEBB JOHNSON who congratulated all concerned on a successful Congress and paid a tribute to the pioneers in industrial medicine. Mr G R STRAUSS M.P., Minister of Supply said that although Great Britain was perhaps not the first country to concern itself nationally with the health of the worker he believed there were few countries where so much care was taken to secure health and safety in occupation and to look after the worker when sick and nurse him back to health. The National Health Service made no less necessary the Industrial Medical Service, and he was sure that medical men in industry would co-operate willingly in the National Health Service. Mr Strauss, referring to a series of papers on hazards and prevention in relation to radiant energy which had been presented to the Congress mentioned that his Ministry's Atomic Energy Research Establishment at Harwell would soon be producing enough radioactive isotopes to supply the entire medical demand in Great Britain and leave a surplus for export to meet the world demand.

SIR EWART SMITH a member of the Advisory Council on Scientific Policy, followed with an address on the contribution of engineering to industrial health, and the Congress closed with complimentary addresses by Professor P MAZEL and Professor L CAROZZI vice-president and secretary-general respectively of the Permanent International Commission for Industrial Medicine, which was founded at Milan in 1906 and includes representatives of twenty five countries.

## SOCIETY OF MEDICAL OFFICERS OF HEALTH

### MR BEVAN'S ADDRESS

The Society of Medical Officers of Health held its annual dinner—the first since 1938—on Sept 16. The President of the Society, Dr Frederick Hall CBE, was in the chair, and the principal guest was the Minister of Health the Rt Hon Aneurin Bevan, M.P.

In proposing the health of the Society Mr Bevan referred in congratulatory terms to the launching of the National Health Service. The period of controversy, he said, was now behind them and they were all looking forward to fruitful co-operation. This was a great experiment whereby a State financed machine was co-operating with voluntary administration for the benefit of the public and the advancement of medical science. He fully expected that as the months went by many defects, some of them never foreseen, would be revealed, but the usual British capacity for improvisation and adaptation would make them good. One section of the community more harassed than any other by the possibility of heavy expenditure in serious illness was the middle and professional classes, and Mr Bevan had been afraid that unwholesome propaganda might lead them to stay outside the Act. That danger was past. Already between 92 and 93% of the population had signed up with the doctors. Signatures were coming in at the rate of 150 000 a week and it appeared that by the end of the year practically the whole population would be in. This means that the health service will be a classless service, and every section of the community will be in full enjoyment of its benefits.

Mr Bevan went on to pay a tribute to medical officers of health who had done a magnificent piece of work in getting ready for the Service and helping to launch it. The development of the Public Health Service during the last hundred years was one of the great features of British history. The relation of the Ministry with medical officers of health was quite special. The Ministry knew the value of these officers and knew that

they would continue to serve as the unifying principle in the administration of the health service.

Dr Frederick Hall, in response, spoke of the great importance of preventive medicine, which must be emphasized all the time if the National Health Service was to succeed in full measure. He assured the Minister that medical officers of health would give every support to these new developments. In reply to the toast of "The Visitors," proposed by Dr J Greenwood Wilson, Dr H Guy Dain, Chairman of Council of the British Medical Association, spoke of the good relations between the Association and the Society. Working together they would do everything possible to ensure that the remuneration of medical officers of health was in line with that of other sections of the profession. 'One thing the Minister has done has been to solidify the profession, and this would enable the best results to be obtained from the Service.' Sir Wynne Cemlyn-Jones responded for the guests who represented local authorities and said that local authorities also would do everything possible to assist in bringing the new service into full operation.

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### REFERENCES

- <sup>1</sup> *J dent Res* 1948 27 432
- <sup>2</sup> *J Amer dent Ass* 1947 34 700
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- <sup>5</sup> *Lancet* 1948 1 723
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### Fibrositis

SIR—With great interest I read the article on fibrositis by Dr Cyriax (July 31, p 251) which to my mind is written from a very one-sided point of view and necessarily invites criticism and many objections. The author writes that the "existence of fibrositis is denied by most pathologists," a statement which is likely to mislead the reader. What most pathologists may and do claim is that the macroscopic and microscopic examination of the diseased muscles does not show (by methods available at present) any morbid changes. But this fact is no evidence that there was no disease during life of the patient. The statement must be objected to that "going back to first principles (taking a detailed history, making a clinical

examination, and drawing deductions on accepted lines—procedures practised by every doctor) forces upon the unprejudiced observer the conclusion that the symptoms so readily ascribed in the past to 'rheumatic fibrositis' are all in fact the result of articular lesions.

Regarding the pathology of non-articular rheumatism it must be noted that many diseases are known which at present have no pathology. Migraine (paroxysmal headache) is a very well-known malady which belongs in this category. In many cases of angina pectoris the attacks of severe heart pain are due to transient relative anaemia (hypoxaemia), and are believed to be caused by a functional spasm of the blood vessels, but are independent of organic cardiovascular disease.<sup>1</sup> In gastrointestinal allergy attacks of severe abdominal pain occur, with no objective signs, which are completely relieved by adrenaline (Hurst). Severe pains in back, limbs, head, and eyeballs are a regular feature of many acute infectious virus diseases (smallpox, influenza yellow fever, etc.) In all these maladies no pathological changes are known at present to occur in the painful areas, and the assumption that an interarticular displacement is present is obviously out of the question.

I strongly object to Dr Cyriax's contention that the existence of spasm in several muscles provides a strong indication that the muscles themselves are normal, because several muscles may be and often are diseased. Nor is it correct to recommend as preconceptions to be discarded that a muscle in spasm is tender and that tenderness of muscle indicates a muscle lesion. Limitation of movements in more than one direction can and does no doubt occur if several muscles are affected.

For a proper understanding of non-articular rheumatism it is necessary to take into consideration at least two fundamental facts about muscle physiology. (1) A muscle contracting under ischaemic conditions (anoxia) gives rise to severe and agonizing pain (Sir Thomas Lewis) and (2) injection of hypertonic saline into a muscle is associated with referred pain (Lewis and Kellgren 1938). Similar clinical observations have been made and published by me.<sup>2</sup>

In 1938 I described muscular rheumatism (myalgia rheumatica) as a muscular disease localized in well definable parts of a muscle or its appendages. Several muscles may be affected (polymyalgia). The disease can be diagnosed objectively by the presence of myalgic spots, pressure on these spots elicits a severe and agonizing pain (not tenderness as described by most authors which may be present in a normal muscle). As a pathognomonic sign I described the very important fact that pressure on a myalgic spot elicits an involuntary movement by the patient—e.g., jerking of head, shoulder, etc., or the patient "makes a face". The spots, of which the patient is absolutely unaware, do not coincide with the painful skin areas complained of, which are of a referred character. The myalgic spot is harder to the touch than the surrounding area, nodules are very rarely present.

I have put forward the hypothesis that the myalgic spots are due to a local vasomotor disequilibrium, either vasoconstriction by stimulation of the sympathetic, or abnormal vasodilatation by stimulation of the vagus (vagotonia), which would lead to a deficient local circulation and anoxia. The theory accounts for the symptoms of myalgia and explains the fact that injection of procaine into the myalgic spots leads to a cure. The latter has been confirmed by many authors (Moynahan and Nicolson,<sup>3</sup> Kelly<sup>4</sup> and others). As a matter of fact evidence is accumulating that pain is very often a sympathetic phenomenon, produced by afferent vasoconstrictor axon reflexes from the periphery, and can be abolished by anaesthesia of the corresponding sympathetic ganglion (Leriche<sup>5</sup>).

Now Dr Cyriax contends that primary rheumatic fibrositis is an imaginary disease. The symptoms erroneously ascribed to this condition are all the result of articular disorders (largely internal derangement) at the spinal joints. This is a very one-sided assumption for which no evidence is given (x-ray findings, narrowing of an intervertebral space). That manipulative treatments help or improve some cases is certainly no proof. On the other hand, the fact that local anaesthesia of all myalgic spots leads to a cure shows conclusively that an internal derangement at the spinal joints is a theory which scientific medicine cannot accept.

It would appear that displacement of an intervertebral disk has become a fashionable diagnosis, which in the opinion of

many authorities is much too frequently diagnosed. Dr Cyriax's article may, I am afraid, make doctors take up a wrong attitude towards the patient. Either psychoneurotic pain will be diagnosed, or medical men will, influenced by the theory of a displaced intervertebral disk, subject many patients unnecessarily to the severe ordeal of laminectomy. In my opinion this operation should not be considered unless there is conclusive x-ray evidence of a prolapsed disk and myalgia has with certainty been excluded—I am, etc.,

London N W 11

M G GOOD

#### REFERENCES

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- <sup>2</sup>Ibid p 751
- <sup>3</sup>Brit J phys Med 1938 n.s., 1 302. *Lancet* 1940 2 327. *Practitioner* 1941 146 167. *ibid* 1942 148 236. and *Ann rheum Dis* 1942 3 118
- <sup>4</sup>British Medical Journal 1942 1 65
- <sup>5</sup>Med J Aust 1941 1 294
- <sup>6</sup>The Surgery of Pain 1939 p 41 London

#### Intra-abdominal Hydrocele

SIR—On reading through the *British Medical Journal* for the past year I came upon Messrs D P Burkitt's and B N Kununka's interesting description of a case of abdominal hydrocele from the Lango district of Uganda (Aug 2, 1947, p 175).

In 1935 I published an account<sup>1</sup> of two cases of this condition in the Teso district of Uganda, one of the cases being of the same (Alango) tribe as that described by Burkitt and Kununka. At this time I could only find reference to 36 previously recorded cases. Dr E V Hunter, however, told me of a case which he had also seen in the Teso country, so the disease does not appear to be very rare in endemic hydrocele districts such as the Eastern Province of Uganda.

I have made no study of any recent literature on the theories of causation. Macewen<sup>2</sup> believed that the funicular vaginal portion of the peritoneum, instead of terminating on the abdominal side at the internal ring, was carried as a sheath along the anterior aspect of the cord, "so that this funicular vaginal process of peritoneum would be continuous and patent from the testicular covering to the deepest part of the pelvic portion of the cord. When this elongated sac became distended with fluid a bilocular hydrocele would form, the constriction being made by the aperture in the abdominal muscles through which it passed."

The most probable explanation, and one which has been supported by Jacobson, Reclus, and Villeneuve, is that distension with fluid occurs in a funicular vaginal process which is patent from the scrotum up to the internal abdominal ring. The internal pressure within such a sac causes expansion into the abdomen. This is the theory which is favoured by Burkitt and Kununka—I am, etc.,

Nakuru Kenya Colony

A D CHARTERS

#### REFERENCES

- <sup>1</sup>British Medical Journal 1935 1 470
- <sup>2</sup>Practitioner 1896 57 123

#### Lumbar Sympathectomy for Varicose Ulcers

SIR—I read with interest Mr Harold Dodd's letter (Sept 11, p 532) on this subject, and was surprised at his interpretation of my article (July 24, p 203). Unlike Dr Marcus Werquin, of Paris, I do not advocate it as a primary treatment for chronic varicose ulcers. As clearly stated in the article, "only because all non-operative and all available operative procedures had failed was sympathectomy considered", and then only because there was a vascular-stasis factor present with cyanosis which was shown to be relieved following lumbar paravertebral block.

I wish to point out that in none of these four patients was lumbar sympathectomy thought of or resorted to until it was proved in each, by reference to past surgical records, scars, and veins on their legs, that the following criteria were satisfied: namely, there had been an adequate high ligation, with division of the internal saphenous vein at the saphenous opening; division of all named and unnamed branches there, besides, when necessary, further lower multiple division and excision of this vein lower in the leg, without any healing of the ulcer. To save printing space, this procedure, which is routine in Mr Maingot's clinic at Southend, was not specifically stated in full but was implied in each case history.

I fully agree that supportive bandaging fortunately heals most varicose ulcers, but one has only to work and personally treat these patients in an out-patient varicose vein clinic,

was my duty while at Southend-on-Sea General Hospital, to realize that "some, in spite of all medical and surgical treatment, remain a chronic anti social disability to their unfortunate owners." It was these that it was my pleasure and privilege to treat and thus far alleviate.

I agree that lumbar sympathectomy has but a small place in the treatment of ulcerated legs, but when it can be shown to heal chronic ulcerated legs where there is an associated element of cyanosis which responds to reflex vasodilatation, as did these, then it must be considered. I further believe in the importance of continuing to wear an elastic stocking after treatment to protect the skin from trauma from without, and oedema from within—I am, etc.,

Shotley Bridge Co Durham

JOHN BORRIE

### Treatment of Indolent Ulcers

SIR—The countrywoman's philosophical attitude to an indolent varicose ulcer from which she may have suffered for years is often that "it is best not to heal it, lest the poisons be driven inward." In the days when such ulcers were incurable it was a comforting attitude of mind although it offered little bodily comfort.

Faced with ulcers of considerable size and venerable age whose possessors refused to have their veins treated though their legs resembled a map of the Nile delta with its manifold ramifications, one was left with the problem of alleviating the pain without any possibility of putting the patient to bed owing to unending household duties and lack of help. After many experiments I find that the following is more satisfactory than anything of which I have read.

Gentian violet 1% is stirred into sulphonamide powder until it forms a creamy paste. The ulcer, previously cleaned by hot fomentations for two or three days, is now filled in with the paste level with the skin surface. The paste is allowed to dry thoroughly, which takes 15 minutes. This drying is essential, as otherwise the filling pulls away at subsequent dressings. The area is covered with a piece of well powdered gauze or lint, and the leg bandaged in the usual manner from toes to knee with crepe bandage, ichthamol paste bandages, or, if the patient's skin is tolerant, an elastic adhesive bandage in which a window is cut to facilitate weekly dressings. At the first dressing the GVS (gentian violet-sulphonamide) filling usually comes away with the lint, but thereafter the discharge and seepage ceases, and at subsequent dressings the GVS filling remains adherent to the ulcer and only a few cracks need touching up. The filling remains as a sterile scab under which the ulcer heals.

Pain is relieved almost completely during the first week, and in six weeks ulcers of 10 years' duration have healed without rest in bed. If the patient can rest or will have injections, ligation or other curative measures for the varicose veins, so much the better, but for the local treatment of indolent ulcer I have found nothing better, and after a two years' trial pass on the information, as the alleviation of pain is quick, marked, and pleasing to the physician and more so to the patient—I am, etc.,

East Dereham Norfolk

ERIC PUDDY

### Use and Abuse of Tonsillectomy

SIR—The correspondence on this subject appears to be developing along the usual lines of violent antagonism and protagonism, exemplified by Mr T B Layton (Aug 7, p 310) and Dr A M Tait (Sept 11, p 534). May I suggest that, as usual the truth lies somewhere between the two? There is little doubt that far too many tonsils and adenoids have been removed and probably still are being removed. On the other hand no general practitioner or specialist who has dealt extensively with these cases will deny the very real benefit reiterated again and again by the parents and only too obvious in the children, of the removal of truly diseased tissue. Risking accusations of facile optimism, I would suggest that the abuse is lessening and that there are several good reasons for this. Without in any way wishing to restart the guillotine-versus dissection controversy it may be said that in the heyday of the guillotine "Ts and As" was carried out as a trivial procedure as a sideline either to general practice or to general surgery in many instances.

Since the indications and otherwise for the procedure tend to be skimped in the teaching of a crowded syllabus and are often inadequately dealt with in general textbooks it followed that however

competently the actual technique was carried out there was apt to be a lack of study and appreciation of the basic physiology and pathology of the region and conditions concerned. With crowded clinics, the "snatching" of tonsils, and over rapid discharge from hospital there has been a natural tendency for the percentage of unnecessary operations to be considerable.

Several important factors are motivating slowly against this tendency. First, the sifting of patients by general practitioners and school medical officers has, even in a limited personal experience become more accurate. Whether this is due to a general improvement in knowledge of the subject or to belated realization of the misfortune of an unnecessary operation it is hard to say. Secondly the gross shortage of nursing staff and therefore of beds and theatre facilities tends towards more stringent selection at hospital-clinic level. Thirdly, the general teaching and increasing use of careful surgical dissection enable the tissues to be more leisurely and accurately examined at operation and therefore a better picture of the normal and abnormal formed.

The indications and contraindications for operation are admirably discussed in several small ENT textbooks and several general volumes, and if they are accurately and deliberately applied, with an unhesitating trial of conservative measures in doubtful cases, unnecessary operation should be a rarity. As regards x-ray treatment mentioned by Dr J H Douglas Webster (Sept 11, p 534), I would suggest that this useful measure is in danger of disrepute through misapplication. It is the general experience, as exemplified in the literature on both sides of the Atlantic that simple hypertrophy is *per se* very rarely an indication for operation and will usually resolve with age and conservative treatment. As in the once popular cautery of the tonsil (other than remnants) the mere diminution in the size of the infected organ, whether by scarring or by elimination of still active lymphoid tissue, tends towards the retention of buried sepsis in the crypts, from which it is no longer freely milked by the pharyngeal muscles, and to more serious toxic consequences. The very real value of irradiation in dealing with adenoid remnants and peritubal and submucosal lymphoid tissue in early cases of catarrhal deafness, recurrent otitis media and otitic barotrauma is probably still insufficiently appreciated—I am etc.

Bath

A DAUNT BATEMAN

### Volvulus of the Caecum

SIR—Dr I R Stillman (July 31 p 255) reported two cases of volvulus of the caecum and referred to Mr Ralph H Gardiner's earlier report of three cases (*British Medical Journal* 1947, 1, 83). The following are notes on a case which occurred in my practice 16 years ago.

A female patient aged 63 was seen at about 4 p.m. complaining of abdominal pain and vomiting. Her past history was given as influenza and an operation for "cancer" of the right breast 30 years previously. The present attack had started with pain in the upper abdomen accompanied by vomiting at 7 a.m. that morning. The pain was of sudden onset and very severe. The patient had had her bowels opened that morning but had passed no flatus since. Micturition was normal. On examination the patient, who was very thin, was found to have a pulse of 112 and temperature of 98.2° F (36.8° C). The abdomen was distended and a tense tumour was found in the right side. A provisional diagnosis of hydrops of the gall bladder was made.

At 7.30 p.m., under ether anaesthesia, Mr Harold C Edwards performed a laparotomy and found a volvulus of the caecum and first 3 in. of the ascending colon, with obstruction by a band of great omentum adherent to peritoneum in the right iliac fossa. The caecum was greatly distended, its wall being the thickness of cigarette paper. Caecostomy was performed, the volvulus undone, and the band divided. A large catheter was tied into the caecum.

Recovery was complicated by abdominal distension which yielded to treatment by enemas and "pneumatisms." Some altered blood was passed by the caecostomy wound on the third day. The bowels were kept open by means of enemata, and aperients were used from the 8th day onwards. The caecostomy opening closed within 12 days. The patient is still alive and well and has had no further abdominal trouble, although she wears a belt for a ventral hernia which developed at the site of the caecostomy wound.

As in the other cases already referred to the predisposing cause of the volvulus was the presence of a caeco-colic mesentery. The omental band was probably the factor which precipitated the obstruction, the volvulus occurring as the caecum distended—I am, etc.

Parley Surrey

C E TAYLOR



### Trilene as an Analgesic

SIR—The problem of relieving pain in childbirth for patients attended by midwives has been a matter of very considerable concern and has received spasmodic public and medical interest for many years past. The introduction of the new Health Act serves to urge one on in an attempt to improve the lot of these patients in this particular respect, since it is likely that still fewer women will be able to obtain the services of a doctor during childbirth.

Attention has for too long been focused upon the use of gas and air, seemingly to the exclusion of other means of relief. It is no use struggling on to overcome the difficulties of gas and air, since the inherent disadvantages are insuperable. The apparatus is too bulky and heavy for it to be part of a midwife's equipment, even if featherweight cylinders were available; their capacity is limited. Midwives for whom a car is provided would be the only ones able to carry the requisite number of cylinders, but each midwife would need at least two complete outfits to ensure every patient receiving this form of analgesia. It is time, therefore, that a much more serious and balanced consideration be made of alternative means.

In trilene we have the best of such alternatives. It requires no bulky apparatus, and a 4 oz. bottle is all that need be carried apart from a small, compact inhaler. If trilene is administered through any of the recognized inhalers, and there are several, I believe it to be completely safe in the hands of any midwife, and there is no doubt that the relief it affords by way of analgesia, as distinct from anaesthesia, is equal if not superior to that of gas and air.

I have used trilene in my own practice for three years, the duration of time over which it has been administered to individual patients varying from one to six hours, using the Woodfield Davies modification of the Freedman inhaler. In hospitals with which I am connected trilene has been used for a very large number of patients, and, although one does not expect 100% success, so far as satisfactory relief of pain is concerned the opinions of these patients show that all but a very small minority received adequate relief. I have not met with a single case in which trilene has been the source of the slightest anxiety, and I believe that properly administered in a sealed inhaler in which only a certain amount can be placed it would be completely safe to allow its use by midwives after very minor instruction.

I would advocate, therefore, that the time has come when the authorities in whose hands the control of such matters lies should take active steps. The means of relief exist. They should be made available to the greatest possible number of patients and moreover their employment should be obligatory upon the part of midwives, many of whom fail to use the facilities which even at present they can command—I am, etc.,

London W1

F. NEON REYNOLDS

### Paludrine

SIR—I have read with interest the letter on the subject of paludrine from Dr E. S. Walls (July 24, p. 225), who has been using it on the West African coast near Sierra Leone with rather disappointing results.

Here in Malaya it has been used extensively, and on the whole with satisfactory results, particularly in the treatment of enlarged spleens among children. From this point of view paludrine is the most effective treatment we have so far employed, as well as being the least unpleasant to take. But as a treatment for the reduction of fever it has scarcely ever been used here owing to its frequent unreliability in the dosage originally recommended. For this purpose mepacrine is more effectual, especially when given in a double dose (0.2 g.) thrice daily until the fever declines. But this again is not as reliable for this purpose as quinine in 10 gr. (0.65 g.) doses thrice daily. The effectiveness of quinine appears to vary to some extent according to its solubility, and the bi-hydrochloride (produced by a reputable firm) is still the most reliable in reducing temperature, especially when (though only as a last resort) this is given as an intramuscular injection.

It would appear that Dr Walls has to deal with a virulent strain of malaria parasite, presumably falciparum, and also perhaps a highly infective vector. Under these circumstances it would be unwise to expect any one measure alone to be

completely effective. It is most likely, however, that other preventive measures are also being undertaken. Some of us here in Malaya are now using only two methods, which so far have given satisfaction and are not expensive: prophylactic paludrine, and the periodic indoor spraying of all living quarters with DDT or gammexane.

Fortunately, or unfortunately from the point of view of testing recent methods of malaria prevention, we have not yet had a really severe malaria season since the Japanese occupation. And that is where Dr Walls could help us greatly. In the personal prevention of malaria the trouble seems to be that there are few, if any, antimalaria drugs capable of attacking the pre-erythrocytic parasite recently demonstrated in the liver tissue. Enlargement of the liver as well as the spleen is probably an indication of multiple new infections. In some of these severely infected cases satisfactory results have followed treatment with mepacrine (0.1 g.) thrice daily for a week, followed by paludrine (0.1 g.) thrice daily for a week, and then bi-weekly mepacrine (0.1 g.) followed by bi-weekly paludrine on the alternate weeks. We do not know any reason why this should be better than paludrine alone, but it would be of great interest if Dr Walls would try this alternating treatment and compare it with a similar continuous paludrine course. An alternative course of quinine, iron, and arsenic could also be worth a trial, using quinine hydrochloride if available.

Another valuable remedy which he could employ on those under his close observation is what used to be known as 'quino plasmoquine'—a tablet containing 0.3 g. of quinine with 0.01 g. of plasmoquine. This, unfortunately, is no longer on the market, but plasmoquine is available under the name of pamaquin. When this combination is used carefully, with alkaline mixture and glucose, the results in several cases have been very satisfactory—I am, etc.,

Johore Bahru, Malaya

J. NORMAN DUGDALE

### Treatment of Fungus Infections

SIR—The problems associated with the diagnosis and treatment of fungus infections of the skin are many and varied, and in regard to treatment the attitude of the patient is of very considerable importance. It is my experience that if the treatment advised is to be given a reasonably fair trial it must of necessity be simple of application, time-saving, preferably odourless, and, especially in modern times, have little if any deleterious effects on clothing, bed linen, etc. In this connexion it is frequently the better educated members of the community who are the prime offenders, and none more so than medical colleagues. The average doctor has little enough time for relaxation, let alone to indulge in some complicated, time-consuming, and frequently messy treatment, and having had some personal experience of this type of thing I must candidly admit to having been a rebel in the past.

While all agree that the ideal therapeutic objective is a radical cure substantiated by microscopic and possibly cultural examinations, it will be generally admitted, especially from the patient's viewpoint, that clinical cure as judged by alleviation of signs and symptoms is eminently satisfactory.

From experience during the past five years I have found phenyl mercuric nitrate to provide the answers to many of my difficulties. In the form of a commercial preparation (ointment and powder) containing 0.05% phenyl mercuric nitrate it has served to procure the maximum number of clinical cures in the minimal space of time. A very widespread outbreak of epidermophytosis in the Durham coalfields was speedily controlled and absenteeism on account of incapacitating and painful foot rashes was reduced to infinitesimal numbers. Similar results have been noted in regard to members of football clubs in the district.

The routine method, combining prophylaxis and treatment, was as follows. Washing of the feet is followed by thorough drying and the application of ointment, and the insides of the socks or stockings are well dusted with powder. Few measures could be less time-consuming or simpler, and when the Durham miner adopted it after rebelling at the use of foot baths, malachite green, etc., it spoke volumes for its efficacy and simplicity, because he is a most discriminating individual.

Cases of tinea cruris have been treated with similar results and more recently I have had the opportunity of observing the

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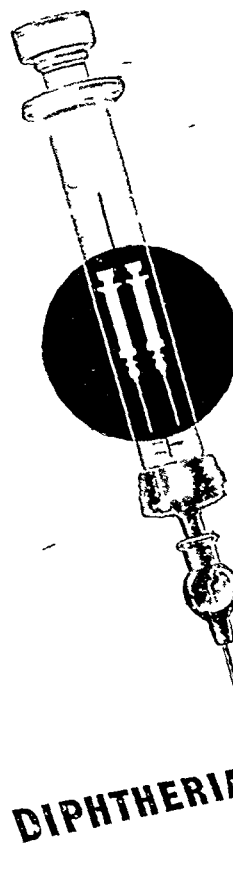
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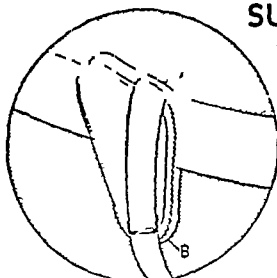
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ects in a number of cases of tinea capitis who for one or her reason presented epilatory problems, and the results have been encouraging

In the circumstances I have good reasons to recommend phenyl mercuric nitrate (0.05%) for its high potency, low toxicity, the fact that its action is unimpaired by the presence of body disintegration products, and it admirably fulfils the requirements which I have initially outlined in this letter—I am, etc.,

Darlington

W GILLIES ANNAN

### Dermatomyositis

SIR,—Dr J MacD, Holmes (Sept. 11, p 511) gives an excellent picture of acute dermatomyositis with a probable etiological factor in the *Str. viridans* cultured from a muscle biopsy. Unfortunately neither his claim to be the first to isolate an organism from muscle biopsy nor his hopes that modern therapy will greatly influence the cure rate can be maintained.

Dermatomyositis was first described by Wagner<sup>1</sup> in 1863, and cases had been reported by Potain and by Marchand<sup>2</sup> before the syndrome was recognized by Wagner, Hepp, and Jnverricht independently in 1887. Organisms have been found in many cases, dating back to Fraenkel<sup>3</sup> in 1894, who found a streptococcus in two cases. Fox<sup>4</sup> in 1913 claimed to have isolated a specific organism from blood culture and named it *Micrococcus polymyositis*. O'Leary and Waisman<sup>5</sup> in 1940 reviewed 10 cases seen at the Mayo Clinic and reported streptococci in five muscle cultures, diphtheroids in three, and staphylococci in one. Many other agencies have been incriminated, including carcinoma (Stertz,<sup>6</sup> Pick<sup>6</sup>) and thyrotoxicosis (Heuer<sup>7</sup>).

In view of these reports and many others not quoted for lack of space it appears that Dr Holmes provides only one more to a long list of primary causes giving rise to dermatomyositis. Treatment by penicillin or sulphonamides is likely to be effective only in cases where a sensitive primary agent is present, and unfortunately this is not commonly true.

Most of the misconceptions about dermatomyositis are due to the few cases seen by any one physician and consequent generalization upon inadequate data. An article based on the study of reports on 188 cases is in preparation which it is hoped will cast some light on this controversial subject. It is at least hoped that this letter will stimulate a search for a primary agent, rather than to subject every victim of this distressing complaint to long courses of penicillin and sulphonamides, which will usually be ineffective and add to the patient's distress—I am, etc.,

London WC1

ERIC SMITH

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- <sup>5</sup> Amer J med Sci, 1913 145 879
- <sup>6</sup> Arch Derm Syph. Chicago 1940 41 1001
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- <sup>9</sup> Amer J med Sci. 1916 151 339

### Artificial Insemination

SIR,—In the *Journal* of Sept 11 (p 523) you devote an annotation to the report on artificial insemination just issued by the Commission appointed by the Archbishop of Canterbury. One of the findings of the Commission runs as follows:

'In our view, the evils necessarily involved in artificial insemination (donor) are so grave that early consideration should be given to the framing of legislation to make the practice a criminal offence (my italics).'

This suggestion can only be described as a monstrous impertinence. I do not question the right of any Church to lay down rules for the conduct of its own members. If any person wishes to obtain what he considers to be the advantages that adherence to any particular faith brings him, he must be prepared to conform to the standards of behaviour demanded by that faith or to suffer excommunication or such other penalty as is imposed by the Church for lack of conformity. He cannot expect to eat his cake and have it. I have, therefore, no sympathy with Church members who, for example, complain because, since they are divorced persons, the Church

refuses to give its blessing to their remarriage (The Church does not, up to the present, attempt to prevent them being married by a civil ceremony).

But that any Church should attempt to compel citizens who do not belong to its membership or acknowledge its authority to conform to its standards of behaviour is intolerable in a free community. We inveigh against the tyranny of totalitarian States, Nazi, Fascist, or Communist. The tyranny that the Churches would exercise, if they had the power, would be no less totalitarian. It is for all thinking men and women to be ever on the watch that the Churches do not obtain such power—I am, etc.

London W1

NORMAN HAIRE

### Wives of Service Medical Officers

SIR—I was more than interested to read Lieut D R Morgan's concise account (Sept. 4, p 500) of his difficulty in attempting to get his wife out to the Far East. As a fellow sufferer, though in a country more favourably placed than he, I can sympathize. I too have met with the hard official mind which conspires against the well-being of married doctors who through no fault of their own happen to be under 25. In B A O R, even when married quarters are available and one offers to pay the passage of one's wife and family, yet one's application is refused. Because one was born too late or qualified too soon one is denied the stability possible when two married people live together. No matter that British civilians over here may bring their families out to them, and likewise any private soldier over 21 may live here with his wife. Resident families can invite their mothers, fathers, sisters, and brothers for a holiday in Germany. Yet there is some 'reason' why a young doctor may not have a quarter for his wife.

Though one could in theory qualify and practise the delicate art of medicine at the age of 21, yet the Services do not consider a doctor old enough to live with his wife until he has achieved another five years to his credit. For a country striving for security and stability in future years how farcical an attitude its leaders take towards their younger generation! How can a family begin on a stable emotional footing when they are separated for periods even so seemingly short as six months? During time of war it was often necessary for husbands in the Services to be away from their wives and families for long periods of time. The existence of the nation came before consideration of the welfare of the individual family units. Now in time of relative peace the future of the nation depends on the stability in every person's life and home. I would end by expressing my agreement with Lieut. Morgan that when separation is not necessary it is indeed criminal cruelty when enforced for no beneficial purpose. Certainly no amount of official explanation will ever make it otherwise—I am, etc.,

J H ATTED  
Lieutenant R A M C

### Fitness to Drive

SIR,—Despite all the efforts of various authorities and experts to reduce the casualties on the roads the figures are still appalling. Studies have been made by engineers, road surveyors, and other technicians. Propaganda, most of it excellent, is carried out to influence both the adult and child population, and still the terrible toll of the roads goes on. In the last analysis the human factor is the important nucleus of the problem. At present any car driver fills a form stating he is free from certain disabilities and is fit to drive. After some serious accident the driver, when found to be unfit to drive, may or may not receive some punishment for his wilful mis-information. This procedure of delayed closing of the stable doors is of little value except to satisfy punitive members of the bench. Meanwhile doctors have difficulty in finding hospital beds for other cases.

It would appear desirable that the claim of a would-be driver, that he is fit to be in charge of a lethal weapon, should be substantiated by a medical board before the accidents happen. It is of course obvious that at the present time medical men have sufficient to cope with, and a further duty of certification of this nature might be impractical at present. The matter, however, is one which merits serious consideration. A second

point arises which is the immediate purpose of this letter I have frequently examined men who are obviously a potential menace as drivers—for example, chronic anxiety states with complete lack of self-confidence, individuals who suffer from frequent black-outs and so on. Many of these are professional lorry drivers who inform me and my colleagues that they would like to give up this job but cannot afford to do so. This week I saw a man with post-traumatic personality changes and deterioration following fractured skull and subarachnoid haemorrhage who recently became a lorry driver in the hope that this would help his nerves.

Discussion with nearly a score of my colleagues who have had similar experiences resulted in agreement on two points: one that doctors examining a patient for various purposes, such as medical boards of different kinds, have no right or duty to inform any authority of their opinion on this matter, and that doctors in private practice would be violating professional confidence if they took any action from a sense of public duty; two that it would be a proper procedure to write to you to learn the views of the profession generally. In addition, it was suggested by some that perhaps this is a matter on which the Ethical Committee might well provide some guidance—I am, etc.

London W 1

S SHARMAN

### Shortage of Nurses

SIR—In his letter (Sept 4, p 500) Dr N Strang states that the numbers of nurses in employment in this country are dwindling. Nothing could be further from the truth. It is estimated that there are some 29 000 more nurses and midwives in employment in Great Britain now than in 1938, and, while no strictly comparable figure for 1938 and 1948 for hospitals is available, all the evidence seems to show that hospitals have at least kept pace with the general increase and probably done rather better than that. In March, 1948, the number of nurses and midwives employed in hospitals in Great Britain was 142 534, and the number in the public health and domiciliary services brought this to a grand total of 168 840, out of an estimated total of 189 000 nurses and midwives in all forms of employment. The increase in the numbers employed in hospitals only in the last nine months is 4 900 and the increase in the public health and domiciliary services together with the hospitals 6 100.

As regards student nurses and pupil midwives the numbers have risen from 43 300 to 52,079 if 1938 is compared with 1948, an increase of about 20%.

It is true that many more nurses and midwives are needed to meet the expanded demands for their services and to enable available beds to be opened, but it is important not to discourage recruitment by suggesting that the numbers of nurses and midwives are declining—I am, etc.,

Ministry of Labour and  
National Service

L H HORNSBY  
Director of Public Relations

### POINTS FROM LETTERS

#### Rutgers 612

SIR RICHARD CHRISTOPHERS, Cambridge, writes. The following information given in a letter from the Carbide and Carbon Chemical Corporation, New York, regarding the mosquito repellent Rutgers 612 may be of interest to some readers. This substance under the trade name of insect repellent 612, 'would appear from the letter to be solely manufactured and marketed by the above-mentioned firm and not as stated by me in my paper on mosquito repellents in Vol 45 of the *Journal of Hygiene* by the National Carbon Company who are no longer concerned in this respect. My statement based on information available at the time that Rutgers 612 was not a pure substance is also objected to, as it is stated to be better than 99% ethylhexanediol, probably the purest heavy tonnage industrial diol being marketed to day. Also there now seems to be no difficulty about short supply, the letter stating that the productive capacity of the firm is many times the current demand for this material. Lastly, the firm's letter states that Rutgers 612 is not, as was stated, a paint and plastic solvent and that it does not dissolve or soften rayon, nylon, and certain other plastics mentioned or nail lacquer. Rutgers 612 is a very effective insect repellent and has certain advantages which make it preferred by some to dimethyl phthalate. It is satisfactory to know that it is now apparently readily available on the market, unless there is any restriction on its import to this country.

## Obituary

J H WILLETT, M.D., F.R.C.O.G.

We are indebted to Mr Percy Malpas for this appreciation of the late Dr J H Willett.

The death of Dr Willett, of Liverpool, on July 13 at the age of 73 years must have stirred many memories in the minds of all who have been concerned with the development of English obstetrics and gynaecology during the last forty years, particularly the many in the North of England who were glad to have known him. Not that in the popular sense he was celebrated, though his own practice of course was big enough, but in some ways he was a unique figure. Some men's departures leave a sense of sudden loss because of their very activity, we feel perturbed that so much energy is suddenly at an end. The loss we feel for Willett's death is rather different. He was a quiet man but this very quietness based on the assurance of a long and hard experience gave those who knew him that most important of gifts, a feeling of continuity with a living tradition.

James Hayward Willett graduated in the Victoria University in 1897 and came on the staff of the Women's Hospital in 1902 and of the Liverpool Maternity Hospital in 1909, a year after he had proceeded M.D. He served both hospitals until his retirement from active practice in 1935. His active life thus spanned the change Munro Kerr describes in his Fletcher Shaw Memorial Lecture. How much he linked the past with the present is shown by the date of the year he joined the North of England Obstetrical and Gynaecological Society, 1901, becoming its president in 1914 at the early age of 39.

All his life Willett was hampered by very poor eyesight, and in compensation he developed an uncanny sense of touch. To see him diagnose an obstructed labour and do, for instance, a necessary version was a great experience, though towards the end assisting him at abdominal sections proved an exciting experience. At the same time, his judgment was so good and his hands so gentle that he could get away successfully with his sight-hampered technique, and although he was seemingly overshadowed by such strong contemporaries as Briggs, Gemmell, Blair Bell, and Leith Murray, his contribution to his specialty was in some ways as great as theirs. Essentially this contribution was the strong influence he exercised on his juniors. A saying of his illustrates this well. To one who was criticizing the management of some case or other, a management in the juniors' eyes very much at fault, Willett would say "Were you there?" No, Sir. Then you can't judge if you were not there, you can't tell what he may have been up against.

A life as quiet as Willett's does not much lend itself to posthumous anecdote, though the incidents which occurred in the clash between him and his somewhat irascible chief and teacher, Henry Briggs, can well be imagined. Whenever the history of the Liverpool school of obstetrics is recalled Willett's name deserves a high place. There are many such men in English medicine—they make no great stir, their publications are few but so often they are the men who transmit much of the tradition.

Dr CHRISTOPHER RICHARD KEMPSTER died suddenly on Sept 7 at his home in London. Born in London in November 1869, Kempster was educated at Cavendish College, Cambridge, and was a student at three London hospitals, the Westminster, King's College, and the London. He qualified in 1896, and early in his career he took up the study of x-rays and electrotherapeutics. He had a special interest in the use of x-rays in the treatment of skin diseases and was the physician in charge of the x-ray and electrotherapeutic department of St John's Hospital for Skin Diseases. He also worked at the Royal Cancer Hospital, and he was a regular contributor to the medical press on subjects connected with his special field. During the first world war he acted as a civil surgeon to the War Office, as a staff captain of the City of London National Guard, and he was also the medical officer in charge of radiology at a

number of military hospitals. He lived in London throughout the recent war and continued to serve the x-ray departments of the Hampstead General Hospital and the Manor House Orthopaedic Hospital, Golders Green. Dr Kempster took a great interest in the City of London and was a very senior liveryman of the Society of Apothecaries. He was a great traveller and a very good sailor, always a popular and prominent figure in shipboard life. He was very happy in his family life, as his wife shared his interests and was always his close companion and as fond of the sea as he was. Kempster loved dining out and was a good raconteur, though bothered in recent years by the fact that his hearing was not as perfect as it had been. He will be long remembered by his colleagues and friends and by his patients, in whom he inspired the greatest confidence and in whose service he never spared himself.—R J B

MISS EUGENIE LEESON WILLIS died after a long illness on Sept 12 at the early age of 38. She received her medical education at Cambridge and at the Royal Free Hospital, obtaining the Cambridge M.B. in 1937, after qualifying for the Conjoint Diploma in 1935. After a period as house surgeon at her own medical school, and after other resident appointments in the South of England, Miss Willis took the English F.R.C.S. in 1939, and shortly afterwards was appointed resident surgical officer at the Oldham Royal Infirmary. From 1942 she devoted herself entirely to orthopaedic surgery, and during her short career as a specialist in this branch she did very valuable work, mainly at the Manchester Royal Infirmary. As chief assistant to the orthopaedic department there from 1942-5 she had to bear a very heavy burden in the routine care of hundreds of battle casualties which were admitted at a time when the hospital staff was severely depleted. Shortly after the end of the war she was able to turn her attention to a wider sphere of work as visiting orthopaedic surgeon to the municipal hospitals at Oldham and as orthopaedic registrar to the Manchester Babies' Hospital. Miss Willis also served the Manchester University as a teacher in the departments of anatomy and orthopaedic surgery, but what promised to be a busy and active career was gravely threatened in its earliest days by the development of the chronic disease from which she ultimately died. Her courage in facing her disability, and her determination to work despite her grave affliction, earned the admiration and respect of her many friends, to whom her memory will always be vivid.

Dr JOHN ALEXANDER WATT, who retired from Derby about two years ago, died on Sept 13 at West Runton, Norfolk. Over a period of about forty-five years he led an active life which included public health work, war service, and private practice. He will be remembered chiefly, however, for his services to the British Medical Association and as a public servant on the Derbyshire County Council. In 1899 he graduated M.B., Ch.B. at Aberdeen, and in 1909 took the D.P.H. His first appointment was in Lanarkshire and his next in Ilkeston, Derbyshire. Dr Watt became tuberculosis officer and assistant medical officer of health for Derbyshire in 1913, and continued there until 1925 apart from the war period, when he served as a temporary captain in the R.A.M.C. with a field ambulance in France. In 1925 he entered private practice, and for twenty years held the part-time post of medical officer of health for Repton rural district. Elected a member of the British Medical Association in 1899, Dr Watt was always a regular attendant at local meetings. His chief work for the Association, however, began in 1927 as secretary to the Derbyshire Division for a period of five years which was followed by the chairmanship in 1933-4. Next year he was elected president of the Derbyshire Branch and his loyalty to the Association was exemplified by the fact that after this honour he took over the secretaryship of the Branch from 1938 until 1946 when he retired from the district. He was representative of the Division at seven annual meetings between 1922 and 1939. This record speaks for itself, but the profession locally would probably pay chief tribute to his excellent work as secretary to the local medical war committee at a time when his health was beginning to suffer. He showed wisdom, experience, and a sound business talent which enabled a committee of over-worked doctors to feel confident that their affairs were in safe hands. Dr Watt served on both the borough and the county local medical and panel committees. But he did not neglect the scientific side of his work, and was at one time president of the Derby Medical Society. In public work, outside his own profession, he was chairman of the Littleover parish council and a member of the Derbyshire County Council. In 1932 he was made a justice of the peace. He was a man of strong views, prepared to back them with good arguments, but if occasionally he did not carry the day he came to the next committee quite unruffled.

## Medical Notes in Parliament

Parliament was prorogued on Sept 13. In the Speech from the Throne which reviewed the Session, note was taken of the passage of the Act to abolish the Poor Law and to make improved provision for children deprived of a normal home life. There had also been discharged "the great task, which it has fallen to this Parliament to undertake, of giving legislative effect to a comprehensive scheme of social security. This scheme, which has now been brought into operation, will promote the health and well-being of My people, provide a substantial resource in any periods of unavoidable unemployment, and relieve those anxieties which, in the past, so often attended sickness, disability, or old age."

On the following day, Sept 14, a new Session was opened by the King. His Speech explained that Parliament was summoned for further consideration of the Bill to amend the Parliament Act, and that it was not proposed to bring forward any other business in the present Session. Debates followed in both Houses on the Address.

### Road Safety

Opening a discussion on Sept 15 Colonel HAMILTON said that during the past 22 years there had been killed on the roads of the United Kingdom about 144,800 people, a large proportion of them children. Last year had been a better year than many, but even so, on the average, 13 or more people were killed each day. An accident depended almost entirely on the speed at which the motorist travelled. Remarkable results had been achieved in some places where care had been taken about the moderation of speed. Propaganda was at present directed to keeping the victim out of the way of the lethal weapon instead of inducing the man who wielded the weapon to handle it more carefully.

Mr CALLAGHAN in reply, said the 30-mile speed limit was not a licence to drive at that pace on all occasions. The proper speed depended on the traffic and the circumstances. The way to avoid accidents was to have a free flow of traffic moving at a constant speed. Beside speed factors causing accidents were the condition of the vehicle, carelessness and selfishness of road users, and the construction of the roads. He was planning to pick out some vital aspect of road safety so that attention could be concentrated on that nationally or locally during a particular week.

## Medico-Legal

### PENSION FOR DEATH FROM CANCER\*

[FROM OUR MEDICO LEGAL CORRESPONDENT]

In recent pensions cases the view has prevailed that cancer is in the ordinary way not caused or aggravated by war service. A claimant may still, however, show special circumstances, and then the presumption in his favour which the law gives will operate and the Minister of Pensions has the burden of showing that the disease was not caused or aggravated by war service.

A gunner joined the Army in 1941 and was discharged in December, 1944, with cancer of the colon. Early in 1946 he claimed that this was aggravated by war service because it was not properly treated. The pensions appeal tribunal rejected his claim, and in August of the same year he died. His widow claimed a pension in respect of his death, and the tribunal rejected her claim also. She appealed to the High Court, and Mr Justice Denning remarked<sup>1</sup> that delay in treatment was a special circumstance in which cancer could be aggravated by war service. The gunner had had gastric symptoms for a long time during his service, but the disease had not been diagnosed or treated by any military doctor. During a brief compassionate leave in August, 1944, he had had severe abdominal pains and vomiting, and a civilian doctor had sent him to hospital, where an emergency operation was performed. The issue became a question of fact. Had he reported sick frequently with stomach trouble, as he had said? The Minister said that he had reported occasionally with ear and dental trouble, but there was no record that he had ever reported with stomach trouble except on one occasion, when he had received treatment as

<sup>1</sup>The Times June 1 1948 Lee v. Minister of Pensions



skilled as any that a civilian doctor would have given him. On the contrary, the gunner's story was confirmed by his history taken down at hospital, by his captain, and by a comrade. His widow said that he had come home once for two days, being absent without leave and had said that he was sick and tired of going to the Army doctors. He had been punished for that offence by being made to dig a field, which in his own words had nearly killed him.

The judge saw no reason for taking so strong an adverse view as to disbelieve all these witnesses. It could not be said that the man's account was proved beyond reasonable doubt to be wrong. Records were not always complete, some might be lost or mislaid. The presumption in the gunner's favour was not rebutted. A specialist's opinion should have been taken long before August, 1944, and if it had been taken an earlier diagnosis might have been made and treatment given. His widow was therefore awarded a pension.

### Questions in the House

A fortnight after the hearing of this case Mr LIPSON in the House of Commons on June 15 had asked the Minister of Pensions how many applications for a pension had been refused in respect of ex-Servicemen suffering from cancer. He also asked the Minister to arrange for all these cases to be automatically reviewed in the light of the recent judicial decision.

Mr G BUCHANAN said that the number of applications from ex-Servicemen in respect of cancer which had been rejected was estimated to be about 5,500. Pensions had been granted in respect of cancer in about 1,000 cases. Mr Buchanan stated, however, that so long as he was bound by medical evidence and legal decisions he must rule out most applications for a pension in cases of cancer.

Mr CHETWYND on June 8 had previously invited the Minister of Pensions to make a statement on applications for pension in respect of cancer in view of Mr Justice Denning's judgment in the case of *Lee v Minister of Pensions*.

Mr BUCHANAN in reply noted that the appeal was allowed primarily on the grounds that an earlier diagnosis of cancer and operative treatment might have prolonged life. The reasons given by the learned judge for allowing Mrs Lee's appeal did not constitute any new approach to pension entitlement in cancer cases. Although with very rare exceptions, cancer was authoritatively held to be not caused by war service, rejection of application for pension was not automatic. All cases were examined sympathetically to see whether there was delay in diagnosis or treatment due to war service which might have hastened death. Where there had been such delay his Department did not hesitate to grant a pension.

## The Services

The Efficiency Decoration has been conferred upon Colonel H V Leigh OBE, R A M C, T A.

The Legion of Merit, Degree of Officer, has been conferred upon Colonel Frank Sheppard Gillespie late R A M C, by the President of the U.S.A. in recognition of distinguished services in the cause of the Allies.

The Decoration of Officer of the Order of Leopold II with Palm Cross de Guerre 1940 with Palm, has been conferred upon Major Frederick Alexander Edwards R A M C, by the Prince Regent of Belgium in recognition of distinguished services in the cause of the Allies.

## Universities and Colleges

### UNIVERSITY OF ABERDEEN

Harold Williams Fullerton, M D, M R C P, Lecturer in Medicine in the University of Aberdeen, has been appointed Regius Professor of Medicine in succession to Professor Robert Stevenson Aitken, M D, F R C P, who has retired.

### UNIVERSITY OF SHEFFIELD

The Right Honourable Lord Horder, G C V O, M D, will deliver the opening sessional address of the Faculty of Medicine, University of Sheffield, in the Firth Hall of the University on Wednesday Oct 13 at 3 p.m. His subject will be 'The Vocation of Medicine'.

## Medical News

### Informal Dinner

At an informal dinner on Sept 14 the President and Council of the British Medical Association entertained the delegates to the British Commonwealth Medical Council. Sir Lionel Whitby, who presided, and Dr H Guy Dan both gave a warm welcome to the guests and outlined the aims and objects of the Commonwealth Medical Council. Dr A J Collins (Australia) gave some account of the work which had been done by the General Assembly of the World Medical Association at Geneva. Dr J F C Anderson (Canada) said that the medical profession in Canada was most anxious to participate in the work of the proposed Commonwealth Council. Dr A J Orenstein (South Africa) took the same view and referred to the many loyal friends of the B M A in South Africa. Dr P Moran (Eire) delighted his hearers with a brief discourse on many things. Dr C F Fernando (Ceylon) and Dr S C Sen (India) referred to the problems that would have to be faced in the future and Dr N Ahmed (Pakistan) mentioned regretfully the death of Mr Jinnah and the current disturbances in India and Pakistan. Dr T D M Stout (New Zealand) described some of the experiments with nationwide social security schemes in New Zealand and welcomed particularly the formation of the Empire Medical Advisory Bureau, a point which was also taken up by Dr J H G Robertson (Southern Rhodesia). Dr Charles Hill recalled that the Empire Medical Advisory Bureau and the British Commonwealth Medical Council both owed their inception to Sir Hugh Lett. Sir Hugh Lett described how both ideas had arisen in wartime and how during the most difficult period people in Britain were sustained and encouraged by the unwavering support of the Commonwealth. Finally an enjoyable evening was brought to a close with speeches from Dr T C Routley (Canada), who echoed Dr Anderson in promising the support of the Canadian Medical Association for the Commonwealth Council, and from Dr Alfred Cox.

### Commonwealth Travelling Professorship

Mr Arthur Sims, of New Zealand, endowed a Commonwealth Travelling Professorship under the aegis of the Royal College of Surgeons of England, the Royal College of Physicians of London, the Royal Australasian College of Physicians, and the Royal Australasian College of Surgeons. The endowment provides for the appointment annually of a Travelling Professor to visit England, Australia, New Zealand, South Africa, and Canada for the purpose of assisting in the advancement of medical science by either lecturing, teaching, investigating, or engaging in research. The Royal College of Physicians has nominated Professor G W Pickering, Professor of Medicine in the University of London, at St Mary's Hospital, as Commonwealth Travelling Professor for 1949. He will visit Australia and New Zealand in the early part of that year.

### Social Workers in Mental Health

Some aspects of the work of social workers in the mental health service are to be considered by a special committee which has been set up by the Minister of Health. Under the title of the Committee on Social Workers in the Mental Health Service the committee is "to consider and make recommendations upon questions arising in regard to the supply and demand retaining and qualifications of social workers in the mental health service. The committee is to present an interim report on these questions in relation to psychiatric social workers." The chairman of the Committee is Professor J M Mackintosh, Dean of the London School of Hygiene and Tropical Medicine, London University. The other medical members are Dr J B S Lewis, St Bernard's Mental Hospital, Middlessex; Dr R M Bates, Royal Eastern Counties Institution for the Mentally Defective; Dr R H Parry, medical officer of health, Bristol; and Dr Kenneth Soddy, medical director of the National Association for Mental Health.

### London Campaign against Diphtheria

The London County Council is intensifying its campaign against diphtheria. Since the Ministry of Health started publicity in 1940 advocating immunization striking results have been seen in London, the number of cases reported having dropped from 1,844 in 1940 to 936 in 1947, and deaths from 67 to 22. It is estimated that 75% of all London children up to the age of 13 are now immunized, the aim is to reach 100%.

### Professor J McMichael

Professor J McMichael, M D, F R C P Ed, is leaving for America on Sept 25. He is to be guest lecturer at meetings of the California Heart Association and is also giving the Musser Lecture in Tulane University, New Orleans, and the Thayer Lectures, Johns Hopkins Medical School, Baltimore. He returns to this country on Dec 7.

### Wills

Dr James Frederick Digby Willoughby, of Southwell, Notts, left £10,261. Dr Maurice Waugh Renton, of Dartford, Kent, left £14,411.

## COMING EVENTS

## King's College Hospital Medical School

The opening of the 119th session of King's College Hospital Medical School (University of London) for 1948-9 will take place at the Medical School, Denmark Hill, London, S.E., on Friday, Oct 1, at 3 p.m.

## Royal Free Hospital School of Medicine

The inaugural address for the 1948-9 session of the Royal Free Hospital School of Medicine will be delivered by Mr L. E. C. Norbury in the Beveridge Hall, Senate House, University of London, Malet Street, W.C., on Friday, Oct 1, at 3 p.m. His subject is 'The Importance of Team Work, with Special Reference to Hospital Life.' Before the address Mrs Norbury will present prizes and certificates.

## Westminster Medical School

The inaugural address will be given by Dr W. T. S. Stallybrass, Vice-Chancellor of the University of Oxford, at Westminster Medical School (17, Horseferry Road, London, S.W.) on Monday, Oct 4, at 3 p.m.

## International Scientific Film Congress

The second congress of the International Scientific Film Association will be held in London from Oct 4 to 11. It is being convened by the Scientific Film Association of Great Britain (34, Soho Square, London, W.1), with the help of the British Film Institute. In connexion with the congress an exhibition of illustrations and photographic material will be held at the Royal Society of Medicine (1 Wimpole Street, London, W.1) from Oct 6 to 11. The exhibition is designed to interest medical teachers.

## Charing Cross Hospital Medical School

The annual dinner of past and present students of Charing Cross Hospital Medical School will be held at the Savoy Hotel (Embankment entrance), on Thursday, Oct 7, at 7 for 7.30 p.m. The charge for dinner, exclusive of wines, is one guinea. There will be a dance in the Refectory of the Medical School following the dinner. The prize giving and inaugural address, by Field Marshal the Rt Hon Viscount Montgomery, K.G., G.C.B., D.S.O., will take place in the Council Room of the Hospital on the same day at 4 p.m. The Medical School will be open for inspection from 2 to 3.30 p.m.

## Postgraduate Lectures in Ophthalmology

A series of lectures in ophthalmology will be given in the Department of Ophthalmology of the University of Glasgow on Wednesday, Oct 6, 13, 20, and 27, at 8 p.m. Tea will be served after each paper and a discussion will follow. The meetings are open to all medical practitioners and senior students interested in the subject. Details will be published in the diary column of the *Journal* week by week.

## North West Metropolitan Regional Tuberculosis Society

A meeting of the North-West Metropolitan Regional Tuberculosis Society will be held at Colindale Hospital, London, N.W., on Wednesday, Oct 6, at 4.30 p.m., when there will be a discussion on 'The Development of the Tuberculosis Service in the North-West Metropolitan Region,' to be opened by Dr H. M. C. Macaulay, Senior Administrative Medical Officer of the region. All interested practitioners in the region are invited to attend and contribute to the discussion.

## Welsh National School of Medicine

The opening sessional address of the Welsh National School of Medicine will be given in the school on Tuesday, Oct 5, by Professor E. D. Adnan, O.M., F.R.S., professor of physiology in the University of Cambridge, on 'The Aims of Medicine.'

## Royal Institute of Public Health and Hygiene

A series of lectures will be given at the Royal Institute of Public Health and Hygiene, 28, Portland Place, London, W., on Wednesdays, at 3.30 p.m., from Oct 13 to Nov 24. Details will be published in the diary column week by week. Admission to the lectures is free, without ticket.

## Middlesex Hospital Medical School

The annual dinner of the Middlesex Hospital Medical School will be held at the Savoy Hotel (Victoria Embankment entrance), London, W.C., on Friday, Oct 1, at 7 for 7.30 p.m.

## Royal College of Obstetricians and Gynaecologists

The Royal College of Obstetricians and Gynaecologists (58, Queen Anne Street, London, W.1), has arranged a dinner to be held at the Dorchester Hotel, Park Lane, London, W., on Friday, Oct 1, at 7 for 7.30 p.m.

## Old Students' Annual Dinner

The Westminster Hospital Old Students' annual dinner will be held at the Savoy Hotel, Strand, W.C., on Saturday, Oct 2, at 7.15 for 7.45 p.m. Sir Arnold Stott, K.B.E., F.R.C.P., will be in the chair.

## Cambridge Graduates Medical Club

The annual general meeting and dinner of the Cambridge Graduates Medical Club for 1948 will be held at Downing College, Cambridge, on Wednesday, Oct 6 at 7 for 7.30 p.m. The cost of the dinner is 30s inclusive of wines and gratuities. Those wishing to attend should send their cheque to the Cambridge Secretary Dr Windsor H. Lewis, 56, Trumpington Street, Cambridge.

## SOCIETIES AND LECTURES

## Tuesday

EUGENICS SOCIETY—At Rooms of Royal Society, Burlington House, Piccadilly, W., Sept 28, 5.30 p.m. 'The Eugenics of the Utopians: the Utopia of the Eugenists' by Mr Paul Bloomfield.

## Wednesday

INSTITUTE OF LARYNGOLOGY AND OTOLGY 330 Gray's Inn Road, London, W.C., Sept 29 10 a.m. 'The Relationship of Dental Disease to Diseases of the Throat, Nose and Ear' (illustrated by lantern slides), by Mr A. C. Deverell.

## Thursday

ROYAL SANITARY INSTITUTE—At Bebbington Council Chamber, Sept 30, 2.30 p.m. 'Environmental and Personal Problems in Relation to Public Health' by Mr E. V. Crapper.

## Friday

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS—At Barnes Theatre, Royal Society of Medicine, 1, Wimpole Street, W., Oct 1, 2.15 p.m. 'On Certain Functioning Tumours of the Ovary' Biennial Anglo-American Lecture by Dr Emil Novak.

SELLY OAK HOSPITAL MEDICAL SOCIETY BIRMINGHAM—Oct 1 8 p.m. 'Recent Advances in Carcinoma of the Rectum' by Mr A. Lawrence Abel.

## Saturday

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS 58 Queen Anne Street London W. Oct 2 10 a.m. 'Rhesus Factor Immunization and Haemolytic Disease of the Newborn' William Blair Bell Memorial Lecture by Professor Newell Willard Philpott (Montreal).

BRITISH ASSOCIATION OF ALLERGISTS—At Lecture Hall Department of Pathology, University of Cambridge (in Tennis Court Road) Oct 2, 11 a.m. 'The Allergic Child' Opening paper by Dr G. F. Walker.

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

Barkworth—On Sept 13 1948 at Nuffield House Guy's Hospital London S.E. to Beryl (née Wright) wife of Dr F. B. S. Barkworth of 12a Carlisle Road Eastbourne a second son—John.

Donald—On Sept 3 1948 to Mary (née Graham) M.B. B.S. wife of Patrick C. Donald L.D.S. a daughter—Patricia Mary.

Kropacz—On Sept 10 1948 at Westgate Belton Doncaster to Amy Kropacz (née Mooney) L.R.C.P. & S.Ed. L.R.F.P.S. Glas. wife of Michael Kropacz a son.

New—On Sept 16 1948 to Mary (née Nelson) wife of Dr P. F. J. New a daughter—Stephanie Erica.

Punt—On Sept 14 1948 at Queen Charlotte's Hospital to Gwendoline (née Moore) the wife of Norman A. Punt F.R.C.S. Ed. D.L.O. a son—Jonathan Arthur Gilbert.

Whitney—On Sept 9 1948 at the Lady Forrester Hospital Broseley Shropshire to Freda (née Bannister) wife of Dr R. U. Whitney a son—Charles Bannister.

## DEATHS

Daniel—On Sept 18 1948 at 25 Lauderdale Drive Petersham Surrey Alfred Wilson Daniel M.D. aged 75.

Harvey—On Sept 11 1948 at 56 Garscube Terrace Edinburgh William Frederick Harvey C.I.E. M.B. Ch. F.R.C.P. Ed. D.P.H. F.R.S. Ed. Lieutenant Colonel I.M.S. retired aged 75.

Hinge—On Sept 15 1948 at 11 Wood Street Woburn Sands Bedfordshire Harry Alexander Hinge C.B. CMG D.S.O. M.R.C.S. L.R.C.P. Major-General R.A.M.C. retired aged 79.

Slome—On Sept 12 1948 at 79 Clifton Court London N.W. Irving Somerset Slome M.Sc. M.B. B.S.

Taylor—On Sept 12 1948 at Ashgate Cottage Chesterfield Derbyshire Vivian Johnson Morcom Taylor M.Ch. F.R.C.S. Ed. aged 44.

Watt—On Sept. 13 1948 John Alexander Watt M.B. Ch.B. D.P.H. Aberd.

No 36

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept 4

Figures of Principal Notifiable Diseases for the week, and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland

Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	29	3	19	—	—	36	2	34	3	1
Diphtheria Deaths	105	7	46	—	2	145	18	42	8	7
Dysentery Deaths	64	4	41	1	1	64	9	23	—	1
Encephalitis lethargica acute Deaths	1	—	1	—	—	3	—	—	—	—
Erysipelas Deaths	—	—	27	—	1	—	—	36	4	—
Infective enteritis or diarrhoea under 2 years Deaths	28	—	5	4	1	62	3	26	96	5
Measles* Deaths†	2 962	120	19	—	48	1 447	61	41	135	1
Ophthalmia neonatorum Deaths	42	3	7	—	—	53	2	7	—	—
Paratyphoid fever Deaths	11	—	1 (B)	—	—	29	21 (B)	—	—	—
Pneumonia influenzal Deaths (from influenza)‡	246	9	4	—	—	215	11	5	—	2
Pneumonia primary Deaths	104	18	115	2	2	17	96	15	7	8
Polio-encephalitis acute Deaths	3	—	—	—	—	46	6	1	—	—
Polio-myelitis acute Deaths§	70	7	5	—	—	662	69	174	8	13
Puerperal fever Deaths	—	—	18	—	—	—	—	12	—	—
Puerperal pyrexia   Deaths	94	2	11	—	—	112	7	8	1	1
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	734	34	175	—	37	540	44	113	12	21
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	9	—	24	—	—	6	1	1	5	3
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2 996	238	86	—	11	1 683	177	61	74	10
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	241	23	29	14	6	302	42	70	23	9
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	3 749	592	522	138	83	3 668	587	503	155	82
Live births Annual rate per 1 000 persons living	7 592	1312	935	382	239	8 464	1340	978	387	230
Stillbirths Rate per 1 000 total births (including stillborn)	210	22	37	—	—	196	35	36	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only

† Deaths from measles and scarlet fever for England and Wales London (administrative county) will no longer be published

‡ Includes primary form for England and Wales London (administrative county) and Northern Ireland

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales London (administrative county) are combined

|| Includes puerperal fever for England and Wales and Eire

Notifications of infectious diseases in Eire are not available this week

## EPIDEMIOLOGICAL NOTES

## Food poisoning in Faversham

An outbreak of food-poisoning with *Salmonella typhimurium* occurred between Aug 29 and 31 in Faversham and the surrounding districts in North Kent. During this period 47 cases were notified, mainly from Faversham (42), where the majority of the cases resided, and from villages and towns in the neighbourhood. There is good reason to believe that several more cases scattered over a wide area—Sittingbourne, Woolwich, Whitstable and Hither Green—occurred at the same time but were not notified either because of the slightness of the attack or because they were not recognized as cases of food poisoning at the time. The history of every one of these cases revealed one common factor—namely, that they had all attended a luncheon celebration in a London restaurant on Aug 28 at which 1,103 persons were present.

The symptoms in all the cases, varying only in severity, were abdominal pain, diarrhoea, and vomiting. The onset varied in different cases from 12 hours to as much as two or three days after the luncheon. Among those who were affected three deaths occurred—all in women and all within a few days of each other between Sept 8 and 12. Only one of these cases however, has finally been ascribed directly to food poisoning by *Salmonella typhimurium*. The other two are reported to have died of natural causes—cerebral haemorrhage and cancer—after they had recovered from the clinical symptoms of food poisoning. A fourth patient, another woman, was critically ill and is now recovering. *Salmonella typhimurium* was recovered from samples of faeces in three cases and post-mortem from the large bowel, gall-bladder, and spleen in the fatal case.

Unfortunately it was found impossible to obtain any specimens of the actual food consumed at the luncheon. In the circumstances the investigations, which are being actively pursued, have necessarily been confined to the methods of preparation and storage of the various items of food at their source. It is of interest to note that the London restaurant concerned does not normally cater for such large parties and that the food provided at the luncheon, which was all cold, was procured already prepared, from different sources. The meal consisted of tinned grapefruit, cold chicken with potato mayonnaise (made, it is understood, with egg powder), Russian salad meringue and cream (synthetic), and ice cream. It is obvious that any of these items might provide a suitable pabulum under favourable conditions for the growth of *Salmonella*. An analysis of the items eaten carried out among 34 of the cases affected, including the fatal case, reveals that the majority partook of all the items provided, but that, whereas some missed one item and some another, all partook of the chicken. Most of the cases interrogated had light refreshments (tea or coffee) or a drink at different places on the way home, but no common factor could be established.

## Typhoid at Greenock

An outbreak of typhoid fever in the Greenock, Port Glasgow, and Gourock areas of Clydeside was briefly described in our issue of Sept 11 (p 540). Further investigation in Kilcregan among persons residing in habitations beside the stream reveals the presence of a carrier. On being questioned it was found that this person, aged 80, had had typhoid fever at the age of 27 and had remained well since then. Further investigation has involved more accurate typing of the organism isolated from more than 30 cases and from the carrier. The first two results from patients have revealed the fact that the type (F<sub>2</sub>) is an unusual one. One more case has been notified in Gourock. This is a girl of 6 who appears to have been ill at home for some time before the family doctor was called in. One or two cases in this household are also under observation, and from the dates of onset it would appear that they are more likely to have arisen from the girl of 6 than from primary infection at the stream, although they too had taken part in picnics and had drunk water from the infected stream.

## Certificates of Inoculation and Vaccination

Royal Navy—Arrangements have been made under which certificates of inoculation and vaccination issued to members of the Royal Navy at home and abroad, will in future be in the international forms prescribed by the International Sanitary Conventions of 1944. Royal Navy certificates will be issued from the appropriate ship or naval establishment and will bear the official stamp. When a civilian medical practitioner who is also an Admiralty surgeon and agent issues a certificate of inoculation or vaccination other than for yellow fever the medical practitioner's signature will be authenticated by the stamp of a medical officer of the Royal Navy or of an officer of the local authority. Selected medical officers of the Royal

Navy have been authorized to carry out inoculation against yellow fever and to issue the international forms of certificate at approved centres at home and abroad. These certificates will be stamped with the official stamp of the ship or naval establishment concerned. These arrangements came into effect on May 1, 1948 but certificates previously issued should be considered valid for the periods laid down in the International Sanitary Conventions of 1944.

**British Overseas Airways Corporation**—Arrangements have been made under which certificates of inoculation and vaccination issued by medical officers of British Overseas Airways Corporation at home and abroad will be in the international forms prescribed by the International Sanitary Conventions of 1944 and will bear the official stamp of the medical department of the corporation. Medical officers of British Overseas Airways Corporation have been authorized to carry out inoculation against yellow fever at approved centres and to issue the international form of certificate. These certificates will also bear the official stamp of the medical department of the corporation. These arrangements came into effect on Sept 1, 1948, but certificates previously issued should be considered valid for the periods laid down in the International Sanitary Convention of 1944.

#### Discussion of Table

In *England and Wales* during the week there were falls in the incidence of measles 812, whooping-cough 166, scarlet fever 78, and diphtheria 18.

The largest decreases in the notifications of measles were Lancashire 140, Yorkshire West Riding 89, and Essex 76, the only increase of any size was Gloucestershire 43. The decline in whooping cough was evident only in the southern part of the country and in the south eastern counties 112 fewer cases were notified, a slight rise occurred in the north.

There were only small changes in the local returns of scarlet fever. Notifications of diphtheria were one below the total of three weeks ago, which was the lowest total ever recorded. The chief feature of the returns for diphtheria during the week was a decrease of 11 in Lancashire.

The only large return for dysentery was Lancashire 21. The heightened incidence of acute poliomyelitis was maintained. The largest centres of infection were London 7, Lancashire 7, Surrey 6, Glamorganshire 5, Staffordshire 4, and Lincolnshire 4.

In *Scotland* there were increases in the notifications of whooping-cough 26, typhoid 21, acute primary pneumonia 20 and diphtheria 12, decreases were reported for scarlet fever 16 and dysentery 14. The rise in the incidence of typhoid fever was due to the outbreak in the Greenock area to which reference is made again this week. A small increase in the notifications of diphtheria occurred in most areas.

In *Northern Ireland* there was a rise of 20 in the notifications of scarlet fever, and most areas contributed to this increase. In Belfast C B an increase of 33 in the notifications of measles was recorded.

#### Births and Deaths in Eire

The following table shows the figures for the thirteen principal towns in Eire each week from the week ending Aug 7 to Aug 21 1948. During this period there were no deaths due to dysentery, diphtheria, measles, scarlet fever, smallpox, or typhus.

Week ended	Births	Deaths		Deaths Caused By				
		All Ages	Under 1 Year	Diarrhoea and Enteritis (Under 2 Years)	Influenza	Pneumonia	Typhoid	Whooping cough
1948								
Aug 7	366	128	7	—	1	3	1	—
14	383	148	21	2	—	1	—	1
21	353	125	6	2	—	2	—	—

#### Week Ending September 11

The notifications of infectious diseases in England and Wales during the week included scarlet fever 833, whooping-cough 2 877, diphtheria 136, measles 2 608, acute pneumonia 261, cerebrospinal fever 26, acute poliomyelitis 72, dysentery 84, paratyphoid 32, and typhoid 28.

The Minister of Health has appointed Miss E. Cockayne, S.R.N., S.C.M., to be Chief Nursing Officer in succession to Dame Katherine C. Watt, D.B.E., R.R.C., who is now Chief Nursing Adviser. Miss Cockayne was formerly matron at the Royal Free Hospital.

## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

#### Learning to Talk Bilingually

**Q**—What are the dangers of bringing up a child bilingually from the very start? The case is that of a baby boy of French parents living in England. He is just beginning to talk picking up some French words from his mother and some English words. When he learns a new word should he be taught both expressions at the same time? How will he be able to discern between the two languages? Is this procedure too complicated and would it produce signs of mental strain? Would it be better to start a second language at the age of say 2-3 years? The child is normal and intelligent.

**A**—If a child hears more than one language when he is learning to talk, his experiences of course are a little more complex than they would otherwise be. There appears, however, to be no evidence of any harmful results provided that the child is intelligent and, in general, is developing satisfactorily in a secure and happy home environment. If conditions are favourable the child is able to adapt to the complication of bilingual experience. The writer suggests that no attempt should be made to teach both expressions—i.e., in this case English and French words and phrases—at the same time. Learning to talk bilingually should proceed as naturally and simply as learning to talk in one language only. In time the child will discern between the two languages, responding in French to his family when they speak French to him, and in English to his English environment. If he is going to school in this country he should have every opportunity, by mixing with English children and adults, of becoming fluent in English before going to school. A third language should not be introduced until reading and spelling in both English and French are well established. The writer has known cases of backwardness in speech development in which bilingual experience in infancy and early childhood seems to have been a main factor in the retardation. These children were however, of mediocre or dull intelligence, and therefore unable to adapt themselves to the complication of a second language.

#### Calculating the Maternal Mortality Rate

**Q**—What are the criteria for calculating maternal mortality in a community? Does a death at the sixth month of pregnancy from anaemia of multiple aetiology constitute a maternal death? Is the rate calculated on live births on total viable deliveries or on total cases of pregnancy whether before or after the twenty-eighth week?

**A**—The maternal mortality rate is found by dividing the number of deaths from diseases of pregnancy, childbirth, and the puerperal state by the number of total births (live births and stillbirths combined). No correction is made for multiple births, so that the actual chance of dying from this risk is slightly understated. Every pregnant woman is exposed to the same risk of dying from causes unconnected with pregnancy as if she had not been pregnant, but in the case of some serious diseases pregnancy might be regarded as contributing to the death but not related to the immediate cause. The death in the question would be assigned to anaemia and not to maternal mortality, although this class of death is tabulated separately by the Registrar-General as deaths associated with pregnancy.

#### Heart Sounds

**Q**—What is the relationship between 'reduplicated heart sounds' third and fourth heart sounds and 'gallop rhythm'? Are they separate entities? If so how may they be distinguished clinically? What is their significance when present?

**A**—Normally there is a first and second heart sound. Any further heart sounds are numbered third and fourth. A normal third heart sound is occasionally heard, most frequently in

young children when the heart rate is slow and the child is lying on its side. Thayer believes this is due to the increased tension in the mitral valve caused by the sudden inrush of blood at the beginning of diastole.

The first and second sounds are composite, each, according to Sprague and Rippaport comprising four separate entities. The first is due to vibrations set up by auricular systole, the isometric contraction phase of the ventricles, the opening of the semilunar valves, and the acceleration of blood in the great vessels during the maximum ejection phase of ventricular systole. The second sound is due to ventricular vibration during relaxation at the beginning of diastole, the closure of the semilunar valves, the vibration of the blood column and walls of the great vessels, and the opening of the mitral and tricuspid valves. Any deviation from the normal in the time relationship of the conduction of impulse, or contraction of muscle or disturbances in pressure relationship in the pulmonary or aortic systems may cause separate components of one or both sounds to be recognizable as individual entities. This may lead to a split or, if definitely separate a reduplicated heart sound or even a completely separate third or fourth heart sound. A deep breath may occasion this in a normal individual by increasing the pressure gradient between right and left ventricle and diminishing it between right ventricle and pulmonary artery. A prolonged PR interval in latent heart-block may allow the auricular contraction to be heard separately from the ventricular sounds, or in bundle branch block asynchrony of contraction of the ventricles may cause a reduplicated first sound or first and second sounds.

A gallop rhythm usually refers to an easily recognizable third heart sound in diastole when the heart rate is over 100 per minute and there are obvious signs of cardiovascular disease. It may be a protodiastolic or presystolic gallop rhythm, according to whether the third heart sound occurs in mid- or late diastole. Dock has shown that both are due to sudden tensing of the valves from rebound of the ventricle following the unusually rapid inflow which occurs when the auricular pressure is elevated. It is a sign of ventricular dilatation and impending or actual congestive failure. These added sounds can be differentiated clinically only by assessing the case as a whole and after full examination, including screening of the patient.

#### Chronic Cold Feet

**Q**—A man aged 53 has had increasingly cold feet for the past ten years. He has suffered a good deal of pain during the past three winters and now has a tender black spot the size of a pin head on each great toe. B.P. 150/90 pulsation in post-tibial and dorsalis pedis arteries. His general health is good and his hands are normal. Is any drug treatment worth trying? Could nicotinic acid or nicotinamide help?

**A**—The description suggests that this patient has the distal type of peripheral vascular disease in which the occlusive process is chiefly in the small vessels of the foot. The effects of treatment in such patients are often disappointing. The all-important point in management is the inculcation of the most rigid hygienic discipline in the care of the feet. Vasodilator drugs should certainly be employed. Nicotinic acid (not nicotinamide) appears to help some, and carbachol has occasionally been successful. It would be advisable to seek the opinion of a surgeon on the desirability of lumbar ganglionectomy.

#### Lupus Vulgaris and Pregnancy

**Q**—I have a patient with lupus vulgaris who has been ordered by a dermatologist to take 50 000 units of calciferol twice daily. She has now become pregnant. Is calciferol in such doses contraindicated? Is the pregnancy likely to affect the lupus vulgaris?

**A**—Pregnancy does not often have a significant effect on lupus vulgaris. In some cases the condition appears to be activated slightly but not to the extent of causing any serious anxiety. Nor does pregnancy contraindicate treatment with calciferol in the dose mentioned. However, the patient needs to be kept under close observation during treatment and regular and frequent testing of the urine and blood pressure is important. Treatment should be suspended in the presence of either albuminuria or hypertension or if the patient develops any toxic symptoms attributable to the calciferol.

Here there may be some difficulty, for common toxic symptoms such as anorexia, nausea, vomiting, and lassitude might be confused with similar symptoms associated with the pregnancy itself. Estimation of the serum calcium level might be carried out from time to time as an additional precaution.

#### Benadryl and Agranulocytosis

**Q**—Is agranulocytosis or any other dangerous blood condition likely to develop from the administration of 50 mg of benadryl three times a day for a period of six to eight weeks?

**A**—Benadryl has been used very widely since its introduction in 1946, and there has been plenty of opportunity to observe the occurrence of agranulocytosis if that was produced by taking benadryl. So far there has been no record of this and it may safely be concluded that there is no risk of a dangerous blood condition arising from the proposed treatment.

#### Stability of Calcium Chloride and Ammonium Bromide

**Q**—Are calcium chloride and ammonium bromide stable in solution? I mean a solution kept as stock for dispensing. Could you give me the approximate solubility of calcium chloride?

**A**—Both calcium chloride and ammonium bromide are perfectly stable in aqueous solution, and the usual strength for a stock solution for dispensing is 1 in 6. Calcium chloride is very deliquescent and is soluble to the extent of about one part in one and a half parts of water. Ammonium bromide has approximately the same solubility.

#### Pasta Pisces Carbonis

**Q**—Tar being a carcinogenic substance is it unwise to use pasta pisces carbonis (B.P.C.) for other than brief periods? If so what would be considered a safe period of time?

**A**—The carcinogenic potency of liquor pisces carbonis has recently been tested by Berenblum, whose report on this subject appears elsewhere in this issue (p. 601). His earlier work was discussed in the twenty-fifth annual report of the British Empire Cancer Campaign (1947, p. 133). Spectrographic analysis showed its benzpyrene content to be about 0.02%. Biological tests, consisting of twice-weekly painting of mouse skin, yielded seven tumours in 12 mice treated, of the tumours, four subsequently became malignant. While this result is properly regarded as having clinical interest, the risk of tumour induction following application of the liquor or paste in man is probably very small. It is, however, impossible to indicate any safe period, and it would be advisable for their application, especially for lengthy periods, to be subject to regular medical supervision, meantime, as Berenblum says "avoidance of long continued application of liquor pisces carbonis would be a wise precaution." Berenblum's article and the general problem raised by this question are further discussed in an annotation at p. 608 of this issue.

#### Correction

In the issue of Sept. 4 (p. 489) it was stated that a short full-time intensive course in paediatrics was given by the Royal College of Physicians of London. We understand that this is not so, and it is therefore unnecessary to address further inquiries to the College.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: ALIQUOT, WESTCENT LONDON. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the British Medical Journal alone unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required as proofs are not sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: BRIMEDADS, WESTCENT LONDON. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the ASSOCIATION, TELEPHONE: EUSTON 2111. TELEGRAMS: MEDISCECA, WESTCENT LONDON. B.M.A. SCOTTISH OFFICE: 7 Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 25 1948

## ALLOWANCES TO MEDICAL WITNESSES IN CRIMINAL COURTS

As from Sept 13 1948, there has been a substantial improvement in the allowances payable to medical practitioners attending to give professional evidence in the criminal courts. Under the Witnesses Allowance Regulations 1948, which came into effect on that date, the maximum allowance to a witness to fact is £5 per day irrespective of whether the practitioner attends to give evidence in one or more cases, or of whether the court is in the town where the practitioner resides or elsewhere. Where, however, the time during which the witness is detained away from his practice does not exceed four hours the maximum allowance is £2 10s, except in cases where he attends to give evidence in two or more separate cases. In the latter event he may be paid allowances exceeding in the aggregate £2 10s but not exceeding £5.

This scale replaces the existing maximum rates, which are

(a) At a court in the town or place where the witness resides or practises

(1) In one case, £1 11s 6d per day

(2) In two or more cases, £3 3s per day

(b) Elsewhere, whether in two or more cases, £3 3s per day

(c) For an attendance not exceeding four hours, not more than half the above mentioned rates

The new regulations also provide for the first time for the payment of a night allowance to a professional witness where he is necessarily detained away from his home overnight for the purpose of attending court. The allowance for this purpose will be the expenses reasonably incurred by him for board and lodging, up to a maximum of £1 per night.

The travelling allowances, which remain unchanged, are as follows

(1) The third class railway fare (except where otherwise directed by the court). Where return tickets are available, the fare at the return rate only will be allowed.

(2) The fare actually paid where the witness travels by other public conveyance.

(3) Where no railway or other public conveyance is available, to a person who necessarily travels by a hired vehicle, the sum actually paid for the hire of the vehicle or an allowance at the rate of 1s 6d a mile each way, whichever is the less. (Where two persons attend from one place, the maximum of 1s 6d per mile shall apply unless the court is satisfied that the hire of two vehicles was reasonable.)

(4) A sum not exceeding 3d per mile to a person travelling on foot or by private conveyance.

The position of expert witnesses remains unchanged—i.e. they may be paid such allowances as the court considers reasonable having regard to the nature and difficulty of the case and the work involved.

In a circular which has been addressed to all courts on the subject of the new regulations the Home Secretary has expressed the hope that, as in the past, consideration will be shown to professional witnesses by informing them in advance as accurately as possible when their attendance is likely to be required.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar  
*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments) WallSEND

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Hutton-with-Roby, Portslade, Redditch (restricted to new appointments) TILDESLEY

## NATIONAL HEALTH SERVICE IN SCOTLAND

The first annual conference of the Scottish Association of Executive Councils under the National Health Service was held in Edinburgh on Sept 17. Sir William M. Marshall, Motherwell, was elected president and Dr A. F. Wilkie Miller, Edinburgh, vice-president.

Sir William Marshall, according to a report in the *Scotsman* (Sept 18), reviewed the work which had been accomplished in Scotland since the start of the new scheme on July 5. He said that 92 or 93% of the Scottish people were now taking advantage of the Service. This is the figure which was given by Mr Bevan at the annual dinner of the Society of Medical Officers of Health in a speech which is reported in this issue of the *Journal* (p. 616). Sir William went on to state: "Of the doctors in Scotland 2,339 general practitioners were under agreement with the executive councils, and in the view of those in authority under 50 Scottish doctors were outside the national scheme." In July 567,000 prescriptions had been dispensed under the National Health Service, the cost amounting to 50% more than that in the same period under the old scheme in the previous year. There had also been a great demand for spectacles and in his view the cost of the Service, which had been estimated at £6½ million, was more likely to be of the order of £8 million. Sir William also mentioned the fact that in Scotland 1,080 dentists were working under the scheme and only 100 were outside it. There had been a large number of applications for dental treatment.

## Correspondence

### Pharmaceutical Services

SIR—Too little attention, I submit, has been given to Mr Bevan's speech in the House of Commons in the debate on the adjournment (*Hansard*, July 19, Column 196, *et seq.*). The real reason why Mr Bevan is not allowing the patients of doctors outside his scheme to obtain pharmaceutical services free of charge when ordered by their doctor is revealed in that debate. I transcribe the relevant passage in full.

"I should also like to make it quite clear, because there seems to be misunderstanding in some quarters about it, that if a person remains as a private patient that person will also have to pay for drugs. That of itself may have a chastening effect as time goes by. When individuals find that, having become private patients, they not only have to pay the doctor himself but have to pay the chemist's bills as well, and as that knowledge grows, it may be that the area of private practice will progressively diminish."

In an answer to me on the following day July 20, Mr Bevan gave the following pretext:

"The diagnosis of what is needed, its prescription and its provision must be treated as part of one process. I could not justifiably separating the prescription from the medicine in this way."

Dr Ollerenshaw rightly draws attention to the fact that pharmaceutical services have been paid for by patients not participating in the scheme. It is certainly not sufficiently realized, either by doctors or by patients, that this is so. Mr Bevan constantly repeats the statement that the Health Service is non-contributory and therefore free. He can do so only because by a political manoeuvre the contributions for the Health Service are paid into the Insurance Fund. A man and wife with two children under 18 are charged 2s 6d per week in respect of health services. This is clearly set out in the report by the Government actuary. It is to be noted, as stated in an answer (*Hansard*, June 24, 1948) to me, that patients of doctors not in the Service, although deprived of pharmaceutical



benefit can claim sickness benefit on presentation of their private doctor's certificate, which need not be on the standard official form but as these forms can be obtained by applying to the executive councils a private doctor would be well advised to use them—I am, etc.,

House of Commons

## Petty Message

E GRAHAM-LITTLE

SIR—The only part of Dr W A Bourne's letter (*Journal* Aug 21 p 397) which you appear to credit with any substance in your leading article entitled 'B M A Criticized' (p 392) is what you call his 'evident sincerity'. Having heard Dr Bourne speak on more than one occasion at B M A meetings, and having read various letters of his to medical journals on the subject of the N H S, one can only wish that all our recent leaders had been endowed with the same clarity of thought and purpose. We should then as a profession present the appearance not of the amorphous mass that we do now but of the solid and disgruntled, albeit uncohesive, unit that we are in actual fact where the N H S is concerned.

As time goes on the more do we realize that we have sold our freedom not for a mess of pottage but for a petty message which, by its slighting reference to 'panel doctoring' condemned us, while at the same time it urged us to do the same thing but under very much worse conditions. When we think of all we have taken on and of the hints we have already had of disfavours yet to come, when we ponder, too, the not insignificant fact that our "wages" in the classless society envisaged for the future have not yet been settled, we can only raise our hands in helpless amazement at the ineptitude of the profession in that long drawn out and unequal contest of doctors *versus* politicians—I am, etc.,

Hove Sussex

G L DAVIES

## Compensation for Loss of Goodwill

SIR—As another who made the financial mistake of going to the war, the letters of Drs T T Hardy (*Supplement* Aug 14 p 87) and H B Porteous (Aug 28, p 96) interest me and stimulate a suggestion for reaching a more equitable share of the global sum. Our years of absence are so many years of lost increment and shrinking nucleus—for soloists, at any rate. Then take the *average* increment for the same number of years prior to service, multiply it by the number of years of absence, adding an appropriate percentage for increase in fee values, and add the result to the most recent 12 months' accounting period. I imagine there are also doctors who were practising in the badly bombed areas who should be given the option of claiming similar treatment. It won't fully compensate, but will go some way towards equalization. Some such formula might be issued as a suggestion from Headquarters to the various practices' compensation committees for their guidance—I am, etc.,

Salisbury

H M BOSTON

\*. The Secretary of the Association writes: Where a practitioner is not satisfied that the normal method of calculating his compensation will adequately meet his case, he may, on submitting his claim for compensation to the Practices Compensation Committee, request that an alternative method of assessment be used in his particular case.

## What is a Specialty?

SIR—There has been a good deal of sterile discussion about the training of specialists, and now a committee is deciding how best the available specialists can be used in the N H S. But an important lacuna is being ignored inasmuch as there has been no decision about what constitutes a specialty. If in the past a man could make a living by devoting himself to a particular type of medical or surgical practice it was not long before his work became regarded as a specialty. So the ophthalmologist and the otorhinolaryngologist became two instead of one, and now the latter is beginning to split into two or perhaps even three. The cardiologist is one of the offspring of the general physician although, true enough, he may himself be an excellent all round man. Recently the neurosurgeon has sprung fully armed from the neurologist. And who would be so temerarious as to assert that no other specialties can (and perhaps should) arise, and who would be so foolish as to decide the scope of any specialty?

I write as one who for many years has practised what I recognize as being primarily a clinical specialty, with need for much laboratory investigation, which I consider part of my clinical examination. But there is a fashion, which committees may crystallize into a rule, that my specialty is a branch of pathology, and that its practitioners have many other laboratory duties but no clinical ones. I am writing this letter only to stress the need for freedom for some people to train themselves, because, their specialty being new, there is nobody else to do so. Whatever good the committee on specialists may do, let it leave flexibility of organization and personal freedom. Bernard Shaw said, 'The golden rule is that there are no golden rules'—and how often he is right!—I am, etc.,

London W1

A PINEY

## Free Service for Foreign Visitors

SIR,—In the *Supplement* (Sept 4, p 104) appears the statement "Visitors staying in Britain for less than two months are entitled to treatment under the National Health Service as temporary residents." Why entitled? Why should foreigners who come to Britain, say, on a sight-seeing tour be entitled to free medical attendance at the expense of the British tax payer and of the medical profession? Why should the medical profession be singled out for this imposition? To carry the matter to its logical conclusion the hotel keepers ought to be directed to give free accommodation to these visitors and the motor companies be ordered to provide cars free of charge.

Various Cabinet Ministers have stated that foreign visitors are our best source of national income. Why deliberately diminish it? The National Health Service Act is making most doctors work twice as hard as before for (as in my case) half their previous income. Why should we be required to give still more of our time and skill with no pecuniary benefit to ourselves or to the country?

I suppose now the overseas offices of our travel organizations are advertising, among other inducements to foreigners to visit Britain, free medical treatment during their two months' stay here. Positively, it would pay many of them to come here to have their appendixes removed or their chronic gastric ulcers treated—all for nothing.

My understanding of the term "temporary residents" in the Act is that they are our own fellow countrymen who have come to one's locality for a while, usually for a holiday or to convalesce, from some other town in the United Kingdom. I do not believe any medical man, when he was induced to take service under the Act, anticipated that the term would be construed (presumably by Mr Bevan) to include visitors from abroad. I do not believe that our Members of Parliament intended that the term "temporary residents" should include foreign visitors.

Has the B M A acquiesced in this imposition? If so, it is time some of us transferred our membership to a less servile organization—I am, etc.,

North Lancing Sussex

CHARLES E S HARRIS

\*. The Secretary of the Association writes: The statement published in the *Supplement* (Sept 4, p 104) represents the Ministry's view on the position of free medical services for foreign visitors. The Negotiating Committee has made representations to the Ministry on the matter, and the latter has undertaken to give further consideration to them.

## Association Notices

## PROPOSED CAITHNESS AND SUTHERLAND DIVISIONS

Notice is hereby given by the Council to all concerned of the following proposals: That a Caithness Division, comprising the area of the County of Caithness, and a Sutherland Division comprising the area of the County of Sutherland be formed in place of the existing Caithness and Sutherland Division. Any member affected by the proposal and objecting thereto is requested to write to the Secretary of the Association by Oct 23 1948, stating the objection and the ground therefor.

CHARLES HILL  
Secretary

LONDON SATURDAY OCTOBER 2 1948

## PRESENT STATE OF OUR KNOWLEDGE OF THE ANATOMY OF THE PRIMATES\*

BY

F WOOD JONES, FRS, FRCS, FRACS

*Sir William Collins Professor of Human and Comparative Anatomy, Royal College of Surgeons of England*

In making any attempt to review the present position of primate anatomy it is essential that some consideration be paid to the historical background of the subject, for in no other way is it possible to appreciate the factors that have created this position or to indicate how unsatisfactory the present position actually is. A digression may be permitted in order to pave the way for what must be said concerning the phases of investigation into the comparative anatomy of the primates. Were we, following the modern fashion of testing public opinion by means of a questionnaire, to ask a generally informed set of people,

What British scientific man was the great authority on the method of formation of coral islands and reefs? "the answer would probably be, "Charles Darwin." For was not Charles Darwin the propounder of the much acclaimed theory of subsidence that apparently explained so well the development and structure of coral reefs and atolls? It is quite certain that of all those who gave this answer with considerable confidence very few indeed would be acquainted with the fact that when Darwin elaborated his erroneous theory of coral-island evolution he had never seen a coral structure of any kind, even from the deck of a passing ship. Nevertheless, the publication of *Coral Reefs* in 1842 produced the very general impression that there was little or nothing that remained to be investigated regarding coral formations, since Darwin, with his painstaking researches during the voyage of the *Beagle*, had exhausted the possibilities of the subject.

Even if there might not be complete unanimity regarding the answer to the coral-island question in our imagined questionnaire, there would be general agreement regarding the second question, "Which British zoologist was the great authority on the relationship existing between men and monkeys?" The answer would inevitably be, "Charles Darwin." For was it not Charles Darwin who made it clear to the whole world that an intimate comparison of the anatomical features of man and apes guaranteed the confident assertion that man had been "evolved from an ape-like progenitor"? But most of those who gave this answer would do so entirely unaware that Darwin had no first-hand knowledge whatever of the anatomy of monkeys, apes, or men, that he was unacquainted with or ignored much readily accessible current literature on the subject and that such information as he possessed at second hand consisted largely of ill-assorted

and ill-assimilated odds and ends culled, often enough, from the writings of the anecdotal period of natural history. This is the conclusion regarding Darwin's competence to adjudicate on the relationship existing between man and apes to which any impartial reader of his works must come.

### The Malar Bone

Any comparative anatomist who reads the *Descent of Man* with an open mind can only dismiss the whole thesis as one lacking any factual basis in primate anatomy. It is remarkable that those who make confident appeal to the works of Darwin must in many cases be so unfamiliar with the actual text that such strange things as his assertions regarding the malar (jugal) bones of monkeys and man have never intruded themselves upon their notice. Of this bone Darwin writes "the malar bone, which in some of the quadrumana, and other mammals, consists of two portions. This is the condition in the two-months-old human foetus and thus it sometimes remains, through arrested development, in man when adult, more especially in the lower prognathous races" (*Descent of Man* 1st ed, vol 1, p 124). For this piece of anatomical information Darwin gives a reference to the work of Canestrini, but it is obvious to any anatomist that the account, erroneous as in any case it is, actually relates not to the malar bone at all but to the old question of the condition of the premaxilla and maxilla typical of monkeys on the one hand and of man on the other.

It is obvious that so little was Darwin acquainted with the cranial characters of the primates that he translated the whole story into the morphology of the malar bone and thereby created an anatomical absurdity with which those who so freely quote his authority appear to be wholly unacquainted. It can hardly be claimed that Darwin wrote "malar" for "premaxilla" by a mere slip of the pen, for the statement is repeated in a footnote added to the same page and again upon the page following.

On the whole the malar bone suffered considerable injustice at the hands of the Darwinians, for Thomas Henry Huxley also took unwarranted liberties with it. Huxley, who had postulated that "with the increase of our knowledge of fossil forms" the distinctions between the Perissodactyla and Artiodactyla would disappear (*Anatomy of the Vertebrated Animals*, 1871, p 292), described the post-orbital bar of the horse in the following terms "The orbit is bounded behind by the united post-orbital processes of the frontal and the jugal" (*op cit*, p 297). This description of the horse's jugal is completely at variance

\*Read in opening a discussion in the Section of Anatomy and Anthropology at the Annual Meeting of the British Medical Association Cambridge 1948

with the facts for the jugal does not articulate with the frontal but with the temporal. But since it is an accurate account of the bone as it is present in the cow it renders a belief that in evolution the perissodactyl and artiodactyl phyla pass one into the other" (*The Classification of Animals* 1869, p. 102) more readily acceptable.

Our knowledge of the morphology of the malar bone in the primates and the ungulates cannot be said to have been in any way clarified by the immediate propagandists of Darwinian evolution.

### Supracondyloid Foramen

Again it usually escapes the notice of those who appeal to Darwin's own statements that he asserts that the supracondyloid foramen is present "in the quadrumana and some other orders of mammals," and that in man "there is generally a trace of this passage, and it is sometimes fairly well developed (*op. cit.* p. 28). This account would naturally lead the reader to suppose that in man there was generally a small foramen and sometimes a large one, and that this condition was derived from the fully developed form present in the apes. The human anatomist must realize how unwarranted such a statement is when made about the occasional presence of a supracondyloid spur in man. The comparative anatomist can only feel that by this statement Darwin smoothed away one of the anatomical facts most fatal to any belief in an evolutionary progress along the assumed line of the groups constituting the Order Primates.

As a matter of fact, no monkey or ape of the catarrhine series (with which man shows most anatomical affinity) has ever been known to develop a supracondyloid or entepitrochlear foramen, and the position is complicated by the fact that, although absent in the Catarrhini, the presence of the foramen is typical of the Platyrrhini. Of the two humeral foramina, termed by him the supracondyloid and intercondyloid, Darwin had but little real conception and no first-hand knowledge, and since in a footnote he made direct reference to the work of St. George Mivart he naturally drew upon himself the very just criticism of this authority on comparative anatomy. But this and the many other criticisms made by Mivart fell for the most part on deaf ears.

If then it must be admitted that Darwin made no contribution to our knowledge of primate anatomy and that he had in fact assimilated very little of the knowledge that was current at the time, it might be supposed that those zoologists who so strongly supported his claims had supplied the anatomical details so conspicuously lacking in his own work.

### Huxley's Contribution

In 1863, four years after the appearance of the *Origin of Species*, Thomas Henry Huxley published *Man's Place in Nature*, a book that received great acclaim from Haeckel and others and which paved the way for the *Descent of Man* eight years later. Some review of Huxley's contribution to the knowledge of primate anatomy is therefore essential. *Man's Place in Nature* is divided into three parts, between which there is but little continuity.

Part I is entitled 'The Natural History of the Man-like Apes'. It occupies 56 pages, quotes over 30 authorities, mostly of the anecdotal type, on the history, habits, and appearance of the anthropoid apes. It is a mere compilation and contains no original observations.

Part II deals with 'The Relations of Man to the Lower Animals'. It occupies 55 pages and may be said to prove what Darwin also proved—that man is an animal. But it cannot be claimed that in the 1860s this thesis stood in any need of proof. It is astonishing that Huxley should stress the fact

that both man and the dog were developed from an ovum as though it was a crucial point in testing the truth of Darwin's hypothesis. The second section of the book introduced and reiterated what Haeckel termed 'Huxley's Pithecometra thesis'. This dictum maintains that, no matter what structural feature is examined, the difference between man and the gorilla is less than that between the gorilla and the "lower primates". The Pithecometra thesis was destined to become a perfect anodyne for all those who lacked sufficient knowledge of primate anatomy to detect its fallacies.

Judged by the state of embryological knowledge at the time, Huxley's account of human development can only be described as out of date. His statement that "it is very long before the body of the young human being can be readily discriminated from that of the young puppy" can only be matched with Haeckel's claim for the late appearance of distinctive human characters in the human embryo. Haeckel's pronouncement occurs in his *Anthropogenie oder Entwicklungsgeschichte des Menschen* and is as follows: "At length in the fourth and fifth month these [distinguishing human] characters make their appearance, and during the four last months of the embryonic life of the human being, from the sixth to the ninth month of pregnancy, the human embryo is readily distinguished."

Such references as there are in this part of the book to the actual structure of man and apes deal mostly with the skeleton and are mainly metric and not descriptive.

Following Part II of the book are 6 pages, irrelevant in their content, dealing with Huxley's argument with Richard Owen concerning the hippocampus minor.

Part III is entitled "On Some Fossil Remains of Man". It occupies only 40 pages and deals mainly with the Engis and Neanderthal crania. After an examination of these crania the book ends in what appears following the previous note of high assurance, as somewhat of an anticlimax: "In conclusion, I may say, that the fossil remains of Man hitherto discovered, do not seem to me to take us appreciably nearer to that lower pithecoïd form, by the modification of which he has, probably, become what he is."

It cannot be claimed that *Man's Place in Nature* made any real contribution to the subject of primate anatomy, and Huxley is not to be ranked as a primate anatomist. Nor, as is commonly assumed, can he be regarded as the authority who supplied the facts of anatomy necessary for the full acceptance of the Darwinian hypothesis. Out of a total of some 170 papers published in his lifetime Huxley wrote only two dealing with primate structure. The only contribution he made before writing *Man's Place in Nature* concerned the brain of Ateles.

### Anatomists Contemporary with Darwin

It is naturally absurd to pass judgment upon any work unless that work has been regarded in proper perspective in relation to the background of knowledge existing at the time of its appearance. If we are to provide the background against which the anatomical knowledge of the primates that went to the making of the *Descent of Man* and *Man's Place in Nature* is to be judged we must not forget the work of Robert Bentley Todd. From 1835 to 1859 Todd issued the five volumes of his great *Cyclopaedia of Anatomy and Physiology*, and Huxley himself was a contributor to this work. Here there were available Vrolik's contribution on the anatomy of the quadrumana and Allen Thomson's account of the ovum. Vrolik gave a perfectly accurate account of the maxilla and premaxilla in the primates, and he drew attention to the fact that the entepitrochlear foramen of the humerus was present only in the platyrrhine monkeys. It seems an extraordinary thing that Darwin apparently ignored this important work so readily available to all students of human and comparative anatomy.

The fact that Darwin was only very imperfectly acquainted with primate anatomy, even at second hand, and

that Huxley's contributions added but little to fill in the gaps in Darwin's knowledge, is all the more remarkable when it is remembered that in 1863 Richard Owen was 59 years old, that St George Jackson Mivart was 36, and that the one was a master of the comparative anatomy of the vertebrates and the other a leading authority on the anatomy of the mammals and especially of the primates. But Owen had the misfortune to challenge Huxley's knowledge of primate anatomy on a point upon which his own knowledge was deficient. Owen, though the supreme authority on comparative anatomy, was defeated in a particularly stupid argument, and thereafter his weight as a critic of the ape origin of man thesis declined.

Mivart's book *Man and Apes* fell dead in 1873, two years after the publication of the *Descent of Man*. It fell dead not because the facts of primate anatomy so cogently brought forward by Mivart were proved incorrect but because they were ignored. They were ignored because a belief had been created that Darwin and Huxley had said the last word on the structural affinities between man and the rest of the primates. Unfortunately this belief persisted after the euphoria of nineteenth century scientific thought had, for many sciences, passed away. With some it seems to persist even to-day, and as a consequence the whole subject of comparative primate anatomy has failed to receive that re-examination that is so long overdue and that has already been carried out in so many other branches of science. Not until the complete anatomy of a wide series of members of the primates is recorded shall we be in a position to determine the interrelations of the different groups and to place the subject of man's place among the primates on a perfectly sound basis.

It is safe to prophesy that, as knowledge of the anatomy of the primates increases, the complexities of the problem will increase, and much work will have to be accomplished before ultimate clarity is achieved. It is satisfactory that the period of dogmatism is passing, but it will not be until anatomists regain their lost faith in the importance of morphological studies that the new era in our knowledge of primate anatomy dawns.

## CARCINOMA OF THE BREAST AND ITS TREATMENT\*

By

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It may be thought that carcinoma of the breast is a common and hackneyed subject and one of little interest to the medical practitioner, yet it must be acknowledged that breast cancer is one of the main killing diseases in women. There can be no doubt that the incidence of this disease is steadily rising, and it behoves the medical profession to instruct and advise the public about the importance of its early diagnosis and treatment. Every year some 7,500 women die of cancer of the breast, this situation being the commonest site for cancer in women, accounting for 20% of female cancer deaths.

All clinicians will agree that the breast is a very favourable site for malignant disease, and that in early cases operative treatment gives excellent results. Even in cases

in which no treatment whatever is given the patient may be expected to live for three years, this is a fact that the medical profession does not realize.

The two common factors for causing patients to seek medical advice are pain and the presence of a lump. Only the second of these is present in early cases, this in itself is the main factor in the poor results which are obtained in the treatment of this condition.

### Spread of Mammary Cancer

Cancer of the breast begins in the acini or ducts and at first is a very limited condition, soon, however, there is spread of cancer cells up and down the ducts and then through the duct wall. From here the extension is via the lymphatics of the breast, and, lastly, via the blood stream. There can be little doubt that the condition of the stroma of the breast together with its lymphatic and blood connexions plays an important part in the spread of the disease. In girls and young women the vascularity of the breast is very pronounced, and if cancer develops the prognosis is hopeless. It is also very bad in cases of cancer developing during pregnancy and lactation, while in women over 80 the condition of the breast and its stroma is so fibrotic that the disease may last many years without any real extension. I have watched a woman aged 88 with a carcinoma of the breast for 15 years, she has refused every kind of treatment that has been advocated.

To understand the lymphatic spread of mammary cancer it is important that a true conception of the connexions of the lymphatic vessels should be forthcoming.

### The Lymphatics of the Breast

Our knowledge of the lymphatic drainage of the breast has increased during the last 40 years. As a student I often watched the late Sir Watson Cheyne perform a radical excision of the breast, divide the clavicle, and remove the supraclavicular glands. These patients rarely survived six months but died of general metastases and recurrence in the supraclavicular regions. It was thought and taught at that time (1909) that the lymphatics of the breast passed under and over the clavicle to the supraclavicular glands. It was also taught that the lymphatics of the axilla passed upwards into the supraclavicular glands. These ideas of lymphatic spread have been greatly modified during the last 20 years as the pathology of mammary cancer has been placed on a more sound foundation.

I believe, but not every surgeon will agree with me, that there is no lymphatic connexion between the breast and the supraclavicular glands except via the upper intercostal spaces and the internal mammary glands. In my opinion there is no connexion between the axilla and the supraclavicular glands. On this belief hangs the modern conception of radical mastectomy. The conservation of the clavicular head of the pectoralis major muscle implies that no lymphatic vessels pass from the breast to the supraclavicular glands in front of or behind the clavicle.

Involvement of the supraclavicular glands therefore means that intrathoracic extension of the disease has taken place and the condition is therefore inoperable.

Although the lymphatics of the breast are numerous, there are very definite pathways which determine the spread of the disease. The lymphatics from the upper and outer quadrant drain into the axillary glands. Those from the lower and outer quadrant drain for the most part into the axilla, but a few may drain to the lymphatics of the abdominal wall to the umbilicus and so via the ligamentum teres to the liver. The lymphatics of the inner quadrants of the breast drain via the intercostal spaces into the

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internal mammary glands and the anterior mediastinum and so into the supraclavicular glands (Fig 1)

Some lymphatics may pass across the middle line to the opposite breast, while a few may pass to the parmammary glands and to the abdominal lymphatics

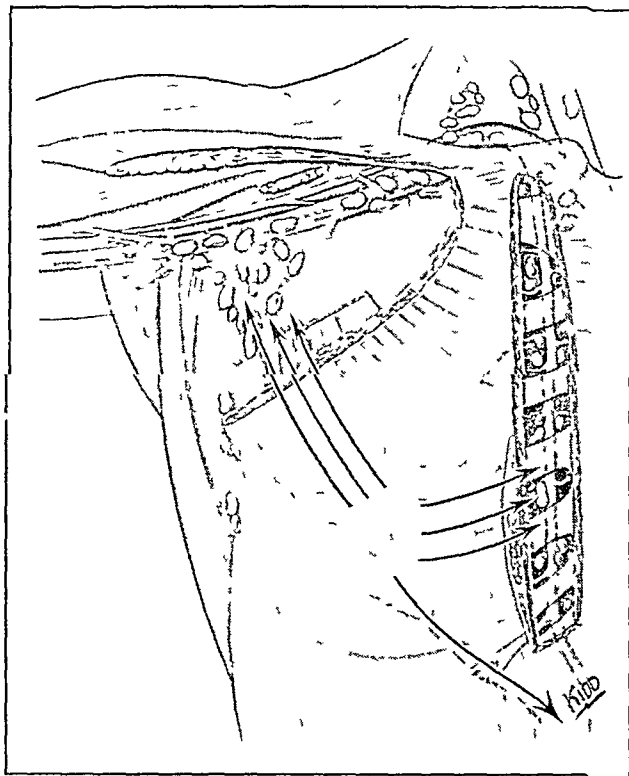


FIG 1—Drawing showing the lymphatic drainage of the breast

### Early Diagnosis

It is essential that early diagnosis should be made if better results are to be obtained in the treatment of carcinoma of the breast. There are several factors which have in the past prevented early diagnosis and these should be entirely eliminated to-day. The patient who discovers a lump in her breast often decides to tell no one, as it might be cancer and she might die as some of her friends or relatives have done. This fear of cancer is very real and must be tackled by the profession on proper lines. The laity must be convinced that cancer of the breast can be cured in the early stages of the disease. I have found that the average time taken by my patients before they report the presence of a lump in the breast is six months, while in some cases it is double that time. Another factor is the treatment of carcinoma of the breast by quacks and herbalists and the like. This is a free country and patients may seek advice from anyone, but it is a pity that some sort of propaganda should not be used to reveal the real danger to which the public at large are subjected.

Early diagnosis by the practitioner has in the past been hampered by the fact that nearly every textbook on surgery reveals the late stages of the disease as diagnostic factors of importance. It must be acknowledged that there is only one early sign of carcinoma of the breast and that is the presence of a lump. This lump is in the substance of the breast, is usually hard, and can often be felt by the flat of the hand. Cancer is the commonest cause of a lump in the breast, and this must not be forgotten. The lump is closely united to, if not absolutely incorporated with, the breast substance and on careful digital examination its

margin is quite indefinite. In the early stages it is entirely distinct from the skin, which moves freely over its surface, but as growth proceeds the stroma contracts and, by dragging on the suspensory ligaments of Cooper passing from the glandular substance to the skin, the latter structure becomes more or less fixed, and hence, on attempting to move it upon the tumour, an appearance of dimpling results.

In investigating any case of a lump in the breast the practitioner must never arrive at a hasty conclusion, but give an opinion of its nature only after careful and detailed examination. Thus, the age and previous history of the patient and the family history should be considered. Simple tumours generally arise at an earlier date than the malignant, while sarcomata usually affect younger individuals than carcinomata. There can be little doubt, moreover, about the occasional tendency of tumours to run in families. The length of time for which the swelling has been observed, and whether or not it varies in size at the menstrual periods, should be ascertained. The general appearance of the patient should be noted, and also the fact whether local or neuralgic pain is experienced. It is not unusual for pain to be referred to that part of the shoulder supplied by the posterior division of the second intercostal nerve, the anterior branch of which goes to the breast.

A careful inspection of the organ should be made with the patient sitting and lying down, comparing it with the opposite breast so that any signs of asymmetry may be noted. Dimpling of the skin, projection of the tumour or of the whole gland, and the situation and condition of the nipple are the chief points to which the practitioner's attention should be directed. Examination with the flat of the hand, accompanied by gentle pressure of the finger tips, must then be undertaken, it is not enough to pick up the breast substance between the fingers, as thereby false impressions are obtained.

The relation of the tumour to the gland, its shape, its consistency, whether fluctuating or not, its mobility on superficial, deep, and surrounding parts should be investigated. To this end the breast must also be examined with the patient's hand pressed to the hip, so as to put the fibres of the pectoralis major muscle into action; transverse movement of the organ across the fibres is always possible unless the growth is fixed to the thoracic wall; movement in the direction of the fibres is at once limited if the tumour has invaded the muscle or even if the overlying fascia is seriously involved. Finally, the lymphatic glands in the axilla, the supraclavicular glands, and the opposite breast and axilla must be carefully examined. After such a detailed examination, if the practitioner is still in doubt about the nature of a tumour of the breast then local excision of the whole lump and not part of it should be undertaken and a histological examination of the tissue removed should be made. If the condition is benign, then the patient will be completely satisfied and relieved, if on the other hand the condition is malignant, adequate treatment can be forthcoming.

It is important to classify the clinical manifestations of carcinoma of the breast before any decision is made about the form of treatment. The clinical classification can be divided into the following stages:

*Stage I*—Tumour of the breast only

*Stage II*—Tumour of the breast and skin changes and/or axillary glands

*Stage III*—Tumour of the breast and supraclavicular gland or glands in opposite axilla, and/or fixation of the breast to the pectoral fascia

*Stage IV*—Skeletal and visceral metastases

### Treatment

The surgeon to-day has the choice of radical surgery alone or combined with radiotherapy, local excision and radiotherapy or radiotherapy alone. After thirty years' experience during which I have operated upon over 500 women and nine men for this condition my ideas have become definitely crystallized.

**Stage I**—I am convinced that in these cases radical mastectomy is the method of choice and offers the best chance of eradicating the disease completely. However, in those cases in which the woman is slight, the breast is small, and the tumour is in the inner quadrants I perform a local excision of the breast and follow this with radiotherapy. Cancer of the breast occurring in the inner quadrants is apt to extend into the intercostal spaces without any clinical evidence whatever, and this is why the prognosis is bad in these cases. A radical amputation in a small woman with a small breast would involve extensive skin grafting of the chest wall to close the defect left behind after the amputation and this in itself would delay any post-operative radiotherapy. It has been said that radical amputation is a mutilating operation but so is local excision, and from the patient's point of view the psychological effect is better for they realize that everything has been removed and are much happier.

The operative mortality from radical mastectomy is not more than 1%, and this is due to the rare case of embolism or the very occasional anaesthetic death. With careful pre-operative preparation and the use of blood transfusion in selected cases the mortality could easily be lowered. I am not in favour of post-operative x-ray therapy in Stage I cases. I employed it for some 10 years and found from my follow-up that the results did not justify its use. There can be no doubt that x-ray treatment does produce some anaemia, and some fibrosis of the lungs always follows its application. In my follow-up I have obtained an 81% five year cure and a 65% ten-year cure. Of course it is quite fallacious to talk about cures in carcinoma of the breast, as I have had 12 cases in which recurrence took place 10 years after operation, the longest being that of a woman who died of recurrence 22 years after radical mastectomy.

**Stage II**—These cases give poor results with surgery alone, and in my series I can record only a 25% five-year survival rate. This is distressing, as Stage II cases so often form the greater proportion of cases seen in our hospitals at the present time. It behoves us to take stock of our results and to consider in what way they can be improved. Stage II cases mean lymphatic extension beyond the confines of the breast, and this being so pre-operative x-ray treatment should be given to eliminate the lymphatic vessels which are loaded with cancer cells. Pre-operative irradiation means a delay in removal of the breast for some two months, but the surgeon can arrange his cases so that irradiation is given immediately after the patient is seen for the first time and the date of admission can be fixed. In quite a number of cases the primary tumour becomes smaller, also the axillary glands, and the risks of dissemination are considerably reduced. Why, then, it may be asked, should not x-ray therapy be given and no operative measures be undertaken? The answer to this question is that the results are not as good as when pre-operative x-ray therapy is followed by radical mastectomy. Post-operative irradiation should be reserved for those cases in which there is recurrence.

**Stage III**—Surgery can be of little avail in these cases, as the condition is essentially inoperable. X-ray therapy is the treatment of choice. The surgeon may be asked to remove a fungating tumour so as to make the life of the patient more tolerable or as an ancillary to the x-ray therapy. It is curious to note that some of the worst cases survive the five year period when the prognosis from the start of treatment seemed hopeless.

**Stage IV**—These cases are the bane of the practitioner's life, for there is little that can be done for them. Irradiation is only palliative but may be useful in controlling some bone metastases and giving some relief from pain. It may well be that the extended use of endocrines in Stage IV cases will prove of real value. I have been impressed with the value of testosterone in large doses (1000 mg) in these cases and I consider

that it gives results comparable to those obtained by stilboestrol in cases of carcinoma of the prostate. The use of testosterone should have a much more extended trial in these advanced cases. I know of no more difficult and trying surgical case than that of advanced mammary cancer. It is useless for the practitioner or surgeon to say that nothing else can be done, for the relatives will immediately fly off to some quack, who will promise a cure with some highly coloured injection of excessive cost which must be given at a certain time each day. Such treatments go on for at least a year. When the patient dies the relatives are told that if only the patient had come for treatment a little sooner a cure would have resulted. We are all familiar with such cases and they do not do the profession any good. I therefore advise the extended use of testosterone for these patients. Human nature demands some treatment in the advanced mammary cancer case, and therefore let us as medical men and women see to it that the treatment given has a scientific basis.

### Radiotherapy

The question of radium or x-ray treatment in mammary cancer is one that has interested surgeons for several years, and I am quite definite in my sole advocacy for x-ray therapy with or without surgery rather than radium therapy. My reasons are that, although radium has been used in Stage II cases with some success, the primary tumour still persists in the breast, although it may simply be composed of a mass of hard fibrous tissue. This in itself has a bad psychological effect on the patient, because she imagines that the growth still persists and that it may eventually spread. I have often been asked to excise such a mass several years after radium treatment, and I realize the peace of mind removal of the mass brings to the patient. Radium is more local in its action than x-rays, and the outlying lymphatic vessels are more likely to come within the barrage of the x-ray tube than the radium needles.

It is essential to keep an eye on the patient's blood picture during the time she is undergoing x-ray therapy, and should this show a reduction in the red cells steps must be taken to bring the blood picture back to normal. As a rule a good iron tonic with a liberal amount of vitamins will effect this.

### Radical Mastectomy

Although it is some 50 years since Halsted advocated his radical operation for carcinoma of the breast, this treatment is still performed to-day. Yet there are certain details that I consider worth while bringing to your notice. It is important to conserve the clavicular head of the pectoralis major muscle, as this protects the axillary vessels and prevents the skin from becoming adherent to them. I have twice seen this distressing condition in cases in which the whole of the muscle was excised. Also, in my opinion, oedema of the arm is more likely to follow, as the lymphatics are compressed by the skin crossing the axillary vessels and nerves. I have never seen or heard of a patient who developed a secondary deposit in the clavicular portion of the pectoralis major, nor do I believe that there is any lymphatic connexion between the breast and the supraclavicular glands except via the mediastinum.

In dissection of the axilla it is most important to remove all fat and glands below and to the inner side of the axillary vein. On no account should any attempt be made to remove fat from the axillary artery or brachial nerve cords, because after such a course is adopted brachial neuralgia is very likely to ensue. In my student days it was a common procedure for the surgeon to display the axillary vessels and brachial plexus and remove every particle of fat from the axilla, and a large number of these cases developed brachial neuralgia which caused much pain and misery.



The radical operation itself should be definitely planned and the patient should be in hospital several days before operation. To day there is too great a tendency for the patient to arrive in hospital late one day and to be operated upon the next. This cannot be condemned too strongly, it leaves no time for any pre-operative examination, blood count, or x-ray picture of the chest to see if any secondary deposits have developed.

The technique that I use is as follows

#### Operative Technique

Previous to operation the axilla should be shaved and the skin purified over an extensive area including the back. The patient then lies on the back with the head directed towards the opposite side and the arm raised and held to a little more than a right angle. The field of the operation is protected from the patient's face and the anaesthetist by sterile towels. The incisions employed vary with the size and position of the tumour. The primary object is to remove the growth, together with the whole gland and all its accessible lymphatic connexions—the question of being able to close the wound subsequently is of secondary importance. As a rule sufficiently wide undercutting will allow very extensive wounds to be closed, but when this is impossible skin grafting can be adopted, and no lengthy convalescence need ensue.

In planning the incision the growth should be taken as the centre of a circle with a diameter 4 to 5 in (10 to 12.5 cm). It is convenient to prolong the upper and lower portions upwards towards the axilla and downwards towards the epigastrium so as to secure a straight line for the final suture (Fig 2). The upper incision is prolonged towards the axilla, and runs up and curves down towards the insertion of the pectoralis major to the humerus.

The dissection of the axilla is started first in order to avoid an unnecessarily prolonged exposure of the chest wall. The skin flaps are undercut and retracted, a transverse incision in the fascia at the level of the insertion of the pectoralis major

is made, the cephalic vein identified and protected and some branches of the subscapular vessels will need ligation. The serratus magnus can then be denuded of the overlying fascia, care being taken to secure branches of the intercostals

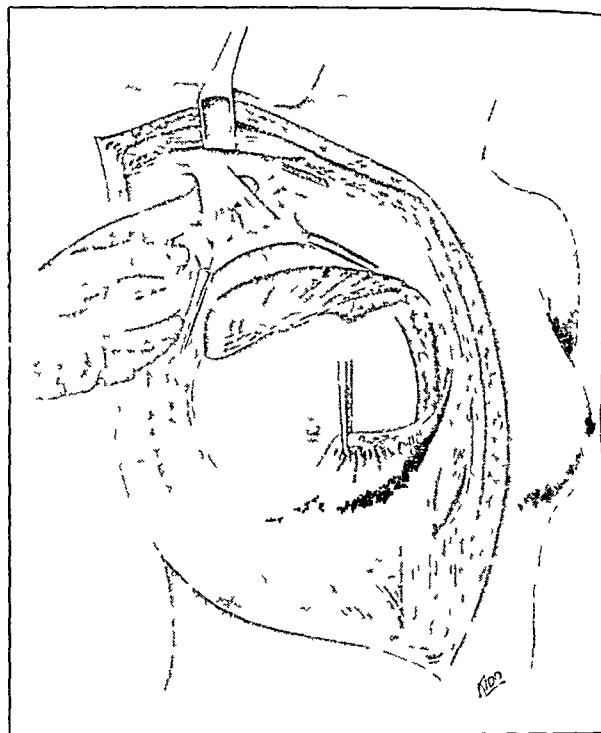


FIG 3—Division of the pectoralis minor muscle

and finally the attachments of the pectoral muscles to the ribs and sternum are divided from below anterior and lateral penetrating branches of the internal mammary vessels being ligated. The midline of the sternum is thus reached a portion of the rectus sheath being included in the dissection. The breast is then turned back to its original position and the medial skin flap is dissected up across the middle line, the advantage of doing this step last being that the vessels have already been secured in the deep dissection. A few strokes with the scalpel then separate the fascia in the sternal midline, and the breast and axillary contents are removed (Fig 4). Great care is taken with haemostasis, as there is considerable oozing from such a large raw area. The diathermy cautery proves an excellent coagulating point and saves much time. Through a stab wound a drain is introduced into the axilla for 24 to 36 hours. The skin flaps are drawn together with tension sutures and the wound is closed. In dressing the case it is advisable to place extra pads of wool in the axilla and under the clavicle so that their presence may assist in the prevention of oozing. The arm is placed close to the side for 24 hours so as to obliterate the axillary space as much as possible and prevent a haematoma forming in that situation. After this the arm should be kept at an angle of 45 degrees away from the trunk so as to allow the skin flap to fall against the chest wall, this does not interfere with the subsequent free movement of the arm.

The after treatment consists in making the patient perform deep breathing exercises each day to prevent any pulmonary complications. The patient can often get up for a few hours on the third post-operative day. Early rehabilitation is tant in these cases and prevents the occurrence of thrombosis and pulmonary embolism.

#### Mammary Carcinoma in the Male

Although cancer of the breast in the male is about a hundred times less common than in the female, every surgeon is faced with these cases. In 30 years of surgical practice I have met with it nine times, and in every case

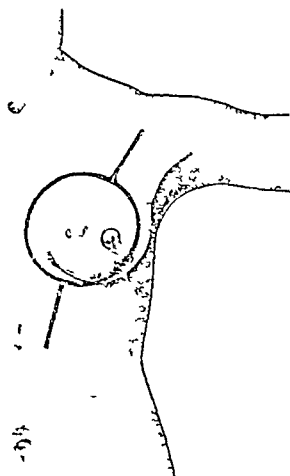


FIG 2—Skin incision for removal of the breast in cases of carcinoma

and divided close to the bone. It is important to divide the tendon of the minor pectoral muscle close to the bone as no vessels are cut and no bleeding takes place. The two pectoral muscles are then retracted downwards and the axillary fat and lymphatics can be dissected away from the axillary vein. Care is taken to identify and preserve the nerve to the latissimus dorsi and the nerve of Bell, both of which are exposed in the posterior part of the wound. Hot saline packs are placed in the axillary wound.

The lateral flap is then undercut and the whole breast and axillary contents are drawn over towards the middle line, the dissection is carried forwards and inwards, starting from the outer border of the latissimus dorsi. The inner aspect of this muscle is cleared as well as the axillary surface of the sub

the patient had been a keen boxer in his youth. It seems to me that trauma may play a more important part in the causation of carcinoma of the breast in the male than is usually thought. In my series of nine cases the ages ranged

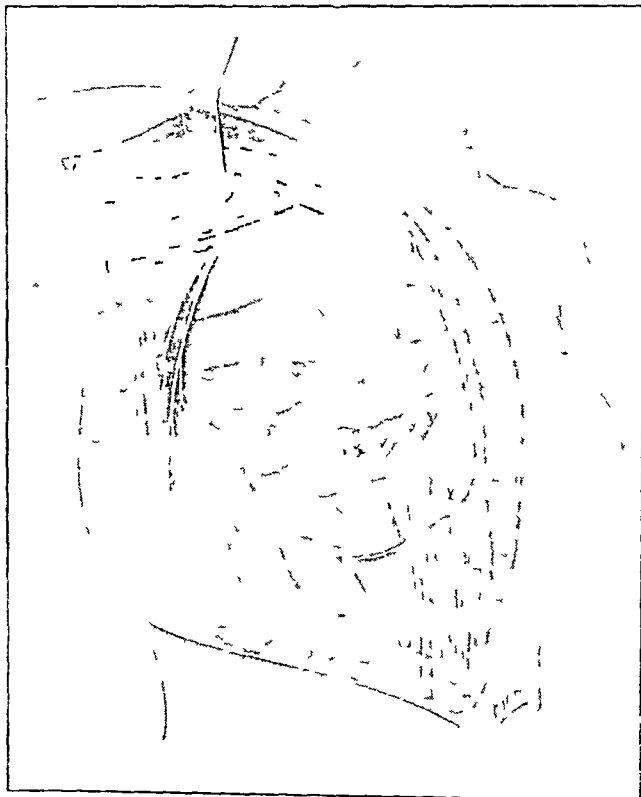


FIG 4—The operation area after removal of the breast for carcinoma

from 36 to 56 years: two were officers in the Navy, two were officers in Commando units in the Army, three were in the Police Force, and two were naval petty officers.

The prognosis of cancer in the male breast is very poor, the small undeveloped breast allows early lymphatic spread before the condition is diagnosed. In all my cases axillary lymphatic glands were present, and in the four cases in which I performed a radical excision the glands were infiltrated with growth. In my series of nine cases the average duration of life after operation was 30 months, all the cases dying of mediastinal metastases.

My experience of these cases has taught me that the correct treatment should be excision of the breast with the tumour, followed by x-ray treatment. But even when this has been done the prognosis is very poor in comparison with carcinoma of the breast in the female.

#### Results of Treatment

It must be acknowledged that in the main the results of treatment of mammary cancer are poor. The prime factor is the delay of the patient in coming for treatment, and this can be improved only by a definite line of propaganda. The Ministry of Health should take steps to improve this situation.

The second factor is inadequate treatment. I would like to associate myself with my friend Sir Stanford Cade, who has stressed so often the fact that the commonest error in treatment is to underestimate the extent of the disease and under-operate or under-irradiate.

One of the biggest problems which faces the profession to-day is the standardization of deep x-ray therapy. At the present time x-ray therapy varies in different centres and

in different hospitals. How can we compare results under these conditions? Confidence is an important factor in everyone's life, and the surgeon's confidence in the radio-therapeutic treatment is a weighty one. How can some surgeons be satisfied if they have no trust in the x-ray therapy equipment in their hospitals or centres? To my mind the standardization of good x-ray therapy establishments throughout the country is long overdue, and the lack of it is in no small way responsible for the poor results of x-ray therapy in mammary cancer.

Those hospitals that are fortunate enough to possess modern high-voltage plants get better results and give confidence to the surgeons attached to them. If a surgeon or practitioner has no confidence in his hospital x-ray therapy unit how can he be expected to advise his patients to undergo treatment? To my mind under-irradiation is often worse than no therapy at all.

Can we hope to have a better service under the National Health Service, or will the practitioner, surgeon, and patient be overwhelmed with the forms to fill in, red tape, and inefficiency which characterize the other services that have been nationalized during the last three years? It will be the duty of the medical profession to try to correct this tendency as soon as possible.

## EARLY DIAGNOSIS AND TREATMENT OF CARCINOMA OF THE BREAST\*

BY

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Cancer of the breast is responsible for the death of more than 7,000 women a year in England and Wales alone, and this figure is rising rather than falling. Two-thirds (67%) of the patients operated upon in this series of 170 radical mastectomies already had metastases in the axillary glands. The main reason for this state of affairs is delay, by the patient, by the general practitioner, by the consultant, and by the hospital.

To avoid the errors responsible for delay by the profession the following vital considerations should be borne in mind.

1 *The Fallibility of Clinical Diagnosis*—However experienced we are, we cannot differentiate with certainty on clinical grounds alone between the non-malignant and the early malignant swelling. If exploration is not adopted as a guiding principle many a patient with early carcinoma will be placed upon the waiting list as suffering from a non-malignant condition, and all hope of cure may have been cast away.

2 *The Fatal Period of Observation*—A period of observation is no longer justifiable in the treatment of the doubtful breast lesion. Exploration of the swelling is the only proper procedure if there is the slightest uncertainty.

The practice in some hospitals when a patient is suspected of carcinoma of the breast is for her name to be placed upon a general waiting list to await her turn for a vacant bed. This procedure must be wrong. By such an arrangement the "carcinoma" patient may wait a varying number of weeks while others with non-urgent, non-malignant conditions are admitted in rotation. The names of all cancer patients should be placed upon a special waiting list and arrangements should be made to admit doubtful or early cases immediately. The exploration of a swelling in the breast is an emergency operation.

\*Extracts from a Hunterian Lecture delivered at the Royal College of Surgeons of England on Feb 9, 1948.



FIG 1a—Carcinoma of the right breast b Carcinoma of left breast with the arms in the position for palpation. The outstanding impression on inspection is normality. The configuration of each breast is normal, there is no elevation of the nipple and no attachment to the skin. In each case the only sign of carcinoma was a small hard lump in the breast. The axillary nodes were not palpable clinically, but in both patients metastases were found in the nodes after the operation.

### Early Diagnosis

In established carcinoma mammae there may be no deformity of the breast. In early carcinoma mammae there is no deformity of the breast—that is, there is no visible evidence of malignancy. All the cardinal signs of cancer are absent save one—a hard lump, normality is the outstanding visual impression of the breast, which is normal in form and outline and which has normal nipple and normal skin (Figs 1a and 1b). The following might be taken as working rules.

**General**—(1) A swelling in the breast of a woman of any age is cancer until it is proved otherwise. (2) It is impossible by clinical methods alone to make or to exclude a diagnosis of early cancer. (3) When in doubt, a period of observation is unjustifiable. An exploration must be carried out and the tissue removed sent for section.

**Clinical Features**—(1) On inspection the configuration of the breast is normal in early carcinoma (Figs 1a and 1b). (2) On palpation a hard lump in the breast, unattached to the skin, is the earliest sign of carcinoma. (3) The "cardinal signs"—adherence to the skin, a retracted nipple, and palpable axillary glands—are the signs of long-standing advanced carcinoma. (4) The inaccuracy of the clinical findings is greatest in the stout patient, in whom fat conceals from palpation both the tumour and the glands. Beware the ample bosom. (5) The urgency for investigation is greatest in those patients in whom the cardinal signs are absent and the diagnosis is uncertain, because it is with these patients that the chances of cure are highest.

### Clinical Examination

The breast itself should be examined with the patient stripped to the waist and with both hands clasped behind the neck. This position (Fig 1b) tenses the breast on the chest wall and by giving it a firmer bed renders palpation more reliable than when the arms are hanging by the side. Examination of the supraclavicular fossae is best made from behind, with the shoulders raised and hunched forward so as to make hollows on either side (Fig 2).

Just as negative axillary findings may lead to postponement and delay, so may non-adherence to skin. Yet it is in these cases that the best results can be expected from



FIG 2—The position for examination of the supraclavicular fossae.

radical surgery. The urgency is further underlined by the fact that more than half of the "unattached" cancers have already metastasized to the axillary nodes (Table I). No case is as early as it seems.

In those instances in which the decision is difficult or in which the lump appears to be unattached it is worth while to ask the patient to raise her arm straight above her head. In a proportion of cases a dimple will appear over the affected area of the breast and in others adherence will become obvious on gentle manipulation.

The fact that the axillary glands are not palpable unfortunately does not always mean that they have not been invaded. It is important to bear this in mind or a false clinical interpretation of the state of these glands may be made. Table II shows that whereas the

clinical error in the case of the palpable glands is small *though not insignificant* (21% of free of metastases) the clinical error in the case of the impalpable glands is 50%. This fifty-fifty chance that the disease has spread to the axilla, even though the glands are impalpable, further emphasizes the urgency for immediate treatment.

Not uncommonly the first glands to become enlarged lie on the chest wall behind the anterior axillary fold upon the

TABLE I—Frequency of Attachment of Tumour to Skin in 170 Patients

	Glands Invaded	Glands Free
Tumour attached to skin (74%)	72%	28%
Tumour unattached to skin (26%)	51%	49%

TABLE II—The Impalpable Gland and the Clinical Error in 170 Patients

	Glands Invaded	Glands Free
Clinically palpable (61%)	79%	21%
Clinically impalpable (39%)	50%	50%

second and third intercostal spaces (Fig 3). The examiner who feels only high in the axilla regularly misses these glands. As the hand is withdrawn the fingers should be pressed against the chest wall until well below the level of the axillary outlet.

Before proceeding either to mastectomy or to a course of x-ray treatment it is essential that palpable secondary deposits in the abdomen and pelvis should be excluded by clinical examination and the chest, spine, and pelvis should be examined radiologically. It is only in this way that a silent pleural effusion or symptomless secondary deposit in a lung can be discovered.

The adjective "scirrhus" suggests for some a benevolent quality. In the series under review the histological section was described in 39% of the cases as being a "typical scirrhus carcinoma." Yet in 64% of these patients metastatic deposits were already present in the axillary glands at the time of operation. A "scirrhus" carcinoma of the breast can be and often is highly malignant and may run a rapid course.



FIG 3—'Axillary' glands on the chest wall.

Clinically, cases would seem to fall into one of the following broad categories

- Stage I—Tumour only
- Stage II—Tumour and mobile axillary nodes
- Stage III—Disease advanced with local metastases
- Stage IV—Disease advanced, with distant metastases

#### Treatment\*

Treatment is a radio-surgical problem, and the parts to be played by x rays and by surgery must be taken into consideration before embarking upon either. This can only be done effectively if surgeon and radiotherapist see and discuss the case together. The answers to the following questions are helpful in deciding the order of treatment and the extent of the operation

1 Is the breast condition operable or inoperable? The answer to this question will place the case in the first two or the last two clinical stages of the disease, and by so doing will rule out radical surgery in a proportion of patients

2 Is the breast (and tumour) removable with or without leaving a defect between the edges of the skin flaps? The answer to this question will give a general indication of whether the initial treatment should be by radiotherapy or by surgery (see below)

3 Is the case potentially early or potentially late in the operable group? The answer to this question will give a general indication of whether the surgical treatment should be by radical or by simple mastectomy. A combination of adverse factors will suggest conservative surgery (see below)

X-ray therapy is still in the process of evolution, and the relative merits of the different irradiation techniques are undecided. There are still some who believe that x rays only do harm or at least do no good. Results of cases treated in the ten years before the war showed no clear advantage to be gained from using x rays, and in some series (post-operative) they actually appeared to be a disadvantage (Truscott, 1947, Haagensen and Stout, 1942, Kraemer, 1940)

The poor results were due to a number of factors which no longer obtain, such as inadequate treatment from failure to push therapy to the limit of biological reaction, inefficient apparatus, and haphazard technique. These faults have now been corrected, and the value of x-ray treatment has been clearly demonstrated (Adair, 1943, Marshall and Hare, 1947, Richards, 1948)

#### Post-operative X-ray Treatment

Post-operative irradiation is given with the intention of destroying any islets of active cancer cells which may still remain in the field of operation after the primary tumour and the glands have been removed. Ideally the course should be started as soon as the wound is healed, which is likely to be any time after the tenth post-operative day. The method has certain limitations. The dosage is too often dictated by the skin tolerance of the patient rather than by the optimum which is destructive of tumour cells remaining in the operation area, and more often than not there is serious post-operative delay in instituting therapy because of failure of the wound to heal by first intention. Rightly or wrongly these disadvantages have recently given a boost to pre-operative x-ray treatment

Many surgeons exclude their gland-free cases from x-ray treatment. They prefer to reserve post-operative irradiation for the treatment of recurrences. This implies that all the axillary glands removed have been sectioned, which is certainly desirable, but it does not always happen. The only safe procedure is to arrange for all patients to have x-ray treatment unless it is contraindicated

\*In this survey only treatment by x rays and surgery is discussed

#### Pre-operative X-ray Treatment

Pre-operative irradiation is given with the intention of sterilizing or restraining the activity of the tumour and the glands. I think it has the following advantages—at least on theoretical grounds. (1) Pre-operative irradiation is more reliable in that there is no delay (except administrative) in starting the treatment, whereas post-operative irradiation may be long delayed by some complication of the operation, such as flap necrosis. (2) If x-ray treatment precedes operation any cells which may subsequently be disseminated may be either dead or so devitalized that they are not harmful. (3) It is probable that the skin will tolerate a slightly heavier dose of x rays if its blood supply has not been disturbed by previous operative trauma.

There are certain difficulties with pre-operative irradiation. (1) A diagnosis of cancer is required before submitting a patient to a course of x-ray treatment. This information is automatically available with post-operative cases—not so with the pre-operative. (2) There is delay before the patient is able to undergo operation. This wait is very irksome to some patients. (3) If the lump disappears under x-ray treatment, some patients may refuse operation altogether. (4) It is stated by some that pre-operative irradiation makes subsequent operation more difficult because of increased bleeding. This has not been my experience. The tendency to ooze is a little greater and the tissues are slightly more friable, but on the whole the operation is quite straightforward. (5) If mastectomy is carried out before the skin reaction has developed there is the risk that this may coincide with the healing of the skin flaps, in which case separation of the edges of the wound or sloughing may occur. The optimum irradiation-operation interval is not known. It must be long enough to allow the skin to regain its natural healing qualities but not long enough to allow regrowth of tumour cells. It would appear to be about six weeks.

There is a limit to the scope of x-ray therapy to which I should like to draw attention before considering its indications. Many hold that in certain cases pre-operative x-ray treatment can convert the surgically incurable into a surgically curable case. This is doubtful. The commonest example is the patient with a fixed mass of axillary glands. I believe that if the case is judged clinically incurable by surgery no amount of x-ray treatment will convert it into a surgically curable case however much the tumour mass may seem to disappear.

It is true that the effect of a full course of x-ray therapy can be quite remarkable, and that at the end of treatment in radiosensitive cases no lump may be palpable where previously there had been a fixed mass. It is tempting in these circumstances to proceed to radical mastectomy, but I am convinced that this is wrong. Fixation of the glands implies penetration of their capsule by malignant cells. This in turn implies advanced malignancy, and it is reasonable to suppose that a subsequent attempt at clearance of the axilla will serve only to disseminate the disease. Pre-operative x-ray treatment may render these patients technically operable, but that is not the same thing as rendering them surgically curable. They are surgically incurable.

It is impossible to lay down any hard-and-fast rules for pre-operative therapy. Its application is being extended in two directions.

1 *As an Alternative to Routine Post-operative Therapy*—The uniform application of pre-operative x-ray treatment is not quite so straightforward as it might appear. If the cardinal signs of cancer are absent, a biopsy will be necessary. It would therefore seem prudent for the time being to continue to employ post-operative therapy for the early cases until trials have shown which they may not, that pre-operative x-ray treatment is to be preferred at all stages of the disease.

2 *In the Presence of a Shortage of Skin*—Depending on the size of the tumour (relative to the size of the breast) and the extent of skin involvement, patients fall into one of two groups—those in whom it is judged that primary removal of the breast (and tumour) will leave a defect between the edges of the skin flaps and those in whom it will not leave such a defect. Pre-operative x-ray treatment is of particular advantage for most patients in whom a defect is anticipated.

A shortage of skin, although not invariably present, is commonly found when the breast is unusually small, when the tumour is large, when the tumour is widely attached to the skin, and when the tumour has ulcerated through the skin. A defect between the edges of the flaps has two disadvantages—first, it can heal only by skin graft or by granulations and scar tissue, which form a patch vulnerable to subsequent post-operative therapy, and secondly, and more serious, healing is often protracted so that post-operative therapy is sometimes delayed until it may be useless. If such a defect can be anticipated—and to do this the area of skin available for the flaps must be worked out beforehand and not on the operating table—pre-operative x-ray treatment should be given. Delay in the healing of the wound subsequent to x-ray treatment has not the same significance, as it holds up nothing except the ordinary convalescence of the patient.

### Surgical Treatment

Radical mastectomy for many years has been advocated as the best surgical treatment of Stage I and II cases. Recently this has been challenged, and a plea has been put forward for more conservative surgery.

In 1941 an important experiment was launched in Edinburgh, where it was agreed to try out a uniform method of treatment for all operable cases—simple mastectomy followed by post-operative irradiation to the chest wall and the undissected axilla—and submit the results for statistical analysis. This method is the same as that of Keynes (1937), except that x-rays are substituted for radium and the subpectoral group of glands, if accessible, are removed at the same time as the mastectomy.

In this method Stage I cases are included as well as Stage II cases. The view is taken that if the disease has spread to the axilla surgery will serve only to disseminate it still further, and that if the disease is confined to the breast dissection of the axilla is unnecessary. The five-year survival rate of all operable cases is reported in three groups as follows: 1941–5, simple mastectomy plus post-operative radiotherapy, 56%; 1935–40, radical mastectomy plus post-operative radiotherapy, 44%; and 1930–4, radical surgery only, 35.6% (McWhirter, 1948).

The disadvantages are much the same as those with radium—in particular, the persistence of active malignant cells in the axillary glands after the termination of treatment. That they do persist at least for a time has been proved by carrying out a radical mastectomy after a full course of pre-operative irradiation and examining the axillary and breast material so obtained. Malignant cells were found to persist in the axillary glands of patients treated with x-rays alone in 92% of cases by Adair (1943) and in 65% by Richards (1948).

The question is, Can x-rays in Stages I and II (the only stages in which radical mastectomy is done) restrain the local growth and spread of carcinoma in the axilla more effectively than operative clearance? The answer is not yet known. The advocates of x-rays believe that if the irradiated tissues are not disturbed by operation the cells will eventually either disappear or be rendered harmless by fibrous encapsulation. Those in favour of clearance of the axilla by operation contend that x-rays are only a "holding" technique and that recurrences or dissemination must

be expected between the fifth and tenth years. Time alone will show which school of thought is right. In the mean time, what attitude are we to adopt in the treatment of our operable patients in regard to dissection or non-dissection of the axilla?

### Operable Cases

*Stage I and Stage II (Early)*—Radical mastectomy combined with radiotherapy should remain the treatment of the early case until a better method has been demonstrated—over a seven-year or preferably a ten-year period, since the natural history of untreated cancer of the breast is three years and three months (Greenwood, 1926)—and for these reasons:

1 No other known method has yet produced results as satisfactory over a similar period. In the series of Stage I cases published by Gordon-Taylor (1938) and in the Leeds series of gland free cases (Ministry of Health Report, 1926), 84% and 91%, respectively, of the patients operated upon were alive ten years later. These figures approximate closely to the chances of survival among the general population in the same age periods and must therefore be regarded as very satisfactory.

2 Radical mastectomy is based on sound pathological and surgical principles. Local mastectomy for cancer violates these principles because it cuts across the path of spread of the disease.

3 The general standard of radiotherapy is not high enough yet to follow out the Edinburgh procedure, even if this was thought desirable.

4 The continued presence of living cancer cells in the undissected axilla despite x-ray therapy has been demonstrated. The danger of these residual cells may be exaggerated and be more potential than actual, but the possibility of their recovering their activity cannot be ruled out. This possibility might be a reasonable risk to take in the more advanced stages of operable carcinoma (late Stage II), but it cannot be so regarded in the earliest stages of the disease, in which the radical operation still offers the best opportunity of clearing all malignant tissues from the axilla.

*Stage II (Late)*—I believe that in late Stage II cases there is a place for the treatment of operable cancer of the breast by simple mastectomy and irradiation of the undissected axilla. Some surgeons feel that all operable cases should have the radical operation, others consider that the radical operation should not be applied as a routine simply because the patient is classified as belonging to Stage II. Not all patients in Stage II are at the same pathological stage in their illness. Age, site, rate of growth, and extent of skin involvement are the factors which help us to separate the later cases from the earlier ones. Experience alone can guide us, but I think a conservative mastectomy without dissection of the axilla should be seriously considered in Stage II patients—assuming first-class radiotherapeutic services to be available—if a combination of two or more adverse factors is present, such as rapid growth, wide involvement of skin by infiltration or ulceration, age over 65, and possibly a peripherally situated tumour, more particularly if it is in the inner hemisphere.

### Inoperable Cases

*Stage III*—This group comprises cases with enlarged supraclavicular nodes on either side, fixed axillary nodes, mobile or fixed axillary nodes on both sides, deep fixation of the breast to the ribs, secondary nodules in the skin, or oedema of the arm. (It will be noted that patients with fixed glands are placed in this category.) Radical surgical treatment is absolutely contraindicated in these patients because they have advanced malignant disease. In special circumstances, such as fungation or a large tumour, simple mastectomy may be indicated. X-ray treatment, judiciously applied, may be of great value in the treatment of glandular masses and skin nodules. Some

surgeons carry out the radical operation on cancers of the breast associated with enlarged supraclavicular glands provided the glands are mobile and not fixed to form a supraclavicular mass. All the evidence points to the danger of any form of surgical treatment in these patients. Operative intervention at this advanced stage can only hasten the patient's end.

**Stage IV**—This group comprises cases with distant metastases in bones, viscera, or lungs. These patients are unsuited for any form of active treatment other than hormonal X rays, however, may help in the relief of pain caused by secondary deposits in bone, particularly when the metastatic process is confined to a solitary deposit—for example, a single vertebra. Although the ultimate prognosis is grave, some of these patients survive for long periods with well-controlled x-ray treatment. The pain of brachial neuritis caused by a supraclavicular mass of glands is similarly relieved.

### The Operative Mortality of Radical Mastectomy

The operation of radical mastectomy is not yet obsolete. Until it is, operative mortality and morbidity must be reduced to a minimum. Cade (1948) has collected the figures of 22 British surgeons. There were 11,014 radical mastectomies, with 182 deaths—a mortality of 1.65%. In my series of 170 consecutive radical mastectomies there was no operative death—that is, no patient died within one month of operation or while still in hospital.

### Summary and Conclusion

It is more than half a century since Halsted first practised his operation for cancer of the breast. While much has been achieved since then by individual effort it is well to remember that a busy surgeon cannot expect to see many more than 500 patients with cancer of the breast. Spread as they must be over 30 to 40 years, conclusions arising from this experience can come only slowly.

It would seem that we have now reached a stage in the history of this disease when it would be of great advantage to be able to test different combinations of surgery and radiotherapy and hormone methods of treatment upon groups of patients on a scale large enough to make the trials of value. Collaboration between individual surgeons as well as between surgeons and radiotherapy centres would make such investigations possible. Collaboration before treatment and the pooling of results afterwards would provide the volume of material which is necessary if expert independent statistical analysis is to be of value, as it can be, in determining future lines of treatment and in determining them within a reasonable span of time.

Early diagnosis is the key to the problem of treatment of breast cancer.

No significant improvement in treatment need be expected until there is wider knowledge of the basic clinical fact that *there is no outward visible change in the appearance of the breast in early malignant disease*.

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Amending regulations have been made which relax certain prohibitions in the existing orders affecting the importation and sale of mutton. Caseous lymphadenitis is not regarded as communicable to humans, and the amendments bring the regulations into line with present-day practice in the exporting countries concerned.

## PAPILLOEDEMA IN EMPHYSEMA\*

BY

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Papilloedema rarely occurs in emphysema. Cameron (1933) seems to have been the first to record it. Friedfeld and Fishberg (1934) mention the occurrence of papilloedema in a case of severe right heart failure secondary to pulmonary disease but do not give the cerebrospinal fluid pressure. Meadows (1947) records a case and suggests that the papilloedema was secondary to chronic increased venous pressure and polycythaemia, these in turn being due to the chronic chest condition. Beaumont and Hearn (1948) report a case under the title "Reversible papilloedema due to heart failure" and suggest that the cause is increased pressure in the venous cranial sinuses interfering with the filtration processes of the arachnoid villi.

Although I have studied only three cases, the rarity of the condition prompts me to evaluate the causes of papilloedema in emphysema and to suggest their mechanism.

### Case Reports

**Case 1**—A motor driver aged 54 was admitted to Redhill County Hospital on April 2, 1946. He had had bronchitis for 28 years and orthopnoea for six months. Seven days before admission oedema had developed. On examination he was seen to be extremely cyanosed, orthopnoeic, and oedematous, and ascites was present. The veins of his face were dilated, his eyes were prominent, the conjunctivae were congested, and he complained of poor vision. Bilateral papilloedema and engorged retinal veins only were seen on fundal examination. The venous pressure was raised to 4 cm above the sternal angle. Clinical and x-ray examination revealed emphysema, numerous basal rales, and cor pulmonale. The blood pressure was 140/100. The red cells numbered 5,620,000 per c.mm., and the haemoglobin was 120%. Lumbar puncture could not be done owing to his general condition. On April 27 the papilloedema had receded, the retinal veins were less engorged, and he could see better. Clinically the venous pressure was now at the sternal angle level, the oedema had gone, his vital capacity was 2 litres, and the blood pressure was 135/90. Also the eyes were less prominent and his head was less congested. He was readmitted on Aug. 7, 1946, in semi-coma with massive oedema and twitching of the arms. The neck veins were not visibly distended and the blood pressure was 180/90. He was discharged on Sept. 25 with no oedema and minimal cyanosis. He was readmitted on Nov. 25, 1946, with gross oedema, gallop rhythm, and a venous pressure of 7 cm above the sternal angle. He died four days later. The fundi were not commented on in the last two admissions. At necropsy the lungs showed gross emphysema, and although the medium branches of the pulmonary artery showed a well-marked degree of atheroma the smaller branches were normal microscopically. The heart weighed 500 g., the right ventricular wall being 1.5 cm. thick and the left normal. The brain was not examined.

**Case 2**—A builder's labourer aged 46 years was admitted to St. Mary's Hospital, Paddington, on Jan. 5, 1948, with congestive failure. Since 1925 he had had winter bronchitis, and in December, 1947, he was orthopnoeic. Nocturnal ankle oedema started in May, 1945, but it troubled him only towards the end of 1947. On examination he was deeply cyanosed, his eyes were prominent, and oedema and ascites were present. Emphysema, numerous basal rales, and cor pulmonale were present. The blood pressure was 140/80. On Jan. 14 the fundi showed bilateral papilloedema, with extreme engorgement and tortuosity of the retinal veins, normal retinal arteries and one hard white exudate in the right fundus. At this time the venous pressure measured 2 cm in the neck, the oedema had gone (mersally), but the deep cyanosis remained and he was extremely breathless on movement in and out of bed. The red cells

\*Paper read before the Middlesex County Medical Society on March 18, 1948.



numbered 5 700,000 per c mm and the haemoglobin was 120%. Renal investigations were normal, and the vital capacity never exceeded 1.5 litres. On Jan 16 the CSF pressure was 215 mm of water and the venous pressure 9.8 cm above the sternal angle. He was discharged on Feb 13 with the fundal appearances unchanged.

**Case 3**—A summary of the clinical notes of this patient is contained in the appendix to the paper by Howarth *et al* (1947). I quote it in full and add further post mortem details (Lennox, 1948, personal communication) relevant to my discussion.

Male aged 42. Chronic bronchitis and asthma 10 years. Cyanosed, irritable and forgetful 1 year. Deep cyanosis, oedema and ascites. Vital capacity 1,100 ml. ECG SR. Right axis shift. ST<sub>1</sub> depressed. P 0.25 mv. X-ray pulmonary arteries enlarged. Heart moderate enlargement. Blood RBC, 5 300,000 per c mm, haemoglobin 93%. Numerous fundal haemorrhages. Papilloedema developing later. CSF pressure greater than 300 mm. No improvement from oxygen and thiouracil. Death after two months. Post mortem heart weight 440 g. Left ventricle normal. Lungs emphysema, slight atheroma of pulmonary artery intimal thickening of small branches of pulmonary artery.

The surface veins of the brain were engorged to an exceptional degree and the convolutions were slightly flattened. Serial section of the brain showed prominent veins. The authors had found the venous pressure to be 5 cm above the sternal angle, the blood pressure was 118/69, and the arterial O<sub>2</sub> saturation was 42%.

### DISCUSSION

Bilateral papilloedema is generally associated with and attributed to raised CSF pressure in the cranial cavity. Patients with papilloedema usually have a higher CSF pressure than those without, in cerebral tumour (Ayer, 1929), for example, or hypertension (Pickering, 1933-4). Of the three cases reported here two showed a raised CSF

TABLE I

Case	Sex	Vital Capacity in Litres	CSF Pressure in mm of Water	Venous Pressure in cm above the Sternal Angle (S.A.)
A	M	1.1	50	1
B	M (died)	Too dyspnoeic	160	S.A. +
C	M (died)		100	5
D	F	0.7	70	0
E	M	1.3	45	11
F	F	1.5	80	0
G	M	1.5	135	0

pressure, as did Meadows's (1947) case. In seven cases of emphysema and cor pulmonale without papilloedema I found the CSF pressures to lie between 45 and 160 mm of water (Table I). It seems probable, therefore, that the papilloedema in emphysema is likewise due to a raised CSF pressure.

In congestive cardiac failure and obstruction of the superior vena cava very high venous pressure may be present without papilloedema. In one case of congestive failure the venous pressure measured 35 cm above the sternal angle, yet only haziness of the disk margins and congestion of the retinal veins were seen by our ophthalmologist,

Mr C B Goulden. Owing to the oedema the CSF pressure could not be determined. In two other cases of congestive failure the CSF pressure measured 30 and 22.5 cm and the corresponding venous pressures were 21.5 and 15 cm. In neither case was papilloedema seen.

Pickering (1942) quotes a case of bronchial carcinoma obstructing the superior vena cava in which the venous pressure was raised by 30 cm and the CSF pressure was 42 cm, yet papilloedema was absent. It is uncertain why these venous and CSF pressures should be unassociated with papilloedema. These cases with high CSF pressure and no papilloedema differ from the cases of emphysema I have described with high CSF pressure and papilloedema in that in the former venous pressure is generally raised in the head and neck, while in the latter the general venous pressure is more or less normal. For instance, the highest venous pressure recorded was 9.8 cm above the sternal angle (Case 2) and in this case papilloedema was seen when the venous pressure measured only 2 cm in the neck.

In the three cases of emphysema, therefore, the raised CSF pressure cannot be ascribed to raised venous pressure, for this on measurement was normal or nearly so. A different cause must be found, and this cause may be sought in the essential functional disturbance of emphysema—namely, deficient haemo-respiratory exchange. In emphysema the O<sub>2</sub> saturation of the arterial blood is low and its CO<sub>2</sub> content high (Meakins and Davies, 1925). Both these changes affect the intracranial vessels, that of CO<sub>2</sub> excess being much more conspicuous. In five patients with emphysema and cor pulmonale without papilloedema who died at this hospital the dilatation of the cerebral veins seen at necropsy was a striking feature (see also Case 3).

Wolff and Lennox (1930) observed the pial vessels of cats directly through a trephine hole in the skull. In two experiments the animals inhaled a mixture of room air and approximately 5% CO<sub>2</sub>. Although the CO<sub>2</sub> content of the blood was increased by only 2% there was a 17% increase in the size of the observed pial artery. At the same time the CSF pressure, measured in millimetres of Ringer's solution, rose from 40 to 60. However, Dumke and Schmidt (1942-3), in experiments on the cerebral blood flow in 3 to 6 kg monkeys, cast doubt on the validity of these observations, finding that anoxaemia was a more powerful dilator of the cerebral vessels than CO<sub>2</sub>. They, however, draw attention to the fact that none of their animals showed appreciable hyperpnoea during anoxaemia. Had they done so the reduction in the arterial CO<sub>2</sub> tension might have caused constriction of the cerebral vessels, and this sufficient to counteract the dilator effect of anoxaemia. The increase in cerebral blood flow resulting from anoxaemia may therefore have been considerably greater than it would have been under more nearly normal circumstances.

To explain the difference between this work and that of previous workers Schmidt (1944) says that either the response of the cortex is not representative of the great

TABLE II

Case	Age	Diagnosis	CSF Pressure in mm of Water				Hyperpnoea During the Inhalation	
			During Inhalation of CO <sub>2</sub>		After Cessation of Inhalation of CO <sub>2</sub>			After Voluntary Hyperpnoea — 6 Breaths
			Initial	Final	Max Rise	Final		
A B	43	Fibrositis	75	145 (60)	155 (70)	75 (142)	—	Nil
C D	65	Chronic bronchitis	85	165 (70)	173 (100)	85 (290)	—	Slight
E F	50	Orthostatic albuminuria	80	165 (45)	240 (65)	90 (165)	—	+
G H	24	Neurosis	78	165 (90)	180 (120)	78 (205)	63	Nil
I J	48	Headaches	75	190 (105)	—	—	50	Nil
K L	34	Pleural effusion	120	200 (40)	245	120 (95)	75	+

The numbers in parentheses show the time in seconds after the beginning of the experiment that the pressures were recorded.

mass of brain substance or else species differences exist (Note that in Case 3 serial section of the brain showed prominent veins) He concludes that at the present time it seems probable that both may be true. If these observations of Dumke and Schmidt (1942-3) are correct, then priority must be given to O<sub>2</sub> lack over CO<sub>2</sub> excess as a cerebral vascular dilator, but this in no way invalidates my conclusions, since both are present in the cases under discussion.

Dixon and Halliburton (1913-14) studied the effects of various substances on the secretion of CSF from a wide cannula placed in the subcerebellar cisterna of dogs. They found that the inhalation of CO<sub>2</sub> increased the secretion markedly. Further, they (1914) studied the effect on the CSF pressure of inhalation of concentrations of CO<sub>2</sub> varying from 3 to 10%. In a few seconds after inhalation of the CO<sub>2</sub> mixture the CSF pressure rose steeply and after stopping the inhalation it fell, but more slowly than it rose. They concluded that of all the conditions which influenced CSF secretion the most important were a deficiency of O<sub>2</sub> and an excess of CO<sub>2</sub> in the blood.

In view of these findings it was decided to observe the effect of inhaling CO<sub>2</sub> on the CSF pressure in human subjects. In six patients not suffering from intracranial or vascular disease the effect on the CSF pressure of inhaling a mixture of 7% CO<sub>2</sub> in 93% O<sub>2</sub> through an oronasal type B.L.B. mask, to which they had been previously accustomed, was observed.

The CSF pressure was recorded after it had become stabilized during natural respiration, CO<sub>2</sub> mixture was then inhaled for a varying period of time and then discontinued. It was found that after cessation of inhalation the CSF pressure continued to rise to a maximum. The CSF pressure and times were recorded at the end of the period of inhalation, at the point of maximum rise, and finally when the CSF pressure had returned to its original level. In three patients the effect of voluntary overbreathing (six breaths) was determined. The results are shown in Table II.

These observations show clearly that a rise of blood CO<sub>2</sub> raises the CSF pressure in the human subject. They thus support the hypothesis that raised CSF pressure in emphysema is due to CO<sub>2</sub> retention in the blood.

A further possibility must be mentioned. Polycythaemia was suggested by Meadows (1947) as a partial explanation of the papilloedema in his case. Sir Charles Symonds supported this suggestion and said that he had seen similar fundal changes in a case of primary polycythaemia. Loman and Dameshek (1944) describe papilloedema in a man aged 41 with a five-year history of polycythaemia. The general venous pressure was but 8 cm and the CSF pressure 380 mm. The red cells numbered 8.1 to 9 million per cmm and the haemoglobin was 136 to 142%. After venesection the papilloedema subsided, leaving a slight degree of optic atrophy in one disk. They were convinced by intra-jugular-pressure studies that venous sinus thrombosis had not occurred. However, none of the cases I have described had a degree of polycythaemia comparable to these cases.

### Summary

From a review of the literature and the study of three patients the hypothesis is put forward that papilloedema in emphysema results from a raising of the intracranial pressure.

A rise in general venous pressure does not provide a sufficient explanation and an intracranial factor is postulated.

It is suggested both from a review of animal experiments and from observation on man that O<sub>2</sub> lack and CO<sub>2</sub> accumulation in the arterial blood in emphysema may produce cerebral vasodilatation adequate to raise the CSF pressure to above the level producing papilloedema.

While polycythaemia may be a contributory factor in certain cases I do not think that it played a part in the cases under discussion.

I studied the cases through the kindness of Dr G. H. Jennings, Redhill County Hospital, Edgware, Professor Pickering, St. Mary's Hospital, and Dr R. Harrison, British Postgraduate Medical School. For the necropsy findings in Case 1, I am indebted to Dr H. Paterson, Redhill County Hospital, Edgware, and for those in Case 3 to Dr Bernard Lennox, British Postgraduate Medical School. I wish to thank Professors Pickering and McMichael for their help and guidance in the preparation of this paper.

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## OUT-PATIENT ELECTRIC CONVULSION TREATMENT

BY

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Electric convulsion treatment has many applications in psychiatry, and the indications for its use in severe mental illness, particularly in the depressive psychoses, are generally clear and well known. It is proposed in this paper to report upon its use as out-patient treatment for less severe and for earlier cases and to attempt to define the indications for and the limitations of such treatment.

In 1733, when the founders of St George's Hospital met, they were influenced in their choice of the site at Hyde Park Corner by the fame of the locality as a place "where is good air for cure of consumptions, melancholy, and other infirmities." In the light of this pioneering approach to the treatment of melancholy by physical methods it was perhaps not inappropriate that the hospital should provide one of the first services, if not the first, of out-patient E.C.T. clinics. These clinics have been held regularly since November, 1941, and Table I shows the growth of the service. The clinics were initiated by Dr William Sargent, and

TABLE I—Total Number of Patients Treated

1942	1943	1944	1945	1946	1947
37	48	32	30	112	180

during the war years Dr Sargent and Dr E. T. O. Slater, were in charge. Up to the spring of 1946 there was one session each week, now there are three—on Monday, Wednesday, and Friday. The increased frequency of the sessions not only allows more patients to be treated but enables more intensive treatment to be given where necessary, so that more rapid improvement can be obtained and more seriously ill patients treated.

**Technique**—The technique used in the early days is still followed, and the training and keeping together of an experienced staff of assistants is regarded as of great importance. The sister-in-charge is the leader of the team and is responsible for instructing new recruits in their duties. During the treatments Sister attends to the electrodes, the mouth gag, the administration of oxygen, and supports the patient's chin. Oxygen is given from the moment that the shock is applied until the patient is again breathing well and has a good colour, by this means the more severe degrees of cyanosis are generally avoided. The patient lies upon a firm trolley with no mattress, but with one low pillow for the head and a small sandbag under the dorsal spine. Moderate restraint is used by one assistant on each shoulder and arm, while another assistant, and in the case of specially muscular patients two more, controls the pelvis and lower limbs. Thus, in addition to the psychiatrist and sister, at least three nurses are required—a considerable expenditure of man- and woman-power. However, the method has worked smoothly and with an almost complete freedom from undesirable complications for a long time. During the period of 12 months reviewed later in this paper, in which 170 cases were treated, treatment was terminated in one case after a fracture of the 6th dorsal vertebra had been revealed radiologically. This has caused no permanent disability. No other fractures or dislocations occurred during this period, nor were there any other physical mishaps. The presence of an adequate staff enables the actual treatment to be given and the patient to be transferred to the recovery room with the minimum wastage of time. This is a factor of great importance, since time saved in giving treatment means time gained for interviewing patients and their relatives in order to assess the progress of the illness and the effect of treatment. It is quite unjustifiable ever to give treatment unless such an assessment has been made.

### Follow-up Questionary

During May, 1947, a follow-up letter was sent to 150 of the patients who had been treated in the earlier years. Many of these patients had had their treatment two, three, four, or even more years before receiving the questionnaire, and the minimum period was nine months.

Eighty-five replies were received, a large number of the remaining 65 letters having been returned marked "Gone away"—partly, no doubt, on account of bomb damage to houses and other factors connected with the war. Table II presents a comparison of those patients who reported themselves as being well and those who still had symptoms.

From this follow-up inquiry certain facts emerged. 64% of the patients treated were discharged as recovered or much improved. Some half-dozen had relapsed and approximately the same number had subsequently recovered, although their response to ECT had not been very good and they had been discharged as ISQ or only slightly improved. The duration of illness before treatment was considerably greater in the group who responded badly. The chance of recovery was better if there were no neurotic, psychotic, or psychopathic symptoms other than those of the depressive illness, but such symptoms were by no means a bar to recovery, since 50% of those patients in whom they occurred in association with depression recovered. The existence of hysterical, anxiety, or obsessional symptoms, mild mental defect, psychopathic traits, and sexual abnormalities did not prevent a patient being relieved of depression. In such cases the specific effect of ECT appeared to lie in its influence upon mood, and once this had been corrected the neurotic symptoms in many cases, though not in all, also cleared up. Those patients who had not previously had a mental illness showed rather better results

than those who had. The average number of treatments for both the recovered and the not-recovered group was five. The best results were obtained in the 31-40 age group and the worst in the older age groups—i.e., 51 and

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Dear

It is now \_\_\_\_\_ months since you received your last electrical treatment in the Out patient Department at St George's Hospital, and I should be very interested to hear from you how you are getting on. It would be most helpful if you would answer the following questions:

- 1 Have you regained your normal health?
- 2 Do you still suffer from symptoms which trouble you? If so, what symptoms?
- 3 Have you been under any other hospital—  
(a) as an Out-patient?  
(b) as an In patient?  
If so,  
(a) When?  
(b) Where?  
(c) For how long?
- 4 Are you now doing the same work as you were before your illness? If you have changed your work, would you please say why? Do you have to take time off work for illness?
- 5 Are you able to do your work in a satisfactory manner?
- 6 Are you able to take part in social activities?
- 7 Are there any other points you wish to mention?
- 8 Do you consider that you derived { much  
little benefit  
no  
from the electrical treatment?

I should be most grateful if you would answer these questions, as it will show me how well you are and also help in the treatment of other patients.

Yours sincerely,

above. There was no significant difference in the results as between men and women or married and single persons.

Of these 85 patients 78 (92%) had depressive illnesses, three were schizophrenic, and there was one depersonalization syndrome, one obsessional state, one paranoid state,

TABLE II (Follow up Series)

	Recovered	Not Recovered
Condition at end of treatment		
Recovered or much improved	48%	16%
Slightly improved	2%	3%
Not improved	11%	19%
Total	61%	39%
Married	63%	37%
Single	58%	42%
Average duration of illness before treatment	9 months	14 months
Neurotic features	50%	50/1
No neurotic features	71%	29/1
Previous mental illness	55%	45/1
No previous mental illness	66%	34/1
Average number of treatments	5	5
Sex		
Men	62%	38%
Women	60%	40%

and one psychopathic personality. Sixty-nine of these patients were able to continue to live at home during and after the treatment, ten were admitted to Sutton Neurosis Centre, four to observation wards or mental hospitals, and two were referred back to the psychiatric out-patient departments of other hospitals. During the period in which these patients were treated there was no in-patient accommodation for psychiatric cases at St George's. Sixty-six patients continued at the same or equivalent work after treatment, four replied that they had been able to take a better job, seven said that their working capacity had deteriorated, and 21 reported that they still had to take time off on account of psychiatric symptoms.

In reply to the final item in the questionnaire 48 patients reported that they had derived "much" benefit from the electrical treatment, 18 reported some or little, and 19 none. The last group included one patient who answered, "None, except that it cured my depression"—a rather curious but perhaps not insignificant tribute to the specific effect of ECT upon mood. Five patients stopped treatment on account of fear or dislike of it, one because his cardiac condition gave some cause for concern after his first treatment although no permanent damage ensued, one moved away from London and continued treatment at another clinic, while one was obliged to stop because no one could be found to accompany him to the clinic. Many patients amplified their answers to the final question.

The following extracts are selected from the most appreciative answers, although there were many others equally favourable.

(1) Mrs A, aged 39, a clerk, a depressive state with hysterical features, 8 months' duration, received 2 ECT in March, 1944. "As you know, I did not have the full treatment—I had only two, after being ill eight months I was completely cured."

(2) Mrs B, aged 49, housewife, involuntal depressive state, five months' duration, received 4 ECT in April-May, 1945. "I consider that the treatment saved my life."

(3) Mr C, aged 37, a business manager, depressive state, mainly endogenous, 3 months' duration, received 3 ECT in July, 1946. "A complete cure, with nerves and general health and confidence restored to normal."

(4) Mr D, aged 39, an electrical engineer, reactive depressive state, two years' duration, received 4 ECT in March, 1943.

A very great benefit. It was the most effective treatment I have ever encountered in my life. I was ill for two years before treatment and was made bright and well after four shocks."

(5) Miss E, aged 47, a shorthand-typist, moderately severe depressive state with mixed reactive and endogenous features, two months' duration, received 3 ECT in January-February 1946. "I think it was simply marvellous. It changed me from a species of stone to a living person, and I cannot speak too highly of it."

(6) Mrs F, aged 48, housewife, endogenous depressive state nine months' duration, received 5 ECT in May-June, 1946. "I consider the treatment wonderful, after five treatments I was my old self and mentally keep well."

The following extract is from a letter from a patient treated in private practice for a moderately severe puerperal depressive state.

I could never have believed I could feel so fit and happy in so short a time after seven weary months. I have taken a completely new lease of life and can really enjoy and appreciate my baby for the first time since her birth in April."

TABLE IIIa

	Recovered	Much Impr	Sl Impr	IS Q	Total
<b>Men</b>					
Depressive state	24	12	5	15	56
Hypochondriasis	—	1	1	—	2
Schizophrenia	—	1	1	—	2
Hysteria	—	—	—	2	2
Anxiety state	—	—	—	1	1
Obsessional state	—	—	—	1	1
Paranoid state	—	—	—	1	1
Constitutional inferiority	—	—	—	1	1
<b>Total</b>	<b>24</b>	<b>14</b>	<b>7</b>	<b>22</b>	<b>67</b>
<b>Women</b>					
Depressive state	37	14	14	24	89
Hysteria	1	—	—	2	3
Obsessional state	—	—	1	1	2
Anxiety state	—	—	—	1	1
Depersonalization	—	—	—	1	1
Schizophrenia	—	—	1	—	1
Paranoid state	—	1	—	—	1
Hypochondriasis	—	—	—	1	1
Paranoid state	—	—	—	1	1
Psychopathic pers	—	—	1	—	1
Chronic mania	—	1	—	—	1
Familial encephalopathy	—	—	—	1	1
<b>Total</b>	<b>35</b>	<b>16</b>	<b>17</b>	<b>22</b>	<b>103</b>

These extracts are published in the hope that they may help to correct the impression produced by a number of ill-informed and prejudiced statements which have appeared in the medical press. Such statements, however sincere, can only be regarded as pernicious, since they are calculated to dissuade doctors from referring their patients for ECT. No greater disservice can be done to the depressive patient than to withhold him from consideration, at least for ECT.

### September, 1946-August, 1947

During this period of 12 months 170 patients received ECT in the out-patient department, of these, 103 were women and 67 men. In Table IIIa the diagnoses in this series are related to the results of treatment.

Table IIIb provides a comparison of the results in depressive states with those in all other conditions treated.

TABLE IIIb

	Recovered	Much Impr	Sl Impr	IS Q	Total
<b>Men</b>					
Depressive states	24	12	5	15	56
Others	—	2	2	7	11
<b>Women</b>					
Depressive states	37	14	14	24	89
Others	1	2	3	8	14

Six patients have already relapsed, five refused to continue the treatment, and ten ceased to attend. In one case, previously mentioned, treatment was terminated after a fracture of the 6th dorsal vertebra had been revealed radiologically.

Of the men 57% were classified as recovered or much improved, as compared with 53% of the women. The results in the lowest age group of women compared unfavourably with those for the same group of men, while in the two highest age groups the men responded less well than the women. The numbers treated were too small for any conclusions to be drawn from these observations, but Table IVb and IVc, by condensation of the categories, present certain of the findings in this series in a more striking manner.

TABLE IVa

Age	Recovered	Much Impr	Sl Impr	IS Q	Total
<b>Men</b>					
Up to 30	4 (33%)	5 (42%)	2 (17%)	1 (8%)	12
31 to 40	6 (40%)	2 (13%)	1 (7%)	6 (40%)	15
41 to 50	10 (48%)	4 (19%)	2 (9%)	5 (24%)	21
51 to 60	3 (18%)	3 (18%)	2 (12%)	9 (52%)	17
Over 60	1 (50%)	—	—	1 (50%)	2
<b>All ages</b>	<b>24</b>	<b>14</b>	<b>7</b>	<b>22</b>	<b>67</b>
<b>Women</b>					
Up to 30	7 (29%)	4 (17%)	3 (13%)	10 (41%)	24
31 to 40	12 (42%)	2 (7%)	5 (17%)	10 (34%)	29
41 to 50	11 (43%)	4 (15%)	5 (9%)	6 (23%)	26
51 to 60	8 (38%)	5 (24%)	2 (9%)	6 (29%)	21
Over 60	1 (33%)	—	2 (67%)	—	3
<b>All ages</b>	<b>39</b>	<b>15</b>	<b>17</b>	<b>32</b>	<b>103</b>

TABLE IVb

	Men	Women
Recovered and much improved	57%	53%
Slightly improved and IS Q	43%	47%

TABLE IVc—Men and Women Together

Age	Up to 30	31-40	41-50	Over 50
Recovered and much improved	56%	50%	62%	48%
Slightly improved and IS Q	44%	50%	38%	51%

TABLE V—Average Number of Treatments

	Men	Women
Recovered	5	6
Much improved	6	8
Slightly improved	4	6
IS Q	3	7

In all the categories the number of treatments received by the women exceeded that given to the men. Treatment is usually given twice a week, in the milder cases once a week may be often enough, but in the more severe cases the quicker improvement obtainable by giving three treatments for the first week or two can reduce the risk of suicide and prevent certain patients having to enter hospital for in-patient treatment. In a suitable and uncomplicated case recovery can be expected after from two to ten treatments.

#### Disposal

Of these cases 131 were able to remain at home during and after treatment. The disposal of the remainder was as follows: 17 admitted to the psychiatric ward in the Atkinson Morley Branch of St George's Hospital at Wimbledon (all women, since the male side had not yet been opened), 6 admitted to Sutton Neurosis Centre, 2 admitted to the York Clinic, 1 admitted to Roffey Park Neurosis Centre. One patient was admitted to the Obstetric Unit at St George's for termination of pregnancy after two treatments; this woman had a severe suicidal depression in a setting of low intelligence. Three patients are continuing to have maintenance treatment—in one case once a fortnight (22 treatments in the year), and in another four to five treatments every 10 to 12 weeks. These are cases which respond excellently to ECT but soon relapse, and the maintenance treatment is being given as a conservative alternative to leucotomy so far with good results. Out-patient treatment offers special advantages for such cases as these, and it is anticipated that the number receiving a periodical maintenance dose will increase.

#### Sources

Of the series of cases 137 came to the clinic through the psychiatric out-patient department, having been referred either by their own doctors or from other departments in the hospital, or from the psychiatric out-patient departments of other hospitals where there was no out-patient ECT service. Thirty-three were referred to the clinic by members of the honorary staff of the unit.

### Selection of Cases for Out-patient Treatment

#### 1 Psychiatric Indications

By means of a rigorous selection of cases it is possible to achieve an extremely high proportion of successful results with ECT. The rate of remissions in the manic-depressive or endogenous type of depressive state varies in most reports between 80 and 100%. The depressions of middle and later life respond very well and reactive depressions often give excellent results. Of the 92 patients in the recent series reported in this paper who responded well enough to be classified recovered or much improved 87 (95%) had depression as the predominating symptom and had been given a diagnosis of depressive state, whether endogenous, involuntal, or reactive. The comparatively poor results in other types of illness revealed in Table III may well suggest that the range of case material which has been subjected to ECT has become rather too wide. On the other hand, where the patient stands to gain so much should the treatment be successful, it would be unjustifiable to restrict its use to those cases which present only the clearest indications. The special value of out-patient ECT is in the case which without it would become so severe that admission to a mental hospital, possibly under certificate, would become inevitable, and in the less severe case where the patient despite prolonged ill-health, would not agree to become a voluntary patient. Out-patient treatment offers such patients a chance to regain their mental health with a minimal disruption of their way of life. The limited

facilities available at the present time for in-patient psychiatric treatment constitute another powerful reason for treating as many as possible as out-patients. It is worth while, therefore, to accept for treatment a certain proportion of atypical or borderline cases in which the clinical indications for ECT are disputable.

The case of hysteria (Table IIIa) which recovered after two treatments may perhaps be cited as an example. This was a case of recurrent hysterical aphonia which was resistant to psychotherapy and a quick cure of which was called for because the patient was going abroad. The case of paranoid state classified as much improved was one among the large group of delusional insect infestations which are well known in the skin departments. This woman believed that small insects circulated in her blood stream as the result of a therapeutic injection which she had received many years ago. The insects left the blood stream at night to torment her with their stings and bites. She had severe excoriations of the pubic region and vulva from scratching. She was depressed, was much under weight, and had not slept properly for many months. Her response to ECT was dramatic: she stopped scratching and the skin lesions healed quickly; she slept well, gained weight, and became cheerful and sociable. Admittedly she gained no insight, but she was happy in the belief that the electrical treatment, which she described as "wonderful," had disinfested her blood stream.

At the same time the indiscriminate use of ECT cannot be too strongly condemned. It is far simpler to press the switch on the set than to undertake the psychotherapeutic and social measures called for by many cases of neurosis, and the temptation to adopt the quicker and simpler course is obvious. Such misuse can only bring the method into disrepute, since, apart from the large number of cases which will not improve, there will undoubtedly be some which are made worse—for example, the intellectual obsessional and the very tense anxious patient in whom there is no evidence of depression. Even in the most suitable case the neglect of social, sedative or psychotherapeutic measures may impair the result, while in borderline cases such measures may be decisive as between success and failure.

It is clear that *depression* is the indication *par excellence* for out-patient ECT, and, while it is well known that depression can be disguised in many ways it would appear to be established that unless depression exists recovery cannot be counted on with much confidence. The diagnosis of mild and atypical forms of depressive illness is then the key to success, and it is admittedly often extremely difficult. Recurrent mental illness, even where the presenting symptoms are, for example, obsessive-compulsive or those of the depersonalization syndrome rather than frank depression, is suggestive, as are recurrent attacks of hypochondriasis (the so-called "manic-depressive equivalents"). For the sake of clarity an attempt has been made to distinguish among individual symptoms, between cardinal and subsidiary symptoms. It is not suggested that the list is by any means complete, but it is felt that where two or more of the former exist in combination with some of the latter the giving of ECT should be seriously considered. Where only one cardinal symptom is present the indication for ECT is less definite, but it may be strengthened by the pressure of subsidiary symptoms.

(a) *Cardinal Symptoms*—Mood persistently depressed. Morning-evening variation of mood (with some lessening of the degree of depression towards evening). Affective loss (often expressed as loss of interest in any kind of activity or of feeling towards relatives and friends). Retardation (often showing itself as difficulty in getting through the ordinary day's work—"everything seems too much trouble" or "such an effort").

Indecision, perplexity, agitation Ideas of self-reproach, delusions of poverty Ideas of reference Avoidance of social contacts in a normally sociable person I do not seem to be able to enter into conversation now"

(b) *Subsidiary Symptoms*—Insomnia, especially difficulty in getting off to sleep, associated with a pressure of worrying thoughts Irritability Excessive fatigability Inability to concentrate Anorexia Loss of weight Constipation Amenorrhoea Diminution of sex drive Hypochondriasis

It would be remiss to conclude this section without emphasizing the importance of *early* treatment, not only in allowing many cases to be treated as out-patients who would otherwise require admission to hospital, but also in preventing the development of secondary reactions—e.g., hysterical elaboration and habituation, which are common complications of prolonged mental as of prolonged physical illness

## 2 Physical Factors

The physical contraindications to ECT have been gradually narrowed down as experience of the treatment has increased. Patients over 70 years old and pregnant women have been successfully treated. It has been pointed out that chronic epileptics seldom come to serious harm as the result of a fit, and it is perhaps even less likely that harm will come from a fit in the controlled conditions of the clinic. Certain cardiovascular disorders, such as aneurysm, coronary disease, and auricular fibrillation, still give cause for concern, but each case must be considered on its merits and the seriousness of the mental condition weighed against the physical risk. Hypertension, pulmonary tuberculosis, severe osteoarthritis, recent fractures, peptic ulcer, and some other conditions which were formerly regarded as contraindications are no longer so regarded since the introduction of curarization to diminish the violent muscular contractions of the convulsion. The occasions on which curarization is to be considered essential are infrequent, but it can enable certain patients to have ECT who would otherwise be debarred. For such patients the technique using thiopentone and curare, so well described by Hobson and Prescott,<sup>1</sup> is followed

## 3 Social Factors

A relative or friend must be available to escort the patient home after each treatment. Although the post-epileptic confusion almost always clears quickly (except in a few elderly patients with degenerative cerebral changes) and the patient is able to leave the clinic within an hour and a half of receiving treatment, he may still be a little muddled and absent-minded, and the availability of an escort is a *sine qua non*.

Patients who live entirely alone are unsuitable. Apart from the occasional persistence of some degree of confusion and absent-mindedness, there is a risk, albeit a slight one given a careful selection of cases, of a sudden swing from depression to hypomania.

Patients who live very far away are, in general, unsuitable for out-patient treatment. A train or motor journey of much more than one hour's duration after treatment is undesirable. Whenever possible, such patients are asked to make arrangements to stay with relatives or friends in London.

Patients doing intellectual work sometimes find considerable difficulty in carrying on with it during treatment owing to the temporary memory defects which occur. Such difficulties may cause a secondary increase in their depression and seriously retard recovery, and intellectual workers are usually advised to stay off work. Many patients, on the other hand, manage to keep at work apart from the treat-

ment days. In the case of housewives, it is often necessary to make arrangements for lessening the burden of household duties and the care of children, usually this can be done by enlisting the help of relatives. It cannot be too strongly emphasized that neglect of such measures or of a full inquiry into the social and domestic background may seriously impair the result of treatment.

## Conclusion

In the early days of convulsion treatment the method was regarded with distrust as well as distaste by many if not most psychiatrists. It is admittedly unpleasant to watch, and the scientific basis of its results is unknown. The objection that it is possible to apply it in ignorance of the dynamic psychopathology of the illness is, however, hardly valid, since it is through a study of the psychopathology alone that the true indications for ECT can be elicited and progress assessed. That shocks can be given unskilfully and without proper psychopathological investigation is clearly not a criticism of the method itself but a warning against careless administration. But perhaps the most widely held objection was that convulsion treatment appeared to be a very drastic and hazardous interference with the natural history of an illness which would, at least as often as not, ultimately clear up without it. At the present time it can be said that very few psychiatrists who were called upon to treat depressed patients before the introduction of convulsion treatment and who have now had any considerable experience of ECT would consent to work in a clinic where it was not available. This change of attitude is attributable to two facts which have been learned by experience. (1) it has been proved that, given a sound technique, the physical risks are extremely slight, and (2) ECT can and does cut short by many months or even years illnesses which might eventually clear up spontaneously, but which might equally well become chronic or end in suicide. The social and economic significance of this and the benefit to the patient through the curtailing of his suffering need no emphasis.

Certain objections are still raised on the score that the treatment is greatly disliked or dreaded by the patients. This has been much over-emphasized. Some patients do complain of transient unpleasant after-effects, such as nausea, headache, muscular pains, and absent-mindedness. But rarely are such symptoms so severe or so persistent as to necessitate termination of treatment, nor is fear of the treatment at all a common cause of premature termination. Where fear or dislike is so severe as to make a patient unwilling to continue it, it is more often than not evidence of incorrect selection of a patient who would be unlikely to benefit from the treatment. The typical depressive patient willingly puts up with such minor and transient discomforts, if they occur, in exchange for relief from his depression. He comes regularly and punctually to the clinic without needing persuasion. One woman patient, a case of recurrent depression, in whom the predominating symptom was a very severe and distressing form of depersonalization, experienced an exacerbation of her depersonalization to a terrifying degree during the recovery period after each treatment. "It seemed as if the horrible dread I have had of losing my identity was enormously increased." This patient suffered intense anxiety during the recovery period, but she came regularly for treatment and made a complete recovery after six shocks. Some patients, having once had an attack of depression relieved by ECT, report spontaneously for further treatment when they feel that they may be about to relapse or to have another attack.

Electric convulsion treatment, does, in fact, give results which outweigh all objections so far raised against it, and in the present state of knowledge there is no adequate substitute for it.

<sup>1</sup>British Medical Journal 1947 1 445



## A CASE OF GROSS OVERDOSAGE OF SOLUBLE PHENYTOIN

BY

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Soluble phenytoin is an anticonvulsant now widely used in the treatment of idiopathic epilepsy. The exact site of its action has not been elucidated, although it is generally appreciated that it acts differently from phenobarbitone. Toxic effects due to overdosage have been classified by Blair (1939) into (a) nervous symptoms consisting of giddiness, blurring of vision, diplopia, clonic spasm, tremors, muscular irritability, ataxia, and nystagmus, (b) mental symptoms consisting of euphoria, excitement, irritability, confusion, delusions, hallucinations, dullness, and depression, (c) cutaneous eruptions varying from a slight erythema to a scarlatiniform or morbilliform rash, and (d) gastro-intestinal symptoms such as nausea and anorexia. Other toxic effects include fever and swelling and tenderness of the gums. These toxic effects have been noted in the course of therapeutic usage of the drug and are quickly relieved by reduction of the dose or temporary withdrawal of the drug.

The following case of gross overdosage (self-administered) is, I think, worth recording.

### Case Report

A single young woman aged 18 was admitted to Oldchurch County Hospital on the evening of Feb 12, 1948, with a history of having swallowed a total of 250 tablets of soluble phenytoin (1½ gr (0.1 g) each) about eight hours previously. According to her previous history (obtained from her mother) she had been suffering from idiopathic epilepsy since the age of 14 and had been attending a hospital for treatment, which consisted of 1 gr (0.65 mg) of phenobarbitone and 1½ gr of soluble phenytoin thrice daily. This seemed to keep her attacks fairly well under control. During the past year, for instance she had had only three attacks. Between attacks she appeared quite normal, apart from occasional outbursts of "temper," and was able to manage her work at a sack-making factory satisfactorily. On the day before her admission to hospital her mother had collected a three months' supply of phenobarbitone and soluble phenytoin (the latter consisting of 250 tablets). The mother it must be added, controlled the supply of tablets to her daughter.

Shortly before her admission to hospital, and about six hours after taking the tablets, she had vomited once, the vomitus consisting of some whitish material only.

On admission the patient was seen to be a well developed and well-nourished young woman. She was conscious and co-operative. Her main symptoms were double vision, intense generalized headache, and severe giddiness. There was gross cerebellar ataxia so that she was quite unable to sit up in bed or to stand up. When she tried to do so she swayed and reeled in all directions. There was coarse vertical and horizontal nystagmus. No ocular palsies were demonstrable and the pupils reacted normally to light and accommodation. Visual acuity seemed unimpaired and there was no deafness or tinnitus. The speech was slurred. The other cranial nerves appeared normal. Intention tremor was pronounced and gross ataxia of the lower limbs was present. There was no paresis, paralysis, spasticity or hypotonia of the limbs. Sensation was unimpaired. None of the deep tendon reflexes were elicited. The plantar responses were extensor. The fundi appeared normal. Apart from a pulse rate of 110 and a blood pressure of 170/100 the other systems remained unaffected. No abnormality was detected in the urine. Gastric lavage produced a thin white solution.

As the patient was conscious and felt comfortable while she was kept flat in bed, no special treatment seemed to be indicated. On Feb 13 the clinical picture remained much the same. She had slept well during the night and the headache had almost cleared up. Diplopia was absent. The pulse rate had dropped to 90. There was, however, much nausea and vomiting of bile stained fluid material. Next day the headache had cleared up and the vertigo was much improved. She could now sit up in bed without reeling. Horizontal nystagmus was still present and the speech was still slurred. The plantar responses were now flexor. The blood pressure was 90/60.

On Feb 16 the ataxia had completely cleared up and she was able to stand and walk about normally. The speech was also improved. There was still some degree of horizontal nystagmus, however. Next day the nystagmus was absent and she was regarded as having completely recovered. On Feb 22 she had a major epileptic attack. On Feb 28 she was discharged from hospital.

Unfortunately it was not possible to estimate the soluble phenytoin levels in the blood, urine, cerebrospinal fluid or gastric contents. Examination on Feb 13 showed—urine acid trace of albumin present, no other abnormality detected. blood urea 26 mg per 100 ml, alkali reserve carbon dioxide content, 46 vols per 100 ml, blood haemoglobin 80% (Haldane) red cells, 4,100,000, white cells, 7,800, platelets 180,000, bleeding time 4 minutes.

### Comment

Both the patient's and her mother's evidence confirmed that the whole of the three months' supply of soluble phenytoin had been swallowed. Of this amount some was apparently vomited a few hours afterwards and some was withdrawn by gastric lavage. It was obvious, however, that a large amount had been absorbed, although without blood level readings it is impossible to form any idea of the exact quantity. From a consideration of the clinical features of the case it would seem that the chief effect of the drug was on the vestibular nuclei. The raised blood pressure would suggest an effect on other medullary centres. There was complete absence of any evidence of derangement of cortical function. The headache was probably due to the rise in blood pressure. The escape of the other systems from effects of the drug is as would be expected, it being accepted that soluble phenytoin has no deleterious action on the blood, kidneys, liver, or heart. It is also of interest that a major epileptic attack occurred ten days after the overdose was taken—five days after the patient was regarded as having completely recovered.

### Summary

A case of gross overdosage (self-administered) of soluble phenytoin is described. The clinical features consisted mainly of gross cerebellar ataxia, which improved in five days. No specific therapeutic measures were carried out and recovery was good. A major epileptic attack occurred five days after recovery.

I wish to thank Dr S Locket, physician to the hospital, for his advice, and Dr E Miles, medical superintendent, for permission to publish this case report.

### REFERENCE

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The St John and Red Cross Joint Committee have allocated £150,000 out of funds earmarked for the relief of disabled ex-Service men to meet the urgent necessity for more extensive quarters for the nurses at the Star and Garter Home for disabled ex-Servicemen at Richmond. The Star and Garter is one of the homes not included in the national health scheme. Because nearly all the 183 patients are bedridden, or mobile only in invalid chairs, it requires as many as 152 people—nurses, domestic workers and administrative staff—to look after them.

## Medical Memoranda

### Late Recurrence After Marsupialization of Echinococcus Cyst of Liver

The following is a case of echinococcus cyst of the liver recurring 20 years after operative removal. An additional interest lies in the fact that the cyst had become subcutaneous.

#### CASE HISTORY

The patient, a man aged 43, was seen at the out patient department at the end of June, 1947, complaining of a continuous pain in the region of and under the right costal margin. The pain also radiated towards the back. He had first noticed it in January, 1947. He had seen several doctors, and all their investigations had been negative. It was known that for several years past he had been suffering from



Photograph of cyst after removal. The daughter cysts are clearly seen.

neurosis. He had been evacuated to the UK in 1944 for anxiety state, chronic, severe, unspecified. He had settled down well at a psychiatric centre and was eventually down graded to Category B.

He had served in Iraq from 1920 to 1922. While stationed at Edinburgh in 1926 he complained of lack of energy and of pain in the region of the right costal margin. He complained of indigestion, a tightness in the upper abdomen, and regurgitation of food. There was no jaundice or melena. His Wassermann reaction was negative. On examination a solid irregular swelling which moved on respiration was palpable under the right costal margin.

There was a slight increase in the lymphocyte count. A barium meal showed no abnormality. He was thought to be suffering from a carcinoma of the pyloric end of the stomach, and was transferred to a military hospital. There he was given a course of emetine without apparent benefit. A laparotomy was then carried out and a hydatid cyst of the liver was found. From the old notes it appears that the cyst was marsupialized and that the appendix was removed. He made a slow recovery, the wound discharging for many weeks. Subsequently, however, it had remained firmly healed and had not caused any trouble.

After the appearance of fresh symptoms in January, 1947, a barium meal test was carried out in connexion with a medical board and the report was as follows: "The meal revealed a hypertonic stomach, though not amounting to the steer horn type. The mucosal pattern was normal. The finer details of the duodenum were difficult to see owing to the patient's obesity, but it filled readily without delay. The outline was smooth and not deformed. There was some tenderness above the duodenum in the region of the scar. No ulcer niche was seen."

When the patient reported he told me that he was certain his pain was genuine. It had eased off for a while, but had come back and was then mainly localized to the upper end of the scar, where a small swelling appeared at the end of June, 1947, which increased rapidly in size.

On examination I found him to be well nourished. There was a very long right paramedian scar, broad and keloid at its upper extremity, where there was a hard fixed lump the size of a large plum. The skin over the lump was shiny but not hot or red, and it was only slightly tender. A small benign tumour, a chronically incarcerated piece of omentum, or some slow process around an old suture were considered as a diagnosis, the possibility of a recurrence of the hydatid disease was also kept in mind. The straight x-ray film of the abdomen taken five months previously showed no calcification or other abnormality.

The next day, under general anaesthesia, the tumour was aspirated and about 10 ml of a clear colourless fluid was withdrawn. An equal quantity of commercial formalin was then injected. Immediate

examination of the fluid revealed no scolices but some albumin. A transverse incision was then made encircling the tumour and including the needle track. The abdominal cavity was soon entered and was packed off with gauze. The subcutaneous lump was seen to be connected with a large pear-shaped cyst arising from inside the liver and projecting from its middle towards the left and the stomach. A line of cleavage was found and the cyst was shelled out intact. There was considerable bleeding from the liver bed, which was controlled by fibrin foam and a gauze pack. On the third day the pack was removed and the patient made a good recovery.

The report of the pathologist (Major H J Voss) was as follows: "A thick-walled cyst measuring approximately 10 by 7 cm. The wall appears to consist of laminated fibrous material and is 0.5-1.5 cm thick. Inside the cyst can be seen numerous hydatid daughter cysts, most of which had separated from the wall of the cyst. Blood capsules in the endocyst were scanty and scolices of *Taenia echinococcus* were demonstrated with difficulty. Microscopical examination. The wall of the cyst consists of laminated fibrous tissue. The inner layer consists of a cellular hyaline-like material having no specific characteristics, the appearances were those seen in a hydatid cyst of long duration."

The following conclusions may be drawn from this case: (1) Marsupialization, though apparently successful, was followed by a recurrence at the same site. (2) All clinical observations including radiography, were at first negative. Only the fact that the cyst had finally become subcutaneous offered a clue to the true nature of the condition. (3) Vague upper abdominal pain as long as 20 years after an operation for hydatid cyst can suggest a recurrence.

I wish to thank the Officer Commanding the 94th British Military Hospital and the DMS British Army of the Rhine for permission to publish this case, also Major H J Voss for the pathological report.

P G KONSTAM  
Major R A M C

### Formation of Obstructing Band in 21 Days

I previously reported the incidental finding of adhesions causing matting of adjacent coils of small bowel, dense enough to produce intestinal obstruction, that had been formed in 28 days after an abdominal operation (Duff, 1946). The bowel had been found strangulated and severely damaged, and it was reasonable to suppose that an undue amount of lymphatic or haemorrhagic exudation had taken place and that its subsequent organization was responsible.

In the following case there was no damage to the bowel, but obstruction from adhesions arose 21 days after a laparotomy.

#### CASE HISTORY

A woman aged 33 had had an interval appendicectomy performed by another surgeon, from which she had made an uninterrupted recovery. No adhesions had been noted. Exactly 21 days later she was readmitted to hospital complaining of colicky abdominal pain and vomiting, symptoms which had arisen that day. After temporizing for about 12 hours it was obvious that a small bowel obstruction existed, and I performed a laparotomy.

Adhesions were found binding the caecum, omentum, and anterior abdominal wall scar together, the terminal ileum was tightly adherent to the medial side of the caecum. The obstruction was due to a band arising from the caecum, fixed to the posterior abdominal wall, and constricting the ileum about 18 in (45 cm) from its termination. The band was divided, and the patient made another uninterrupted recovery. She has remained well since.

#### COMMENT

The adhesions undoubtedly followed the previous operation which, indeed, could not have been performed in their presence. A band is presumably formed by the gluing together of surfaces and their subsequent pulling apart while the adhesion is still plastic enough to stretch but strong enough not to rupture. Boyd (1947) states that such bands cause obstruction by their subsequent gradual contraction. In the above case a band strong enough to cause small bowel obstruction was formed in exactly 21 days.

ALEXANDER DUFF M.D. F.R.C.S. Ed.,  
Surgeon Salisbury General Infirmary

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## Reviews

### HALLMARKS OF MANKIND

*Hallmarks of Mankind* By Frederic Wood Jones, D Sc, M B, B S FRS, FRCS (Pp 86, 23 illustrations 10s 6d) London Baillière Tindall and Cox 1948

Under this title Professor Wood Jones has published his Cambridge Linacre Lecture and an Arris and Gale Lecture delivered at the Royal College of Surgeons. These lectures were designed to embrace the two main contentions for the acceptance of which 'the author has 'striven for thirty years'. The first is that, considered solely from the point of view of structure, man is an extremely primitive type, and the second that, though more primitive in basal structure than the living monkeys and apes, man has his own remarkable structural specializations that distinguish him from all other mammals and appear to be his very ancient hallmarks. Professor Wood Jones argues his case with characteristic force and verve, though to some it may seem that certain slain lions are disinterred for belabouring.

In the first lecture Professor Wood Jones states the case for his opinion that the human stock was derived from the main primate stem separately from and probably prior to the emergence of the anthropoid apes, and even, it is suggested, at a pre-catastrophe stage. As Professor Wood Jones rules out of consideration the South American monkeys in the question of human phylogeny, and as he denies primate status to the lemurine group, he is left with an unspecialized tarsoid as the probable primate ancestor of man. To paraphrase Dr Gaylord Simpson, Professor Wood Jones 'wishes to derive man—or perhaps wishes man had been derived—from a vaguely remote early tertiary source independent of the origin of monkeys and apes'. It would be rash, in view of our restricted knowledge of primate fossil material, to be dogmatic in denying this possibility, but in the reviewer's opinion the weight of available evidence palaeontological, embryological, and morphological, appears to be against its acceptance.

In his second lecture Professor Wood Jones discusses certain structural features (among others, the peculiar relationship of the maxilla to the premaxilla, certain dental characters, and the great toe) which can be regarded as distinctive of man. These features are the hallmarks. In silver, however, hallmarks are not inherent in the metal, they are impressed by authority, have been known to be counterfeited, and are limited to a relatively small group of particulate symbols. In a biological system the symbols in the form of morphological characters, are numberless—they are in constant intra- and trans-individual flux, and they vary from individual to individual in a manner that frequently defies arbitrary limits and definitions. Whether Professor Wood Jones's particular selection of a few of these characters as hallmarks is accepted or not will depend on the reader's willingness to regard these few characters, against the background of the totality of morphological characters of man, as the really significant ones in establishing our concept of the human species.

The lectures are attractively written, but there are a number of trivial misprints, and the absence of a bibliography is to be regretted.

J D BOYD

### PSYCHIATRIC RESEARCH

*Psychiatric Research* By Cecil K. Drinker, J. Folch, S. Cobb, H. S. Gasser, W. Penfield, E. A. Strecker. Papers read at the dedication of the Laboratory for Biochemical Research, McLean Hospital, Waverley, Massachusetts, May 17 1946. Harvard University Monograph in Medicine and Public Health 9 (Pp 113, illustrated \$2.00 or 11s 6d) Massachusetts Harvard University Press London Geoffrey Cumberlege (Oxford University Press)

This slim dedicatory volume is a testimony to the great changes that have come over psychiatry in the last quarter of a century. The mental hospital doctor is no longer the mere custodian of the mentally sick and occasionally the inspired observer of

mental phenomena. Advances in neurology, biochemistry and dynamic psychology have entirely altered psychiatry and have raised the morale of the physicians engaged in what was formerly an unrewarding specialty. It is true that the volume shows what liberal endowment can do to stimulate science but we must not forget that it needs ability of a high order to make use of such liberality. The essayists of the volume are all leading transatlantic psychiatrists.

After an opening account of the McLean Hospital and the work of pioneers such as Wynnans and Carles, Dr Jordi Folch discusses biochemical problems of brain function, then he rightly emphasizes the significance of the absence of lymphatics and the low vasomotor lability of the neural tissue, and above all its high oxygen consumption and the significance of the blood-cerebrospinal fluid barrier. This barrier indicates that there is a very specialized neural metabolism at the capillary level, and one in which glucose is directly utilized without the intervention of either insulin or pituitary hormone. Glutamic acid alone among amino acids can sustain the respiratory action of brain tissue *in vitro* (an important fact in view of the alleged effect of this amino acid on mental retardation). He discusses the function of the astrocytes in limiting capillary permeability and probably acting as selective and retarding agents, and he considers at length the special role of brain lipoids and the paradoxical facts about oxygen consumption at different ages.

Dr Stanley Cobb considers in a more general manner the question of integration of mental and psychiatric problems as seen in the Massachusetts General Hospital. He takes as a special problem of integration the condition known more in America than here as neuro-circulatory asthenia and distinguishes it from anxiety neurosis. In many ways this is a central problem in the study of neurosis, where psychical events belong more to experience than to body structure and function. Hence the paradoxical nature of many of the features of these symptom-complexes. He rightly concludes that a pluralistic view is necessary before we can fathom each of the personal problems presented to the physician.

Professor Wilden Penfield discusses psychical seizures, and forms from evidence provided by brain surgery and the electro-encephalogram the substrate of such mental events as hallucinosis, petit mal, stereotyped behaviour, etc. Here, perhaps, we see the gradual closure of the no man's land between the mental and the physical. Dr E. A. Strecker's essay is a plea for psychosomatic unity in all psychiatric practice and thinking. His treatment of the subject is somewhat diffuse and perhaps needs a more philosophical approach than the author dares to adopt. This volume should interest aspirants to psychiatry and instruct those who have hitherto regarded the subject as either unscientific or a playfield for those of easy virtuosity.

EMANUEL MILLER

### EARLY DIAGNOSIS

*Diagnosis in Daily Practice* An Office Routine Based on the Incidence of Various Diseases. By Benjamin V. White, M.D. and Charles F. Geschickter, M.D. (Pp 693, 360 illustrations £4 10s) Philadelphia and London J. B. Lippincott 1948

The main theme of this book is sufficiently unusual to warrant widespread attention. The authors are impressed by the relatively small number of common diseases which are responsible for the bulk of disability and death, a circumstance clearly demonstrated by a section on vital statistics early in the book. They therefore emphasize the need for prompt recognition of these major diseases, particularly in their pre-symptomatic stages, when they are most susceptible to treatment. This goal can be fully attained only by means of routine medical examinations. The authors have worked out a plan of history taking, clinical examination, and six simple laboratory investigations which is designed to draw attention to the major diseases. The routine examination of people not complaining of disability can so easily prove a barren labour that this guide is most useful.

The largest part of the book is on the diagnostic implications of various symptoms, and there are many tables showing what additional clinical and laboratory evidence is necessary for the physician to proceed from symptom to correct diagnosis.

Here the book is marred by two faults. First, although it is intended to serve as a practical reference for the doctor in general practice, it includes much material on the elicitation of common physical signs of which no medical man should be ignorant. To give one example of many there are two pages on methods of eliciting tendon reflexes, including diagrams on how to obtain knee-jerks, ankle clonus, and plantar reflexes. Secondly, the authors have been unable to resist mentioning the rare diseases which may be responsible for the symptoms under discussion. As a result, the lists of diseases under many symptoms are of formidable length, and by comparison the accompanying discussions are jejune. It seems a pity that an objective so admirable as the early diagnosis of the major diseases should be obscured by the inclusion of redundant and irrelevant matter.

In spite of these drawbacks this is a brave attempt to raise the level of medical practice and fully deserves study particularly by those doctors responsible for routine examinations. The book is beautifully produced, and the numerous diagrams, tables, and photographs are models of clarity.

SIDNEY TRUELOVE

### TEACHING HEALTH

*Education and Health* By R. Gamlin, M.B., B.Ch., M.R.C.S., L.R.C.P., M.Hyg., and D.P.H. (Pp. 372, 69 figs. 12s. 6d.) London: James Nisbet and Co. 1947.

This book consists of a series of essays written for parents and teachers. The first seven chapters are on the mind, its development from our earliest ancestors to the intelligent thinking of modern man. In the first two chapters the author explains clearly the persistence of superstition and many of the defects of thinking still with us, the use of deduction and analogy rather than induction and intuition, the failure to control feeling and striving, wishful thinking, false cause, *non sequitur*, special pleading and begging the question. The remedy for all this is wide and critical reading, the development of powers of observation, and the mastery of words spoken and written. Should we not all study Sir Ernest Gowers's *Plain Words*? The third chapter is on the subconscious mind, which can be filled with complexes stirred by conflicts and disturbed by repressions; the author seeks to show how teachers and parents can help the child to maintain a healthy balance between the conscious and unconscious mind. In these three chapters he develops facts and hypotheses upon which the teacher should base his teaching to train minds free from superstition, fearless in facing facts, observant and critical, possessed of a mastery of words and purged of conflicts, complexes, and repressions. In a word, masters of their destiny and their thoughts.

In the fourth chapter he considers the workings of the human mind and its components, the instinctive or conscious urge, the feeling developing to sentiments and senses, the intellect controlling and directing. Combine these three and you have character. The teacher must seek to instil the will to direct urge and feeling towards a social conscience, so that conduct shall be guided by ethical right rather than for praise, reward or pleasure. So we learn in the fifth and sixth chapters of maladjustment and delinquency and the opportunities for child-guidance both in the home and at school. In Chapter 7 the author gives a useful account of backwardness.

The remaining chapters suffer somewhat from lack of sequence of thought. Chapter 8 is a valuable account of the wave theory of sound; in Chapter 9 the author shows how this knowledge can be applied by the pure-tone audiometer and the gramophone audiometer to the problems of schools; and Chapter 10 is an account of colour blindness. But the remaining chapters on "British Fare throughout History," "Dietetics," "The Quest for Pure Milk," "The Care of the Teeth," "Rheumatism in Children," "Parasites of the Skin," "Pioneers in Immunology," and "Immunization against Diphtheria" suffer from being over-simplified accounts of complex subjects. Yet the book must be regarded as a courageous effort to present scientific matter in readable form for people who have responsibilities for the upbringing of children, and its wide reading should bring many benefits.

FRASER BROCKINGTON

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Clinical Electrocardiography* By D. Scherf, M.D., F.A.C.P., and L. J. Boyd, M.D., F.A.C.P. 3rd ed. (Pp. 435. 30s.) London: Heinemann 1948.

Illustrated with many electrocardiographs.

*A Short Practice of Midwifery for Nurses* By H. Jellett, B.A., M.D., F.R.C.P.I., and J. B. Dawson, K.B.E. M.D., B.S., F.R.C.S., F.R.C.O.G., F.R.A.C.S. 14th ed. (Pp. 459. 12s. 6d.) London: J. and A. Churchill 1948.

A practical illustrated manual for nurses and midwives.

*A Short Practice of Surgery* By H. Bailey, F.R.C.S., F.A.C.S., F.I.C.S., F.R.S.E., and R. J. McNeill Love, M.S., F.R.C.S., F.A.C.S., F.I.C.S. 8th ed. Part 1 (Pp. 224. 52s. 6d. the set of 5 parts.) London: H. K. Lewis 1948.

The parts of this edition are not sold separately.

*A Pocket Medicine* By G. E. Beaumont, M.A., D.M., F.R.C.P., D.P.H. 2nd ed. (Pp. 208. 9s.) London: J. and A. Churchill 1948.

An introduction for medical students.

*A Textbook of Gymnastics* By K. A. Knudsen. Vol. II (Pp. 204. 12s. 6d.) London: J. and A. Churchill 1948.

Exercises mainly for the limbs are described.

*Recent Advances in Obstetrics and Gynaecology* By A. W. Bourne, M.B., B.Ch., F.R.C.S., F.R.C.O.G., and L. H. Williams, M.D., M.S., F.R.C.S., F.R.C.O.G. 7th ed. (Pp. 326. 21s.) London: J. and A. Churchill 1948.

The text has been extensively revised to bring it up to date.

*Hygiene* By J. R. Currie, M.A., M.D., LL.D., D.P.H., F.R.C.P.E., and A. G. Meerns, M.D., B.Sc., D.P.H., F.R.S.E. 3rd ed. (Pp. 724. 35s.) Edinburgh: E. and S. Livingstone 1948.

Includes new material on statistics, milk legislation, 'prefab' design, and aircraft regulations.

*Human Histology* By E. R. A. Cooper, M.D. 2nd ed. (Pp. 431. 27s. 6d.) London: H. K. Lewis 1948.

An illustrated manual for medical students.

*Recent Advances in Anaesthesia and Analgesia* By C. Langton Hewer, M.B., B.S., M.R.C.P., D.A. 6th ed. (Pp. 380. 21s.) London: J. and A. Churchill 1948.

Contains much new material, including a chapter on muscle relaxants.

*Dermatology and Venereology for Nurses* By J. H. Stokes, M.D., and J. B. Taylor, B.S., R.N. 4th ed. (Pp. 416. 17s. 6d.) London: W. B. Saunders 1948.

A textbook for training and qualified nurses.

*Human Ecology* By T. Robertson. (Pp. 534. 21s.) Glasgow: MacLellan 1948.

The author brings his training in biology and medicine to bear on the problems of sociology.

*The Truth about the Stork* By E. F. Griffith, M.R.C.S., L.R.C.P. (Pp. 136. 6s.) London: H. K. Lewis 1948.

An account of sex and reproduction for children.

*Chemistry in Nursing* By R. E. Neal. (Pp. 564. 24s.) London: McGraw Hill 1948.

A textbook of inorganic and organic chemistry for student nurses.

*Manual of Determinative Bacteriology* By R. S. Breed et al. 6th ed. (Pp. 1,529. 82s. 6d.) London: Baillière, Tindall and Cox 1948.

Details of the morphology, habitat, and culture of micro organisms.

*A History of the Heart and the Circulation* By F. A. Willius, M.D., M.S., and T. J. Dry, M.A., M.B., Ch.B., M.S. (Pp. 456. 40s.) London: W. B. Saunders 1948.

A historical study with biographies of leading cardiologists.

## BRITISH MEDICAL JOURNAL

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## A GUIDE TO THE Rh FACTOR

Few laboratory discoveries of recent years have been fruitful so quickly in the clinical field as the recent work on blood groups. During the war the blood transfusion services enjoyed close personal association with many clinicians and scientists who, but for the shortage of more junior staff, would probably not have engaged in such work. Consequently the discovery in 1940 by Landsteiner and Wiener of the Rh factor and their work on its significance in intragroup transfusion reactions, followed in 1941 by the elucidation by Levine and his co-workers of the important part it played in obstetric and neonatal pathology, came at a time when the medical and scientific world was well prepared to receive this new knowledge. The Medical Research Council appealed for help in the collecting of sera and clinical data early in 1942, and the essential facts were quickly confirmed by the late G L Taylor and by P L Mollison. These MRC workers were later joined by R R Race, and with the generous help of clinicians and pathologists throughout Great Britain they were enabled rapidly to extend the field of knowledge both on the clinical side and in relation to Rh antigens and antibodies. The period during the war when the research was carried on at Cambridge was of the greatest value, for the serological work benefited from Professor H R Dean's wide knowledge of antigen-antibody reactions, while the genetic studies were subjected to that penetrating scrutiny by Professor R A Fisher which culminated in the brilliant analysis and synthesis which has so greatly illuminated the whole subject. The end of the war saw the removal of the MRC unit to London and a resumption of the clinical collaboration with P L Mollison which has been so fruitful earlier. The continued interest of the medical and scientific world in Rh problems is seen in the prominence given to it at conferences and in the medical press, and the publication of *The Rh Blood Groups and their Clinical Effects*, by P L Mollison, A R Mourant, and R R Race,<sup>1</sup> will be welcomed in this and other countries. This authoritative monograph by the workers who first contributed to research in Great Britain provides all the most up-to-date information on this complex and controversial subject and lays down simple rules for the guidance of laboratory and clinical workers which should do much to remove confusion and to standardize practice in this field.

The work is conveniently divided into three sections (1) the serological analysis of the Rh groups, (2) clinical considerations of diagnosis and treatment, and (3) indica-

tions for and technique employed in Rh tests. After a brief historical introduction Race gives a clear account of the Rh antigens and antibodies. He uses throughout Fisher's notation as "the only one capable of fully designating the genes, compound genes or chromosomes, and the genotypes." This enables him to make it clear at the outset that Rh-positive means the possession of Fisher's antigen D and that all those who have only the allele d are Rh-negative despite the presence of any other antigen. Having mastered this fundamental distinction, the reader is introduced to the other linked Rh genes, C or c, and E or e, and so to the resulting eight Rh complexes. The frequencies of the commoner gene combinations and the approximate error in assessing the genotypes are given—points of some importance in advising parents about their chances of having a normal infant after one affected by haemolytic disease. The more advanced subdivision of the elementary antigens C, c, and D follows, but this section will prove difficult to the uninitiated reader, nor is it rendered easier by inconsistencies—for example, on page 16 there are listed twelve Rh chromosomes, giving rise to 78 genotypes, but Table IV gives eight Rh chromosomes, including C<sup>w</sup>De but excluding others known to exist (C<sup>w</sup>de, CdE, CD<sup>w</sup>e, etc.). It also seems arbitrary to base Table V solely on the data of Table IV and one collection of 2,000 samples of blood when other information was available.

Dr Race distinguishes the two types of Rh antibodies as "saline agglutinating" and "albumin agglutinating, the latter term superseding "incomplete," "blocking," or "hyperimmune" antibody. Representative examples of haemolytic disease due to the rarer Rh antibodies in pure form are given and help to clarify the subject. After a brief mention of the use of Rh tests in cases of disputed paternity and in ethnology this section concludes with a discussion of the genetical basis of the Rh groups in so clear and simple a fashion as to be within the grasp of any serious student. A misprint mars the second calculation on page 25. R<sub>1</sub>R<sub>0</sub> is given as CDe/cde instead of CDe/cDe, the penultimate paragraph about  $\chi^2$  also does not make sense in the present form.

In his section Mollison describes very clearly the ways in which iso-immunization is brought about. All clinicians who prescribe blood for therapeutic purposes should study the paragraphs on the importance of repeated transfusions and the methods of recognizing and distinguishing the various grades of haemolytic reaction. The greater part of this section is devoted to iso-immunization in pregnancy. The detection of sensitization, the interpretation of the findings, and the effects upon the foetus are all lucidly expounded, but the subject of nuclear jaundice deserves fuller consideration. The differential diagnosis of haemolytic disease is fully discussed and should encourage further study of the pathology of stillbirths and neonatal deaths. Details of the morbid anatomy and histology are not given but the interested reader has the admirable account by Edith Potter<sup>2</sup> to fall back on. The incidence of maternal toxæmia is higher in the mothers of affected infants, and it is surprising that in the paragraphs about the management of pregnancy when an affected infant is expected no mention is made of toxæmia being the most important reason for therapeutic abortion. In view of the guarded

<sup>1</sup> Medical Research Council Memorandum No 19 1948. Published by H.M.S.O. London. Price 1/6.

<sup>2</sup> Potter E. L. *Rh: Its Relation to Congenital Haemolytic Disease and Intra-group Transfusion Reactions*. London: H. K. Lewis, 1947.

statements about prognosis it is difficult to see on what other ground abortion would be recommended, yet this is a problem about which the specialist is frequently consulted. Otherwise the advice on induction of labour, on confirmation of the haemolytic disease, and on when to transfuse is given with the greatest clarity and precision and should become a standard guide to practice.

Mollison's directions for transfusing infants by various routes and for exchange transfusion will be appreciated, and we commend his advice on the instruments to be used. Fine ophthalmic knives and forceps have proved suitable and should be available in most hospitals. The importance of avoiding sensitization of Rh-negative females by the parenteral administration of Rh-positive blood is emphasized, and the importance of routine antenatal Rh testing as a means of obviating this risk and at the same time conserving Rh-negative blood for those who ought to have it is fully explained. The risks of calling Cde/cde and cdE/cde persons Rh-positive are discussed. This danger still needs stressing, although Cappell drew attention to it as early as 1944 and pointed out that such persons are liable to iso-immunization against D. They must be considered Rh-negative as recipients, but should not be used as Rh-negative donors. Mollison concludes with some remarks on the advice which should be given to parents of affected children about future pregnancies. The 3 to 1 preponderance of homozygous fathers is seen in families where the second child is affected, but with families greater than two the proportion of heterozygous fathers is certainly higher. This exposition will, however, be of the greatest assistance to practitioners who have the difficult task of explaining to parents the loss of an affected child and the outlook for the future.

Laboratory workers who have to carry out the technical procedures will find Mourant's section of great practical value. He gives an admirably lucid account of how and when cells and serum should be tested. Clinicians are reminded of their obligation to maintain supplies of sera by furnishing generous samples of blood whenever a suitable test reagent is encountered. This cannot be stressed too strongly, for without these supplies the work would come to an end, and Mourant rightly points out that at present a few enthusiastic medical officers are providing sera for the whole country. In the discussion on the recognition of individual antibodies the footnote to Table XII is a little misleading, for if anti-C contains albumin-agglutinating anti-D it will react positively in albumin with cDe/cde cells. The same applies to anti-E, and Table XII will not therefore indicate the total antibody content of the serum.

Taken as a whole, this monograph is a fine production. It presents what is now accepted in Great Britain as the best practice in this field irrespective of its origin. Readers new to the subject might be excused for thinking that the only research on Rh in Great Britain had been done by the M.R.C. workers, since there are few references to other British authors. Those who are engaged in the work or who have followed the literature, however, will realize that this valuable memorandum incorporates many ideas which first appeared in print elsewhere and which are now so generally accepted as to require no acknowledgment.

## INJURIES CAUSED BY COLD

The literature of the major cryopathies—frostbite, trench foot, and immersion foot—is now enormous, but happily for the general student of the subject the greater part of it consists of clinical descriptions containing no new observations, descriptions of methods of treatment, almost all of them valueless, and pathological guess-work better left unread. Nevertheless the mere bulk of the published work in a variety of languages testifies to the great importance of the subject, especially but not exclusively in time of war. Almost all the papers of any value have been published during or immediately after the two world wars, though much of historical interest was written during the Napoleonic and Crimean campaigns. Although many guesses, some good and some bad, had been made about the pathology of frostbite and trench foot, the first step to a clear understanding was the work of Rotnes and Kreyberg,<sup>1</sup> who in 1932 performed experiments that suggested that the application of carbon-dioxide snow to rabbits' ears produced blockage of the vessels with red cells and consequent necrosis. The suggestion appears to have escaped notice until attention was drawn to it by Raymond Greene<sup>2</sup> in 1943. He approached the problem by a different experimental route and was able to demonstrate histologically that freezing even to solidification does not necessarily result in necrosis and that the changes which occur are, first, vasoconstriction, secondly, vasodilatation, thirdly, structural damage to arterioles, resulting in transudation and perivascular oedema, and, fourthly, a consequent "siting up" of the vessels by agglutinated red cells, followed by necrosis of tissue. He also showed that thrombosis does not appear except occasionally as a later secondary change, and that the deposit of crystals in the cells, regarded by Sir Thomas Lewis as the cause of the necrosis, is, in fact, harmless in itself. Greene's results in true frostbite were confirmed by Lange and Boyd<sup>3</sup> and by others, and were shown to be equally true of trench foot.<sup>4</sup> It is interesting to observe by what diverse experimental methods the same conclusions have been reached. Rotnes and Kreyberg used intravital staining, Greene direct histological examination and photomicrography, Lange and Boyd the injection of fluorescein and observation by long-wave ultraviolet rays and by capillary microscopy.

Intravascular agglutination having been established as an essential part of the pathology, it was a short step to a trial of heparin in the treatment of frostbite. Lange, Wiener, and Boyd<sup>5</sup> and Lange and Loewe<sup>6</sup> produced experimental frostbite in volunteers. The latter found that the injection of heparin in the amount required to keep the clotting time between 25 and 60 minutes completely prevented necrosis, whereas all controls developed areas of necrosis approximately 1 cm in diameter and from 3 to 5 mm in depth. Immediate injections of heparin afforded complete protection, but treatment given up to 24 hours after exposure produced results almost as good.

<sup>1</sup> *Acta path. microbiol. scand.* 1932 Suppl. 11 162

<sup>2</sup> *J. Path. Bact.* 1943 55 259

<sup>3</sup> *Surg. Gynec. Obstet.* 1945 80 346

<sup>4</sup> Block M. *Proc. Inst. Med. Chicago*, 1947 16 370

<sup>5</sup> *New Engl. J. Med.* 1947 237 383

<sup>6</sup> *Surg. Gynec. Obstet.* 1946 82, 256

<sup>7</sup> *Lancet* 1942 2 695

<sup>8</sup> *Surg. Gynec. Obstet.* 1943 77 561

<sup>9</sup> *J. Bone Jt. Surg.* 1942 24 785



Two cases of severe accidental frostbite were treated, one six hours after an eight-hour exposure to a temperature of 12° to 13° F (−11° to −10.5° C) and one ten hours after a twelve-hour exposure to a temperature of 14° to 18° F (−10° to −8° C). In neither case did serious damage ensue, though the authors point out that there can be no certainty that gangrene would have occurred without treatment. It seems highly probable that it would have done so.

Lange, Wiener, and Boyd gave careful consideration to Greene's suggestion<sup>7</sup> that parts injured by cold should be kept cool. Small areas of the skin of three volunteers were frozen by means of a metal capsule kept at −30° C for half an hour. Each received at least five exposures. They received either no treatment at all or warming for 24 hours without heparin, or immediate treatment for seven days with heparin, or treatment with heparin for seven days after a delay of 24 hours, or treatment with heparin for seven days after 24 hours of treatment by warming. From this experiment it appeared that warmth was definitely harmful. Heparin was of value even when its administration was delayed for 24 hours. On the other hand, in another experiment it was found that cooling with an ice-bag in the interval between exposure and treatment with heparin resulted in a larger lesion than in the controls. Blister formation was completely inhibited by cooling, but occurred immediately afterwards. It may be argued that it is extremely difficult to produce exactly similar lesions experimentally and that the number of the experiments was for this reason too small. It is possible, also, that cooling for a longer period, during which time the damaged vessels would have had more time to heal, might have been beneficial. Nevertheless the experiment is in accord with the findings of Davis and his colleagues,<sup>8</sup> who treated a number of cases in consultation with Greene, and concluded that cooling of the affected parts, though reducing blistering, did not affect the development of gangrene. Another view is taken by Webster, Woolhouse, and Johnston,<sup>9</sup> who found that dry cooling of affected parts relieved the constant burning and bouts of stabbing pain characteristic of chilled limbs, caused subsidence of the swelling and resorption of blisters, and even prevented what appeared to be impending gangrene. In this series cooling was continued for from 6 to 21 days.

All authorities are now agreed that warmth is harmful. Disagreement continues about the degree of cooling to be recommended. If, as seems possible, those who have advised temperatures round about 5° C have overstated the case, they may at least gain comfort from having drawn attention to the undoubted evils of rapid warming, a practice not yet entirely dead. The use of heparin may in any case make the question of temperature during treatment one of only academic significance.

### REPORTS ON VAGOTOMY

In a recent review of the treatment of peptic ulcer by resection of the vagus nerves Alvarez<sup>1</sup> lists over 200 papers going back for 60 years. It is still too soon to pass judgment upon the operation, for current discussions show that there are differences of opinion, and certain problems

remain unanswered. The first of these is the scope of the operation. Is vagotomy equally applicable to gastric, duodenal, and anastomotic ulcers, or should its use be confined to the two last types only? Some remarks upon vagotomy for gastric ulcer have recently been made by Dragstedt and Harper.<sup>2</sup> The former is responsible for the present enthusiastic revival of the operation, which was envisaged by Sir Benjamin Brodie in 1814 and practised with success over 20 years ago. He considers that a partial or subtotal gastrectomy should be performed for any ulcer in the antrum or the body of the stomach. He commends vagotomy as a useful procedure for ulcers high on the lesser curvature, even if malignancy is suspected. For these lesions a total gastrectomy is the only alternative. The mortality of this operation is from 10 to 30%, and in malignant cases the prognosis for ultimate survival is poor. If vagotomy is followed by the prompt healing of the ulcer not only is malignancy unlikely but the patient is saved from a hazardous ordeal.

The second question is, Should the nerves be cut above the diaphragm or is section at abdominal operation sufficient? The latter method is now generally adopted because it enables the lesion to be inspected, and any short circuit that may be thought necessary can conveniently be done. Moore,<sup>3</sup> however, challenges this view, and considers that in possibly 10% of subjects it is impossible to cut all the fibres by the abdominal operation. Walters and his co-workers<sup>4</sup> have studied the anatomy of the vagus nerves and support this opinion. They found in 8 out of 100 subjects the vagi had no consistent course and the oesophageal plexus failed to form common trunks. On this evidence it is difficult to be certain that every fibre can be cut by an operation below the diaphragm. Grimson and his colleagues<sup>5</sup> also used the thoracic route in over 60 cases so as to ensure complete division of the nerves in all cases.

Most surgeons with experience of this operation have found that a gastro-enterostomy appears to be required in certain cases. Here again Moore holds contrary views. As he says, the placing of jejunal mucous membrane in the stomach has been a source of trouble ever since the introduction of posterior gastro-enterostomy. He also points out that the latter operation itself may assist the healing of ulcers in a proportion of cases. Moore attributes the absence of any indication for gastro-enterostomy in his cases to his most careful post-operative regime. Gastric suction is kept up for 48 hours, and only small amounts of fluid are allowed for the first three days. The diet is then cautiously increased, the stomach being aspirated daily. Should any significant residue form, the diet is reduced. It appears that the ineffectual gastric peristalsis is able to manage small quantities of solid food better than liquids.

Earlier reports suggested that the operation of vagotomy carried very little risk to life. Fatalities, however, are recorded, and a consideration of their causes reveals some interesting features. During the operation sudden death may occur when the nerves are gripped prior to section, as has been reported by Weeks and others.<sup>6</sup> In the immediate post-operative period gastric retention may cause much anxiety, and Grimson and his colleagues<sup>5</sup> have reported a death from rupture of the stomach on the seventeenth day. Although the vagus nerves are not thought to carry sensory fibres, there have been several reports of patients dying from a painless perforation many months after

<sup>1</sup> *Gastroenterology* 1948 10 413

<sup>2</sup> *Arch Surg Chicago* 1947, 55 141

<sup>3</sup> *Ibid* 1947 55 164

<sup>4</sup> *Ibid* 1947 55 400

<sup>5</sup> *Ibid* 1947 55 175

<sup>6</sup> *J Amer med Ass* 1946 132 988

<sup>7</sup> *Bull Johns Hopk Hosp* 1947 81, 92.

<sup>8</sup> *Amer J Physiol* 1932 89 375

section of the nerves. For the proper evaluation of vagotomy two things are necessary: one is the passage of time, and the second, as Johns and Grose<sup>7</sup> stress, is the comparison of groups of patients treated by different methods but all having some clinical and pathological uniformity. So far experience shows that in some cases the immediate results can only be described as dramatic. It remains to be seen, however, if the gastric acidity, mobility, and secretion will return to normal in man, as was found by Vanzant<sup>8</sup> to be the case in dogs.

### PROLONGING PENICILLIN ACTION

Until recently the most useful of many devices for obtaining a greater effect from a given dose of penicillin have been the oil-and-beeswax base and *p*-aminohippuric acid. The disadvantage of oil preparations is that only those containing beeswax give a really prolonged action, and this substance is apt to produce unpleasant local effects. The necessity to inject *p*-aminohippuric acid intravenously severely restricts its field of usefulness. This objection does not apply to another substance which also blocks the renal excretion of penicillin, though by a different mechanism: caronamide (4'-carboxyphenylmethane-sulphonamide) can be given in solution by mouth. The effects of this drug have now been extensively investigated in the U.S.A. both in animals<sup>1</sup> and in normal human subjects.<sup>2,3,4</sup> It has also been shown experimentally that the efficacy of penicillin is increased by raising its concentration in the blood in this way.<sup>5</sup> The latest pharmacological study by Boger and his colleagues<sup>6</sup> may explain some of the minor discrepancies in earlier reports, since they find that response varies in different individuals; they therefore recommend that large doses should be controlled by estimations of the caronamide blood content. This should be 15 mg per 100 ml in order to double the penicillin concentration; it can be considerably higher without producing ill effects. To produce this level of caronamide it is necessary to give 3 g three-hourly or 4 g four-hourly; there is some evidence that in older patients a smaller dose will achieve the same effect, owing to reduced renal efficiency.

Most of these reports are more concerned with the higher penicillin concentrations attained during the first three hours after a dose of caronamide than with the degree of prolongation of a therapeutic blood level which can be secured. That there must be such prolongation is obvious. According to F. H. King and his co-workers<sup>7</sup> there is still as much as 10 units per ml of penicillin in the blood of patients also given caronamide three hours after a single dose of 1,000,000 units, as compared with only about one-fifth of this amount in controls. Loewe and his colleagues<sup>8</sup> gave caronamide to patients with subacute bacterial endocarditis due to exceptionally resistant bacteria, together with penicillin in doses varying from 1 to 20,000,000 units daily by continuous intravenous infusion. The increase in the penicillin concentration in the blood varied from two- to seven-fold. The highest level recorded is 90 units per ml,

if such levels have to be maintained this is certainly the best means of doing so.

Loewe and his colleagues<sup>9</sup> have also devised a base containing gelatin, dextrose, and a vasoconstrictor from which penicillin in solution is absorbed slowly. Ercoli and his fellow-workers<sup>10</sup> claim that a very prolonged effect can be obtained with a preparation of potassium penicillin in vegetable oil also containing adrenaline, and Cohn and Kornblith<sup>11</sup> have had good results in treating gonorrhoea with a single dose of this material. Another new development is the use of relatively insoluble penicillin compounds. Whether aluminium penicillin, reported by Reid<sup>12</sup> to be more effective when given at long intervals to experimentally infected mice, has any future remains to be seen. There is more detailed information<sup>13,14</sup> about procaine penicillin (an equimolecular chemical compound of the two substances); this has a low solubility and is administered as a suspension in sesame or cotton-seed oil without beeswax. A single large dose of penicillin in this form may produce an assayable blood level for 48 hours or even longer—though individual response seems to vary greatly—and cases of pneumonia have been successfully treated by the administration of a single dose. This is the greatest degree of prolongation of effect yet recorded, and the method should have many valuable applications if further experience reveals no disadvantages.

### TOXICITY OF STILBAMIDINE

"Stilbamidine," which has been extensively used in the treatment of leishmaniasis and also in babesiasis, has also been found to give some relief to patients with multiple myelomatosis.<sup>1</sup> A number of workers have investigated the toxic properties of the drug. Animal experiments have been described by Seager and Castelnovo,<sup>2</sup> who observed degenerative changes in the liver and kidney: necrosis in the liver affected sometimes the peripheral and sometimes the central zone, and in the kidney there was cloudy swelling of the convoluted tubules. The liver and the kidney, however, are not affected in man. Arai and Snapper<sup>3</sup> point out that no clear evidence has been published of renal and hepatic damage in cases of kala-azar treated with freshly prepared stilbamidine solutions, and that they found no signs of liver damage due to stilbamidine in five patients with multiple myelomatosis who died, despite the much larger doses used in this condition than in kala-azar.

A toxic effect which does occur in man was described by Napier and Sen Gupta,<sup>4</sup> and has been further discussed by the latter<sup>5</sup> and by Kirk and Henry.<sup>6</sup> This is the appearance of anaesthesia over the areas supplied by the sensory branches of the fifth nerve some two and a half to five months after treatment. There is numbness, formication, and itching; the sensation of light touch is lost, but pain, temperature, and pressure are unaffected. It is suggested that this neuropathy is due to toxic degeneration of the principal sensory nucleus of the trigeminal nerve. There is no danger to life, and the condition slowly disappears. The symptoms are not made worse by further stilbamidine injections.

The Croonian Lectures on "Prefrontal Leucotomy" will be delivered by Dr R. D. Curran, F.R.C.P., before the Royal College of Physicians of London, Pall Mall East, S.W., on Tuesday, Oct. 12, and Thursday, Oct. 14, at 5 p.m.

<sup>1</sup> Beyer K. H. Miller A. K. Russo H. F. Patch E. A. and Verwey W. F. *Amer J Physiol* 1947 149 355

<sup>2</sup> Strauss E. Richburg P. L. Saba P. Z. and Alexander J. E. *J Lab clin Med* 1947 32 818

<sup>3</sup> Croston J. W. Boger W. P. Shaw C. C. and Miller A. K. *J Amer med Ass* 1947 134 1528

<sup>4</sup> Seeler A. O. Wilcox C. and Finland M. *J Lab clin Med* 1947 32 807

<sup>5</sup> Verwey W. F. and Miller A. K. *Proc Soc exp Biol NY* 1947 65 222

<sup>6</sup> *J Lab clin Med* 1948 33 297

<sup>7</sup> *Proc Soc exp Biol NY* 1947 66 548

<sup>8</sup> *Science* 1947 106 494

<sup>9</sup> *J Lab clin Med* 1947 32 832

<sup>10</sup> *Amer J med Sci* 1948 215 498

<sup>11</sup> *Ibid* 1948 215 506

<sup>12</sup> *Proc Soc exp Biol NY* 1947 66 650

<sup>13</sup> Sullivan N. P. Symmes A. T. Miller H. C. and Rhodehamel H. W. *Science* 1948 107 169

<sup>14</sup> Boger W. P. Orr J. E. Israel H. L. and Flippin H. F. *Amer J med Sci* 1948 215 250

<sup>1</sup> Snapper I. *J Amer med Ass* 1947, 137 513

<sup>2</sup> *Arch Path* 1947 44 287

<sup>3</sup> *NY St J Med* 1947 47 1867

<sup>4</sup> *Ind med Gaz* 1942 77 71

<sup>5</sup> *Ibid* 1943 78 537

<sup>6</sup> *Ann trop Med Parasit* 1944 38 99

## BRITISH ASSOCIATION

## 110th MEETING AT BRIGHTON

A common theme running through many of the addresses and discussions at the 110th meeting of the British Association, held at Brighton from Sept 8 to 15, was the problem of world food production with reference both to requirements and to the scheme of tropical development now in progress in Central Africa. Secondly, there were a number of contributions more specifically of medical or biological interest, and, thirdly, some few others of sufficient interest or importance to deserve mention on more general grounds.

## World Food Requirements

Sir HENRY TIZARD in his presidential address, suggested that the danger of the present position in regard to food supplies was not fully realized, and quoted the effect of malaria control in British Guiana in illustration of the connexion between preventive medicine and world population. He said:

People remember only too well the apparent over-production of food in the 1930s and forget or do not know that since then the population of the world has increased by some 300 million people. A single example of what is now happening, and will probably happen on an ever increasing scale, will help to illustrate the problem. Malaria has always been one of the most potent instruments of population control. British Guiana has a population of roughly 400,000 which it is probable has remained stationary for the last 20 years. Two thirds of the population used to live under conditions of severe endemic malaria. The birth rate was low, and the infantile and adult mortality rates high. Malaria is now rapidly disappearing from the colony. In a suburb of Georgetown the death rate was equal to the birth rate during the years 1938-44 inclusive, and the average infantile mortality was about 250 per 1,000. DDT control was introduced in July, 1945. By the end of 1947 the birth rate had doubled, and the infantile mortality rate had dropped to 67 per 1,000. The population is increasing by 10% annually. As the new methods of preventive medicine spread—and that there will be many more to come no one can doubt—we must expect the world population to grow at an even faster rate than it has done in our lifetime unless famine intervenes. It will grow particularly in parts of the world that already have a high density of population, such as India where the population is now increasing by five million people a year, and Egypt where there are already 2,000 people to every square mile of cultivated land, and where it pays to have children.

In a later section of his address discussing tropical African development he referred to the chaos and misery which could result 'unless the prevention of disease among plants and animals and all other scientific problems of the supply of food, are studied on the same kind of scale by men of similar calibre as are the problems of human health'—a compliment indeed to the exponents of tropical hygiene.

In somewhat similar vein it was pointed out by Sir JOHN RUSSELL in the section of agriculture that African development must lead to a higher standard of living and a rising population and so to a greater demand for millet, the chief Central African grain food for which science has done singularly little as yet. In the section of geography Dr R. J. H. CHURCH put the case for a colonial institute, operating as part of one of the three principal universities which would undertake or be in touch with colonial research in all or most branches of knowledge. He suggested also that if the French and the Dutch both had good colonial atlases then Britain should have one too, and that using air photography, the Directorate of Colonial Surveys at Teddington should be able to produce a satisfactory atlas within a reasonable period. Finally, Dr F. J. MALINA of Unesco, indicated the scope of international research contemplated as a preliminary to any serious development of the tropical Amazon.

Referring to consumption, Professor A. FLEISCH of Lausanne, described a wartime and post war nutrition survey in Switzerland in which blood counts were used as one index. Whereas a reduction in basic ration from 2,160 to 2,000 calories for an adult in light employment had been followed by only minor changes in the number of red cells, there was a sharp fall after a further reduction to 1,800 calories.

## Human Blood Groups

A discussion on human blood groups was jointly held by the sections of zoology, anthropology and physiology. Dr J. A. FRASER ROBERTS recalled that blood groups were among the

exceedingly few common and simply inherited human traits and that their practical importance and consequent large scale testing permitted applications to geographical and racial variations without parallel in other living forms. Dr R. R. RACE pointed out that the seven recognized systems of blood groups made over 20,000 recognizably different combinations in England, the commonest having a frequency of 2%, 'while the calculated frequency of the rarest is so low that it may never have formed the blood of an Englishman'. Dr C. D. DARLINGTON summarized the evidence for connecting the distribution of the O blood group in Europe with the Th sound in speech. This was the subject of an annotation in the *Journal* of Aug 14, p. 347. Dr A. E. MOURANT discussed the ethnological distribution of the Rh and MN groups. Whereas the ABO groups showed significant variations over distances of the order of 100 km, he pointed out, the MN and Rh groups appeared to vary more gradually, and the Rh system in particular promised to throw much light on racial relationships. In Asiatics, American Indians, and peoples of the Pacific, he stated, the CDe (R<sub>1</sub>) and cDe (R<sub>2</sub>) gene combinations predominate in varying proportions. Among negroes cDe (R<sub>0</sub>) is by far the commonest combination and shows that the negroes are quite different from all the so-called negroids of the East so far tested. In Europe CDe and cDe are common together with cde (r). Since the present Rh frequencies in Europe appear to be unstable over a long period, it is probable that their distribution is due to a mixing, at the end of the Palaeolithic period, of a stock akin to the modern Basques, who have nearly 30% of dd (mostly cde/cde) individuals with a predominantly Rh positive (or D) stock almost certainly from Asia. All the other characteristics of the Basques are in keeping with the theory that they are the almost pure representatives of a people which, mixing with other peoples from the East, gave rise to modern Europeans. Thus it is that the Basques are the most European of Europeans, while the people of the rest of Europe, Aryans and Jews, Nordics and Alpines, Celts and Slavs, are all half-breeds—and who shall say that we are any the worse for it?

Dr P. L. MOLLISON discussed the clinical significance of the Rh groups and gave a reminder that haemolytic disease of the newborn in man is paralleled by a similar condition in newborn mules. In this case the mule inherits from its sire, the donkey, an antigen which is foreign to the mare, and the mare forms antibodies which in turn cause destruction of the mule's erythrocytes.

## Ape and Human Evolution

Professor W. E. LE GROS CLARK discussed the bearing on human evolution of fossil remains of early Miocene apes collected from the Kavirondo Gulf area of Lake Victoria by the British-Kenya expedition directed in the field by Dr L. S. B. LEAKEY. 'With the accumulation of so much new material,' he stated, 'it has become apparent that in early Miocene times East Africa was populated by anthropoid apes of many different types, show an astonishing diversity of form and size. Of particular interest are some of the limb bones discovered, for up to recently our knowledge of extinct apes has been practically confined to jaws and teeth. These limb bones consist of the shaft of a humerus, two fragments of clavicle, almost a complete femur and portions of others and some ankle bones (calcaneum and talus). They evidently belong to one of the large apes, probably *Proconsul* (first described by Hopwood) and are similar in general dimensions to those of a chimpanzee. But they show significant differences from the latter, particularly in the slender proportions of the shafts and long bones and in certain features in which they resemble those of cursorial monkeys rather than the modern brachiating apes. They appear to indicate that these early Miocene apes were lightly built creatures which had not become specialized for a completely arboreal existence but were capable of running and leaping with considerable agility, in strong contrast with modern anthropoid apes. These observations have an important bearing on the problem of human evolution, since many have argued that, in spite of their evident relationship, limbs of human type could hardly have been derived from those characteristic of the modern anthropoid apes. (The Miocene period is estimated to have lasted for possibly 20 million years and the Pliocene, which followed, for possibly 13 million years.)

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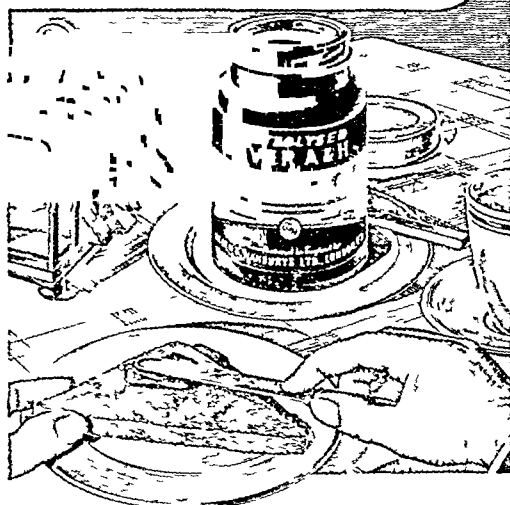
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In the same section Dr K P OAKLEY described the first successful use of the method of dating fossil bones by comparison of their fluorine content with that of other bones of known age and from the same district. The method is a revival of one proposed, although without explanation, by A Carnot, a French nineteenth century mineralogist. It depends on the fact that the hydroxy apatite (calcium phosphate) of bone gains in stability by conversion to fluor-apatite as fluorine is absorbed from ground water, and at last year's meeting Dr Oakley had described its attempted use on the skull of "Kanjera man" from the Kavirondo Gulf region. The only result in this case was to suggest that the water of the district must be abnormally high in fluorine content, since all the bones tested, irrespective of age, had developed the maximum proportion of fluorine which is chemically possible, and as a direct result the water supplies of this district have in fact been found to contain an undesirable amount of fluorine for human consumption. This year's comparison, which was carried out in the Government Chemist's Laboratory, was between specimens of bone of known origins from the Swanscombe region of the lower Thames valley and samples of the "Galley Hill skeleton," the antiquity of which has long been subject to discussion. Preliminary analyses show a difference of the order of 20 to 1 in fluorine content between upper Pleistocene and recent, and of 10 to 1 between middle Pleistocene and recent, with the samples of the Galley Hill skeleton coming nearer to recent. "In conjunction with other evidence," Dr Oakley stated, "they indicate that the Galley Hill skeleton was not contemporary with the 100-ft terrace deposits in which it was found, but a later burial."

### Section of Physiology

In the section of physiology Professor H HARTRIDGE devoted his presidential address to the case for a polychromatic mechanism of colour vision, which he thus summarized

Until a few years ago it was possible to account for nearly all the aspects of human colour perception on the basis of the three-colour theory, but this is no longer the case. This is largely due to improvements in the older methods of investigation and to the invention of new ones. Among the latter may be mentioned the micro electrode technique of Granit, and the retinal direction effect of Stiles and Crawford. Modern requirements are met by a polychromatic theory comprising seven types of receptor, but there is no necessity for these to have such narrow spectral response curves as those exhibited by Granit's modulators. Modifications of the three colour and four colour theories have been examined to see to what extent they can be made to fit in with experimental results. Particular notice has been taken of the possibility that there is polychromatism of the retinal receptors but trichromatism of the nerve paths which connect these to the brain, or even of the brain itself.

Sir HENRY DALE introduced a discussion on the transmission of effects from the endings of nerve fibres. He took as a starting point the hypothesis that chemical transmission from nerve endings to effector cells or secondary neurones was universal in all efferent fibres. On this basis a number of questions arise, some of which are being answered by current research. Given the existence of cholinergic fibres in which acetylcholine appears to be the sole transmitter, and of adrenergic fibres in which recent evidence suggests noradrenaline rather than adrenaline itself as the primary transmitter, does the finding of a high proportion of histamine in certain fibres (by von Euler) imply the existence of histaminergic fibres as well? Why should chemical transmitters be found along the whole length of fibres, with enzymes to build and destroy them, and not merely at nerve endings, when the evidence is against their concern with intraneural conduction? Why does one known transmitter inhibit and the other augment an involuntary effect or function? How can we combine the physiological evidence of Professor F R Miller and others suggesting transmission of acetylcholine at some central synapses with the biochemical evidence of Dr W Feldberg and Miss M Vogt at Cambridge limiting the suggestion to certain neurones only?

Professor F R MILLER then summarized the evidence for the stimulation by eserine and acetylcholine of "many varieties of synapses" the effects of both drugs being opposed by atropine. Dr Feldberg's approach has been through the extraction with saline of the enzyme system responsible for the formation *in situ* of acetylcholine. Like Sir Henry Dale, he made the point that synthesis was a property of the whole neurone and not

only of the nerve ending, and he stated that only a few milligrams of tissue were enough for investigation—e.g., in small but well-defined areas of the brain and medulla. Acetylcholine was not the universal synaptic transmitter in the central nervous system, and often, but not always, neurones with high and low acetylcholine content appeared to alternate in both afferent and efferent nerve pathways. The alternation of mechanisms thus suggested he found attractive to the extent that some caution was necessary in interpreting the evidence.

### Problems of Old Age

A discussion under this title attracted wide attention, due principally to the challenging statement by Sir ERNEST ROCK CARLING that the old should "revolt" against what he described as "the 60 to 65 convention." "Complacent acceptance of the hitherto economically convenient belief that chronological age is inevitably associated with incapacity," he stated, "is a potent influence in determining its validity. It should be combated resolutely in the interests of individual health and happiness as well as national advantage. There is as much reason to assert that the range should be 65-70 or even higher." Dr MARJORY L WARREN followed with an outline of the organization and research needed for the "medical care and welfare of the elderly sick and infirm," but included among her suggested remedies "plans for keeping elderly persons usefully employed whenever possible." Other points which she made included the need for social as well as medical care to assist elderly people to remain at home in comfort and happiness, the desirability of establishing geriatric units based on general hospitals, and the need for the closest liaison between regional hospital boards and local authorities.

### Colour Vision in Animals

A discussion on colour vision in animals was held by the section of zoology. This brought a compact statement by Dr R J PUMPHREY on the evidence of experiment, while Dr G S CARTER summarized the evidence of behaviour. Dr Pumphrey pointed out that training techniques could be applied only to animals which were "active, purposeful, rational, and docile," although in some few cases it was possible to provide experimental evidence of other kinds—e.g., that fishes which could change their colour to match their background would then choose a background to match their colour. "Colour perception," he summed up, "has been demonstrated beyond reasonable doubt among invertebrates in some insects, among vertebrates other than animals in some bony fishes, reptiles, and birds, and among mammals only in some monkeys and apes and man. There is a significant difference between insect and vertebrate colour vision. The former seem to see colour as long as they can see at all whereas vertebrate vision becomes achromatic at low intensities. All nocturnal vertebrates are probably colour-blind, and the ancestors of the mammals as a group are believed to have been nocturnal." Dr Carter pointed out that the perception of pattern as well as colour was necessary for the effective use of colour vision. Animals reacting to the detail of other animals he listed as, in the sea, fishes and cephalopods, on land, some insects, a few spiders, and those vertebrates that have colour vision.

### Physical Science

In the physical sciences the most important single contribution was probably an account by Dr GEORG THIESSEN, of Hamburg Observatory, of some new and difficult observations on the general magnetic field of the sun. The effect was to weaken seriously the theory of "cosmic magnetism" advanced by Professor P M S Blackett rather more than a year ago and to suggest, if only tentatively as yet, that the sun's general magnetism may vary in a cyclical manner. Whereas in 1945 Dr Thiesen had obtained comparatively high figures, used by Professor Blackett in his theory, in 1947 and 1948 he had failed to find any measurable effect although one-tenth of the 1945 figure should have been detectable. More observations were used in the two later years than in 1945, and to confirm the reality of the apparent variation it would be necessary to extend the work so as to include different phases of the sun-spot cycle. Professor Blackett's theory was, in brief, that any massive and rotating body is automatically a magnet and that



its magnetic properties could be calculated quantitatively from (approximately) its mass, radius, and speed of rotation

In the same section Mr D A OLIVER described the development of a new permanent magnet alloy, still at the experimental stage containing a small proportion of the rare element niobium, which has also lately been used in special alloys for jet engines. Dr D GABOR described a new principle of microscope design by which it is hoped that the resolution of the electron microscope can be further increased without the necessity for "fully corrected" electron lenses such as those used in optical microscopy

## SPEECH THERAPY CONFERENCE IN LONDON

London has been the centre for a number of international conferences this summer. Following the Mental Health Congress and the Congress of Industrial Medicine, two smaller conferences of an international character were held at the end of September, one of them a conference on speech therapy, which was attended by delegates from the Dominions, the United States, and six European and two South American countries and the other the annual congress of the Chartered Society of Physiotherapy, an account of which is held over until next week.

The conference, under the auspices of the College of Speech Therapists, was held in the hall of the Royal Society of Medicine. Mr DAVID H PYE, FRS, provost of University College London, who presided over the opening session, mentioned that it was exactly twenty-five years since the establishment in the Phonetics Department of University College of a centre for the correction of speech defects. Speech difficulties, said Mr Pye, were as old as history, methods of alleviating them were practised by the early Greeks, and treatment was occasionally attempted in the Middle Ages and after the Renaissance though the methods were largely empirical and did not appear to have been very successful. Only within the last thirty years had it been possible to see the problem in its scientific perspective.

### Scope and Aims of Speech Therapy

The first of some thirty papers surveying the whole field of speech disorders was by Miss JOYCE WILKINS, lecturer in spoken language at University College Nottingham. She pointed out that the reason why it was not until the twentieth century that the importance of speech therapy was recognized was because the spoken word was then beginning to challenge the dominance of the printed or written word. Printing had for many generations dominated education, and the spoken word, which was transitory, was deemed of small importance. Now, with the transmission of sound regardless of barriers of time and space the wheel had turned, and the importance of speech for good or ill was manifest. Advances in medicine and surgery—especially in neurology and in plastic surgery—had assisted the development of speech therapy.

The number of registered speech therapists in this country was 340. There were six training centres—four in London and two in Scotland—and the course of training took three years. School speech clinics numbered 230. More school clinics were needed and also facilities for the continued treatment of young people after leaving school. The National Health Service Act did not specify speech therapy among the services to be provided, and its position under that Act had still to be defined but it was expected that provision would be made for speech therapy centres under the Regional Hospital Boards. The regulations made under the Education Act 1944 laid it down that education should be provided for certain classes of children including those with speech defects. It was estimated that from 15 to 3% of the children attending school needed some treatment for speech disorders and in addition many young people attending colleges and universities needed attention. It would be desirable to have general speech training for children who were handicapped by deafness. There

were not enough speech therapists in the country for this purpose, speech therapists should be attached to all schools for the deaf and lip reading should be included in the training of the speech therapist.

### The Child Stammerer

A long discussion took place on stammering. The emotional background was reviewed in papers by Dr LEOPOLD STEIN of the Tavistock Clinic, and Mr NORMAN BRANGHAM. Dr STEIN said that in infancy speech and thought were one entity but at about the age of 4 there was a splitting apart of thought and feeling on the one hand and utterance on the other. It was not always easy to bridge this gap, especially when it was of more than average width, and disharmony might arise. The speaker was still able to send out his messages, but under stress, so that a stammer resulted. In the conflict resulting from inability to form words the speaker would make a headlong flight towards safety. In reply to a school medical officer who suggested that stammering was not necessarily connected with anxiety, because in his experience a large number of child stammerers were not at all of the shy or nervous type, Dr Stein agreed that the stammering was not to be defined as an anxiety state, it went psychologically deeper, but anxiety might supervene.

Mr BRANGHAM said that in its origin stammering was not different from neuroses in general, it was found in a well-differentiated group of personality structures. It represented a specialized form of neurotic conflict, indeed, it represented not only a conflict but an attempt to resolve it. The stammerer had gone a stage further in the resolution of his conflict than the person with neurotic disorder, for while the latter was trying to work out his difficulties internally the stammerer had partially solved his difficulties on the physical level so that it was probable that sexual disturbances were found less frequently among stammerers than among neurotic personalities in general. The neurotic component in the stammerer had been almost completely abolished.

The experience of one speech therapist related in the discussion may be quoted. She had been treating a small boy, who at last said, 'I will never stammer again. I will blink instead.'

### Dysphasia and Recurrent Speech

Dr MACDONALD CRITCHLEY addressed the conference on speech disorders, particularly the phenomenon of recurrent utterance. The aphasic person, he said, might be left with a single word or phrase, sometimes 'Yes' or 'No' or a meaningless snippet of jargon. The master of French poetry, Baudelaire, when stricken with aphasia could utter only three words. When a patient's speech had been restricted for some time to one phrase he might be able to vary the intonation so as to express greeting or affirmation or negation and so on. Hughlings Jackson suggested that the recurrent phrase was the one which the patient was about to utter at the moment of his stroke, but Gowers—in many ways a more accurate observer—believed that it was the phrase he had just spoken. One of Dr Critchley's patients, wounded on D day, could say only 'Yes it's to day'—very likely his last remark to a comrade who had asked the question. Sometimes such patients with restricted speech would utter something else quite unexpectedly and incongruously. One patient at Queen Square whose speech had been limited for a long period to 'Yes' and 'No,' at a moment when his case was being discussed with a group of students piped up the astonishing word 'unilaterality'.

Another phenomenon was a repetition of the last word or two of a sentence, or a frequent repetition of the same phrase. Dr Macdonald Critchley quoted a passage from a speech by one of the most famous men in England to illustrate what was really whether consciously or unconsciously a trick of oratory. Another "normal" verbal mannerism was the use of some silly phrase, almost devoid of meaning to prefix sentences such as 'Don't you know,' 'As a matter of fact,' or worst of all 'Actually.' Some persons were addicted to a verbal tic whereby in the middle of ordinary sentences they uttered an incongruous word or phrase often an expletive. The

enunciation of the same phrase over and over again in psycho-  
tics was a phenomenon belonging to the realm of the illness  
rather than to that of the dysphasia. There were also persons  
whose tic or mannerism led them to repeat every question asked  
them, sometimes with a change of tense or pronoun and some-  
times not.

Some remarkable examples of repetition in writing were  
given by Dr Critchley. One was a verse by one of the most  
distinguished of French poets which consisted of the single  
word *persienne* repeated twenty times. The title of the  
poem was inevitably *Persienne*. The patient's previous  
personality, educational status, and in particular his literary  
and verbal ability were important. Thus an illiterate person  
of limited vocabulary was not likely to suffer so much from a  
slight vascular lesion as an orator or writer. A judge who was  
accustomed to sum up on the bench extemporaneously, choos-  
ing his words with precision, knowing that they might be closely  
examined in a court of appeal, was probably using speech in  
the mostly highly evolved way in which it could be employed,  
and thus he had a very vulnerable speech mechanism, and a  
small lesion would cause disproportionate suffering and  
disability.

On the question whether women were more aphasic than  
men, Dr Critchley said that women ordinarily were more  
fluent but men took more interest in speech for its own sake,  
deliberated over *le mot juste* were inclined to use the *double  
entendie* the wisecrack, and the pun, and therefore perhaps  
men had a more vulnerable speech mechanism than women,  
and the same injury might produce in men a more crippling  
degree of aphasia.

Dr W RUSSELL BRAIN said that Hughlings Jackson pointed  
out many years ago that patients who could say nothing else  
could still swear, and swear, so to speak, appropriately. It  
seemed to him that the organization in the nervous system for  
swearing must be different from that for ordinary speech. Men  
of a certain type whose speech was peppered with lurid adject-  
ives which were apparently used almost unconsciously, were  
able nevertheless, when a lady entered the room, to continue  
their speech without any of these "adornments" rather suggest-  
ing a difference in the neural mechanism whereby obscen-  
ity could be switched on and off. Not all compulsive utterance,  
of course, was in the nature of swearing. Did not Dr Johnson  
withdraw behind a curtain to utter prayers? Dr Brain had  
a patient who after a stroke could say nothing but "No," but  
he was able to sing, his repertoire consisting of one music hall  
song. The ability to sing was worth bearing in mind for the  
purpose of treatment.

In the four days of the Congress on Speech Therapy papers  
were presented by members of the College on such subjects as  
the symptoms and treatment of dysphasia due to head injury,  
the associated conditions of dysgraphia and dyslexia, the oesopha-  
geal voice following total laryngectomy, relaxation therapy  
and the nervous patient, the school clinic and the speech-  
defective child, and the psychological approach to the pre-  
school stutterm. The Californian programme of speech cor-  
rection in the schools was described by a visitor from that  
State, a cinematographic instruction demonstration of the visual  
hearing method of teaching the hearing-handicapped was given  
from the clinic in Ohio State University, and a Uruguayan  
visitor described the progress of speech therapy in South  
America. The work of special schools in Holland, Czecho-  
slovakia, and Denmark was also described, and a French visitor  
gave an account of the relation of dental medicine to speech  
therapy. The role of emotional problems in producing dis-  
orders of speech was the subject of a paper by Dr E M CREAK  
of the Great Ormond Street Hospital.

The speech therapists are numerically the smallest of the  
medical auxiliaries but the conference fully demonstrated their  
enthusiasm and pride in their service.

In 1946 the Ministry of Health began intensive training courses in  
nursing for ex-Service men and women with nursing experience.  
Out of 179 of these men and women who took the recent final State  
Examination 163 were successful. The proportion of passes (91%) is  
well above the average for normal student nurse training schools.  
Up to the present date 620 of these ex-Service students have qualified  
as State Registered Nurses.

## Correspondence

### Diabetic Coma

SIR—The paper by Professor R. H. Micks on diabetic coma  
and his reference to my colleague Dr. Howard F. Root's plan  
of treatment in the *British Medical Journal* of July 24 (p. 200)  
and the comments upon it by Drs. Lawrence and Oakley  
(Aug. 7, p. 310) lead me to send you the summary of treat-  
ment we are distributing to doctors taking our courses or at  
medical meetings.

#### Treatment of Diabetic Coma

##### FIRST HOUR AFTER ADMISSION

Assign a special nurse, experienced in coma treatment, for the  
first few hours.

##### LABORATORY

- 1 *Urine* Examine for sugar, diacetic acid, albumin, coma casts  
and pyuria. Catheterize if necessary.
- 2 *Blood* Test for sugar and CO<sub>2</sub> content, with emergency report  
inside the hour. White blood count and non-protein nitrogen also  
of value.
- 3 *Search for Complications* A History to explain cause of  
coma. B Physical examination, noting particularly—(a) State of  
consciousness, type of respiration, pulse rate, blood pressure, and  
rectal temperature. (b) Look for soft eyeballs, dry tongue, dilated  
stomach, cold and mottled skin, and impacted rectum.
- 4 *Insulin* 100 units of crystalline insulin subcutaneously at once  
for adults, if blood sugar exceeds 300 mg per 100 c.c. and if the  
blood CO<sub>2</sub> content is 9 millimols per liter (20 volumes per cent) or  
less. The dose would be proportionately less in cases of recent onset  
of diabetes or in young children. In cases with blood sugar between  
600 and 1000 mg give 200 units additional, and with blood sugar  
over 1000 mg give 300 units additional. In patients in circulatory  
collapse, give preliminary additional doses of insulin intravenously.
- 5 *Gastric Lavage* Use large tube, aspirate completely and wash  
stomach with warm water with greatest care.
- 6 Normal saline intravenously, 2000 c.c. and repeat if indicated  
by dehydration and blood pressure below 90 mm Hg. Avoid too  
rapid administration, especially in older patients.
- 7 Keep patient warm yet avoid burns, as from hot water bottle.

##### SECOND TO SIXTH HOUR

Occasionally the gravity of the case necessitates repetition of first  
hour's total insulin in the second hour.

8 Repeat blood sugar and CO<sub>2</sub> determinations after three hours.  
For rising blood sugar give insulin 50-200 units, according to  
physician's judgment of prognosis.

9 *Fluids by mouth* (as soon as tolerated), 100-120 c.c. per hour  
of broth, ginger ale, orange juice, tea or coffee, to be sipped by  
patient or spooned by nurse. If nausea and vomiting recur, with-  
hold fluids orally for 12 hours (lavage stomach again if indicated)  
and then resume.

10 Soft or liquid food such as oatmeal gruel, orange juice or milk  
diluted half and half with lime water, not to exceed 10 gm. carbo-  
hydrate per hour.

11 *Enema* for cleansing and to relieve abdominal distension.

12 Record blood pressure, pulse and temperature. Note signs of  
improvement, or the reverse.

13 *Urinalysis* for sugar and diacetic acid every hour. Record  
volumes.

##### SIXTH TO TWENTY-FOURTH HOUR

14 Repeat blood sugar and CO<sub>2</sub> determinations and give insulin  
50-200 units if blood sugar and CO<sub>2</sub> levels are not improving.

Insulin (crystalline) may now be given according to urine tests  
every 1 to 4 hours if fall in blood sugar has been satisfactory.

If test is—

Give—	Red	Orange	Yellow	Green	Blue
	20	16	12	0	0

units

15 *Urinary output* Observe this closely and note with alarm  
any sign of anuria. Treat with 1500 c.c. intravenous saline if  
shock is persisting. Repeat as necessary. For anuria, associated  
with hypochloremia, give 50 c.c. of 10 per cent salt solution intra-  
venously. Never give hypertonic glucose solution to promote  
diuresis. Beware producing excessive diuresis with consequent loss  
of base, especially of potassium.

##### SECOND DAY

16 *Soft Food*—Diet carbohydrate 100 to 150 gm., protein 50  
gms., fat 50 gms.

17 Protamine zinc insulin should be begun, supplemented by crystalline insulin in small to moderate doses before meals, as indicated by blood sugar and urine tests

### THIRD DAY

18 Patient should gradually return to the standard diabetic diet for age and weight with carbohydrate 150 to 200 gms, protein 60 to 100 gms and fat 60 to 120 gms daily

Possibly this summary may be of interest because it provides against excess of treatment or the reverse. Constructive criticisms of this summary will be welcomed. We recently had 92 cases of diabetic coma in succession without a death—I am etc,

Boston

ELLIOTT P JOSLIN

### Clinical Research

SIR—The reading of the recent excellent series of articles in the *Journal* on medical research and of Dr Walshe's letter (Sept 18 p 572) has stimulated me to some observations on clinical research, which term seems in need of definition.

Clinical medicine is the investigation and treatment of people who are ill with the object of making them well. Clinical research is the endeavour to advance knowledge while practising clinical medicine. In an ideal world clinical medicine would be reduced to small dimensions through preventive medicine, but it is obvious, with such a large proportion of disease at present unpreventable, that the main endeavour of medical research must until this situation changes be at the disease level.

Various fallacies exist about clinical research. An extreme example, now fortunately rare, is the denial that it exists at all, usually coupled with the assertion that the sole task of the clinician is to exploit the discoveries of the laboratory. Clinicians from all fields of medicine would find it easy to draw up lists, comparable with that given by Dr Walshe for neurology, which would disprove this fallacy and its endeavour to reduce clinicians to the level of medical helots. A less extreme but more subtle example of the same fallacy is often provided when clinicians retire from the ward to the laboratory for their research. Almost all will agree that a training in laboratory research is an invaluable preparation for clinical research, that most forms of clinical research need, or benefit by, the added precision and definition of laboratory investigations, and that many clinical problems can with profit be transferred to the laboratory. But a clinician who transfers both himself and the problem to the laboratory is not carrying out clinical research but laboratory research.

Another fallacy is to regard physiological research on patients as clinical research, whereas it is really the using of a conveniently situated group of individuals for physiological studies, just as in the same way medical students or nurses are often used. Modern clinical medicine (and perhaps surgery in particular) is a highly developed branch of experimental biology and affords full opportunities for the exploitation of the most fruitful scientific techniques—the experimental method and the accumulation of verifiable quantitative data. But the research worker fresh from the laboratory may find himself in difficulties in the application of these techniques to clinical medicine. The experimental method has often to be modified to fit therapeutic necessities. It is rare for it to be feasible to treat alternate cases and even when it is, mankind and his diseases are so individualistic that the two groups so formed may not be fully comparable, and the clinical research worker must often seek truth in small numbers.

Research requires careful planning and staff work, a sound plan being equivalent to the initiative of military parlance. But, if one may continue the military metaphor, over such a large area of medicine is the initiative still with the enemy that the intelligence branch of staff work still has enormous importance, with its endeavour to build up a reliable picture of the enemy's design from scraps of incomplete information. And purely observational methods, particularly with the constantly advancing modern methods of observation, still have a big part to play in clinical research.

In conclusion may I be allowed to congratulate the *British Medical Journal* that in its educational number medical research has been given such an important place—I am etc

London W1

DAVID H PATEY

### Stainless Steel Wire

SIR,—The report entitled "Stainless Steel Wire for Closing Abdominal Incisions and for Repair of Herniae" by Messrs A Lawrence Abel and Alan H Hunt (Aug 21, p 379) is I believe, an important contribution to abdominal surgery. These authors have had no instance of abdominal disruption or post-operative herniation in more than 2,500 major operations, many of which were in debilitated patients with gastro-intestinal tract malignancy. Wire was first used as a suture material by J Marion Sims in the closure of vesico-vaginal fistulae, and was first advocated for use in abdominal incisions in 1934 by Babcock, Jones, Newell, and Brubaker of the Cleveland Clinic, Dambin, and Kaufmann, Johnson, and Yesser have all reported excellent results with the use of wire as a suture material, yet the majority of surgeons continue to use catgut, silk and cotton.

My impressions of stainless steel wire for the closure of abdominal wounds may be of interest because I use it exclusively in this regard. I first saw wire used by the late Hugh Hampton Young when I was house officer on his service at the Johns Hopkins Hospital. He employed it in the repair of hypospadias, extrophy of the bladder, and in operations for pseudo-hermaphroditism with results that are world renowned. Later, as resident in surgery at the University of Michigan Hospital, Ann Arbor, I had the opportunity to observe many patients in whom wire was used for abdominal closure. This suture along with transverse abdominal incisions has been advocated for some time by Coller. Coller has extended the use of wire to include closure of the subcutaneous tissue and skin (each by means of a continuous heavy wire which is pulled out at the end of eight days or so). In the case of the skin this wire is subcuticular. Recently he has used continuous wire also (which is not removed) to close the peritoneum. In the transverse incision interrupted wire stitches are used in the anterior and posterior rectus fasciae and other fasciae. No suture is used in the rectus muscle itself.

Since July 1, 1947, I have used stainless steel wire in all major abdominal incisions made on my service at the Alexander Blain Hospital and Clinic, Detroit. Transverse incisions have been used in all abdominal cases with the exception of three patients with "acute abdomens" in whom the pre-operative diagnosis was too obscure to know where to place a transverse incision. In a few other patients it was necessary to add a vertical limb to an incision which was transverse. In the treatment of herniae the McVay technique (sewing the conjoint tendon to Sir Astley Cooper's ligament) has been used in all inguinal and femoral ruptures except the small indirect inguinal type where excision of the sac alone seems sufficient. Wire has been used throughout.

Incisions closed with wire have been found to be no more difficult to reopen than incisions closed with other materials. This is true even when the peritoneum has been closed with a continuous steel wire stitch. I consider the transverse wounds closed with wire and with subcuticular wire in the skin far less prone to infection or disruption than ordinary vertical incisions closed with catgut and silk. Certainly early ambulation can be employed with far greater confidence when the former type of closure has been made. Cosmetically, the transverse incisions closed with wire give the most superior results I have seen. I agree with Abel and Hunt that vitallium wire is too brittle and expensive to use and that stainless steel wire from all theoretical and practical standpoints is the suture material of choice.

It would be of interest for Abel and Hunt to extend their use of wire to the closure of the peritoneum and of the skin. A subsequent report by them on these aspects of its use would make another valuable contribution to surgical literature—I am etc

Detroit Michigan

ALEXANDER BLAIN III

### Prevention of Dental Caries

SIR—Dr H H Neumann's opinion, quoted by Sir Leonard Hill (Sept 18, p 573), is not consistent with the evidence. No such condition as 'disuse odontoporosis' has ever been demonstrated, and there is no evidence whatever that the population is suffering from it. Teeth which fail to erupt and are

therefore completely disused have not been shown to differ in composition and structure from those which have erupted normally and have been used. Even in severe hyperparathyroidism no odontoporesis occurs. While it is known that the vigorous chewing of tough and gritty foods is generally associated with freedom from dental caries, the relationship between the two is not simplified by inventing such a concept when more credible explanations exist.

Structural defects due to nutritional, among other, causes are at least known to occur, though Lady Mellanby's assessment of them in the mouth must suffer unfortunately from the subjective nature of her test. However, the most striking and least controversial finding in the paper by Lady Mellanby and Dr Helen Mellanby (Aug 28, p 409) is the accelerated improvement in caries experience in the 5-year-old school-children in 1945-7 compared with 1943-5. Unless the other influences beneficial to the teeth exerted by war conditions can be shown to have had reason to operate more powerfully in the latter period, there will be little cause to reject the view that an important part of the improvement between 1945 and 1947 was due to the fact that throughout their whole lives the children in the last group had better access to, and made more use of, a number of valuable nutrients. The opinion that these may have acted through an improvement of tooth structure is in the present state of our knowledge a reasonable one.

This does not mean that encouragement of the use of foods containing sufficient fibre to require vigorous mastication would not produce further benefit—though hardly by elimination of odontoporesis—I am, etc,

London SE 1

M A RUSHTON

### Cervical Sympathetic Paralysis

SIR—As Dr J Donaldson Craig and Mr R C Fuller point out in their paper (June 19 p 1182) on this subject, the scholarly review of Ogle (1858) should entitle him to the credit that is given to Horner, but the British, with characteristic modesty have allowed the honour to pass elsewhere. The first description of the syndrome in man was by Edward Selleck Hare (1838) who died from typhus at the age of 26 on the day before his article appeared. The sad story has been told by Fulton (1929). John Reid (1839), of Edinburgh, is another British contributor to clinical and experimental knowledge of the syndrome. Early in this field (as in many others) was Sir James Paget (1864) whose celebrated case of causalgia with 'glossy fingers'—due to a traction lesion of the brachial plexus—presented a contracted pupil on the same side—I am, etc,

Mebourne Australia

MICHAEL KELLY

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### Acute Porphyria

SIR—The cases of Dr Ernest Petrie (May 15, p 926) and Dr M G Good (Sept 11, p 531) illustrate the difficulty of diagnosing acute porphyria even when the diagnosis is suspected. During the last six years I have been able to study not only the patient reported with D Silva in this *Journal*<sup>1</sup> but also a case of acute mania due to lead poisoning which showed intense coproporphyrinuria. This comparison and the consequent review of the literature led me to review the problems of differential diagnosis, and a summary of my conclusions may be of interest.

Every major symptom and sign of lead poisoning may occur in acute porphyria—loss of weight, hypertension, colic, encephalopathy (including coma), confusion, acute mania, and peripheral neuritis—though the nervous manifestations are usually more extreme in porphyria and may simulate an ascending myelitis. Porphyria, therefore must be suspected in any obscure case which simulates lead poisoning. With porphyria in mind the diagnosis can be confirmed only by meticulous examination of the urine using the hand spectro-

scope. In porphyria the characteristic and diagnostic pigment is uroporphyrin but small quantities of coproporphyrin are always present with variable amounts of urobilin and indirubin. All these pigments may be excreted preformed but more of each are present

as colourless chromogens which must be converted to the pigment before identification is possible. The concentration of the various pigments and their chromogens fluctuates widely and independently from day to day. Indirubin, soluble in toluene, contributes most to the "port-wine colour" of the urine, while the porphyrins themselves affect the colour comparatively little, so that the same patient may on one occasion pass urine which after standing an hour or two resembles tawny port but contains a mere trace of porphyrin, and a week later urine which is only a little more brown than usual but contains relatively large amounts of porphyrin. Two cases in which the clinical manifestations were typical and the urine dark but free from porphyrin, and a third in which porphyrin could be detected only during remissions, have been reported, so that repeated examination of the urine may be necessary.

In examining the urine the essential points are the differentiation between urobilinogen and porphobilinogen, the chromogen of porphyrin, and that between uroporphyrin, characteristic of porphyria, and coproporphyrin, which occurs also in a variety of diseases including lead poisoning, hepatic cirrhosis, pellagra, and pernicious anaemia. The former is accomplished by the Watson and Schwartz test, the latter by attempting to extract the porphyrin with ether, coproporphyrin alone can be extracted with this solvent, and in porphyria it is usually present only in low concentration.

My standard procedure is therefore (1) Place 500 ml of urine with 20 ml of toluene in a litre bottle and stand it in front of a window for several days, mixing occasionally. If indirubin or its chromogen are present, the urine will darken and some of the pigment will pass into the toluene layer, colouring it pink. Indirubin occurs in the urine of patients with porphyria, pellagra, and many deficiency diseases, but rarely reaches a high concentration save in the first two.

(2) To 10 volumes of urine add 1 volume of concentrated hydrochloric acid and stand overnight to convert chromogens to pigments. Add sufficient sodium acetate to render the mixture just alkaline to congo red paper, then as much again. Shake one portion five to ten times with ether, unite the ethereal extracts, and extract them with a small volume of 25% hydrochloric acid. Coproporphyrin enters the acid layer and if present in quantity colours it pink, so that the characteristic absorption bands can be seen with the spectroscope. Shake a second portion with a tenth of its volume of amyl alcohol and break the resulting emulsion by centrifuging. Transfer the amyl layer to a clean tube and add 1-5 drops of concentrated hydrochloric acid. Mix, and examine with the hand spectroscope. This extract contains both uro- and coproporphyrin.

(3) Perform the Watson and Schwartz test<sup>2</sup> to 1 ml of fresh urine add 1 ml of Ehrlich reagent containing 2.8 g dimethylamino-benzaldehyde per litre, and after standing a few minutes add 2-3 ml of saturated sodium acetate. Shake with 5 ml of chloroform. The pink colour due to urobilin is quantitatively extracted by the chloroform that due to porphobilinogen remains in the aqueous layer.

(4) Stain a blood film with Leishman's stain, diluting with water buffered to pH 7.2-7.4, and examine for punctate basophils to exclude lead poisoning.

If these tests are applied by someone skilled with the hand spectroscope there will rarely be any doubt of the diagnosis, but I must emphasize the importance of repeated examination and of referring suspicious or doubtful urines to someone experienced in this field.

Between 1942 and 1947 I served directly hospitals containing over 1,200 beds and was closely connected with others with over 1,000 beds, yet only the one case of porphyria was recognized, in spite of careful search and repeated discussions with my colleagues. I believe a few English cases have been recognized but not reported, but I conclude that the condition is probably much less common in England than in Scandinavia, the population of which is less than twice that of Greater London. Dr Torben K. With informs me that Waldenström now thinks that the majority of Swedish cases are descended from one man who migrated to Sweden about 200 years ago.

During the last 200 years migration from Scandinavia to England has been slight, that to the United States considerable. If the genetic background needed for the manifestation of the disease were more common in Scandinavia than in England this might explain the comparative rarity in this country, while the studies of Darlington<sup>3</sup> on the genetic component of language, and those of Fisher and Taylor<sup>4</sup> and Hart,<sup>5</sup> suggest that the disease might be more common in Northern Ireland and in Scotland—I am, etc,

London W 10

GEORGE DISCOMBE

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- <sup>1</sup> *British Medical Journal* 1945 2 491  
<sup>2</sup> Watson C J *Proc Soc exp Biol NY* 1939 39 591  
<sup>3</sup> — and Schwartz S *ibid* 1941 47 393  
<sup>4</sup> *Heredity* 1947 1 269  
<sup>5</sup> *Nature* 1940 145 590  
<sup>6</sup> *Ann Eugen Camb* 1944 12 89

### Maxillary and Mandibular Neuralgia

SIR—In the 71st *Interim Supplement* to the *British Encyclopaedia of Medical Practice* (August 1948), in an article on trigeminal neuralgia Dr Wilfred Harris has stated chronic maxillary and mandibular neuralgia. This is sometimes bilateral and may be a manifestation of neuropsychosis. Suggestion treatment or even electrical convulsion therapy is indicated. Such a statement, made by an authority of Dr Harris's reputation, would be widely accepted if allowed to stand uncorrected.

In the differential diagnosis of trigeminal neuralgia Dr Harris has made no mention of Costen's temporo mandibular syndrome, although it is referred to by name on the previous page of the *Supplement*. Many cases of chronic maxillary and mandibular neuralgia are cases of Costen's syndrome which is due to closure of the bite—that is approximation of the mandible to the maxilla—in edentulous patients. Closure of the bite results from absence of teeth, badly constructed dentures, atrophy of the alveoli, or alveolectomy. It leads to narrowing of the temporo mandibular joint. The strains placed upon the abnormal joint cause pain which may be unilateral or bilateral and which may be local or referred to the upper or lower jaws, eye, ear, or mastoid. Radiographic examination reveals narrowing of the joint space. The pain is relieved by fitting dentures or by building up the dentures to open up the bite. A similar syndrome may be reproduced by dentures which open up the bite too much.

These people should not be labelled as suffering from neuro-psychosis. Suggestion treatment will do them no good, and electrical convulsion therapy may well do them harm—I am, etc.,

Mt Hawthorn Western Australia

JAMES H YOUNG

### Use and Abuse of Tonsillectomy

SIR,—Referring to recent correspondence in respect of tonsillectomy, I would like to point out that in England and Wales in 1931 the proportion of children dealt with by operation was 2.2% of average attendance in elementary schools. This figure varied in different areas from 1% to 8.5%. Comments with regard to the frequency of operation reduced the rate to 1.49% of average attendance in 1934. The figure rose to 1.97% in 1938, fell to 1.12% in 1940, and then rose again. Of recent years in this area fewer children have been submitted to operation. In my opinion enlargement *per se* is not a good ground for operation. We judge each case on its merits and satisfy ourselves that operation is in fact needed before referring cases to hospital. Despite controversy on the subject I am of the opinion that the tonsils act as barriers against bacterial infections. They may have other functions. In cases of infection and mechanical obstruction a strong case exists for tonsillectomy but no rule-of-thumb method of assessment will give complete satisfaction—I am, etc.,

Halifax

G C F ROE  
Medical Officer of Health

SIR—Your annotation (Sept 18, p 564) on the removal of children's tonsils is I venture to say, an admirable summary of the position *qua* tonsils, but with great respect may I ask if the picture is complete unless we include the question of adenoids? All that you have said in defence of tonsils will carry weight with everyone, but that great master of children's diseases Sir Frederic Still used to say, "Tonsils may be left but adenoids—never!" I can think of one case in which a parent firmly resisted the pleadings of an ENT surgeon to be allowed to remove the tonsils when taking out the adenoids of a little girl. The patient now a grown woman has had the minimum of infections and practically never a sore throat. Any revision of our views on tonsillectomy need not lessen our readiness to remove adenoids—I am, etc.

Southsea Hants

M ASTON KEY

SIR—Your correspondence columns have recently contained many unpractical and theoretical suggestions about tonsillectomy in children with which we do not agree. But your annotation (Sept 18 p 564) sums up the position and follows with the most impracticable suggestions of all. The writer appears to us to have no knowledge of the present conditions in the hospitals in London. We agree that tonsillectomy is a major

operation and never urgent. But surely the six months period of observation after the patient is referred to the surgeon is totally unnecessary and undesirable. The practitioner has always spent some time considering the patient before referring him to the surgeon, and an unnecessary six-months wait is an intolerable burden for the child with a nasal obstruction caused by adenoids.

At present, with operating going on all through the year, a child at an average London hospital will have an appreciable wait before he sees the surgeon. He will then be put on the waiting list and wait anything from six to eighteen months for operation. If the operation is now not to be performed in winter or early spring and postponed when any infectious disease is prevalent the waiting time will increase by anything up to five years. Clearly in the ideal future a vast increase in the number of children's beds allotted to the ear, nose and throat department at appropriate seasons will have to be made. In the meantime the only practical method of dealing with the problem is to keep all the beds allotted for children's tonsillectomy full all the year round. A definite statement made on the authority of the Editor of the *British Medical Journal* that children's tonsillectomy should not be done in the winter does not help in any way those who have to cope with this problem and only gives them a lot of trouble explaining to parents the necessity of operation in the winter if their child and others are ever to have the operation performed.

We agree with Dr A M Tait (Sept 11, p 534) when he states, "Clinically I doubt if there is any more satisfactory operation in childhood than the removal of septic tonsils and adenoids." This of course implies satisfactory selection of cases, and one sees so many entirely satisfactory results of operation that the statistics showing no benefit from the operation do not represent the results of operation in cases that we see and do not unduly influence the advice we give to parents.—We are etc.

D F A NEILSON  
G H BATEMAN

London W 1

### Vaccination

SIR—In common with many others no doubt, I received a Ministry of Health brochure on how to vaccinate. A lot of it was interesting but there were some parts that cannot be allowed to pass without adverse comment. In the list of names at the end to whom the compiler is indebted there was none of any woman. It asserts that the arm should be chosen as the site of election on aesthetic grounds. I think that rather more than half the populace would disagree with this. It then goes on to state that general reactions are more common from vaccinations on the leg. I would disagree. In any event they are so rare as to enable one to disregard them completely.

One last point it is also stated that infant vaccination can be performed at clinics and health centres as safely as at home. Of the vaccination this is true, but no infant should be exposed to the great variety of infections which it is bound to meet at such an agglomeration of children—I am etc.

Settle Yorks

W A HAYLOP

SIR—In Army and in civil practice both at home and abroad I have so often seen practitioners in difficulties in the vaccination of patients that I would like to draw attention to a simple solution. The rules for vaccination laid down in the Army manuals are clear enough. The skin should be purified with soap and spirit, then permitted to dry. A vertical linear scarification no more than a quarter-inch in length is made with a sterile needle above the insertion of the deltoid muscle, and any scarification which oozes blood discarded. After the lymph has been applied to the scratch an aseptic dressing should be applied, but only when the lymph has dried. So far so good. But how does the lymph get there? I have seen it blown on, wiped on, scratched on, and even applied with the blade of a penknife normally used for pipe cleaning. The last named gentleman, however, was old enough to cast scorn on the 'germ theory'. In spite of the nicotine his vaccinations seemed very successful.

It has always been my practice to use a bacteriological loop first sterilized in a flame. There is no contamination of the lymph, the dose is constant, and drying of the lymph is almost instantaneous. The resultant pustules showed practically no variation in size. In a series of 850 recruits, a little more than

half of whom bore the marks of previous vaccination, 55% of the vaccinated developed a good pustule at the first attempt and 98% of the unvaccinated. No secondary infection of the pustules was seen except in a case where a misguided house-surgeon, who cannot have attended his vaccination class, treated a normal pustule by two hourly fomentations—I am, etc

IAN STEWART  
Pathologist Anglo-Iranian Oil Co. Ltd  
Tehran Iran

### Resuscitation by Rocking

SIR—I was very interested in the article by Dr F C Eve and the late Dr N C Forsyth (Sept 18, p 554) on rocking technique for resuscitation in cases of stillbirth. The same day that I read this article, while perusing the *Encyclopaedia Britannica* on quite a different quest, I found an article on "Rocking." This edition of the *Encyclopaedia Britannica* is dated 1896, and in this article is an account of a method ascribed to Dr Marshall Hall, who in 1856 described a method of resuscitation in cases of stillbirth and drowning which, although it is called "imitated breathing," in actual fact by description appears to be based on rocking the patient from a reclining position on the right side to a near proneness on the ground and returning, at some 15 rocks a minute. Although this article does not go into such detail as that of Drs Eve and Forsyth regarding the point at which recovery commences, the general description suggests that rocking as a means of resuscitation has an honourable ancestry. It is interesting that Dr Hall's method was supplanted by the more direct imitation of respiration used in the Silvester method. Are we now perhaps turning full circle?—I am, etc,

Oxford

V L KAHAN

SIR,—In 1917, while still a student, I served under Dr Frank Eve as resident medical officer at the Children's Hospital, Hull. At that time it was taught that the correct method of dealing with a case of asphyxia neonatorum was by throwing the child (still retaining a hold by the ankles) over the shoulder at intervals until the child showed signs of breathing properly.

Surely this method (in later years ridiculed by authoritative teachers) would have had the effect of rocking the cerebral blood onwards and so have produced the same result as in Dr Eve's rocking method. He states that steep angles when rocking are presumably best, so that the old method of throwing over the shoulder could be considered as an actual improvement on Dr Eve's method—I am, etc,

South Shields

S E GOULSTINE

### Genu Valgum

SIR—In reference to Mr H A Brittain's article (Aug 21 p 385) on genu valgum follow-up of children from birth to say sixteen years of age suggests that without treatment the same child at different stages may appear knock-kneed or bow-legged before finishing to all appearances normal. It also suggests that relative laxity of the lateral ligaments is usual with or without any apparent deformity.

I have also the impression that apparent genu valgum is more common in children who are going to be taller than average and the reverse appearance in the more stocky type. Could it not be that the condition is due (in some cases) to a faulty correlation in time between the alteration in the tibio-femoral angle from infant's to adult and the alteration in the femoral neck angle with relative broadening of the pelvis which takes place during the same period?—I am, etc,

Dorset

H A LAVELLE

### Purpura Complicating Scarlet Fever

SIR—I should like to add one point to those mentioned by Drs T Anderson M S Ferguson and J B Landsman in their paper on purpura fulminans complicating scarlet fever (Sept 18 p 549). Besides the purpura occurring eleven days after scarlatina their case showed gastro-intestinal symptoms (haematemesis, colic, melaena), joint symptoms (painful swellings of the joints) and nephritis (haematuria, cylindruria). In these respects their case resembles several of the previously reported cases of post-scarlatinal purpura from which it is clear that

post-scarlatinal purpura is a particular example of the Schonlein-Henoch syndrome (anaphylactoid purpura).

The interest of cases such as that reported is that they illustrate clearly the fact that aetiotogically the Schonlein-Henoch syndrome belongs to that family of diseases which includes acute nephritis and rheumatic fever and which is characterized by the relation of these diseases to a preceding streptococcal infection—I am, etc,

Cambridge

DOUGLAS GAIRDNER

### Reactions to Intravenous Sclerotics

SIR—With reference to Dr C E Taylor's letter (Sept 18, p 573) describing two cases of allergy to the use of sodium morrhuate as an intravenous sclerosant, I am surprised that this substance is still being used having regard to the large number of cases on record of allergic responses ranging from urticaria to death. Monoethanolamine oleate has long been recognized as a safe substitute for sodium morrhuate and is bacteriostatic. It is marketed under several trade names. Rowden Foote<sup>1</sup> discusses this angle very thoroughly in his book on the subject, and refers to the writings of Mr Harold Dodd, who in 1940 stated that sodium morrhuate was potentially dangerous as well as being an inefficient sclerosant. I feel that the views of these two authorities cannot be too widely known—I am, etc,

Uttery St Mary Devon

R E SIDEBOTHAM

### REFERENCE

<sup>1</sup> *Varicose Veins, Haemorrhoids and Other Conditions—Their Treatment by Injection* 1944 London

### Transfusion and Haemolytic Disease

SIR—In their paper on transfusion as a cause of haemolytic disease Drs George Discombe and H O Hughes (Aug 14 p 329) state that a history of transfusion without Rh testing is 18 times more common among mothers of infants suffering from haemolytic disease of the newborn than among unselected patients at an antenatal clinic.

It may put the matter into perspective if we calculate the chances of an untransfused mother having an infant with this disease as against those of a transfused mother. On the figures given in the article 36% of mothers of infants with the disease had been transfused, while only 2% of a random sample of clinic mothers had been transfused.

Assuming that x% of transfused mothers and y% of untransfused mothers have infants suffering from the disease, we get 36 such infants from  $\frac{36 \times 100}{x}$  transfused mothers at

risk, and 64 such infants from  $\frac{64 \times 100}{y}$  untransfused mothers at risk. As 2% of mothers attending the clinic have been transfused and 98% have not,  $\frac{3,600}{x} = \frac{2}{98} \times \frac{6,400}{y}$  and therefore

$x = 27.56 y$ . That is, a woman's chance of having an infant suffering from haemolytic disease of the newborn is more than 27 times increased by having a blood transfusion first, if not Rh-matched for her before administration.

If the statistics given by the authors can be accepted as representative which I see no reason to doubt Drs Discombe and Hughes have drawn attention to a risk which most doctors have not until now realized and which we should certainly not forget—I am, etc,

Shipley Yorks

H S RUSSELL

### Poisoning by Berries

SIR—Reports of poisoning by berries are becoming alarmingly frequent. The following two cases show how vital it is that the public at large should be made aware of the danger, as this knowledge may make all the difference to the result.

A boy aged 6 years told his mother on returning home that he had been eating berries. The mother, fortunately understanding the grave possibilities, immediately called in her family doctor who brought the child to hospital. On admission there were no symptoms or signs of poisoning. The stomach was washed out, and in the stomach washings berry residues were found. The patient was further given an emetic and a saline



The child then stated that a little girl had been with him and had also eaten berries. She was traced and brought to hospital about one hour later. She too was symptomless, but many berries were found in the stomach washings. By retracing the route taken by the children, a bush covered in woody nightshade was found. The berries on this bush were identified with those found in the stomach washings. The two children were observed for 48 hours in hospital, but developed no untoward symptoms. It is obvious that only prompt action by the boy's mother and by the family doctor prevented a very serious accident.

As the symptoms of poisoning by woody nightshade are those of paralysis of the respiratory muscles, it would seem that a mechanical respirator may afford the most rational line of treatment in tiding them over the stage of respiratory paralysis—I am, etc.,

London N 21

P R DAVIS

### Rhabdomyosarcoma of the Urinary Bladder

SIR—The striking characters of the tumour described by Mr Claude Vipond in your issue of Sept 18 (p 551) prompt me to add a further detail from the necropsy report of the case.

The growth appeared to have invaded the bladder from the outside and had ulcerated through its posterior wall, sections from this region supported this observation. The prostate gland was not identified in the tumour, whose anatomical relations were necessarily disturbed by its great size.

I understand Mr Vipond returned to Canada some time before this article was published—I am, etc.,

Dudley

A G MARSHALL

### Empirical Methods

SIR—Now that the difficult cases which once gave zest to a country doctor's life are passing more and more out of his hands it might be a boon to find some fresh interest that would redeem him from the life of an obedient clerk. May one not unfamiliar with the laboratory offer a gleam of hope? I suggest that a harvest lies waiting for people with the faith and judgement to collect sift, and co-ordinate empirical methods of treatment—unknown to and despised by rational scientists—methods driven by ridicule from orthodox practice for, without minimizing in the least the good that organized science has done and will do for the sick, we are surely beginning to doubt the Victorian doctrine of its all sufficiency. In medicine as in other walks of life two other legs of the tripod still have their uses—namely direct empirical knowledge handed down by custom, and one's individual experience and clinical sense. Everyone knows that the three in balanced combination are a safer support than any one taken alone.

Be that as it may one cannot fail to observe unpleasant side-effects of an undiluted rationalism: (1) the growing complicity of accumulated and sometimes irrelevant facts the memorizing of which robs young novices of health and recreation, (2) the mounting expense of analyses applied indiscriminately to the public at large, (3) that while rational medicine sheds healing light on some disorders it leaves the treatment of others in blacker darkness than before particularly the residue which the G.P. has to deal with once the 'interesting' cases have gone elsewhere, (4) the authoritarian view that it is more respectable to try remedies that 'ought' to work but do not than those which ought not to work but do, (5) a lowered prestige of the profession in the eyes of pharmacists, who notice our lost inventiveness and lost elegance in composing and handling simple medicines.

Illnesses have vexed mankind since the Garden of Eden, and unless he experience of the ages counts for nothing beside that of this century I make bold to suggest that a fraternity of hand-picked doctors on the lines of a mediaeval guild and unhindered by official control could do the profession a good turn by testing and reassessing remedies and customs tips and wrinkles which have died out either with their humble originator or with the school that bred them. If some direct and simple but forgotten remedy can heal *cito tute et jucunde* why not resurrect it and leave the underlying reason to be worked out by science at leisure?—I am, etc.

Wellington Salop

A R MCCLURE

### Comprehensive Child Health Service

SIR—Reference the letters which have appeared in the *Journal* under this heading, the following conditions are required for a complete child health service: (a) team work, (b) a recording system giving each child a complete dossier, (c) the new health centre. No doctor can deal single-handed with child health in all its aspects, but the family doctor must be the central figure in the scheme, and it will be through him that the various measures can be co-ordinated and through him that the full co-operation of the parent is obtained. Child health begins in the antenatal period, and preventive measures are continued in the child welfare and school clinics. It is essential to have the full support of the family doctor in this preventive work. The prevention of T.B. infectious diseases, rickets, rheumatism, and nutritional and mental conditions will require attention.

Physical defects occurring during this period and requiring curative treatment must be dealt with by the family doctor and/or specialist. The team required therefore is the family doctor, M.O.s of the preventive clinics, and the specialists. The child's dossier will include all records of the various members of the team and give details of the preventive and curative measures taken from the antenatal period onwards. These records will be available to each member of the team.

To develop such a scheme to the full implies the development of the new health centre, where all clinics and consultations come under the one roof and the records are available as required. I emphasize that the family doctor must be the central pivot of the scheme. He is in direct touch with the parents and in their confidence, and it is he who will advise on the preventive and curative measures in the health of the child—I am, etc.,

Southport Lancs

S T BEGGS

### POINTS FROM LETTERS

#### Traumatic Amputation

DR E PROTHOROE SMITH (Crediton, Devon) writes. The medical memorandum by Dr J D C Millar (Sept 18, p 559) reminds me of what must be a very rare accident. A man's clothing was caught in some machinery he was working on, and he was swung round the shaft till he fell dead. On arrival shortly afterwards I found his left leg completely torn off and the left side of the pelvis had gone with it, separation having taken place at the pubic and sacro-iliac articulations. I do not remember (after 25 years) at what level the nerves and vessels were torn but the ureter was torn, both ends being seen the upper still dripping urine. The amazing thing was that the peritoneum remained intact and clean of fasciae and muscles, and the contents (bowels and bladder) could be easily seen through it.

#### Fibrositis and the Weather

Squadron Leader A T RYLAND (RAF, St Athan, Glamorgan) writes. Dr G C Pether points out in his letter (Sept 18, p 573) that fibrositis is a very real affliction to those who suffer from it, and he suggests that "weather pains" are not directly due to changes of humidity, pressure, or temperature. Anyone with access to a hygrometer, barometer, or thermometer can verify that patients can predict weather changes before these instruments vary their readings. Also there is no need to experiment with artificial climates. Going from a dry, cold room into a warm, steamy bathroom going up or down stairs (or better still climbing a hill), and going from a warm room to a cold one, will produce the respective changes required and will be found to have no effect. Nor does the old 'let out'—If you can't explain it, blame it on electricity—work in this case. The difference of potential between different levels of the air is a very variable quantity and is liable to sudden changes, as during rain. These changes are not reproduced in the patient.

In spite of these difficulties I have been able to find a connexion between these pains and the weather. A meteorologist, by drawing a weather map, can tell you that to-morrow a warm front will pass and you will feel warm. In the same way, by inspection of a weather map I can predict the onset of 'weather pains'. But in spite of that I have not the slightest idea how the influence is transmitted from the approaching weather to the patient. I can make only the weak suggestion that like homing pigeons some human body may possess an extra sense over and above the normal six which makes them susceptible to meteorological influences. There is an interesting field for research here.

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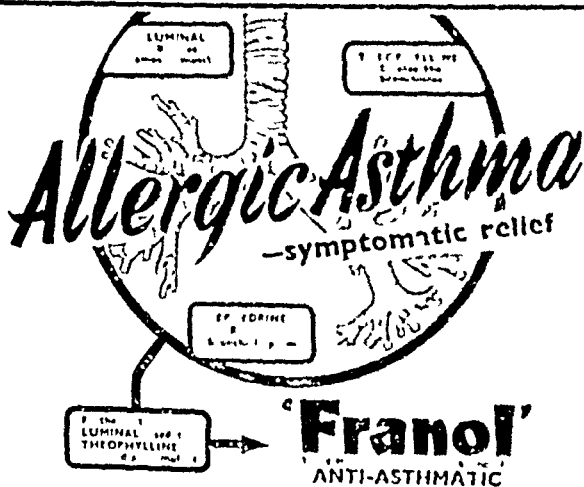
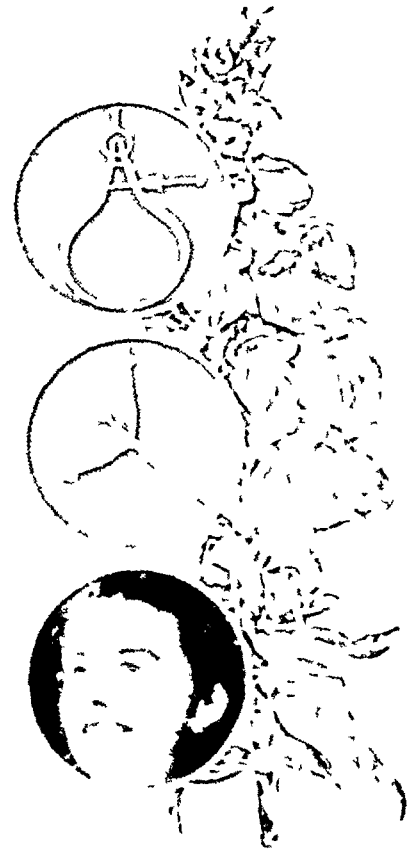
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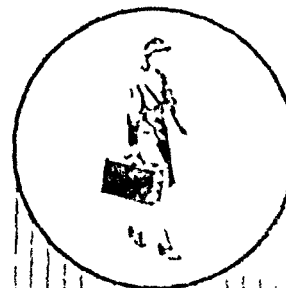
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## Obituary

DR FRANCIS KEENE MARRIOTT died on Aug 30 at the early age of 55 after an illness of several months duration. At times he suffered attacks of most intense pain which he bore with great fortitude, and to the very last he hoped to be able to continue some of his work. He was educated at Gresham's School and trained at the London Hospital, qualifying in 1915. He served in the first world war in the R A M C, and was awarded the Military Cross for conspicuous bravery and devotion to duty. On his release from the Army he did several house appointments and then took up practice in Yoxford. Dr Marriott had an extensive rural practice, and was a general practitioner of the finest type. Soon he was deeply concerned with parochial affairs, and he was elected chairman of the parish council and its representative on the Blyth R D C. He was president of the British Legion and village club and a great supporter of the cricket and football clubs. Last year he became chairman of the Clinical Society of Ipswich. He had taken an active part in B M A work, and was elected chairman of the East Suffolk Division in 1938. He was always a wise and keen member of the East Suffolk Panel Committee, which he represented on the county council and recently at the Panel Conference in London. During the second world war he served as a major in the Home Guard and spent a lot of time teaching first aid in the Yoxford area. He also carried on the practice of an absent coleague, and was very overworked. As a physician at the Patrick Stead Hospital, Halesworth, he was especially interested in obstetrics. It was a bitter blow to him when it became necessary to leave his home with its beautiful park and garden in which he had spent so many happy hours with his wife and two daughters. He loved country life and when he could spare the time shot and rode with the best. Dr Marriott was buried in Yoxford, where he had worked so hard and efficiently for twenty-seven years. The large parish church was filled to capacity, and sitting among the crowd I felt how very worth while such a doctor's life had been.—D W B

## Medical Notes in Parliament

### Hospitals Endowment Fund

Sir JOHN MELLOR on Sept 21 moved that the regulations entitled the National Health Service (Control and Management of Hospitals Endowment Fund) Regulations, 1948, be annulled. These Regulations provided for control and management of the Hospitals Endowment Fund set up under the National Health Service Act, 1946. The fund amounted to something like £15,000,000, and represented donations made in the past to the voluntary hospitals. The Act of 1946 largely defeated the intentions of those benefactors, but the House had a duty to see the fund was well administered. The Regulations entrusted to the National Debt Commissioners the management of the funds invested. The Minister was entitled under the Act to make this provision, but had exercised his discretion in a misguided manner. He called attention to the use by the National Debt Commissioners of money belonging to the Unemployment Fund, and contended that the Commissioners had used this money to influence the stock market to accord with Government financial policy. He contended that this fund should be beyond the reach of Treasury control. Possibly the public trustee would be an appropriate person to take over the duty of administration.

Mr DAVID RENTON seconded the motion. He said the sum of £15,000,000 mentioned was a disappointment because Mr BEVAN on the Second Reading of the Bill had said that something like £32,000,000 belonging to voluntary hospitals was to be used as a shock absorber between the Treasury, the Government, and the hospital administration. The House should be given some idea whether and how regional hospital boards would get their share of the fund, as Mr Bevan had promised during the committee stage of the Bill. When Mr Bevan had obtained the funds, members assumed that they would be used solely for the benefit of the hospitals. He suggested it would be better if the funds were kept in a pool where they would be entirely free from use by the Chancellor of the Exchequer, who might feel tempted to bolster up his financial policy.

Mr GLENVIL HALL said the Act laid down that voluntary non-teaching hospitals should transfer to the Minister the funds

at their disposal. These securities were in process of being transferred, and it was the Minister's duty to put them into an endowment fund. The Minister had received £17,750,000, and a good deal more was to come, although he could not say how much. The securities would be held in the name of the Minister of Health and not by the Treasury. Investments other than Government securities would gradually be transferred into Government stocks. The Government had not used the Unemployment Fund to bolster up a cheap money policy, and the charge made by Sir John Mellor was completely false.

Mr ASSHETON said the fund had been set aside to benefit the hospitals, and there might be occasions when the interests of the hospitals and of the Treasury and National Debt Commissioners might not be identical. Some other funds had been invested in securities the value of which had fallen by 20%. There might well be a permanent loss to those funds. The Opposition was trying to safeguard the Treasury and the Ministry of Health from making a similar mistake in regard to the Hospital Endowment Fund.

Sir John Mellor's motion was defeated by 183 to 40.

### National Health Service

Sir HENRY MORRIS-JONES was told by Mr BEVAN on Sept 23 that over 90% of the total civilian population were on the lists of doctors engaged in the National Health Service. Available figures might involve some duplication which could not yet be exactly estimated. The number of people who had not applied to go on doctors' lists was, subject to elimination of duplicates, fewer than 4,000,000 for England and Wales. The number who had asked for their names to be removed was not known.

Mr BEVAN confirmed that regulations entitle foreign nationals on a short visit to Great Britain to full benefit under the National Health Service, including the replacement of dentures or spectacles. He added that the cost of treating aliens could not be estimated but was likely to be small.

Mr BEVAN also indicated, in reply to a later question that he knew of the delay to thousands of persons in receiving optical benefits. As anticipated heavy initial demands were resulting in temporary delays, but increased production should soon close the gap. Persons entitled to the provision of free spectacle lenses under the National Health Service Act 1946, were permitted to have these lenses fitted to spectacle frames already owned by them.

**Capitation Fee**—Commander NOBLE asked on Sept 23 what capitation fee was to be paid to general practitioners under the National Health Service. Mr BEVAN replied that there was a total fund of 18s multiplied by 95% of the civil population. This was divided into local funds, on a basis agreed with the profession. Doctors shared it according to the people on their lists.

**Dental Estimates**—On Sept 23 Sir ERNEST GRAHAM LITTLE asked what was the cost of dental estimates submitted or approved by the Dental Estimates Board. Mr BEVAN replied that the Board had authorized payment of a total of £708,307 up to Sept 17. There was no excess over the sums already voted by Parliament for the purpose.

**Cost of Prescriptions**—The estimated cost of prescriptions dispensed from July 5 to Aug 5 was nearly £1,500,000. The amount paid from July 5 to Aug 31 (for which period alone figures are available) for sight testing and supplying glasses under the supplementary ophthalmic service was £237,433, though this figure did not represent the full liabilities incurred during the period. This information was supplied by Mr BEVAN to Sir HENRY MORRIS-JONES on Sept 23.

**Tons of Paper**—There have been distributed 13,200,000 copies of a leaflet on the National Health Service costing £4,350 and requiring 46 tons of paper. As regards the National Insurance Scheme 40,400,000 leaflets, including the family guide, were made available for distribution, costing £54,000 and requiring 424 tons of paper.

**A I D under N H S**—On Sept 23 Mr DRIBERG asked what facilities for artificial insemination were provided at clinics under the National Health Service, if such facilities included both A I (H) and A I (D), what information had been received from such clinics regarding the physical and mental health and development of children born as a result of artificial insemination, and if Mr Bevan would make inquiries on this subject from private clinics. Mr BEVAN answered that no such facilities were provided. On the last part of the question he was not advised that such an inquiry would be justified.

## Medico-Legal

### SILICOSIS NOT AN ACCIDENT

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

The tendency of the House of Lords to interpret the Workmen's Compensation Acts 'beneficially' has led to a number of decisions which have expanded the concept of injury by accident to an extent which puts a severe strain on both the imagination and the semantic sense of the ordinary person. In recent years this section of the *Journal* has contained some account of cases in which compensation was awarded to a workman who had contracted Raynaud's disease from the vibration of a rotary tool<sup>1</sup> and to another who suffered from hernia as a result of the vibration of a pneumatic drill.<sup>2</sup> The classical case on which these were based was that of a girl<sup>3</sup> who, after sustaining numerous cuts and scratches on her hands in the course of her work over a long period, ultimately became totally incapacitated as a result of blood poisoning. It was held that she was not the less entitled to compensation because her disease was due not to one specific and definite accident but to a series of accidents, each one of which was specific and ascertainable though its actual influence on the resulting illness could not be precisely fixed. The House of Lords seems now to have called a halt to this process.

A workman<sup>4</sup> contracted silicosis through prolonged work as a slate cutter. Because slate does not contain 50% of silica he could not benefit from the Silicosis Scheme. He therefore claimed for compensation for an injury by accident, arguing, as the former applicants had, that each particle of silica had caused a separate accident and that his condition was the result of the accumulation of these infinitesimal injuries. The House of Lords decided against him. The decision was doubtless influenced by the earlier case of *Williams v Guest* etc.,<sup>5</sup> in which a claim based on silicosis was rejected by the Court of Appeal on the ground that the illness was not due to an accident as that word is used in the Act, or to a series of accidents but was the result of a continuing process repeated from day to day. Lord Porter admitted that two types of cases had in the past not been sufficiently differentiated—those in which a single accident is followed by a resultant injury as in the anthrax case<sup>6</sup> in which the entrance of an anthrax bacillus was the "accident", and those in which, as in the case of the girl with the cut hands, there was a series of specific and ascertainable accidents followed by an injury which might be the consequence of any or all of them. Although it was possible to analyse silicosis into a series of separate injuries caused by separate accidents the attribution of the disease to an accidental cause was he said, unreal. The distinction between accident and disease had been insisted on throughout the authorities and was well founded. No explicit formula could be adopted with safety but there must come a time when the indefinite number of so called accidents and the length of time over which they occurred took away the element of accident and substituted that of process. In his opinion, disability from silicosis was one of such instances and could not be said to be the result of injury by accident. Lord Simonds, who also gave an opinion quoted words recently used by Viscount Caldecote of three cases in which the workman failed because 'the facts were such as to make it impossible to identify any event which could however loosely be called an accident', and also Lord Romer's question: 'Was there a physiological change for the worse in the respondent's condition on a particular occasion while he was at work?' He considered that the case of the girl with the scratched hands was the high-water mark (of the doctrine of cumulative injury by infinitesimal accident). Lord du Parcq added that the duty of construing an Act of Parliament was not to be performed by deducing from dicta contained in earlier judgments principles which might seem to follow from them.

<sup>1</sup> *Flint v. Stone & Co.* 1946 2 All E.R. 429.  
<sup>2</sup> *Horne v. Lister Steam Coal Collieries* 1947 2 All E.R. 556. *British Medical Journal* 1948 1 711.  
<sup>3</sup> *Frederick v. Selwyn* 1921 1 K.B. 365.  
<sup>4</sup> *Rymer v. Dixon & Sons Ltd.* 1948 2 All E.R. 201.  
<sup>5</sup> 1926 1 K.B. 497.  
<sup>6</sup> *Edwards v. The Trustees* 1905 A.C. 250.

## Medical News

### Medical Photography

There will be an informal display of medical photographic apparatus and records at the Department of Medical Photography, Westminster Hospital Medical School, 17, Horseferry Road, London S.W.1, from Oct 5 to 9 inclusive (10 a.m. to 4 p.m.). Series of photographs will show the recording of complete case histories of dermatological conditions.

### Chartered Society of Physiotherapy

Mr Walter R. Owen, chairman of the London County Council, proposed the toast of the Society at a luncheon on Sept 24. He recalled the many activities of the physiotherapists since the time—about fifty years ago—when they were popularly known as rubbers and spankers, and paid tribute to their enlightened policy, especially in the field of education. The L.C.C. was very appreciative of the Society's endeavours. Dr W. S. C. Copeman, chairman of council of the Society, spoke of its future and suggested that, though temporary dilution of its ranks might be necessary owing to the shortage of physiotherapists, they must make sure that it was only temporary. The Society had offered to open a supplementary register and wished it to be officially recognized. He hoped for an answer from the Ministry of Health in the not-too-distant future. Lord Horder, president of the Society, welcomed the guests and particularly the delegates from fifteen countries overseas. This meeting perhaps foreshadowed things to come—possibly an international body of physiotherapists. Dr C. E. Thackray Parsons, deputy master of the Worshipful Society of Apothecaries, said that, when he remembered in his youth the many people crippled with arthritis and other conditions and compared their treatment then with that given to-day, he realized how much they owed to the physiotherapists.

### Hospital Admissions and Records

A report entitled "Some Observations on Hospital Admissions and Records" published under the auspices of King Edward's Hospital Fund (London George Barber 1s) emphasizes the advantages of having an appointment system at hospitals. A group of administrative officers studied the arrangements at eight hospitals on a short course established by the Fund and found that an efficient appointment system saves space and prevents overcrowded clinics. The best system is for all out patients (except at certain special clinics—for example V.D.) to have an appointment arranged by either the doctor or the patient unless referred from the casualty department, the patient must bring a doctor's letter or a note from casualty. The report advocates a central office for dealing with appointments, which should be allotted in half hourly or hourly blocks. Normally not more than 15 minutes should elapse before the patient is due to see the doctor. Cases suitable for teaching may be sorted out by the appointment clerks who are informed by the consultants of their requirements. The out patient department should provide only consultations and special treatment which cannot be given by the general practitioner cases that can be treated by the general practitioner may nevertheless be used for teaching purposes in casualty. A senior R.M.O. should be in charge of admission waiting-lists, since he can 'borrow' beds and the arrangements are therefore more elastic. The unit system of keeping notes—one number for ever, one folder, and one central index—was found to be the most efficient. Messengers must carry the notes from one department to another so that the patients shall not read them. Every hospital should have a records committee and an experienced records officer in charge.

### Smoke Abatement

Lord Simon of Wythenshawe has been elected President of the National Smoke Abatement Society. The retiring President, Sir George Elliston, chairman of the Public Health Committee of the City of London Common Council delivered his final presidential address on Sept 30 at the annual conference of the Society at Cheltenham, which was attended by over 400 delegates from local authorities and technical organizations.

### Insurance Agreement with New Zealand

A reciprocal agreement has been made between Britain and New Zealand covering the Government issue of family allowances in the two countries so that tests of residence will be waived for families coming from the other country. Under the New Zealand scheme 10s a week is paid for every child, including the first.

### International Orthopaedic Surgery

At the fourth congress of the Société Internationale de Chirurgie Orthopédique et de Traumatologie held in Amsterdam from Sept 13 to 18 the following officers were elected: President of the Society—Sir Harry Platt; vice-presidents—Dr San Ricart (Barcelona) and Professor E. Sorrel (Paris). The next congress will be held in May, 1951 at Stockholm with Professor Richard Scherb of Zurich as president of the congress.

**Royal Sanitary Institute**

Sir Weldon Dalrymple Champneys, Bt, will take office as Chairman of the Council of the Royal Sanitary Institute on Oct 1

**American College of Radiology**

Dr Russell Reynolds has been elected an honorary fellow of the American College of Radiology

**COMING EVENTS****British Congress of Obstetrics and Gynaecology**

The twelfth British Congress of Obstetrics and Gynaecology will be held at Friends House, Euston Road, London, N W, on Wednesday, Thursday, and Friday, July 6, 7, and 8, 1949, under the presidency of Sir Eardley Holland. The Minister of Health will declare the Congress open at 10 a.m. on July 6, and a discussion, to be introduced by Mr C McIntosh Marshall (Liverpool), on 'Modern Caesarean Section' will follow. At 2 p.m. a paper will be read by Dr Joe Meigs (Massachusetts), followed by a discussion on 'Pregnatediol,' to be introduced by Professor G F Marrian, D Sc, F R S (Edinburgh), and Dr G I M Swyer (London). On July 7 at 10 a.m., Professor G W Pickering and Professor F J Browne (London) will introduce a discussion on 'Essential Hypertension in Pregnancy.' At 2 p.m. discussions on 'Hernia of Pouch of Douglas' and 'The Management of Pregnancy in Diabetics' will be introduced by Mr C D Read (London), and by Mr J H Peel (London) and Professor D M Dunlop (Edinburgh) respectively. On July 8, at 10 a.m., Dr J E Ayre (Montreal) and Dr F G Spear (Cambridge) will introduce a discussion on 'Diagnosis and Prognosis of Carcinoma of the Uterus.' At 2 p.m. there will be a discussion on 'Maternal Mortality.' The honorary secretaries of the Congress are Mr A Joseph Wrigley, M D, F R C S, and Mr Ian M Jackson, F R C S, and the names of those who hope to attend the Congress should reach them by March 31, 1949, at the latest, at the Royal College of Obstetricians and Gynaecologists, 58, Queen Anne Street, London, W 1.

**Chadwick Public Lectures**

The Chadwick Trust (204, Abbey House, Westminster, London, S W 1) announces the following public lectures. Thursday, Oct 7, 8.30 p.m., at the Reception Room of the University of Bristol, Mr A Briggs, 'The Public Health Act of 1848 a Forgotten Centenary.' Thursday, Oct 28, 4 p.m., at University College, University Park, Nottingham, Sir Arthur McNalty, 'Advances in Preventive Medicine During the War of 1939-45'. Tuesday, Nov 2, 2.30 p.m., at Sir Edward Meyerstein Lecture Theatre, Westminster Hospital Medical School, 17, Horseferry Road, Westminster, London, S W 1, Dr Wyndham E B Lloyd, 'The Prevention of Tuberculosis, with Special Reference to Environment'. Tuesday, Nov 23, 2.30 p.m., at Royal Sanitary Institute, 90, Buckingham Palace Road, London, S W 1, Bossom Gift Lecture by Mr Alister MacDonald, 'The Influence of Hygiene on the Shape of Buildings'. Thursday, Dec 2, 4.30 p.m., at St Mary's Hospital Medical School, Norfolk Place, Praed Street, Paddington, W 2, Malcolm Morris Memorial Lecture by Dr C Seeley, 'Preventive Medicine and Clinical Medicine in Relation to the Public Health'. Tuesday, Dec 14, 2.30 p.m., at Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, London, W 1, Mr S E Finer, 'The Rise and Fall of the First General Board of Health'. Admission to the lectures is free, without ticket.

**International Scientific Film Congress**

In connexion with the International Scientific Film Congress to be held in London from Oct 8 to 12, the Scientific Film Association has arranged three morning meetings for viewing and discussing medical films, on Friday, Oct 8, at the Royal Society of Medicine (1, Wimpole Street, W) with Sir Kenneth Goadby in the chair, on Saturday, Oct 9, at Simpl Ltd, 1-4, Lambeth High Street, London, S E, with Dr Ronald MacKeith in the chair, and on Monday, Oct 11, at Royal Society of Medicine, with Dr E Goodwin Rawlinson in the chair. Medical practitioners and others in possession of medical and biological films which they are willing to send or bring to these meetings are asked to send details to the organizer of the Specialist Medical Sessions of the Congress at 34, Soho Square, London, W 1. Applications for admission to the meetings, which is free, should be made to the same address.

**National Hospital**

The inaugural address will be given by Dr Gordon Holmes, F R S, to open the academic year 1948-9, at the National Hospital, Queen Square, Institute of Neurology, London, W C, on Oct 4, at 5 p.m. His subject is 'Incoordination of Movement'.

**Pharmaceutical Society of Great Britain**

The opening of the 107th session of the Pharmaceutical Society of Great Britain and the presentation of prizes will take place at 17, Bloomsbury Square, London, W C, on Wednesday, Oct 6, at 3 p.m., when Mr Thomas Tickle will deliver the inaugural address.

**Annual Dinner of Officers of R A F Medical Branch**

The annual dinner of officers of the Royal Air Force Medical Branch will be held at the Dorchester Hotel, London, W, on Friday, Oct 8. The price of tickets (the number is limited) is £2 10s inclusive. Former officers who wish to attend the dinner should make early application to Squadron-Leader J W Garraway, Air Ministry M A 1, Awdry House, Kingsway, London, W C 2.

**London County Medical Society**

The London County Medical Society will hold a meeting at Friends House, Euston Road, London, N W 1, on Oct 7, at 3.45 p.m. A discussion on 'Nutrition in Hospitals' will be opened by Dr Magnus Pyke, D Sc, to be followed by Miss Simmons, dietitian of Hammersmith Hospital.

**Royal Dental Hospital of London**

The prize distribution and Conversazione of the Royal Dental Hospital of London School of Dental Surgery (University of London) will be held at the Royal Dental Hospital, 32, Leicester Square, W C, on Saturday, Oct 9, at 3 p.m.

**Royal Photographic Society**

The second part of the 93rd annual exhibition of the Royal Photographic Society of Great Britain will be held at 16, Princes Gate, London S W from Oct 9 to 30 inclusive, and will include a number of exhibits of special interest to the medical profession.

**SOCIETIES AND LECTURES****Tuesday**

INSTITUTE OF DERMATOLOGY 5, Lisle Street, Leicester Square, London, W C—Oct 5 5 p.m. *The Dermatoses of Childhood* by Dr R T Brin.

SOCIETY OF CHEMICAL INDUSTRY FINE CHEMICALS GROUP—At Royal Institution, Albemarle Street London W, Oct 5 7 p.m. *Fine Chemicals for Medical Use* by Professor J H Burn.

**Wednesday**

GLASGOW UNIVERSITY DEPARTMENT OF OPHTHALMOLOGY—Oct 6 8 p.m. *Physiotherapy of the Eye* by Mr F W Law.

**Thursday**

CHADWICK TRUST—At Reception Room Bristol University, Oct 7 8.30 p.m. *The Public Health Act of 1848 a Forgotten Centenary* by Mr A Briggs.

FACULTY OF HOMOEOPATHY—At London Homoeopathic Hospital, Oct 7, 5 p.m. *The Three Constitutions* by Dr Leon Vannier (Paris).

INSTITUTE OF DERMATOLOGY 5 Lisle Street, Leicester Square, London W C—Oct 7 5 p.m. *Modern Trends in Dermatology* by Dr R M B MacKenna.

ROYAL SANITARY INSTITUTE—At Ambulance Hall, St James', Pontypool Mon Oct 7 10 a.m. *Health and its New Aspects* by Dr A S Jarrman, 'Food Hygiene' by Mr F G Meek.

SOCIETY AND CLINIC FOR CONSTRUCTIVE BIRTH CONTROL AND RACIAL PROGRESS—At Mothers' Clinic, 108, Whitfield Street London, W, Oct 7, 2.30 p.m. *A doctors demonstration of contraceptive technique* by Drs Marie C Stopes and Beddow Bayly.

**Saturday**

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY (UNIVERSITY OF LONDON)—Oct 9, 3 p.m. Prize distribution and Conversazione at the hospital. Sir Walter Monckton will present the prizes.

**BIRTHS, MARRIAGES, AND DEATHS****BIRTHS**

Bird—On Aug 31 1948 at Trafalgar House Burnley to Renee wife of Dr George Bird a son—Richard Edward.

MacLeod—On Sept 21 1948 at Clevedon Somerset to Noreen wife of Dr Alastair MacLeod a daughter.

Martin-Scott—On Sept 18 1948 at The Old Farm Maternity Home Temple Sheen S W to Nancy (née Pepper) wife of Dr Ian Martin-Scott a son.

Oliver—On Sept 20 1948 at Annandale Nursing Home to Helen Taylor wife of Dr R M Oliver a daughter.

Pearce—On Sept 15 1948 at Nuffield House London S E to Margaret (née Gibson) wife of Dr Richard Pearce a daughter.

Salmond—On Sept 12 1948 to Elsa wife of Dr J Readdie Salmond Lindores Appleby Magna Leicestershire a daughter—Madeline Rosemund.

**DEATHS**

Boulton—On Sept 19 1948 Norman John Boulton M R C S L R C P of Kintbury Berkshire aged 45.

Cantillon—On Sept 6 1948 Edwin Vincent Cantillon of Rose Lodge Blackrock Cork.

Gibson—On Sept 16 1948 Harold Edward Gibson M D of Upcott, Old Beer Road Seaton Devon late of South Godstone Surrey.

Henry—On Sept 17 1948 John Rea Henry M B B Ch B A O of The Limes Blaby Leicestershire aged 64.

Walker Lindsay—On Sept 19 1948 Edythe Marjorie Stewart Walker Lindsay M B Ch B Glas of Pitchfield Cottage Thursley Surrey formerly of Aldershot.



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## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept 11

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland  
 Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland  
 A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	26	2	13	2	2	25	—	26	1	2
Diphtheria Deaths	136	15	60	5	3	162	11	48	10	6
Dysentery Deaths	84	12	53	—	—	69	6	17	—	—
Encephalitis lethargica acute Deaths	2	—	—	—	—	—	—	—	—	—
Erysipelas Deaths	—	—	27	9	2	—	—	23	6	—
Infective enteritis or diarrhoea under 2 years Deaths	26	2	14	2	1	80	4	24	9	3
Measles* Deaths†	2 608	88	35	28	34	1 038	36	51	113	6
Ophthalmia neonatorum Deaths	53	2	9	—	—	63	7	5	1	—
Paratyphoid fever Deaths	32	2	3 (B)	—	—	14	1	1 (A) 1 (B)	—	—
Pneumonia influenzal Deaths (from influenza)‡	261	11	—	2	2	203	15	1	2	2
Pneumonia primary Deaths	130	21	121	14	4	15	142	20	13	9
Polio-encephalitis acute Deaths	4	1	—	—	—	42	3	—	—	—
Poliomyelitis acute Deaths§	72	7	3	2	—	572	63	155	11	12
Puerperal fever Deaths	—	—	10	—	—	—	2	19	—	—
Puerperal pyrexia Deaths	79	10	12	—	—	124	7	9	—	2
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	833	61	197	55	29	674	54	157	25	28
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	28	1	13	2	1	13	1	4	1	4
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2 877	229	110	58	11	1 519	145	67	78	8
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	260	32	52	26	10	316	37	63	31	17
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	3 840	578	527	177	108	3 678	558	490	134	123
Live births Annual rate per 1 000 persons living	7 565	1157	834	450	207	8 266	1279	949	447	242
Stillbirths Rate per 1 000 total births (including stillborn)	185	25	33	—	—	210	24	26	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales (London (administrative county)) will no longer be published.

‡ Includes primary form for England and Wales (London (administrative county)) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London (administrative county)) are combined.

¶ Includes puerperal fever for England and Wales and Eire

## EPIDEMIOLOGICAL NOTES

## Poliomyelitis in the United States

An incidence in the United States of 983 cases of poliomyelitis for the week ended July 24 exceeded by 315 that for the corresponding week of 1946—the year of second highest prevalence (25,191 cases) in the country's poliomyelitis history. It was also the largest number reported for a corresponding week in the five years period 1943-7 for which the median figure was 369. According to the *Weekly Epidemiological Record of the WHO* (Sept 8) between March 20 (average date of seasonal low incidence) and July 24 of the current year, three States—North Carolina 868, Texas 857, and California 771—have reported 2,496 cases, or approximately 59% of the total of 4,235 for the period. For the corresponding period of 1946 the total was 2 789 and the five year median 1 653. In 1946 the abnormal increase had been first observed in the early part of May and since that time the cases reported had been, until July 24, consistently about twice as high as the median frequencies for the period. The present epidemic appears to be fairly well localized, but its progressive upward trend is reflected in the subjoined weekly figures of recent incidence, which compare the case incidence in corresponding weeks of 1946 and 1948.

1946	Week ended	Cases	1948	Week ended	Cases
July	6	309	July	3	362
	13	427		10	511
	20	668		17	717
	27	670		24	983
Aug	3	1 286		31	1 215
	10	1 582		7	1 239
	17	1 819		14	1 411
	24	1,808		21	1 307

## Discussion of Table

In England and Wales a decrease in the number of notifications was reported for measles 354 and whooping cough 119 and an increase was recorded for scarlet fever 99, diphtheria 31, dysentery 20, paratyphoid fever 21, and typhoid fever 19.

A small rise in the incidence of scarlet fever occurred throughout the country. The chief feature of the returns for diphtheria was an increase of 24 in Lancashire, this was mainly due to a rise of 19 in Liverpool CB. A fall in the incidence of measles occurred in most areas the only large exception to the general trend was a rise of 95 in Lancashire. The fluctuations in the local trends of whooping-cough were small the chief exception was a decline of 83 in the cases notified in Yorkshire West Riding.

An outbreak of typhoid fever affecting 20 persons was notified in Shropshire, Oswestry RD. This outbreak has been confined to the Orthopaedic Hospital where it originated (Sept 18, p 582), and 51 inmates had been attacked up to Sept 21. In Staffordshire, Smethwick CB, 10 cases of paratyphoid fever were notified. The largest returns of dysentery were Lancashire 21, London 12, and Yorkshire West Riding 12.

The incidence of acute poliomyelitis has remained constant during the past four weeks, and the chief centres of infection during the week were Lancashire 8, London 7, Yorkshire West Riding 6 (Sheffield CB 3), Gloucestershire 6 (Bristol CB 6), Glamorganshire 5, Middlesex 4, and Wiltshire 4.

In Scotland increases were recorded in the notifications of whooping-cough 24, scarlet fever 22, measles 16, diphtheria 14 and dysentery 12, while the notifications of typhoid fever were 11 fewer than in the preceding week. The rise in the incidence of diphtheria and dysentery was mainly contributed by the city of Glasgow. The increase in scarlet fever was due to a rise throughout the western area, 29 more cases were notified in this region than in the preceding week.

In Eire the largest return for scarlet fever was that of Dublin CB, where 41 of the 55 cases were notified. An outbreak of measles in Clare Kilrush RD accounted for 20 of the 28 notifications. The largest return for whooping cough was 14 in Kildare Athy No 1 RD.

In Northern Ireland the decline in scarlet fever was due to the experience of the country districts, in the county borough an increase of 9 was reported. A decrease of 14 was recorded in the number of notifications of measles from Belfast CB.

## Week Ending September 18

The notifications of infectious diseases in England and Wales during the week included scarlet fever 925, whooping cough 2 635, diphtheria 126, measles 2 614, acute pneumonia 28, cerebrospinal fever 26, acute poliomyelitis 72, dysentery 50, paratyphoid 17, and typhoid 28.

## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

### Treatment of Chronic Nephritis

**Q**—What is the latest treatment for chronic nephritis (Ellis Type II)? Are there any drugs of real value?

**A**—There is no known curative treatment for Type II nephritis. Prognosis in general is bad, but with a normal blood pressure complete recovery is possible. High protein low-salt diet is the stand-by in the attack on oedema. Intravenous protein is usually very temporary in effect. Mercurial diuretics are not contraindicated if renal function is good but are not usually very effective. The body will not retain water without an equivalent retention of sodium. The volume of fluid ingested is therefore relatively unimportant provided that salt is restricted, and a high fluid intake may actually assist in procuring sodium depletion. The high-fluid low-salt regime advocated by Schemm is therefore sometimes very successful in getting rid of oedema. It consists in the administration of 7 pints (4 litres) of water or watery fluid daily by mouth while continuing a diet as nearly salt free as possible. In favourable cases a large diuresis occurs in a few days and is accompanied by reduction in the oedema. The regime may be continued as long as oedema is present.

### The Kempner Rice Diet

**Q**—What is the Kempner rice diet for hypertension? Is it of any value?

**A**—Walter Kempner distinguishes between affections of the metabolic and of the secretory functions of the kidney in the latter hypertension, retinopathy, and rise of non-protein nitrogen occur. These changes, he postulates, are due to the accumulation in the blood of abnormal substances which in normal circumstances arise only as intermediary products in the metabolism of the kidney cells. These may be reduced by a rigorous diet consisting only of rice, fruit juices, and sugar, supplemented by vitamins and iron. The diet of 2,000 calories consists of 20 g. of protein, 5 g. of fat, 460 g. of carbohydrate, 0.2 g. of sodium and 0.15 g. of chloride. The fluid intake is usually limited to 700–1,000 ml. of fruit juices daily (no water). The average patient can eat 300 g. of rice daily, which will provide about 1,050 calories. The remaining 900–1,000 calories are obtained from extra sugar or fruit. All fruits are permitted except nuts, dates, avocados, and any dried or canned fruit to which substances other than sugar have been added. No salt is permitted usually, but patients with symptoms of salt deprivation are given extra sodium chloride in small amounts or hydrochloric acid. The patient is also given a minimum of vitamin A 5,000 units, vitamin D 1,000 units, thiamine chloride 5 mg., riboflavin 5 mg., niacinamide 25 mg., calcium pantothenate 2 mg., ferrous sulphate 0.6 g.

Kempner claims remarkable results in chronic renal disease and in hypertension. The blood pressure falls to normal, the heart diminishes in size, the ECG reverts to normal, the blood urea and cholesterol approach normal, and retinal changes regress. He emphasizes that the diet must be adhered to in every detail extremely strictly. This diet is very unpalatable but his patients have been on it as long as thirty months. He treats cases of all grades of severity, and his results are roughly death, about 25%, no change, about 25% improvements to remarkable degrees, 50%. No reports of the effectiveness of the diet have been made in England.

### Bronchial Carcinoma and Smoking

**Q**—Is there any relation between smoking and bronchial carcinoma? If so is cigarette or tobacco smoke or are both implicated?

**A**—There is as yet no proof of a causal relation between the incidence of bronchial carcinoma and the habit of smoking. On the other hand, the recorded increase in pulmonary cancer over the past thirty years or so is remarkable in being quite

unrelated (in contrast with the incidence of many other forms of cancer) to social status. This suggests that the factors responsible for the increase are environmental in nature and such as would affect every class of the population. Among such factors the concomitant general increase in tobacco consumption, particularly in the form of cigarettes is undoubtedly one which requires serious attention. What is the order of its importance, if any, and how this compares with the significance to be attached to other factors under suspicion, such as chemical contamination of the atmosphere from tarred road surfaces or from exhaust gases, are still matters for carefully planned survey both in the field and by experiment. Several such investigations have in fact already been inaugurated.

### Calcium Iodide for Cataract

**Q**—Is calcium iodide of any value in the control of cataract? What type of base is used? what is the dosage? how is it applied and over what period should it be used?

**A**—The use of iodides in the form of either sodium potassium or calcium salts by various local applications has no sound basis. There is a mass of confused argument which incriminates with equal lack of validity deficiency in either the metal or the iodine. Clinically these substances have been used for many years now in vain attempts to control the development of cataract, and most clinicians regard them as mere placebos.

### T A B Inoculation of Infants

**Q**—A patient will be travelling to either Malaya or Hong Kong with her husband and baby in October when the baby will be about 4–5 months old. Apart from routine vaccination will the baby require any immunizing injections? The mother will need only T A B (not as in the war cholera plague and typhus vaccines). Is immunity conveyed by breast milk? If not could you tell me what injections will be required and what the strength should be?

**A**—Babies who are breast-fed rarely, if ever, require T A B. It is probable that immunity is conveyed through breast milk. The question of immunization need not be considered till the baby is at least 18 months old. Children of 18 months have been given two or three doses each of 0.1 ml. with very slight reactions.

### Thrombophlebitis and Muscular Effort

**Q**—A patient developed thrombophlebitis of his right internal saphenous vein. While lifting stones at work he felt a sudden pain in his right groin on straightening up and on examination I found a reddening over the course of the saphenous vein. The vein was cordlike and tender with some oedema of the leg. He had no history of varicose veins and complete physical examination revealed no abnormality. As the case involves a claim for compensation I would like to know if his work was a factor in the production of his condition.

**A**—Phlebitis is not produced by muscular effort but a blow on the veins, especially if it ruptures the vein is likely to produce a phlebitis, particularly when a diathesis exists. It is likely that in this case there was a bland pre-existing phlebitis which was brought to the patient's notice by muscular effort. It would be hard to establish a compensation claim in this case.

### Light Sensitization Dermatitis

**Q**—What is the best treatment for severe light sensitization dermatitis? I have attempted to obtain special light-repelling face powders without success.

**A**—Treatment in these cases depends almost entirely upon effective protection from light by adequate clothing, including hats, gloves, stockings, etc., and by the use of protective creams on the exposed skin. Where the reaction is entirely urticarial control is often secured by the administration of antihistamines internally. Valuable protective measures are calamine, titanium dioxide, ichthyol, quinine tannate, soft paraffin, and para-aminobenzoic acid. A calamine or titanium foundation lotion with a 2% ichthyol face powder is effective in mild cases, 4% quinine tannate or 15% para-aminobenzoic acid in a base containing equal parts of soft paraffin in Halden's emulsifying base are suggested in more severe cases, or equal parts of "siccolam," Halden's emulsifying base, and soft paraffin. In some cases sensitization is determined by a focus of infection the treatment of which may effect a cure.

### Offspring of a Syphilitic Mother

**Q**—What treatment if any should be given to a healthy 8 weeks old baby whose mother's Wassermann reaction is still weakly positive? The mother aged 26 had a positive W R during pregnancy and was confirmed still positive despite treatment with mercury and bismuth injections. Arsenicals upset her badly so were stopped. Treatment had started in the fourth month of pregnancy. The child shows no sign of syphilis and is thriving.

**A**—On the information provided there is no indication for treating the baby. It would be helpful to know what the baby's serum reactions are now, and what stage the syphilis of the mother had reached when she became pregnant or when the treatment was started. The older the syphilis in the mother the less likely is the baby to have been infected. Mercury and bismuth would hardly protect the baby from infection if the mother had secondary syphilis. It seems a pity she was not given penicillin. The procedure advised is to test the baby's blood and start treatment only if it is positive to the W R and Kahn test and tends to show a persistently high or rising titre over a period of several weeks. Quantitative tests should be employed. Should treatment of the baby be necessary, it should consist of an initial course of penicillin in oil-wax (100 000 units daily for ten days) followed by weekly injections of sulpharsphenamine and bismuth in gradually increasing doses calculated according to body weight.

### Radioactive Iodine in Thyrotoxicosis

**Q**—Radioactive iodine is being used in the treatment of thyrotoxicosis. Can you tell me the position of this remedy in the light of experience to date? The patient I have in mind is a man of about 60 with exophthalmos and a B M R which shows a toxicosis of moderate severity. He has shown some improvement after four weeks thiouracil medication. The pulse has come down from 90 to 78 and he has been ambulant throughout.

**A**—Radioactive isotopes of iodine have recently been used in the treatment of thyrotoxicosis, those chiefly employed have been  $I^{131}$  (half-life 12 hours) and  $I^{130}$  (half-life 8 days). Good results are claimed and "cure" is said to follow one oral dose in 90% of patients. It is fair to say that the method has not yet emerged from the experimental stage, and, in this country at any rate, radio iodine is not generally available. The practical disadvantage at present seems to be that the half-life of the isotopes is so short that they must be administered within four hours of production. In the particular example cited thiouracil has scarcely been given a fair trial but even in this short time improvement seems to have been considerable.

### Head Colds in a Child

**Q**—Would it be permissible to attempt to reduce the incidence of severe head colds in a child aged 5 in whom no pathological cause can be found in the ears, nose or throat by giving small daily doses of sulphadiazine throughout the winter?

**A**—The most likely aetiological agent of the common cold is a virus consequently the use of sulphadiazine would not be justified as a prophylactic measure. There would seem to be three possible causes for the trouble: first, there may be a chronic carrier (i.e. old sinus trouble) in the family. Recurrent upper-respiratory-tract infection in children is sometimes cured by taking out father's tonsils. Secondly, the child may have some pathological condition which has been missed, such as nasal infection. Thirdly associated with both of these, immunity may be low and might be stimulated by the use of a suitable vaccine and by general measures such as a full vitamin dosage, fresh air, and attempts to harden the child. The possibility of an allergic rhinitis should not be overlooked.

### "Dynamite Headache"

**Q**—What is the pathology and treatment of dynamite headache?

**A**—Dynamite largely used for blasting purposes in mines, is a mixture of nitroglycerin and the infusorial earth kieselguhr. Physiologically the action of nitroglycerin is that of a nitrite and it acts directly on the arterial muscle producing a prompt

fall in blood pressure. Given medicinally in therapeutic doses, within two minutes it accelerates the pulse, dilates the arteries, and produces a feeling of fullness all over the body, but particularly in the head. Headache may be caused lasting from 15 minutes to several hours, according to the quantity taken, but in patients accustomed to its use this effect may not be felt. In the manufacture of cordite some workers may experience headache due to nitroglycerin, and such effect is influenced both by the conditions of work and by the amount and duration of previous exposure—workers tending to become temporarily acclimatized. The treatment of headache from nitroglycerin and allied compounds is first to remove the sufferer to fresh air. If the headache continues, caffeine citrate, 2 gr (0.13 g) can be given. An alternative treatment is with aspirin, 5 gr (0.32 g), followed by ephedrine  $\frac{1}{4}$  gr (16 mg). Chronic poisoning has resulted from the taking of ephedrine over a period, and this drug should only be given under medical supervision. Nitroglycerin acts more quickly on an empty stomach so it seems advisable that workers exposed should partake of breakfast first.

### NOTES AND COMMENTS

**Colour Photographs**—Dr PHILIP ROSS has asked us to state that the colour films which were used to illustrate his article on "Skin Lesions due to Pitch and Tar" (Aug 21, p 369) were the work of Mr H. H. Tait, to whom he is indebted.

**Delivery after Operation for Prolapse**—Mr R. M. CORBET (Preston) writes. In "Any Questions?" (Sept 18, p 583) the problem of vaginal delivery following an operation for prolapse was considered. In the answer one complication has been overlooked—namely, traumatic post-partum haemorrhage. There is a small but definite chance of this occurring in any patient who has previously had an operation on the cervix. I have met this complication on two occasions, and therefore I am of the opinion that such patients should not have the first confinement after operation at home.

**Dangers of Cinchophen**—Dr EWAN F. B. CADMAN (Liverpool) writes. I would like to comment on the recent replies given in connexion with the questions on the dangers of cinchophen ("Any Questions?" Aug 28 p 450 and Sept 18 p 584). It is felt they are somewhat misleading. First, it is agreed that cinchophen is probably the most effective substance in increasing the excretion of uric acid but acetylsalicylic acid gives precisely the same beneficial results clinically and biochemically without the fear of serious complications (Bauer, W., and Klemperer, F., *New Engl J Med* 1944 231, 681). Toxicity of cinchophen is unrelated to dosage or previous medication, and once the symptoms have appeared, in the case of liver damage, poisoning progresses despite the discontinuance of medication. The incidence of serious toxic reactions is admittedly low, but up to 1936 as many as 191 cases of liver damage had been reported, with a mortality rate of 47% (Palmer W. L. and Woodall, P. S., *J Amer med Ass* 1936, 107 760). Other serious though not fatal complications are peptic ulcer, haematuria, and granulopenia—all rare.

Probably the most important part of the question was not answered—"Can you suggest any safer alternative?" If cinchophen were an indispensable drug like morphine, then there is little doubt that it should be used in spite of its occasional toxic effects. The complications of untreated gout may lead to an untimely death. However, there are excellent alternatives in the form of large doses of aspirin in chronic gout and colchicine in acute gout. Therefore, on general therapeutic principles alone, I feel very strongly that cinchophen should not be used in gout, or in any other condition unless there is some very good reason for its use.

**Correction**—Messrs Henry Kimpton inform us that they are the English agents for the book *Practice of Allergy*, by W. T. Vaughan and J. H. Black ("Books Received," Sept 25, p 604), and that the price is 75s.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: A.M.J.O. (LONDON) WESTCOAST. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1 on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: BRIMEDADS, WESTCOAST, LONDON. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. TELEGRAMS: MED SECTA, WESTCOAST, LONDON. B.M.A. SCOTTISH OFFICE: 7 Drumsheugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 2 1948

## NATIONAL HEALTH SERVICE FIXED ANNUAL PAYMENT OF £300

At the time of the April plebiscite the Council of the British Medical Association issued a document to every member of the profession setting out the changes which the Minister proposed to make in the National Health Service Act in response to the profession's representations. In this document (*Supplement* April 24, p 105) it was reported that the universal basic salary would be abandoned and that the Minister intended to limit it to principals during the first three years of practice, with an option to all other principals. Where basic salary was agreed, capitation remuneration would be reduced by one-seventh.

The Minister further agreed to discuss with the profession the conditions and methods of opting, so as to meet the Association's points that basic salary should be paid only where there was need and, except in such circumstances, should not provide a means of opting for higher remuneration per patient.

The fixed annual payments of £300 are credited to the recipients as a first charge on the local pool allocated to each executive council. This means that wherever a basic salary is paid to a practitioner with less than 2,200 public patients on his list an additional payment is being made to such a practitioner by his colleagues in the area.

### Reasonable Justification

After further discussions with the Ministry the regulations relating to the grant of basic salary were amended to provide that the local executive council, after consultation with the local medical committee, must decide on every application whether there was reasonable justification for a basic salary. The Minister has given his view of what 'reasonable' means in the following extract from para 4 of E.C.L. 44, issued on July 2 to local executive councils:

'The new regulations also indicate the conditions of payment of the fixed annual amount of £300. The payment will be made only to those doctors who elect to have it and who receive the consent of the executive council (after consultation with the local medical committee) or, on appeal, of the Minister. (When the fixed annual payment is made the capitation fees will be adjusted as indicated in paragraph 3 (b) of the Memorandum on the Remuneration of General Practitioners.) The Minister considers that consent ought to be given in cases where there is reasonable justification for so doing. Such justification might exist in the case of a doctor who is starting a new practice, or working up a small one, the doctor who on account of age or ill health is unable to do as much as he has done in the past (when it is necessary that his services should be given), or the rural doctor in a sparsely populated area who cannot attract a large list (though these last cases will normally be covered by an inducement payment). It is possible that in a few areas where the proportion of doctors to the population is at present unusually high, the coming into operation of the National Health Service may result in a drop in doctors' incomes. Consent should therefore also be given in the Minister's view in any case where a doctor's income can be shown to have dropped substantially as a result of the new service involving an element of hardship.'

It is implicit in the Minister's statement and in the profession's agreement with him on this matter that the individual applicant should prove reasonable justification for basic salary. Bearing in mind that any additional payment comes from his colleagues, it is reasonable that his colleagues should not be called upon for such additional payment unless a practitioner can justify its need.

## NATIONAL HEALTH SERVICE (SUPERANNUATION) REGULATIONS DISTRICT MEDICAL OFFICERS

A number of practitioners previously holding appointments as district medical officers or medical officers of public assistance institutions will have entered the National Health Service as general practitioners on the lists of executive councils on the appointed day (July 5, 1948). Practitioners in this category who were subject to the Local Government Superannuation Scheme or to a Local Act Superannuation Scheme may reckon any previous service which they were entitled to reckon under those schemes provided they (1) notify the new employing authority of their previous service in writing within three months after entering the Health Service and (2) repay any sums paid to them by way of return of superannuation contributions. The practitioners concerned who entered the new Service on July 5 are reminded that the last day for notifying the new employing authority—in most cases the local executive council—is Oct 4, 1948.

## Correspondence

### Professional Secrecy

SIR,—One of the disturbing features of modern health services sponsored by public authorities in England and Ireland is the determination with which officialdom insists on the destruction of professional secrecy. This must inevitably lead to the corruption of the art of medicine and its members. Man and woman own their own bodies and are given the power of disposing of them by nature and according to its laws. The State cannot nationalize this ownership. One of the primordial rights of man is the right of privacy of his body. As all rights arise from duties, this duty of privacy of our bodies is a duty to the race and is a deeply ingrained instinct of sense and reason. For this reason humans instinctively require privacy in relation to the doctor. The patient is compelled to reveal his or her body to the doctor in order to secure urgently needed help, and hence the doctor, and only the doctor in attendance, obtains this confidence for the exclusive purpose of giving this help. This means that he is in honour bound to use it for *no other purpose*. He is only released from this obligation when the keeping of the professional secret will minister to crime or fraud, or when required by the patient.

The medical profession for centuries has maintained this as a basic principle of honour and of moral duty even under oath. What is happening to the profession that it should witness such a fall? We see leading and humble doctors repudiating this duty and the right of the patient.

In England we are to have committees prying into the secrets of the private lives of the bodies of man and wife. Northern Ireland says that the committee will be composed of medical practitioners, and Eire says 'persons authorized by the Minister or local authority.'

It is obvious that a doctor who agrees to any non medical committee seeing medical records has forgotten the very basis of professional life. In the case of a medical committee or medical inspectors of the Ministry demanding to see records we are in a more strange position. If it is wrong for a doctor in attendance on a patient to tell anyone except the doctor whose help he requires in assisting the patient, then it is doubly wrong for a doctor to pry into the secrets of another doctor's patients. In the case of men whose names are on the Medical Register and who are Government officials we must realize they are agents of the State and only incidentally are they

doctors. They are not helping the patient and hence have no right into the case and the ordinary professional code should command them to keep out. They have not the excuse of the layman, who might not be expected to realize the meaning of the tradition.

Recently in Eire a doctor was found guilty of conduct infamous in a professional respect for demanding information from another doctor concerning a patient of the latter. It therefore appears that our doctors on committees on records and Government inspectors can throw the professional code overboard and the General Medical Council does nothing while at the same time it will destroy other doctors for doing the same as the doctors on these committees and in Government offices.

The full effects of this departure will take many years to be seen. We will gradually develop two classes of doctors—those who keep the secret and those who do not. The self-respecting citizen will go to the first and our whole public authority medical services will fall into disrepute. This can only be avoided if the doctors and public authorities will combine to restore the moral foundations of the profession by respecting the sacred rights to secrecy of the sick person—I am, etc.

Limerick Eire

JAMES MCPOLIN

### Association of Whole-time Salaried Specialists

SIR—Further to the notice which was published in the *British Medical Journal* (July 17 p. 183) the members of the Association of Whole-time Salaried Specialists, formerly the Association of Municipal Specialists, feel that much was done in the past by the old Association to secure them adequate representation on important medico-political committees, and valuable advice has been given on salaries, legal problems, etc. This work will be carried on by the new Association and it is thought that its four principal objects will be of interest to your readers—namely:

- (1) To improve the practice of medicine in all its branches
- (2) To improve the status and promote the general interest of whole-time salaried specialists
- (3) To provide opportunity for discussion on matters of professional interest and policy
- (4) To promote good relations between all specialists

All whole-time salaried specialists are eligible for membership and I shall be pleased to supply further information on request. Letters should be addressed to the Association's office at 45, Lincoln's Inn Fields, London, WC2 (Telephone HOLborn 3474)—I am, etc.,

RUFUS C. THOMAS,  
Honorary Secretary

### Capitation Fee

SIR—The letters of Drs. Humphrey Foxell (*Supplement* Aug 21 p. 90) and C. J. Penny (p. 91) deserve very close consideration by the Negotiating Committee and the Minister of Health, particularly if it be true that the Minister is likely to cut the capitation fee to some 15s or thereabouts.

With reference to Paragraph 1 in Dr. Foxell's letter it is suggested that Dr. A. with some 2,000 one-time private patients to whom he devoted much care and skilled attention as compared to his colleague Dr. B, who had some 4,000 mainly panel and dependant (private) patients to whom he devoted equally skilled but, because hurried, less careful attention, were both equally well off financially but are now in a curious position. Dr. A. will either have to increase his clientele and lower his standard or Dr. B. will have to decrease his clientele and raise his standard of attention to his patients. This general levelling is what the Minister would like to see although his avowed intention is to raise the standard all over.

It would appear that there is only one way to make a raising of the standard effective and that is to pay each doctor on a much higher scale for the first thousand patients on his list and a very much lower scale on the third and fourth thousands. For example, assuming that the overall capitation would work out at 17s 6d per head I would suggest that the scale be as follows: first thousand 20s, second thousand, 17s 6d, third thousand 15s, fourth thousand, 12s 6d. The doctor with 4,000 patients would only receive an overall capitation fee of 16s 3d but this or even a lesser amount, would have to be accepted since so many practitioners would come under the scale for the first and second thousands only. In the case of partnerships a still further grading down might be necessary on

the third, fourth and fifth thousands on the combined totals of their lists. It is difficult to see what sound arguments there can be against such a graduation of scale of payment.

One other point. What has happened to the promised £7 7s and £5 5s payment for maternity services? The London Executive Committee, through the London County Council, has stated the fee to be £4 14s 6d in all cases and £2 12s 6d if only one attendance is given—i.e., at the birth—the other £2 2s being for antenatal care, all visits during the puerperium and the post-natal examination. Since £2 12s 6d is also given for one attendance at a P.P.H. or an abortion, it would appear that the doctor is not encouraged to take any great interest in antenatal or post-natal care. This is very contrary to what is the rule in good private obstetric practice, where antenatal care being considered so important that, if effectively carried out, there has been little or no need for active assistance (although in attendance in case he be needed) by the doctor at the birth in an increasingly large proportion of his total confinements.

The Civil Servant in Whitehall is a very capable man in making regulations complete and tidy and all embracing but he does seem to be sadly divorced from realities. We used to meet the same type in high position in the Army, where rule of thumb often prevailed over plain practical common sense, leaving one with a sense of impotent frustration. "Be wise, my son, and let who will be clever" might be a sound axiom for our present bureaucrats to take to heart—I am, etc.

London SW 2

J. MELVIN

### Simpler Administration

SIR—I carry four certificate books, two prescription books and a map showing the complicated boundaries of Middlesex and London. Other doctors may have as many as four county executives to deal with. In calculating earnings and pensions mistakes are more likely to occur when two or more councils are at work. Surely it would be simpler, more economical and less open to error for a doctor to be dealt with only by the authorities of the county in which he dwells, giving him one code number, one account, one prescription book and set of certificates—I am, etc.,

London NW 11

C. BERKELEY WAY

## Association Notices

### Diary of Central Meetings

14 Thurs. Journal Committee, 2 p.m.

### Branch and Division Meetings to be Held

AYRSHIRE DIVISION—At Ayrshire Central Hospital, Irvine, Sunday, Oct. 3, 7 p.m., Clinical meeting.

BOURNEMOUTH DIVISION—At Royal Victoria and West Ham's Hospital, Bournemouth, Bournemouth, Friday, Oct. 8, 8.15 p.m. Ordinary meeting and special meeting. Agenda: Report of Representatives to Annual Representative Meeting, 1948. Address by Mr. R. W. Raven. Recent Advances in the Surgical Treatment of Cancer.

LEWISHAM DIVISION—At St. John's Hospital, Lewisham, SE, Friday, Oct. 8, 8.30 p.m. Address by Dr. P. F. Ashton. The Treatment of Minor Rheumatic Ailments.

PORTSMOUTH DIVISION—At Kimbell's Corner House Restaurant, Commercial Road, Portsmouth, Tuesday, Oct. 5, 8 for 8.30 p.m. Dinner meeting. Address by Mr. Frederick Ridley. Contact Lenses.

WESTMINSTER AND HOLBORN DIVISION—At Royal Cancer Hospital, Medical School, 24, Onslow Gardens, Fulham, SW, Wednesday, Oct. 6, 8.30 p.m. Lord Horder. General Approach to the Cancer Problem.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade or other organization.

Metropolitan Borough Councils—Fulham, Hackney, Pop.

Non-County Borough Councils—Dartford, Radcliffe (to future appointments), WallSEND.

Urban District Councils—Denton, Droylsden, Houghton, Spring, Huyton-with-Roby, Portslade, Redditch (restricted new appointments), Tyldesley.

LONDON SATURDAY OCTOBER 9 1948

## SURGERY OF CONGENITAL HEART DISEASE\*

BY

MAURICE CAMPBELL, MD, FRCP

*Physician Guy's Hospital and National Hospital for Diseases of the Heart*

The surgical treatment of some forms of congenital heart disease has raised many fresh questions of diagnosis and prognosis for the physician, as well as many problems for the surgeon. I shall deal with only some aspects of these

### Patent Ductus Arteriosus

The diagnosis of patent ductus is generally easy in the presence of the long continuous murmur through systole and diastole. The diagnosis may sometimes be made without these, but only after much experience, dilatation of the pulmonary artery, an increased pulse pressure at rest or after exercise, and a harsh systolic murmur will then be the main indications. In ordinary cases the two former are some guide to the amount of blood passing through the ductus. An adequate knowledge of the prognosis without operation is lacking, and we do not know with certainty whether the relative absence of cases over 40 is due to many deaths or to many cases closing spontaneously. A recent follow-up by Benn (1947) shows how few complications and symptoms arose in children over an eight-year period when the diagnosis was made at a routine school medical examination.

The first case of patent ductus arteriosus was ligated in 1826, and Gross, and experience has now been acquired in many centres. If there is no other congenital lesion the operation is entirely curative and the patient should be quite fit after it, the risks of infective endocarditis and of early heart failure should be entirely avoided. Surgical opinion is still divided between the question of ligation of the ductus and of resection with double ligation. The former is easier and should be the routine procedure, except in special circumstances, in spite of a small risk of recanalization.

The outlook is naturally different in the infected and non-infected cases. In the latter the mortality in skilled hands is low, perhaps 5%. In the infected cases the mortality is naturally higher, but even before the introduction of penicillin it was shown that surgical treatment was often an effective cure for such cases, the introduction of penicillin has made the risks in such cases much less. Many authorities recommend that in all cases in which the ductus has not closed spontaneously by the age of 7 an operation should be performed. Others, and I include myself among them, would limit it to those cases in which there is some defect of the heart, some striking fullness of the pulmonary artery, or some significant symptom.

The slightest degree of cyanosis or of right ventricular hypertrophy electrocardiographically should prevent a decision to operate, as the patent ductus may be an important part of the circulation. After the age of 20 the

risks of operation are rather greater, but the chance of successful operation should not be refused if the symptoms appear to be troublesome or progressive. If infective endocarditis is present when the patient is first seen it should be arrested with penicillin treatment, and generally operation should be advised later because of the risk of recurrence.

### Coarctation of the Aorta

The diagnosis of coarctation of the aorta will continue to be missed if a collateral circulation is always expected to be self-evident. The femoral pulse should be felt for and the blood pressure taken in the legs in every case in which high blood pressure, basal systolic or diastolic murmurs, or undue pulsation in the neck is present without an obvious cause. A high pressure in the arms and a low poor femoral pulse or the demonstration of a collateral circulation are pathognomonic of coarctation of the aorta. They are more important than notching of the ribs, not only because x-ray films are not always available but because the signs are present at an earlier age.

The collateral circulation can be more easily demonstrated or made more obvious if the patient stoops forward with his arms hanging down vertically while his back is examined in a good light. This is because the greatly dilated subclavian artery is compressed between the clavicle and the first rib and bending forward opens up this space and so releases the pressure on the subclavian artery.

We know more about the prognosis of coarctation. The average age at death is about 30. Two groups can be distinguished: those with symptoms before adult life, who will probably not live beyond 30, and those in whom the lesion is found by chance in adult life, the outlook being very much better. Most patients die from cardiovascular causes—heart failure, endocarditis, or a ruptured aorta—but one in ten may die from the rupture of a congenital cerebral aneurysm.

In October, 1944, Crafoord successfully resected a case of coarctation with an end-to-end suture of the aorta. In his first series (up to July, 1947) the results were entirely satisfactory in 20 and two patients died; in three patients after a thoracotomy no operation was possible and two of these died. In these 20 patients the blood pressure in the upper part of the body fell to or near to normal, the pressure in the legs rose, and the circulation was greatly improved as shown by oscillometric records. Some parts of the visible collateral circulation disappeared quickly and the patients felt better and were able to do much more.

It may be some time before the general operative risk can be assessed, but Crafoord's mortality of 16% and experience at other centres would justify a reasonable risk in those patients in whom the outlook seems unfavourable, considering the greatly improved expectation of life. The

\* Opening a discussion in the Section of Diseases of the Heart at the Annual Meeting of the British Medical Association, 1948.



only sense in which the operation is not a complete cure is that bicuspid aortic valve or congenital cerebral aneurysms may be present. A fall of blood pressure to normal will greatly reduce the risks from the latter, but we cannot be sure that it will remove it entirely.

Atheroma develops in the aorta at a younger age in patients with coarctation, this adds to the risk of operation after the age of 20 or 25 years and is one of the reasons favouring early operation.

### Cyanotic Congenital Heart Disease

Here the problems are much more difficult both for the physician and for the surgeon. Until recent years nothing could be done for these patients and they lingered on with increasing incapacity, some reaching a very limited adult life, but many died in infancy and more during childhood. Two centuries ago the association of cyanosis with pulmonary stenosis and with ventricular septal defect was recognized and there has been much discussion about their relative importance. It was Dr Taussig's recognition of the inadequate flow of blood to the lungs as the fundamental cause of the disability that led to the idea of a successful operation, although the right-to-left shunt of venous blood actually produced the cyanosis.

#### Diagnosis

In early infancy many malformations of the heart may be responsible for gross cyanosis, but the more serious are not long compatible with life. As the children get older fewer forms of congenital disease are found with any frequency and this makes an attempt at diagnosis possible. Cyanosis from birth generally represents a right-to-left shunt either through a ventricular septal defect or because there is an overriding aorta that takes the blood from the right ventricle or, in an extreme case, where the aorta, being transposed, takes all its blood from the right ventricle.

The fundamental requisite for success of the Blalock-Taussig operation is that the cyanosis and disability should be mainly due to an inadequate blood-flow to the lungs, and when pulmonary stenosis is added to these other findings, as it is in Fallot's tetralogy, the operation is most certain to be successful.

Fallot's tetralogy consists of pulmonary stenosis (which may be valvular or infundibular), ventricular septal defect, an overriding aorta (that has often been called dextroposition), and right ventricular hypertrophy. The condition was very fully and accurately described by Peacock in 1858—20 years before Fallot's paper—and had been recognized earlier than this. These three abnormalities occurring together without pulmonary stenosis are known as Eisenmenger's complex. Pulmonary stenosis may also occur alone, but then there is generally no cyanosis from birth. Its later development probably depends on a septal defect which may be small and no more than a foramen ovale where the valve preventing a flow from left to right is overcome by the increased pressure on the right side so that there is a flow from right to left.

The majority of children with cyanosis from birth and clubbing of the fingers have Fallot's tetralogy, and often where the x-ray picture is characteristic this can be diagnosed with confidence. The main features are persistent cyanosis from infancy, with polycythaemia, clubbing of the fingers, and severe disability on walking. On radiography the heart which may be sabot-shaped in half the cases, shows little enlargement generally but some enlargement of the right ventricle: there is no undue prominence of the pulmonary artery and no visible pulsation in the pulmonary branches. Most of them have a systolic murmur in the pulmonary area, often with a slight thrill. The

pulmonary second sound is never much increased and is often diminished. A diastolic murmur indicates some complication. Most of them have right ventricular preponderance in the electrocardiogram, with a large pointed P II. All are of normal mental development unless there are other causes for abnormality, most are underweight but of normal height. Squatting is noted in four-fifths of the patients, and panting after exertion is nearly as characteristic.

Although the diagnosis may be easy there are difficult borderline cases: the critical decision clinically is whether the pulmonary blood-flow as seen on radioscopy is diminished or not. Often it is easy to decide that this is diminished, as there is a hollow pulmonary bay and the lung fields look clear. In other cases (most familiar in the adult picture of auricular septal defect) it is obvious that the pulmonary arteries are dilated with increased pulsation. Difficulties are caused by the cases in which beyond the pulmonary stenosis there is some dilatation of the pulmonary arteries and in which a good collateral circulation produces increased density in the lung fields.

Fallot's tetralogy is the commonest finding among children who are obviously blue, but as one sees an increasing proportion of less cyanosed children there are more with other lesions and with a radiological picture similar to adult auricular septal defect. This defect alone cannot be the cause, because, the pressure being higher on the left than on the right, there is no cyanosis except perhaps terminally. Whether there are exceptions to this statement is one of the problems that remain to be solved, but more likely there is also transposition of the main vessels as well (Taussig, 1947). In Eisenmenger's complex also the pressure in the pulmonary artery is high, the blood-flow to the lungs is unimpeded, and operation will not help. In difficult cases great help may be obtained by the circulation times, cardiac catheterization, and by angiocardiology.

If the oxygen content of the blood in the right auricle is considerably higher than that in the superior vena cava there must be an auricular septal defect with a left-to-right shunt (a right-to-left shunt would not of course show by this method, though a catheter might pass through the septal defect). If the pressure is raised in the right ventricle and suddenly falls greatly as the catheter passes into the pulmonary artery, there is pulmonary stenosis, but it is not always easy to get the catheter into the pulmonary artery. A high pressure in the pulmonary artery often indicates Eisenmenger's complex, though it may occur in other conditions. A very high pressure on the right side, approximating to that in the aorta, suggests a septal defect with an overriding aorta and free communication between the two. Detailed calculations may often be made about the size of the blood-flow through the different circuits and shunts, while these are of great interest they are hardly reliable enough to be conclusive.

In angiocardiology quick filling of the left ventricle and of the aorta and its branches indicates a septal defect with a right-to-left shunt. Slow filling of the pulmonary arteries after the right ventricle has been visualized indicates pulmonary stenosis. In many cases other interesting details are observed, though considerable skill and experience is needed in the interpretation of the pictures. From such a simple investigation as the circulation times one may be certain of the presence of a large right-to-left shunt if the arm-tongue time is the same as or shorter than the arm-lung time.

#### Prognosis

There are few follow-ups of these children to give an accurate prognosis. If one may take the age incidence of a recent series as an indication, it is very unfavourable. In my first 137 patients (77 males and 60 females) with cyanotic

congenital heart disease there were almost equal numbers in each year up to 7, three-fifths of this number in each year from 8 to 11, and one-fifth of this number in each year from 12 to 22, after which there were only scattered cases. The figures suggest that those surviving infancy have no great risks until they reach the age of 7, though clinical experience hardly bears this out. After 7 the chances of surviving become less, and increasingly so after the age of 12.

If these figures can be taken as giving a true cross-section they mean that only one patient in ten reaches the age of 24 and only two in ten the age of 12. Many parents have been told that their children will not live to 7 or to 14 or to 21, and there seems some rough truth in these three round numbers as representing periods of increasing danger beyond which survival becomes less likely. During the last few months there have been some deaths after operation, but there have been many more among the other patients I have seen. These considerations seem ample justification for advising operation in spite of the relatively high mortality. The incapacity of many of these cases is hardly realized. A few may lead a reasonable but very quiet life, but if they are old enough to express their views they are generally the greatest enthusiasts for operation, even when the risks are put before them. Many, however, exist rather than live and are a handicap to their parents as well as to themselves, especially when they begin to realize what other children are able to do.

#### Operative Treatment

Following Taussig's suggestion about the importance of overcoming pulmonary stenosis, Blalock's experimental work on animals convinced him that a subclavian-pulmonary anastomosis was a feasible method, and in October, 1944, Blalock and Taussig introduced their operation for the relief of the inadequate blood-flow to the lungs in Fallot's tetralogy and related lesions.

The operation is essentially an anastomosis between a systemic artery and the pulmonary artery, most commonly an end-to-side subclavian-pulmonary anastomosis, though under special circumstances the innominate or carotid artery may be used or the anastomosis may be end-to-end. In one-quarter of these cases the aortic arch will be right-sided instead of curving back as usual to the left and this will of course change the position of the innominate artery. The operation should be performed on the side opposite to the aortic arch because this gives a greater choice of systemic vessels that can be used and the subclavian artery can generally be turned down to the pulmonary artery with a less acute angle.

In infants the small size of the vessels produces a surgical problem of the greatest difficulty, and the operation is much more dangerous and sometimes less lasting in its good effect because the anastomosis is too small as the child grows larger. For this reason the operation should never be performed before the age of 3, except as a life-saving emergency, and generally not till 5. From 5 to 10 is perhaps the ideal age, but there seem no special difficulties in older children, though the difficulties and risks are greater in those over 20—a group that should not trouble our successors, as suitable cases should have been operated on earlier. The direct division of the stenosed pulmonary valve by Brock (1948) has opened up fresh possibilities. The late results of this and the indications for it remain to be worked out.

#### Results of Operation

The operation is not of course curative in the same way as in the other two groups because the underlying abnormality remains, but the improvement may be so great that the child appears normal to the parents. The immediate

upset caused by the operation is less than might be expected and intravenous fluid is often not required, when it is used only small amounts are needed. Many have a pleural effusion that often needs aspiration, but generally only once, other complications are not common. Of the first 38 cases operated on at Guy's Hospital 6 died, 7 could not have an anastomosis done or did not benefit much, and the remaining 25 were enormously improved almost at once and this has been maintained.

The immediate results of the operation are excellent, and the improvement seems to be maintained over the period of two to three years for which it has been possible to follow up Blalock's patients. The colour becomes nearly normal except sometimes for slight cyanosis on a cold day or after vigorous exercise, and the patients' capacity is greatly improved so that they can walk some miles and get about normally all day. The polycythaemia disappears quickly, the clubbing of the fingers more slowly. The arm on the side of the divided subclavian artery gives no trouble.

The heart enlarges a little as might be expected from the increased work, but generally only slightly. Sometimes at the beginning the increase during the first few weeks made me feel that any such progressive increase would soon end in disaster, but I have seen no cases in which the increase has continued after the first month or two, and I understand that in the longer American experience this is a rare occurrence, though relapses in those operated on too young and a few instances of congestive heart failure have been seen.

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## LARGE-INTESTINE COLIC DUE TO SYMPATHETIC DEPRIVATION

### A NEW CLINICAL SYNDROME

BY

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The subtitle of this note is intentionally provocative. Two cases are described, presenting essentially similar features. In each case the symptoms so strongly suggested obstruction of the distal colon by a carcinoma that laparotomy was eventually undertaken in spite of normal findings in a barium enema. In each case the operation disclosed a normal colon and extensive and entirely unsuspected malignant disease involving the region of the crura of the diaphragm and the coeliac axis and semilunar ganglia.

Whether such a syndrome has been described before I am unaware, but I have not encountered it apart from these two cases, nor have any of my friends whom I have consulted on the subject, and a search of the journals over the last ten years and of the literature of hypertension has failed to reveal similar observations.

#### Case 1

In 1944 a physician aged about 66, on the staff of an E.M.S. hospital, began to lose weight, and complained of increasing constipation. He was found to be diabetic, and was treated with diet and insulin. The diabetes was controlled, but the constipation persisted, and he began to have colicky pains in the hypogastrium. On several occasions waves of peristalsis,

parently in the pelvic colon were seen during attacks of colic. A barium meal, and later a barium enema failed to show any abnormality. The symptoms increased in severity, and after two months the barium enema was repeated. It revealed a dilated and apparently atonic colon but no localized deformity or obstruction. The attacks of colic continued and he lost weight progressively, so that in spite of the absence of any positive findings a laparotomy was advised.

At operation free fluid was found in the abdomen. The colon was normal throughout. There was a malignant nodule in the peritoneum behind the umbilicus, and a malignant mass on the left crus of the diaphragm which might have originated in the adrenal, the tail of the pancreas or the upper pole of the left kidney. The infiltration spread across the region of the aortic opening and there were metastases in the liver. The nodule in the peritoneum was excised and sent for section, and later was reported to be typical of a secondary deposit of carcinoma of the pancreas.

The patient died three months after operation. No necropsy was performed.

### Case 2

In February 1948 a solicitor aged 58, who had been perfectly well all his life except for an operation for appendicitis with general peritonitis at the age of 17 and attacks of dysentery during the first world war began to suffer from attacks of generalized colicky abdominal pain accompanied by constipation and relieved by passing wind. Between the attacks which came on several times a day, he felt well.

On April 1 he was seen by Dr Geoffrey Evans, who has kindly placed at my disposal the notes he made at the time. The patient told him that the attack had started suddenly six weeks previously with pain in the abdomen, wind, and constipation and he attributed it to worry and an injudicious feast of whisky and gooseberries. Up to this time his digestion had been good and his bowels had acted regularly without laxatives. After the pain started he took a series of aperients and purgatives, which either failed to act or produced a loose motion only. A provisional diagnosis of intestinal obstruction was made, and the patient was referred to Dr Norman Henderson for a barium enema. Some early diverticulosis of the left colon was reported but no filling defect. The differential diagnosis of enterospasm was considered, but was rejected because of the obvious distension of the lower part of the abdomen and because bowel function had been normal up to the onset of the illness. There had been some weight loss (about a stone 6.35 kg) but this might have been explained by reduced food intake and disturbed sleep due to the pain.

He returned to his home in the country, but the attacks continued and one which occurred a week later was so severe that it seemed to indicate a commencing obstruction. He was admitted at once to a nursing home for observation, when I saw him for the first time. He was then having bouts of pain three or four times a day. Each started suddenly, with violent hypogastric colicky pain, which made him writhe about and grip the bedclothes. His pulse rose to 100 but his temperature was unaltered. He did not vomit. During the attack he was tender in the left iliac fossa and what appeared to be a distended loop of colon could be felt to the right of the tender spot. The attack lasted from half to one hour. When it was over he was happy, he had no pain, and his abdomen was soft and free from tenderness.

The differential diagnosis between enterospasm and obstruction was again discussed with Dr Geoffrey Evans who remained in charge of the case. The patient was of the highly strung type, in whom enterospasm is to be expected. On the other hand lower abdominal distension, which is not seen in enterospasm, was an obvious feature, and he had never experienced similar pain previously. Sigmoidoscopy and analysis of the faeces showed no abnormality. No formed stool was passed in spite of a variety of daily enemata atropine by injection, magnesium and belladonna and paraffin oil  $\frac{1}{2}$  oz (57 ml) daily. After a week I wrote to his doctor. I feel we shall be driven to laparotomy but I feel still more certain that we shall find nothing visibly or palpably wrong. However, he cannot go home as he is and we will therefore have to operate if we cannot cure him in some other way. The attacks got worse and more frequent.

At operation ten days after his admission to the home no free fluid was found, and the pelvic colon appeared normal except for a temporary ring of spasm—an unusual sight under general anaesthesia. In the subdiaphragmatic region masses of malignant tissue were encountered. All the upper aortic glands, those round the coeliac axis and those in the lesser omentum were large and hard, there were large hard nodules in both lobes of the liver, and the falciform ligament and the peritoneum on each side of it were infiltrated. No indication of the site of the primary tumour could be discovered.

The falciform ligament was removed for section and reported on as follows. The specimen shows the remains of a gland containing considerable secondary deposits of a carcinoma composed of compact groups of small elongated cells with darkly staining nuclei and some abnormal mitoses and without alveolar arrangement. The general appearance somewhat suggests origin in a bronchial carcinoma, possibly of oat cell type, but the character is very difficult to define more clearly. Another pathologist reported "I think this is clearly a secondary deposit in connective tissue of an adenocarcinoma, with a tendency to spheroidal change. It would do extraordinarily well for a bronchial neoplasm." A third pathologist considered that the appearance suggested a tumour arising in the adrenal.

The patient died two weeks later. No necropsy was performed.

### Discussion

The symptoms and signs of colonic obstruction in these two cases, occurring in the absence of any organic disease of the colon itself, can be explained in three ways: (1) That the tumour stimulated the parasympathetic supply to the colon. (2) That the tumour cells produced some substance stimulating peristalsis. (3) That the subdiaphragmatic growth had interrupted the sympathetic supply to the large intestine, so that the parasympathetic innervation, which in the distal colon comes from the second and third sacral nerves, was allowed to act unopposed. Of these three explanations the third alone is probable. Infiltration of a motor-nerve bundle should not produce overaction of the muscles it supplies, nor should any kind of mechanical stimulation of nerve fibres in their courses produce repeated overaction. Further, in these instances the neurones of the caudal sympathetic system, which supply the section of the bowel involved, were far removed from any abnormal environment. Tumours secreting parasympatheticomimetic substances are, so far as I know, unknown, in any case, the response in these two patients was a local and not a general parasympathetic one.

That the removal of the sympathetic innervation to the colon should lead to excessive and possibly incoordinated contraction of the muscle coats is not improbable. Bilateral ablation of the lumbar sympathetic chain has in a number of instances led to considerable and permanent diminution in the diameter of the bowel in congenital megacolon. Temporary paralysis of the sympathetic system by a spinal analgesic leads to contraction of that part of the alimentary canal supplied by the vagi. Injection of drugs that act on the neuromuscular junction of the parasympathetic system—prostigmin and acetylcholine—causes contraction, often excessive and painful, of the muscular coats of the small and large intestines.

In the two cases under discussion the malignant infiltration surrounded, and may well have put out of action or even destroyed, the splanchnic nerves, the semilunar ganglia, and the coeliac plexus. The vagi passed through the same invaded area, and were equally liable to interruption—a fact that fits in with the observation that only that part of the bowel supplied by the caudal parasympathetic system gave clinical evidence of the overaction. There is no unanimity among anatomists about where the watershed between the vagal and the sacral supply lies, but it is usually presumed to correspond roughly to the junction between

the parts of the colon developed from the midgut and hindgut loops—that is, about the distal fourth of the transverse colon

The most cogent objection to the view that these two cases represent parasympathetic overaction due to sympathetic deprivation is that in each case the contractions were painful. Pain fibres from the small and large intestines reach the cord, so far as we know, by way of the splanchnic nerves. Bentley and Smithwick (1940) showed that the appreciation of pain in the small intestine is abolished after bilateral splanchnicectomy, and Rav and Neill (1947) showed the same in the large intestine. The operation of splanchnicectomy has not, so far as I know, ever been followed by muscular overaction in the bowel.

We thus have two objections to the explanation of sympathetic deprivation put forward to account for the clinical syndrome here discussed—that surgical interruption of the sympathetic nerves at the same site does not produce this effect, and that it does abolish pain, which in these cases was not abolished.

Three suggestions may be made to account for this discrepancy. First, that the interruption of nerve fibres by malignant infiltration may be 'selective, picking out the motor fibres before the sensory ones. We know that in pressure lesions (tourniquet paralysis and obstetric paralysis) and traction lesions (brachial plexus injuries) involving nerve trunks motor power may be lost with little or no sensory disturbance. In this particular instance the motor fibres (at any rate, the post-ganglionic ones in the plexus) are non-medullated, while the sensory ones are medullated, and this chemical and histological difference may be accompanied by a differential resistance to infiltration.

Secondly, that the sensory and motor fibres may not run together in all individuals as they do in the majority. One fact that is appearing as the result of the great increase in operations on the sympathetic system is the astonishing and unpredictable course of the sympathetic pathways, particularly at the thoraco-abdominal junction. Boyd (1948) has shown that it is impossible, by the most complete ablation of all known sympathetic nerves and ganglia, to produce functional denervation of the sweat glands in the D/2 and L1 areas.

Thirdly, that painful sensations, blocked in their normal pathways, may find others. The motor cortex orders movements, and when the muscles or nerves that normally subserve those movements are destroyed will often accomplish the same movements by some other mechanism. The sensory cortex awaits messages, and if the orthodox routes are out of action will often receive them by underground channels. The pain of angina pectoris ceases after bilateral resection of the first four thoracic ganglia, but it comes back eventually. The pain of hip disease is cured for a time by antero-lateral cord section, but the relief is only temporary.

I should like to express my gratitude to Professor F. H. Bentley, Professor Michael Boyd, Sir Stanford Cade, Dr Geoffrey Evans, Professor F. A. Knott, Professor G. A. G. Mitchell, Professor A. H. T. Robb Smith, Sir Charles Symonds, and Mr A. G. M. Weddell (the order is alphabetical) with whom I have discussed these cases.

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The 'Directory of Psychiatric Out-patient Facilities for Adults and Children in England and Wales' may be obtained for 1s (11s a dozen) from the National Association for Mental Health, Maurice Craig House, 39, Queen Anne Street, London, W 1.

## SOME CAUSES OF SLIGHT CARDIAC ENLARGEMENT

BY

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In routine radiological examination cardiac enlargement without physical signs of valvular disease or hypertension is sometimes seen. Among 2,500 recruits examined this problem arose in 25 men, and an attempt has been made to find the cause of the enlargement in 16 of these who were followed up and re-examined three to six years later. Two further cases seen after the original series (Parkinson and Hartley, 1946) are added.

#### Method

Opinions differ as to the best method of determining whether true enlargement is present. Hodges and Eyster (1926), Ungerleider and Gubner (1942), and Sherman and Ducey (1944) prefer exact cardiac mensuration. On the other hand, Bedford and Treadgold (1931) say that screen examination is a more reliable means of recognizing heart disease than is actual measurement by orthodiagram. Comeau and White (1942) find prediction tables the best approach to the problem, but both agree that the important factor in estimating heart size is the impression gained by a reliable and experienced radiologist. Parkinson (1936) thought that cardiometry was too complicated for routine clinical use, and that as sound an opinion could be given from screen examination without measurements.

In the type of case discussed measurements are of little use, as they usually fall between the minimum and maximum limits of normal. Careful radioscopy in the three routine positions by more than one experienced observer is more accurate in arriving at a conclusion, and this was the method here adopted. In every case the second examination was made without reference to the previous report. Table I shows the possible causes of radiological enlargement without physical signs of valvular disease or hypertension.

TABLE I—Showing Possible Causes of Radiological Cardiac Enlargement in the Absence of Physical Signs of Valvular Disease or Hypertension

- 1 Physiological—Childhood, athleticism, bradycardia, and pregnancy
- 2 Apparent—Scoliosis, depressed sternum, and raised diaphragm
- 3 Familial cardiomegaly and congenital idiopathic hypertrophy. Friedreich's ataxia
- 4 Organic heart disease—V.D.H. before the development of murmurs, congenital heart disease, repeated coronary thrombosis, cardiac aneurysm, and antecedent hypertension
- 5 Abnormal rhythm—Complete heart-block, paroxysmal tachycardia with failure, auricular fibrillation, and bundle-branch block
- 6 Arteriovenous aneurysms and Paget's disease of bone
- 7 Metabolic, endocrine and blood disease—Anaemia, thyrotoxicosis, myxoedema, and beriberi

Other rarer causes are anomalous coronary arteries, Fiedler's myocarditis, amyloid disease, Gaucher's disease, Von Gierke's disease and acromegaly.

Among the 18 cases were examples falling into the first four groups only. Table II shows the final conclusion reached.

TABLE II—Showing the Final Diagnosis made in 18 Cases of Cardiac Enlargement in the Absence of Physical Signs of Valvular Disease or Hypertension

Case No	Final Diagnosis
1	Bradycardia and depressed sternum and scoliosis and depressed sternum and scoliosis
2	
3	
4	
5	Scoliosis
6	
7	Full sized heart Aorta more prominent than normal
8	
9	Right axis deviation
10	
11	Familial cardiomegaly Probable early mitral stenosis Aortic incompetence (rheumatic)
12	
13	
14	
15	{ , }
16	
17	
18	
	Probable aortic incompetence (rheumatic)

### Apparent Cardiac Enlargement

It is well known that scoliosis of minor degree, depressed sternum, or a raised diaphragm may cause apparent radiological enlargement. Although scoliosis or depressed sternum was recognized as a contributory cause in four men at the first examination, the heart in all was still considered to be larger than normal. Reconsideration at the second examination showed that all four had, in addition, a bradycardia.

**Case 1—Aged 40** First examination October, 1941—B P 130/85. The mitral first sound was loud and there was a moderate apical systolic murmur. Radiologically the left ventricle was suspected of being too large. Second examination May, 1947—Pulse rate 60. There was a minor degree of depressed sternum. The apical first sound was loud and a moderate apical systolic murmur was present. *Diagnosis* the heart was now considered to be within normal limits in view of the bradycardia and minor depression of the sternum.

**Case 2—Aged 39** First examination, July, 1941—B P 150/85. Apical and pulmonary short but loud systolic murmurs. Electrocardiogram R, small and slurred, T diphasic. Full sized heart on radiology. Second examination May, 1947—Slight depression of the sternum. Short soft apical and pulmonary systolic murmurs. Pulse 60. Electrocardiogram unchanged. Radiology full sized heart. Slight displacement by scoliosis. *Diagnosis* bradycardia and scoliosis.

(Note—A diphasic T<sub>2</sub> was found among healthy young aircrew in the 1939–45 war (Stewart and Manning, 1944, Wood *et al* 1941).)

**Case 3—Aged 18** First examination February 1943—Positive rheumatic history. B P 120/80. The pulmonary second sound was loud. Radiology showed slight enlargement, and early aortic incompetence was suspected. Second examination April, 1947—Short soft apical systolic murmur. Clear third heart sound. Electrocardiogram normal. Depressed sternum minor degree. Radiology full-sized heart, normal size in both oblique positions. *Diagnosis* bradycardia and depressed sternum cause the appearance of full size.

**Case 4—Aged 20** First examination May, 1943—B P 140/70. Apex beat external to the nipple line and too forcible. Radiology probably slight enlargement, but heart lies to the left. Possibly early aortic incompetence. Second examination March 1947—Apex beat beyond the mid-clavicular line. Short soft apical systolic murmur. Pulse rate 60. Radiology full sized heart. Deep breathing shows it to be of normal size. *Diagnosis* bradycardia and scoliosis cause the appearance of enlargement.

In Cases 5 and 6 a second examination showed scoliosis alone as the cause of the apparent enlargement. These show that a second examination will sometimes correct the previous view that more enlargement is present than can be accounted for by displacement.

**Case 5—Aged 17** First examination February 1944—B P 120/75. Apex beat forcible. Short minimal systolic murmur at apex and on left of sternum. Electrocardiogram

normal. Radiology probably slight enlargement. Second examination April, 1947—Short soft apical systolic murmur. Pulmonary second sound duplicated. Electrocardiogram normal. Full sized heart, but right border is made up of spine. When the scoliosis is corrected by a 5 degree turn to the right the heart is normal in shape and size. *Diagnosis* scoliosis.

**Case 6—Aged 19** First examination September, 1941—Positive history of rheumatic fever. B P 130/80. Apex beat in nipple line. Pulmonary second sound loud. Electrocardiogram normal. Radiology showed probable slight enlargement of the left ventricle, in addition to displacement by scoliosis. Possibly early aortic incompetence. Second examination May, 1947—Apex beat in mid-clavicular line, not forcible. Pulmonary second sound loud. Electrocardiogram normal. *Diagnosis* radiology—scoliosis causes the appearance of enlargement.

### Prominent Aorta

The interest in Cases 7 and 8 lies in the fact that even at the second examination cardiac enlargement was thought to be present. The radioscopic reports in each case are almost identical at both examinations. Yet if heart disease were present some progress over five years might have been expected. At the second examination, knowing the previous findings, it is justifiable to call both hearts normal, but if such a man is seen for the first time serious doubt would still arise. In both cases the ascending aorta was considered at each examination to be too prominent for the age of the patient. It is possible that the vascular pedicle in youth may be wider on occasion than the generally accepted normal.

**Case 7—Aged 19** First examination October, 1941—B P 155/90. Apex beat forcible and displaced. Electrocardiogram normal. Radiology the heart lies slightly to the left. Possibly left ventricular enlargement. Second examination May, 1947—B P 140/70. Apex beat beyond the mid-clavicular line and too forcible. Short pulmonary systolic murmur. Electrocardiogram normal. Radiology showed a full-sized heart, with a vascular pedicle which is wide for his age. Ascending aorta prominent. Left ventricle possibly slightly enlarged. Oblique positions within normal limits. *Diagnosis* probably no heart disease present.

**Case 8—Aged 21** First examination December, 1942—B P 130/80. Apex beat slightly forcible. Long piping apical systolic murmur, heard also in the aortic area. Electrocardiogram left axis deviation. Radiology heart full sized, possibly slight enlargement. Possibly early aortic stenosis. Second examination May, 1947—Apex beat forcible. Short but noticeable apical piping systolic murmur. Electrocardiogram left axis deviation. Radiology heart full sized only. Aorta too prominent for his age. *Diagnosis* this may be a normal heart, but it is not certain even now.

### Right Axis Deviation

Cases 9 and 10 are in many ways similar to Cases 7 and 8, but in these there is right axis deviation in the electrocardiogram. That it is unusual to find this at the age of 20 is true, but among 299 normal students studied by Wood *et al* (1941) it was present in four. Slight widening of the QRS complex often occurs in normal youths, as has been shown by Graybiel *et al* (1944) and by Stewart and Manning (1944). Graybiel *et al* found QRS complexes as long as 0.13 second in normal aviators. Stewart and Manning found prolongation only in leads II and III. Five years after the original examination there was no change in Cases 9 and 10, and the presumption is that they have normal hearts.

**Case 9—Aged 19** First examination November, 1942—B P 130/75. Apical and pulmonary soft systolic murmurs. Electrocardiogram right axis deviation. Radiology slight but definite enlargement of heart. Possibly congenital heart disease. Second examination May 1947—Apex beat beyond the mid-clavicular line. Not forcible. Soft apical systolic

mur Electrocardiogram right axis deviation Radio-  
scopy full sized heart only *Diagnosis* no heart disease  
ent

*Case 10*—Aged 20 *First examination* December 1942 —  
155/90 Apex beat forcible Electrocardiogram right  
deviation with slight widening of the QRS complex, T,  
e Radioscopy showed slight enlargement of the heart  
nd *examination* April, 1947 —Apex beat beyond the mid-  
clavicular line and forcible Electrocardiogram unchanged  
ioscopy heart appears enlarged, but turning 5 degrees to  
right partially corrects it, and a deep breath then makes  
size almost normal There is some scoliosis, but in spite  
this there seems to be more enlargement than can be  
unted for by this and the high diaphragm The size of  
left ventricle raises suspicion, but the electrocardiogram  
as right axis deviation *Diagnosis* no heart disease  
ent

### Familial Cardiomegaly

William Evans (1948) has recently described cardiomegaly  
arriving as a familial condition, and Case 11 in my  
es proved to be a member of the family described by

*Case 11*—Aged 18 *First examination* June, 1944 —B P  
/60 Frequent extrasystoles Apex beat in the sixth space,  
laced and too forcible Radioscopy showed moderate to  
t enlargement chiefly of the left ventricle Unfortunately  
electrocardiogram was not taken, as at that date work in  
don was carried on under difficulties *Second examination*  
e 1947 —Auricular fibrillation Electrocardiogram showed  
rossly abnormal QRST complex Radioscopy revealed  
terate to great enlargement The patient's brother had  
ntly died in the London Hospital from heart failure due to  
same condition *Diagnosis* familial cardiomegaly

### Mitral Stenosis

The diagnosis of valvular heart disease is seldom made  
the absence of the typical murmur In mitral stenosis  
argement can appear before a presystolic murmur, and  
retumes even before an apical systolic murmur is heard  
e latter was seen in five men out of 264 with mitral  
vular lesions (Parkinson and Hartley, 1946) *Case 12*  
s thought to be an early example of mitral stenosis,  
ugh it is not proved

*Case 12*—Aged 19 *First examination* November, 1942 —  
155/80 Apex beat external to the nipple line Short  
tolic murmur in all areas, loudest in the pulmonary area  
dioscopy showed slight general enlargement Possibly con-  
ntal, possibly acquired heart disease *Second examination*  
y, 1947 —Apex beat forcible and in mid-clavicular line  
cal first sound loud and sudden Pulmonary second sound  
licated Soft systolic murmur in all areas Electrocardio-  
m sino auricular block with ventricular escape Radio-  
py very doubtful enlargement with convex left border, pos-  
ly due to a combination of scoliosis and low diaphragm In  
e right oblique position, with barium in the oesophagus the  
t auricle is probably enlarged and also the pulmonary artery  
the left oblique position the left auricular enlargement is  
t so convincing *Diagnosis* probably early mitral stenosis

This case raises the question of the diagnosis of early  
mitral stenosis as discussed by Parkinson and Hartley (1946)  
this is mitral stenosis it is of great interest that such  
the deterioration has occurred in a period of nearly five  
ars The loud first sound and the probable left auricular  
largement make the diagnosis most likely

### Aortic Incompetence (Rheumatic)

On the other hand, the suggestion is not usually made that  
e enlargement of aortic incompetence may appear before  
aortic diastolic murmur is audible under normal con-  
itions In Cases 13, 14, 15, 16, and 17 of this series a  
ntative diagnosis of possible aortic incompetence (rheuma-

tic) was made at the first examination, based on the radio-  
scopic findings only, although at that time examination  
included a special but futile search for an aortic diastolic  
murmur, in all positions and at different pulse rates On  
second examination in each case a clear aortic diastolic  
murmur was heard

*Case 13*—Aged 41 *First examination* November 1942 —  
History of chorea B P 130/80 Apical first sound split. Pul-  
monary second sound loud Electrocardiogram normal Radio-  
scopy slight to moderate enlargement of the left ventricle  
Probably aortic incompetence *Second examination*, May,  
1947 —Pulse shows auricular fibrillation An aortic diastolic  
murmur is heard Radioscopy general enlargement, with left  
ventricular enlargement and a prominent ascending aorta  
Slight scoliosis with a low diaphragm tended to mask the radio-  
logical findings in this case *Diagnosis* aortic incompetence  
(rheumatic)

*Case 14*—Aged 21 *First examination* July, 1944 —No his-  
tory of rheumatic fever or chorea B P 140/85 Depressed  
sternum and variable apical systolic murmur Radioscopy  
enlargement as well as displacement by the depressed sternum  
*Second examination* May, 1947 —Cup-like depression of the  
sternum Apex beat well beyond the nipple line Aortic  
diastolic murmur on the left of the sternum Electrocardio-  
gram shows right axis deviation Radioscopy considerable  
general enlargement In spite of the depressed sternum the  
heart was thought to be too large The left ventricle was  
slightly enlarged and the pulmonary artery was also slightly  
large In view of the right axis deviation the question was  
raised whether the murmur could indicate pulmonary incom-  
petence the pulmonary artery was not large enough for this  
to be so *Diagnosis* aortic incompetence (rheumatic)

*Case 15*—Aged 18 *First examination* May, 1943 —B P  
140/80 Apex beat forcible, a short apical systolic murmur  
Radioscopy left ventricle slightly enlarged *Second examina-  
tion* April, 1947 —Slight depression of the sternum Apex  
beat forcible and beyond the nipple line Aortic second sound  
loud and an aortic diastolic murmur is present Electrocardio-  
gram left axis deviation Radioscopy moderate general  
enlargement, left ventricle enlarged, and ascending aorta promi-  
nent *Diagnosis* aortic incompetence (rheumatic) It is pos-  
sible that the diastolic murmur was obscured by the loud aortic  
second sound at the original examination

*Case 16*—Aged 18 Seen December 1942 No rheumatic  
history B P 115/70 Short apical systolic murmur only  
Radioscopy probably slight general enlargement Possibly  
aortic incompetence Later, in 1943, a diastolic murmur was  
recorded *Diagnosis* aortic incompetence (rheumatic)

*Case 17*—Aged 18 Seen February, 1943 No rheumatic  
history B P 120/75 Apex beat in nipple line and too forcible  
Radioscopy showed left ventricle enlarged *Diagnosis* Pos-  
sibly aortic incompetence A letter from Sir John Conybeare  
dated July, 1943 when this patient was in the R.A.F., con-  
firmed that there was no diastolic murmur present, although  
one was audible in November, 1943 *Diagnosis* aortic incom-  
petence (rheumatic)

*Case 18*—Aged 19 *First examination* January, 1943 —B P  
140/75 Apical and basal short systolic murmur Radioscopy  
slight general enlargement with undue pulsation of the aorta  
*Second examination* April, 1947 —Apex beat beyond the mid-  
clavicular line and too forcible Third sound well heard Short  
soft pulmonary systolic murmur Electrocardiogram normal  
Radioscopy slight general enlargement left ventricle large, and  
ascending aorta prominent Although repeated auscultation  
failed to show an aortic diastolic murmur, it seems  
probable from the radiological examination that he has aortic  
incompetence

Cases 13, 14, 15, 16, and 17 show that enlargement may  
precede a constant diastolic murmur in cases of aortic  
incompetence It is probable that phonocardiography  
would have helped in earlier diagnosis It is not suggested  
that aortic incompetence should ever be diagnosed in the  
absence of the typical murmur but rather that such appear-  
ances as have been described should lead to repeated careful



auscultation until the diagnosis is certain. These 18 men illustrate difficulties in the assessment and exact diagnosis of doubtful enlargement.

### Discussion

Cardiac hypertrophy of unknown cause has been discussed by Levy and Von Glahn (1937), who give the credit for the first descriptions to Jossier and Gallavardin in 1901. The former authors describe 10 cases in patients aged 29 to 66. Arrhythmias were common. All the electrocardiograms were abnormal. Norris and Pote (1946) discuss four men, aged 21 to 30, who died of unexplained hypertrophy and dilatation of the heart, and all had abnormal electrocardiograms. The clinical features of this condition appear to be rapid progress of symptoms to failure and death, often with embolic phenomena, in a patient with a grossly large heart and an abnormal electrocardiogram. It might be asked whether our first 10 cases should not be included in this idiopathic group, but their symptoms, signs, electrocardiograms, and course would seem to exclude this.

The part played by antecedent hypertension in cases of cardiac enlargement of unknown aetiology has been considered by Kaplan *et al* (1938). Evidence based on microscopical examination is given that previous hypertension played a part in 18 cases out of 45 with such enlargement. They suggest that coronary sclerosis, auricular fibrillation, chronic anaemia, and hyperthyroidism may play a part. Willius (1939) says that it is undesirable to assume the pre-existence of hypertension in any enlarged heart in the absence of collateral physical signs of hypertension. Palmer (1937) showed that coronary sclerosis may cause slight enlargement of the heart. Smith and Bartels (1931) considered coronary thrombosis to be the probable cause of cardiac hypertrophy in two men, aged 35 and 36, seen at necropsy.

### Summary

An account is given of the follow-up examination of 18 men three to six years after they had shown cardiac enlargement without signs of valvular disease or hypertension. The method used was physical examination and radioscopy in the three routine positions.

The causes of cardiac enlargement without signs of valvular disease or hypertension are listed, and the relative value of mensuration and experienced radiological examination in assessing cardiac enlargement is considered.

In 10 cases the enlargement was found to be apparent only. In four of these displacement with bradycardia was present, two showed only scoliosis, while in the remaining four the heart was radiologically full sized—two had an aorta more prominent than is usually considered normal in youth, and two had right axis deviation.

In eight cases the enlargement was confirmed—one proved to be a case of familial cardiomegaly which is discussed in detail, one was considered to be probable early mitral stenosis, five (over 25% of the total cases) had developed an aortic diastolic murmur and were confirmed as cases of aortic incompetence in which cardiac enlargement had preceded the diastolic murmur, and one case with similar radiological appearances was thought most probably to have aortic incompetence although no diastolic murmur was heard.

Ultimate diagnosis in the majority of such cases depends on re-examination at a later date.

My thanks are due to Sir John Parkinson for his practical aid and advice in the execution of this follow up.

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## CONGENITAL HEART DISEASE SIMULATING FOETAL DISTRESS

### A REPORT OF TWO CASES

BY

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Congenital heart disease is comparatively rare according to Price (1937) it is found in about 2% of all patients suffering from organic morbus cordis. Still rarer is it for congenital heart disease to reveal itself *in utero*. The following two cases are of interest in that marked slowness of the foetal heart accompanying congenital heart disease closely simulated foetal distress.

### Case 1

A primigravida at term, aged 21, was seen at a routine visit in the antenatal clinic on July 4, 1947. The fundus uteri was at term, the position right occipito anterior, and the head engaged. The foetal heart could be heard beating quite strongly, but it was markedly slow, the rate varying from 72 to 108, and its rhythm was irregular, the patient did not appear to be in labour. A vaginal examination was made, and the cervix was found to be taken up, but there was no dilatation and no cord was palpable. A diagnosis was made of a probable cord complication—either a loop of cord round the foetal neck or body or a true knot in the cord.

The patient was admitted to hospital from the clinic, and artificial rupture of the membranes with a Drew-Smythe catheter was performed shortly after admission. A 15 minute chart of the foetal heart rate was kept. Labour began at 8 p.m. on July 4, the cervix was fully dilated at 2.30 a.m. on July 5, and a normal delivery of a live female infant, weighing 6 lb 7 oz (2.9 kg) took place at 3.15 a.m. The infant cried well at birth and was a good colour. During labour the foetal heart rate ranged between 60 and 110 but it did not vary with the pains although the rhythm throughout was irregular.

At birth the infant's heart rate was 120 but three hours later it had slowed to 80, on each occasion the rhythm was regular. No meconium was passed during labour and the placenta looked healthy. Cord complications were absent. On examination of the infant shortly after birth there was no cyanosis, the heart rate was 86 and no murmurs were heard.

On July 10 a loud harsh systolic murmur could be heard all over the praecordium, its maximum intensity being beneath the sternum. An electrocardiogram was physiological for an infant of this age and there was no heart block or arrhythmia.

The infant was seen by the paediatrician in the out-patient department one month later. The heart rate was 136 with a regular rhythm. The systolic murmur was still present, there was no change in its quality, intensity or propagation which are characteristic of uncomplicated interventricular septal defect (maladie de Roger). The child appeared healthy and was being breast fed four hourly. She had had no cyanotic attacks.

I saw the child on Sept 2. She was then very well and her weight was 8 lb 5 oz (3.8 kg). She had had no cyanotic attacks.

A skiagram of the chest was taken, and the radiologist reported as follows "The heart shadow is normal for a patient of this age Lung fields clear"

The mother had not had any illnesses during the first three months of her pregnancy

### Case 2

A primigravida at term, aged 38, was seen at a routine visit in the antenatal clinic on Aug 1, 1947. The fundus uteri was at term, the position left occipito-lateral, and the head engaged. The foetal heart could be heard beating strongly at a rate of 44, and it was regular. The maternal pulse rate was 96, and was also regular.

The patient was admitted to hospital, and artificial rupture of the membranes was performed with a Drew-Smythe catheter shortly after admission. Vaginal examination revealed that the cervix was not taken up, the external os was closed, but it was easily stretched to admit one finger, there was no cord palpable.

A 15 minute chart of the foetal heart rate was kept. Labour began at 7 p.m. on Aug 1, and the cervix was fully dilated at 11.45 p.m. A normal delivery of a live female infant, weighing 8 lb 5 oz (3.8 kg), took place at 1 a.m. on the 2nd. The infant was a good colour at birth, and cried lustily after the air passages had been cleared of mucus. The foetal heart rate varied between 44 and 52 during labour, the rhythm was regular throughout both the first and the second stages of labour, and it was unaffected either by the pains or the descent of the foetal head on to the pelvic floor.

At birth the infant's heart rate was 40, and the rhythm was regular, no murmurs were heard. No meconium was passed during labour and the placenta seemed healthy, there was no cord complication. The infant was breast-fed four-hourly, and appeared to be perfectly healthy. On Aug 4 a loud harsh systolic murmur was heard all over the praecordium. The senior physician Dr Barnes examined the child on Aug 7, and reported as follows "Healthy looking infant. No cyanosis. The heart appears enlarged to the left. Apex beat in the fourth left intercostal space in the anterior axillary line. Heart rate slow at 41, but regular. There is a harsh systolic murmur audible all over the praecordium, with its maximum intensity beneath the centre of the sternum."

An electrocardiogram showed complete heart-block, the ventricular rate was 41, and the auricular rate 130, both had regular rhythm. A skiagram of the chest was taken on Aug 13, and the radiologist reported as follows "Heart contours normal in this projection. Lung fields clear."

A diagnosis of interventricular septal defect with congenital complete heart block was made. The infant was seen by the paediatrician in the out-patient department one month later. The heart rate was 42 with regular rhythm, the systolic murmur was still present, there was no change in its quality, intensity, or propagation. The child appeared healthy and was being breast-fed four hourly, she had had no cyanotic attacks.

I saw the child on Sept 16. She was being breast-fed three-hourly each feed being complemented with "ostermilk". She had had no cyanotic attacks and her weight was 9 lb 12 oz (4.4 kg). The heart rate was 40 with regular rhythm. A second skiagram of the chest was taken and the radiologist reported as follows "Cardiac outline within normal limits for the age of the child."

The mother's electrocardiogram revealed no abnormality. She had had no illnesses during the first three months of her pregnancy.

### Commentary

In Case 1 the irregularity of the foetal heart together with a rate below 100, strongly suggested foetal distress, and a cord complication was considered the most likely cause. A caesarean section was seriously contemplated as the mode of treatment but, in view of the patient's age and the fact that the duration of the foetal distress was unknown it was decided that an immediate surgical induction should be done and a 15-minute chart of the foetal heart rate was kept. I am quite unable to account for the behaviour of this foetal heart before delivery, for

the presence of an interventricular septal defect without conduction disturbance should not lead to cardiac arrhythmia.

Case 2 is even more instructive, because congenital heart disease was suspected when the foetal bradycardia was discovered in the antenatal clinic (Case 1 having been seen exactly one month previously). In this case the foetal heart was regular and easily audible—quite unlike foetal distress, where irregularity and muffled heart sounds are common characteristics.

Over 100 cases of congenital heart-block have been recorded. The diagnosis, however, is seldom made antenatally, and the case now reported brings the total number of cases diagnosed antenatally to 10. A summary of the main features of these cases, in all of which the diagnosis was confirmed by electrocardiograms, is given in the accompanying table.

Author	Sex	Slowest Foetal Heart Rate	Slowest Rate after Birth	Time of Antenatal Diagnosis	Duration of Life	Remarks
Yater 1929	M	47	47	2 weeks	18 days	Marked cyanosis. Necropsy revealed multiple congenital anomalies.
Witt 1934	M	44	44	2 months	75 days	Infant died in a cyanotic attack. Necropsy revealed coarctation of aorta.
Heubner 1938	No record	80	60	Not given	Alive at 11 months and healthy	Block disappeared at this age.
Ottow 1939	F	32	52	24 hours	Alive at 5 months and healthy	Block still present at 5 months.
Geiger and Hines 1940	F	58	60	17	Alive at 5 months and healthy	Block still present at 5 months.
Thomson 1943	M	60	52	7	1 year	Died of Stokes Adams seizure. Necropsy revealed no interventricular defect.
	F	45	68	4½ weeks	Alive at 4 years and healthy	Block still present at 4 years.
Hammond Stone and Hyams 1944	F	40	40	1 month	Alive at 7 months and healthy	Infant delivered by a lower segment caesarean section shortly after onset of labour because of slow foetal heart.
Plant and Steven 1945	M	50	50	5 weeks	6 days	Died in a cyanotic attack. Necropsy revealed no gross structural defect but histological examination failed to show subendocardial fibres which could be identified as Purkinje fibres.
Sankey 1947	F	44	40	9 hours	Alive at 7 weeks and healthy	Block still present at 7 weeks.

My thanks are due to Dr Barnes and Dr Finlay for their kind help and advice. I am also indebted to Dr Maddocks for the x-ray reports, and to Dr Morgan and the Medical Director, Dr W Arklay Steel, for permission to publish these cases.

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*Postscript*—Since writing this article it has come to my knowledge that the infant with congenital complete heart-block suddenly collapsed at home at the age of 4 months and died within 24 hours. The cause of death appeared to be bronchopneumonia, but a post-mortem examination was not allowed.

## SOME ASPECTS OF MORBIDITY SURVEYS

BY

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Morbidity surveys must be included among newer applications of the social sciences. The contribution made to human welfare by the social sciences is exemplified by such pioneer work as that of Simon and Chadwick on the sanitary conditions of the working classes, of Booth and Bowley on the extent and causes of poverty, and of Cathcart and Orr on the prevalence of undernutrition. Social investigations have had an influential effect on public and official opinion and have been the direct or indirect cause of social planning and legislation over a wide field. The data obtainable from morbidity surveys may well be equally influential in regard to the health services of the nation.

*Health and Sickness*—Before reviewing the various aspects of morbidity surveys it is worth while to consider the definition of sickness or morbidity and its relationship with health, on which opinions differ. Downes and Collins (1940) say, 'Illness as normally understood is an affection or disturbance of health' but Stocks (1947) holds that 'in the definition of sickness the mystical word health, about whose meaning nobody seems to be agreed must be avoided'. But if sickness cannot be defined simply as a departure from health, or an affection or disturbance of health, the implication is that there is some third state, such as being off colour intermediary between health and sickness. It can be argued that sickness should no more be limited to objective physical conditions than undernutrition for example to marked deficiency states. At least for most practical purposes it is sufficient to accept a simple definition like that of Downes and Collins, no matter what may be taken as the definition of health. The important aspect is not the definition but a clear and precise description of the information presented in any survey.

### Types of Morbidity Surveys

The sickness data in morbidity surveys are obtained either from doctors or from lay persons. Some matters affecting clinical and lay diagnosis are considered below.

#### Clinical Diagnosis

Many factors influence the completeness of a clinical diagnosis. Muench (1947) puts the matter succinctly "If we stop to think we must realize that medical diagnosis is definitely stratified into many areas of reliability." Methods of treatment also vary between doctors. Thus in the inquiry into epidemics in schools (Medical Research Council, 1938) ringworm was at first reported only if involving loss of school time, treatment, however, varied so much that eventually cases were reported whether school time was lost or not. Different standards of normality may be adopted—a criticism which has, for instance, been levelled against the clinical assessment of nutrition. All such factors introduce the possibility of non-random bias.

The clinical information on national health insurance certificates has important limitations. It is often vague and indefinite, may relate only to a sign or a symptom, the underlying condition being omitted and to an early diagnosis. Bradford Hill (1937) reports 313 cases in which the first diagnoses were gastritis or gastro-enteritis but of which only three quarters would, on the final diagnosis, have remained in the gastric group. Stocks (1947) indeed, emphasizes the advantage of information obtained from lay persons who know the course of the sickness as a whole compared with data based on early diagnoses. Difficulty of classification arises when two or more causes are given for a single condition. In any case, many minor conditions causing only a day or two's absence from work are not certified.

If in a survey it is intended to obtain sickness data clinically diagnosed not only must the possibility of non random bias

be considered, but also whether diagnoses could satisfactorily be made by an unselected sample of doctors or a group of doctors trained to work to the same standards, or only by one doctor.

#### Information Provided by Lay Persons

In some sickness surveys the sickness data are provided by lay persons, usually housewives in respect of themselves or other members of their family, these data including both diagnoses by doctors and sickness for which no medical opinion has been sought. Such a procedure is beset with difficulties.

*Lack of Knowledge*—(a) In an examination of 1,592 workers all under national health insurance, Morris (1941) found that 112 had major disorders, and of these only 12 were or had been recently under medical care. Of 252 who had varicose veins classified as a minor condition, only 7 had ever consulted their doctor about them. For the most part, the major and minor disorders were neglected or unsuspected. The same sort of thing was found at the Peckham Health Centre. Hence in sickness surveys many real ailments remain unreported. (b) Knowledge of sickness depends on such factors as the extent to which medical advice has been sought and the previous experience of sickness either personally or in others. These depend, for example, on whether the patient has been accustomed to seek medical advice and on the sickness history of the informant's family. (c) Informants in different social groups or different states of health have different standards of normal health, and will report only deviations from these standards.

*Psychological*—(a) Some 'make the most' of sickness, supposed or real, others are proud of their 'good health' and reluctantly report sickness. (b) Some conditions will not be freely reported because of social stigma. (c) The self assessment of health will be influenced by propaganda and the state of morale.

*Effect of Memory*—(a) The longer the previous period about which information is required the less its completeness and accuracy (Sydenstricker, 1926, Downes and Collins, 1940, Stocks, 1947). Stocks suggests that this relates only to minor ailments, but he also suggests that something more than a time factor influences loss of accuracy—for example, the more free reporting during an influenza epidemic and the less free when it is passed. (b) The faculty of recalling events probably depends on the intelligence of the informant, which in turn varies with factors such as social class.

#### Reporting in Respect of Another Person

This assumes unrestricted confidence between the informant and those for whom she is reporting, and that the informant will equally remember their sickness experience. But she may take a special interest in some persons and not in others. Mothers of large families are likely to forget more than mothers of small families.

These factors are very likely to cause bias when associating sickness data with environmental data. Thus a woman of lowly social standing with chronic heart disease may be unaccustomed to consulting a doctor and may be unaware of the nature of her condition, a person in better circumstances may do so and thus be aware of it. A mentally subnormal mother of a large family will forget the ailments of her children, while a mother who voluntarily limits her family will remember the ailments more completely. The mother of a small family or one with adequate domestic help will more readily go to bed if ill than one with a large family, tied to her household duties. This point is well made by Spring Rice (1939), who says "She [the working class wife] firmly believes that her home and family would collapse if her work was interrupted by a sojourn at a hospital or even by the necessity of lying down or resting in bed for a few hours a day, and she therefore refuses to admit that she is ill until these disastrous interruptions to her work can no longer be avoided."

The following two items illustrate how spurious relationships may result by correlating biased data although it is not suggested that the results obtained are entirely due to using such data.

(1) Downes (1947) studied the incidence of chronic sickness among spouses from data collected in a sample survey, only those chronic conditions confirmed by a physician were used in the analysis. The

agnosis of a chronic condition in one spouse will, however, tend towards its easier self diagnosis in the other, thus in turn leading to an examination by the physician

(2) A study of the incidence of sickness of children as reported by the mothers showed that there were "healthy" and "unhealthy" families (Downes, 1945). This would arise simply if some mothers exaggerate and others minimize the sickness experience of their children

#### Detailed Surveys of Selected Population Groups

These surveys have the nature of well controlled investigations. The data collected may relate only to sickness or may include environmental and other aspects. The sickness may be a single condition, a related set, or all conditions. Seldom can all clinical aspects of an inquiry be kept under direct and constant clinical supervision. In surveys among persons living at home, unless there is regular, say daily, home visiting by the doctor, whether or not the doctor is called to the subject depends on a lay estimate of the need, which in turn may vary from person to person. There is undoubtedly great difficulty in getting reliable sickness data for individuals or families living at home. The Ministry of Health, in its nutrition surveys, failed in its efforts to get sufficient of a random sample of housewives to attend a clinic for a limited clinical examination. The difficulties increase if the subjects are expected to attend on several occasions over a period. The scope of investigations involving, say, the family is thus at present very limited.

Groups such as children or work-people who attend a particular place are excellent subjects for study. The kind of data which might be obtained in a study that continues over some length of time would be drawn from three sources: (a) Clinical overhauls, say every six months, these being as comprehensive as possible; (b) Daily clinical examinations to ascertain whether or not a child is sick even though not absent from school. A nurse, in association with the teachers, and with help from a doctor when required, might be able to do this; (c) Clinical assessment of those conditions causing absence from school. Medical certificates, to include the final diagnosis, could be obtained for absence of more than a few days. Uncertified short time sickness could be checked by a school nurse.

#### Surveys Based on Absence from School or Work

In studies of sickness causing absence from school the usual method of inquiry is to track down the causes of absence by means of doctors' certificates, home visits, and notes from parents, enlisting the co-operation of teachers, school nurses, and school inquiry officers. The data collected include medically certified sickness and uncertified sickness based on diagnoses or descriptions of symptoms by the parents which are not considered serious enough to warrant medical consultation. The parents' intimate knowledge and constant appraisal of the child's capabilities and condition are fully utilized, as are the teachers and nurses' knowledge of the various aspects of the child's life. Only sickness causing absence from school is recorded. This is probably fairly complete for certain conditions, such as infectious disease, while for others it may suffice for many purposes. What these conditions are deserves investigation. Absence due to sickness may vary between schools for reasons other than real differences in sickness rates. Thus, the "atmosphere" in one school may encourage children to be absent for minor conditions whereas in others it may do the reverse. A mother may believe that a sick child will be better off going to school than staying in a noisy restless home while the opposite may be thought by a mother where the home is quiet and restful. School meals may be an inducement for attendance, and so on. The same sort of thing applies in residential schools. Thus even when absence is medically certified differing adjustments may be reached between the teaching and medical staffs on the severity of the conditions that warrant absence and this may vary, for example, owing to school examinations.

The dangers of using absenteeism to measure and compare sickness among work-people have been discussed by Stocks (1944) who speaking of medical certification under the National Health Insurance Act says that the rates are "affected by changing attitudes to the relative importance of keeping at work and of safeguarding the health of the people

affected. These attitudes in turn are affected by economic conditions, amount of unemployment wage rates benefit rates, health propaganda and education." Bashford (1942) shows that such a simple matter as a change in supervision in an office reduced sickness absence by about 50%.

#### Surveys by General Practitioners

The collection of morbidity statistics from general practitioners may well prove a fruitful source of information, limited, of course, to those conditions receiving medical attention. In a recent survey in Canada (Richter, 1948) the demand for health care was compared for two population groups—one representing the panel of several insurance doctors and the other served under the fee-for-service system. Records were supplied by the doctors of all illnesses which received medical attention over a period of twelve months as well as the type of care given.

#### Sample Surveys of Families or Individuals

In sample surveys a random sample of individuals are interviewed in their homes and asked what sickness they or members of their families have experienced over some previous period. The information is usually collected by non-medical investigators, who do not, however, make any "diagnosis of complaints" (Stevenson, 1947) but record what they are told. No definition of sickness is imposed or set up, the informant reporting those conditions of which she is aware and which she "considers to be of sufficient importance to be remembered and designates as such" (Collins, 1933). The information coming from lay persons suffers from the drawbacks previously mentioned, and will be subject to many kinds of bias. Moreover as Ryle (1946) points out, "Even though crude assessments may seem justified when the samples are large, the findings cannot then be given a high valuation."

The sickness data are obtained at a single interview relating to the day of the inquiry (Perrott *et al.* 1939) or to a previous period of two or three months (Stocks, 1947), or by a series of visits at intervals of a month or more to collect data over a period of several months (Sydenstricker, 1926; Collins, 1933; Downes and Collins, 1940). The methods of survey are basically the same, although, in some, refinements such as checking the diagnoses by reference to physicians have been introduced. Their accuracy differs according to the effort asked of the memory. The data collected relate (1) to sickness for which medical advice has been sought, representing about 30-50% of the total sickness reported—for most, but not all diseases this is probably reported with sufficient reliability—and (2) to sickness for which medical advice has not been sought, the diagnoses or descriptions of symptoms being based on non-medical opinion. The *Lancet* (1947) suggests "that reliance on the patient's own diagnosis is probably not a source of serious error, for when, in a similar survey in the United States, the diagnoses were referred to the doctor for confirmation, there was agreement [with the patient's diagnosis] in 90% [of cases]." This however, is not so as the 90% relates only to sickness clinically diagnosed and not to the total sickness recorded.

An interesting difference of treatment is accorded to acute and chronic conditions. An acute condition is recorded if it occurs to the knowledge of the informant, but "a chronic impairment of disease generally appears in the illness record only when it causes some distress or is the subject of a medical consultation or examination" (Collins, 1933). A chronic condition even though quiescent, may have greater influence on the way of life than a transient acute condition yet the former is not recorded even though known to the informant, while the latter is.

The question arises as to the relative value of sickness data collected in sample surveys by doctors (Walker, 1947; Sheldon, 1948) and by trained social investigators. The social investigator asks a number of set questions and records the answers without putting her own interpretation to them. Sheldon's (1948) method is as follows: "Apart from what was actually visible the only information available was the account by the individual of his symptoms. Once the interview was well under way most subjects were willing to describe their complaints (if any) and answer questions in such a way that an intelligent guess of the underlying diagnosis could usually be

made. The doctor can thus use his medical knowledge to develop the interview in the most profitable directions. Further, in spite of the obvious limitations of a survey by interview only, the results merit description since they illustrate the extent to which various types of complaints restrict the activities of old people. This raises the interesting point, To what extent could the symptoms be satisfactorily recorded by lay persons? Sheldon states that he found considerable discrepancies in the sickness data recorded by himself and by lay investigators, but gives no details. His own inquiry was limited to conditions confirmation of which did not depend on clinical examination, but he suggests that an expert examination including a physical examination of a random sample might be possible for certain conditions. Is it possible that lay persons can satisfactorily obtain information on certain conditions, the symptoms of which are readily recognized and assume importance only when the patient is aware of their presence? It is to be noted that in the investigations on the common cold (Andrewes, 1948) the lay subjects record their symptoms, and the doctor then decides whether or not they had a cold.

### Formulation of the Problem

The planning and execution of a morbidity survey require that the purpose and objectives of the survey be defined with clarity and precision, that the scope and limitations of the method of survey be recognized, and that the survey as planned will in fact give the information which it is intended to obtain. What is eventually included will be a compromise between what the investigator would like to conclude whether the criteria can in fact be assessed or measured, and whether the facilities are available for doing so. This process can be illustrated by a proposed inquiry into the loss of working capacity due to chronic sickness. To be decided are the definition of chronic sickness and the criteria for loss of working capacity. There is no hard and fast definition of chronic sickness, and it is feasible that the meaning adopted will depend on the objects of the inquiry. In some employments the loss of working capacity may be directly measurable by loss of output, but in others it may be possible to measure only loss of working time—that is absenteeism—and it may or may not be possible to assess how much of this is due to chronic sickness. Even then what causes incapacity in some employments may not do so in others. The final form of the inquiry may thus be greatly restricted and the results open to many reservations.

### Discussion

The purpose of morbidity surveys is to provide data on the incidence, social pattern, and method of spread of sickness, and thus produce a basis for the planning of the health services. This falls into two parts, the action required to prevent disease and the services necessary for treatment, or as Ryle (1946) puts it, "social planning and political action." The various kinds of surveys are not alternatives but provide information of different kinds, each contributing to the picture as a whole, but only to the extent that the information presented is reliable. Small detailed surveys, especially if the results are tested by repeated inquiry, are obviously of special importance.

There is an urgent need for research into all aspects of morbidity surveys, not only in regard to methods of field inquiry but also in regard to related matters such as the criteria for various environmental factors and the statistical treatment of data. The recent difference of opinion between Woolf and Waterhouse and Buckatzsch (Buckatzsch, 1947) on the method of estimating the effect of inter-correlated social data on infant mortality illustrates the need for statistical research, the application of which to social inquiries has been neglected. The dearth of essential "tools" is due in part to the urgency of the tasks which have faced social scientists, which has led them to "get on with the job" instead of devoting their energies to developing and assessing methods. The future of social surveys, including morbidity surveys, depends on the developing and testing of techniques. The aim in social

inquiries should be to impose the same standards of controlled experiment and investigation as are applied in the natural sciences.

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## EPILEPSY AND TETANY

By

J. E. G. PEARSON, D.M., M.R.C.P.

Late Wing Commander R.A.F.V.R.

The following case report shows that the true significance of an attack of "symptomatic" epilepsy may long remain latent.

### Case Report

A flight lieutenant in the R.A.F. aged 24 was admitted to an R.A.F. hospital on July 11, 1947, with a story from his medical officer that a batwoman who had gone to remove his supper tray had found him in bed in a semiconscious state, and when she approached him he made as though to strangle her, for this reason he was put in charge of the neuropsychiatrist.

On questioning he denied any memory of this attack, after which he felt weak but not confused nor did he complain of headache. For three days previously he had complained of some malaise, nausea, anorexia, and later vomiting, followed by the most striking symptom at this stage—hiccups. He had not bitten his tongue or been incontinent in this attack, but he gave a history of a similar chain of events two years previously while overseas ending in an attack in which he bit his tongue. On account of that epileptiform event he had been invalided home. During the intervening period he claimed to have had perfectly normal health and had taken no medicine or tablets.

His past history showed nothing to suggest petit mal, and he had not suffered from fainting attacks or headaches. He had never sustained a head injury. He had had diphtheria and pneumonia as an infant and his appendix had been removed for an acute attack without complications three months before admission.

Examination showed a well built man with no evidence of loss of weight. There was some dryness of the mouth (to which he attributed his slight dysarthria) with a healed scar on his tongue. Mentally he seemed rather apathetic and slightly drowsy, and was hiccupping 20 to 30 times a minute. Blood pressure was 120/80. No other abnormal physical signs were found in any system on clinical examination.

During his first three days in hospital numerous measures were tried to control his hiccup which persisted even during sleep, but no treatment had any prolonged effect. He was encouraged to eat what he could manage of light diet and to take plenty of fluids as the vomiting had ceased since admission.

On July 14 he was still a little drowsy and dry in the mouth. His blood urea was 85 mg. per 100 ml., blood sugar 130 mg. per 100 ml. and his urine contained a cloud of albumin. A general

medical opinion was here sought, it was considered that these findings, together with his clinical state at the time were accounted for by the degree of dehydration present, and although his hiccup had become much less frequent (possibly owing to thiopentone and cyclopropane anaesthesia), 2 pints (1.14 litres) of normal saline solution were given intravenously on July 16. Soon after this his clinical state returned to apparent normality and he felt fit. Four days later his blood urea was 20 mg per 100 ml and his albuminuria had disappeared. During this period examination of cerebrospinal fluid, blood W.R., and intravenous pyelogram were all negative.

As he felt so fit and had a long-standing arrangement to start a 10-day holiday on July 31, he was allowed to leave the hospital with the idea of readmitting him afterwards for further investigations. While at home on the very night of his discharge he again developed nausea and hiccup and vomited about 15 times during the subsequent 36 hours before being readmitted.

The striking feature now was the presence of marked tetany, attacks of which he had been having for about 12 hours previously. The condition was symptomatically relieved by the intravenous injection of 10 ml of 10% calcium gluconate but three further attacks were witnessed within the next 24 hours evidently initiated by the effort of vomiting. The extremities assumed the typical posture, the breathing became laboured, cyanosis was marked, and consciousness was lost within a minute. The pulse was 54, with some premature systoles its volume remaining good. After about three minutes gradual relaxation occurred, his colour improved, and his jaw, clenched at first, started a regular munching movement but there were no true clonic movements of this organ or of his limbs. Unconsciousness remained for about 15 minutes, with eyes rolling and squinting but with normal-sized equal pupils. There was no laryngeal stridor. His blood pressure during the recovery phase was 120/80.

The clinical diagnosis of tetany from alkalosis with hypochloraemia, was confirmed by the biochemical investigations.

Only one attack occurred after the start of intravenous drip saline with 10 ml of 10% calcium gluconate per pint (568 ml), and within two weeks his blood chemistry had returned almost to normal all symptoms having subsided.

During this exacerbation of symptoms the time had naturally come to review the nature of his attack in Egypt two years previously and any other relevant past history. He was himself quite definite that the prodromal events leading up to all his attacks had been very similar, and on direct questioning he remembered having had tinglings in his hands, feet and lips before his original attack, though never any cramp. The description by the sister who witnessed the end of the attack had been recorded as a "convulsion, during which he was unconscious with eyes open and face twitching for one minute, followed by a period of confusion in which he answered only 'Yes' or 'No'". The tongue had been bitten, but there had been no incontinence.

No abnormality had been found on examination of the central nervous system and there was no pyrexia. A blood smear had been negative for malaria parasites, and examination of the CSF had shown normal pressure, cell count, protein and chlorides. He had been invalided home on account of this epileptiform attack and made permanently unfit for flying duties. On return to this country radiographs of the skull and an electro-encephalogram had proved negative as also had clinical examination by the consultant in neurology.

The cause of his attacks of vomiting remained the final matter for elucidation, he was most definite that he had had no vomiting whatsoever in the intervening two years and had never suffered from diarrhoea, indigestion, or any abdominal pain. In spite of this the solution was apparently found in a barium meal which showed a small prepyloric ulcer, with a large atonic stomach, a great quantity of resting juice and a considerable barium residue in the stomach at eight hours and some at 24 hours even after a course of routine medical peptic-ulcer treatment for three weeks with full doses of belladonna.

On Oct 7 the abdomen was opened through a transverse incision and a partial gastrectomy was performed. A prepyloric ulcer was demonstrated in the prepyloric region and a well-developed cholecysto-duodenocolic membrane was found binding down the first part of the duodenum.

At this point the duodenum was constricted and partially obstructed owing to thickening and fibrosis in its wall for about 4 cm, the parts distal to this being of normal calibre and consistency.

The findings were confirmed by examination of the excised specimen, the healed gastric ulcer did not appear to be producing pyloric stenosis, and it was presumed that the obstruction was caused by the organic changes in the duodenum secondary to the membrane as described.

### Comment

This case shows two main points of interest. First, the fact that his original attack was of an epileptiform nature, which in the light of after events could confidently be assumed to have been of tetanic origin. While true convulsions are so well known in children as part of a tetanic state, it is undoubtedly easy to overlook this possible cause for them in adults, although briefly mentioned in some textbooks. Support is also lent to the opinion that it is unwise to stamp as an "epileptic" a patient who has an isolated convulsion—a point emphasized by Rook (1947).

Secondly, it was natural to presume from the x-ray appearance that pyloric stenosis secondary to a prepyloric ulcer was basically the cause of all his troubles, it was considered at operation, however, that this was not the true explanation but that his obstructive symptoms were due to a duodenal stenosis, secondary to a large persistent cholecysto-duodenocolic membrane. In either case the marked lack of abdominal symptoms apart from his attacks was difficult to explain. The subject is fully reviewed by Mahoney (1946), who considers that this membranous fold occurs in at least 18% of people, but only occasionally gives rise to symptoms. Of the 18 cases which he reports as pathological, the symptoms in the great majority simulated either chronic cholecystitis or duodenal ulcer.

I wish to thank Group Captain F. W. P. Dixon for the surgical notes on this case, and Squadron Leader T. S. L. Beswick for the pathological investigations.

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## Medical Memoranda

### Liver Abscess Sporadic Amoebiasis

From time to time sporadic cases of amoebiasis have been recorded in the British Isles. It seems likely that with the return of troops from tropical service in the post-war years the incidence will increase. The following case is of interest in that no tropical connexion or association could be discovered.

### CASE REPORT

A man aged 34 was admitted to hospital with a history of sudden onset of epigastric pain five days previously. His pain was associated with vomiting and was worse on deep inspiration. Up to the onset of the pain he had been in good health and had noticed no alimentary upset of any description.

On examination he was seen to be well nourished though sparsely built, and his complexion was pale. The tongue was coated and dry. The abdomen moved well but there was muscle-guarding and resistance over the right hypochondrium. No mass was felt and the liver was not palpable. The remainder of the abdomen was soft and not tender. White blood cells numbered 27,000 (81% polymorphs). X-ray examination showed no gas under the diaphragm, although the diaphragm was raised about 1 in (2.5 cm). Temperature was 100° F (37.8° C), pulse 100. A diagnosis of probable leaking duodenal ulcer was made, and expectant treatment adopted. His general condition, however, did not improve, and five days later the abdomen was opened.

**Operation.**—The abdomen was explored through a paramedian incision. A large soft liver was found to reach to the right iliac fossa. It was so soft as to be impalpable even under anaesthesia. The peritoneal cavity and abdominal viscera were otherwise normal. The right lobe of the liver was then explored with a wide-bore needle and 5 pints (2.84 litres) of anchovy sauce pus were aspirated. On probing with the finger a further loculus was entered.



which yielded another pint (570 ml) of yellow pus. On this latter rupture the cavity was drained after the instillation of 100,000 units of penicillin.

Convalescence following operation was uneventful. The pus from the abscess was sterile and yielded no amoebae. Repeated examinations of the stools failed to demonstrate the entamoeba, either in the cyst or vegetative form. X-ray examination of the bowel showed no pathological change. Sigmoidoscopy at this stage revealed the smooth pale, glassy and rather rigid mucous membrane associated with chronic amoebiasis. A full anti amoebic course was therefore given, the response being immediate and dramatic.

This patient was carefully questioned in order to elicit a possible source of infection. He lives in a Surrey suburb. Neither he nor any of his family has ever been out of the country nor have any of his friends or business associates. He had no illnesses or symptoms until the day of admission to hospital.

C F CRITCHLEY MS, FRCS  
Honorary Surgeon  
Sutton and Cheam General Hospital

### Cure of Exomphalos in a 2-hours-old Infant

The following case is worth recording, as the patient, so far as we know, was the youngest to be anaesthetized successfully with cyclopropane; it also shows that children do stand a fair amount of handling of the viscera.

#### CASE REPORT

A full term female infant was admitted to Dulwich Hospital on Dec 7 1947, with an exomphalos. On examination the abdominal

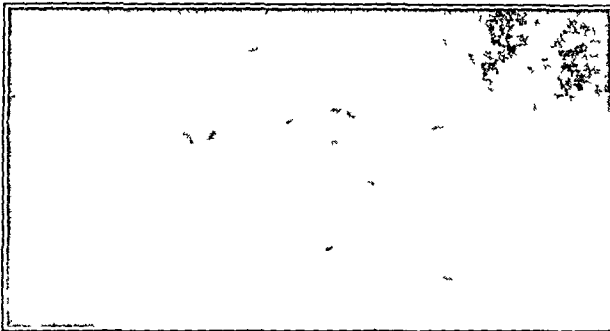


FIG 1—Showing the exomphalos before operation

viscera were lying on the abdominal wall covered by transparent membrane (Fig 1). The striking feature was that the major part of the liver was lying outside the abdomen.

**Operation**—The child was operated on two hours after birth under cyclopropane and oxygen anaesthesia administered by Dr J Pinev. An incision was made along the edge of the exomphalos and the membrane excised. The liver and then the intestines were returned to the abdominal cavity with some difficulty and the wound was closed with through and through silk worm gut sutures. In



FIG 2—Showing the condition three weeks after operation

spite of the considerable handling of the viscera the child made an uneventful recovery. Fig 2 shows the condition three weeks later. At the time of writing the child is 6 weeks old and is progressing satisfactorily.

We wish to thank Dr J Pinev for his excellent anaesthetic. Dr O W Roberts for permission to publish this case and the nursing staff for their post-operative care.

B S S ACHARYA MB FRCS  
R W BURLEIGH MD MRCOG

### A Case of Rupture of Muscles of the Forearm

Rupture of muscles and tendons without breaking the skin is not uncommon. In the case of the long head of the biceps brachii, the plantaris, and the rectus femoris it presents well recognized clinical features. I had not previously seen a case of rupture of muscles of the forearm, nor have I found it described in a somewhat limited search of the literature. Mercer (1943) does not mention any of the forearm muscles in a list of "those most frequently affected." The following case is reported because of its rarity, the clinical features seen, and the satisfactory result after a severe injury.

#### CASE HISTORY

A private soldier aged 21 was driving a 15 cwt truck when it went over a milestone and overturned, late on the night of June 19 1947. He is unable to tell how his arm was injured because "every thing happened so quickly," but as the milestone was less than 1 ft (30 cm) high it is likely that the wheel was very powerfully jerked in his hand. When seen in hospital about 14 hours after the injury, he complained of 'pins and needles' in the fingers of his left hand.

His general condition was good. The left arm was very swollen from a few inches above the elbow to the finger tips. The skin was pink and flushed. There was only a flicker of movement in the fingers and thumb. The radial pulse was present at the wrist. Radiographs showed no bony injury. A provisional diagnosis of subfascial haematoma was made. The limb was elevated on pillows and efforts were made to do finger movements. Next day (June 21) the limb was rather more swollen, the paraesthesia was unaltered. The radial pulse was still easily felt. Exploration was considered advisable.

**Operation**—At noon on June 21—i.e., about 36 hours after the injury—a longitudinal incision was made over the maximum swelling on the antero-medial aspect of the forearm, from about 1½ in (3.75 cm) above the elbow to 4 in (10 cm) below it. The skin gaped immediately, revealing rather congested superficial veins and deep fascia which was tense over a haematoma. The fascia was incised in the same line, and it was then seen that the large blood clot lay among ruptured pieces of muscles. The clots were removed and it was found that the palmaris longus lay intact over the tattered and separated ends of the flexor digitorum sublimis and the flexor carpi radialis. The rupture appeared to have occurred a little above the middle of the forearm. It was clearly impossible to make a good repair of the injured muscles, and in any case it seemed inadvisable to risk any avoidable post-operative swelling. Haemostasis was secured and the skin sutured, there was a little tension in places.

The limb was placed on pillows and active finger exercises were encouraged. Within a day the paraesthesiae had gone. In about four days the swelling of the hand had subsided. On the ninth day a plaster cast was applied to prevent flexion deformity at the wrist. Finger movements were improving but weak. After 24 days there were two hard masses of fibrous tissue in the forearm, and the fingers were showing a flexion deformity unless the wrist was palmar flexed. Frequent stretchings were done by the patient and the physiotherapy staff. Splintage was at this time avoided as it was considered advisable to encourage finger movements continually. After seven weeks a night splint was used to keep the fingers straight with the wrist straight. After nine weeks the grip was 50 to 60% of normal. The index finger was flexed 30 degrees at each interphalangeal joint when the wrist was straight—the other fingers were straight. Ionization with potassium iodide was tried in the hope of reducing the scar tissue a little.

When seen three weeks later (Sept 19)—i.e., three months after the injury—the index finger was straight when the wrist was straight but only in the mornings after a night on a splint. After use it became flexed. With the wrist dorsiflexed all the fingers became slightly flexed. There was no palpable activity in the flexor carpi radialis. The patient was able to use the fingers well both individually and together. He had an excellent grip about 80% normal (he is right handed). He was practising finer finger movements on a typewriter and was making rugs.

Improvement was still taking place when he was last seen. While a degree of limitation of extension of the fingers and wrist seems inevitable, it is likely that he will have a very strong and useful hand with little disability after a period of two to three months.

This case is published by permission of DMS, BAOR, and C O C 25 (Munster) Military Hospital.

G M SLEGGS MCh Orth, FRCS Ed  
Major R.A.M.C.

#### REFERENCE

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## Reviews

### SURGERY OF THE ABDOMEN

*Surgical Treatment of the Abdomen* Supervising Editor, Frederic W Bancroft, A B, M D, F A C S Associate Editor, Preston A Wade, A B, M D, F A C S (Pp 1026, 457 illustrations and 3 colour plates £5 10s) Philadelphia and London J B Lippincott Company 1948

There are not many absolutely up-to-date textbooks to which a practising surgeon can turn for detailed information on operative procedure, but this is one—a very comprehensive and helpful one. It is written by a number of authors, each an authority and known to all readers of American surgical literature. The editing has been very well done, for the unevenness of presentation expected in a book by several authors is noticeably absent. All the procedures described are sound and well established, there is no place for freak operations.

The editor, introducing the account of porto-caval anastomosis, gives a warning that outstanding skill and craftsmanship are needed but says the operation is described because it is past the experimental stage. It is difficult to think of any abdominal operation not discussed, but there is no account of abdominal lumbar sympathectomy, nor of ligation of the vena cava nor of the attack on a prolapsed intervertebral disk from the front. However, it may well be that the two latter operations will never be established as routine measures. The usefulness of the book is greatly enhanced by discussion of the surgery of the oesophagus and mouth. These sections of the book reach the same high standard. There are also excellent accounts of pre- and post-operative treatment and best of all, a chapter called the "Fundamental Principles of Surgical Technique". It is curious to read in a book coming from the country where John B. Murphy practised that proctoclysis is ineffectual and not in use now. We can conclude only that modern surgeons have had no experience of this valuable method. It would be a cautious critic who could find anything for serious adverse comment in this outstanding production.

C. A. PANNETT

### NUTRITIONAL DEFICIENCY

*The Pathology of Nutritional Disease* By Richard H. Follis, Jr. M.D. (Pp 291 illustrated 35s) Oxford Blackwell Scientific Publications

The author of this book discusses the chemical and anatomical changes caused by deficiencies in the food. The deficiencies considered include the elements (both those that make up the bulk of the mineral matter of the body and the trace elements), amino acids and vitamins. He discusses the functions of these factors and describes the disturbances of metabolism and macroscopic and microscopical abnormalities found in experimental deficiencies. He considers only the mammalia except that he refers to birds when necessary for the sake of completeness as in the case of vitamin B<sub>1</sub>. He treats thoroughly of the changes found in mammalia other than man but in general he considers only those changes in man that can be ascribed with some certainty to deficiency of the factor under discussion and has tried to steer clear of controversial points so far as possible. However, he discusses fairly fully the relation of changes in the nervous system to deficiency of vitamin B<sub>1</sub>. He questions whether Wernicke's syndrome is the result of this deficiency and is sceptical about the prevalence of cardiac manifestations of vitamin B<sub>1</sub> deficiency in the U.S.A.

Professor Follis can justly write at the end of many sections words to the effect that it is improbable that deficiency of a particular factor occurs in man. He might therefore have found more space to discuss those changes in man which he orders to be due to a single factor. Two short paragraphs only are given to an account of sodium deficiency which is of practical importance and has been studied thoroughly. He connects keratinizing metaplasia in man very briefly; this matter is of much interest since many morbid anatomists regard it as the result of inflammation or irritation whereas students are led to maintain that it is produced by deficiency of vitamin A. The occurrence of follicular keratosis in experimental deficiency of ascorbic acid might be mentioned. Swelling and bleeding of the gums have been features of human scurvy since

the days of the crusades, they are promptly cured by ascorbic acid. The account of the relation of gingivitis to ascorbic acid might have been allowed more than one sentence.

The book is well illustrated. Photomicrographs of sections of the costo-chondral junction, which are considered to show changes due to minor rickets, are particularly interesting for it is improbable that such changes could be detected by x-ray examination. It is on the basis of such changes that rickets was diagnosed in over 40% of children dying in Johns Hopkins Hospital during 1923-42. There are minor faults which might be corrected in later editions. Whatever Fuson and Christ synthesized (p. 91) in 1936 it was not vitamin A. The author of the paper referred to on p. 94 (Ref. 551) does not discuss the corneal changes due to deficiency of vitamin A.

J. R. MARRACK

### ION TRANSFER

*Treatment by Ion Transfer (Iontophoresis)* By D. Abramowitz, M.D., and B. Neoussikine, M.D. (Pp 186 £1 10s) New York and London Staples Press 1947

In this book the authors give a very full and detailed account of treatment by means of ion transfer (or ionization as it is commonly called in England). In Part I they describe the history of its development and discuss the physical aspects of the subject. In this part of the book the authors seem to be thoroughly at home with their subject and their descriptions of the biophysics of the behaviour of the electrical current in human tissues are authoritative, and they also describe well the action of various ions used in treatment.

In Part II the authors describe clinical applications of their techniques. This part of the book is not so useful as the first. Too many conditions are said to respond favourably to ion transfer, and critical appraisal of results is lacking. Pathological terms are too vague and claims apt to be sweeping: thus we are told that 'electrolytic penetration of calcium is applicable in neuralgia, delayed knitting of bone fractures, arthritis, and brain disorders (hemiplegia, epilepsy, etc.)'. Similarly we read of the treatment of arthritis resulting from rheumatism and gout. The text is clear and the bibliography and index are full.

W. TEGNER

### HORMONES AND NEOPLASMS

*Endocrinology of Neoplastic Diseases* A symposium by Eighteen Authors Edited by G. H. Twombly, M.D., and G. T. Pack, M.D. Oxford Medical Publications (Pp 392 illustrated £3) New York Oxford University Press London Geoffrey Cumberlege

The possible endocrine background of malignant disease has come more and more to the fore in recent years, and this branch of study has been encouraged by the discovery of the dramatic effects produced by oestrogens in cases of carcinoma of the prostate. The literature on the subject is wide and scattered and presents great difficulties to anyone other than an expert. As with most new subjects the quality of the literature on endocrinology varies widely and it is necessary to know the standing of the author of a paper before one can take the results seriously.

The present volume is a welcome addition to the literature, since it provides this authoritative guidance and presents the general reader and the expert with an up-to-date account of the subject. The literature reviewed has been extended from the original series of monographs first published in *Surgery* in 1944, and includes that appearing up to 1946. The articles are models of their particular type and the lists of references are in practically every instance encyclopaedic. Most of the individual articles have over 100 references each and the authors have in all cases given an excellent historical summary, almost invariably giving references to the original papers where the disease was first described. For example in the chapter on parathyroid enlargement, by Oliver Cope, the references start with one to Sandstrom's work, and one can find references also to Von Recklinghausen's original paper and that of Mandl. Starting from these, one has all the papers of greatest importance up to the present time. It is very interesting indeed for general readers to be able to find the original papers of say, Addison, Gull and other pioneers.

The first short introductory chapter is followed by one on tumours in experimental animals receiving steroid hormones, and then one on the investigations into the role of the pituitary

in tumorigenesis. After this follow special chapters on the various types of tumours—namely, pituitary, ovarian, uterine, breast, prostatic, testicular, adrenal, thyroid, parathyroid, pancreatic and pineal. All the articles are without exception first class and it would be invidious to pick out any one for special mention.

E C DODDS

### DUNDEE ROYAL INFIRMARY

*Dundee Royal Infirmary 1798 to 1948. The Story of the Old Infirmary with a short Account of More Recent Years.* By Henry J C Gibson (Pp 71, illustrated). A certain number of copies are available without charge on application to Dr H J C Gibson at the Royal Infirmary Dundee.

By an interesting chance the handing over to the State of the Dundee Royal Infirmary coincides almost exactly with its hundred and fiftieth anniversary. Inspired by this double event the medical superintendent of the hospital, Dr Henry J C Gibson, has published in an attractive little book the story of the hospital—a story that might well pass for a synopsis of hospital development in this country during these hundred and fifty years. *Mutatis mutandis* it could be told of a hundred others of our large hospitals. There is for example the modest origin in this case a development from an earlier dispensary for the sick poor started in 1735, the remarkable growth and expansion from a small two story house catering in two small wards for 20 in patients to a large, handsome edifice built between 1852 and 1855 to accommodate 280 patients and expanded and developed since then so that the hospital now handed over provides well over 500 beds, and the story of the steady growth of specialism and the special departments. These changes are illustrated by interesting charts and tables, and a number of portraits and photographs add to the value of the book as a record.

One is reminded of the close and friendly association with their Dundee colleagues of two famous Edinburgh professors, Christison and Syme. Both were consulted on a number of problems, and together they advised on the plans of the 'new' Infirmary. Consultation, however, was not confined to Edinburgh. Advice was also sought of Glasgow in the person of Sir William Gardner, and the task of building the present Infirmary was entrusted to a London firm of architects. The author refers to some of the more colourful early members of the staff among them John Crichton. A skilled lithotomist, Crichton combated the excessively cautious teaching of Astley Cooper and claimed to have 'experienced the satisfaction of seeing affections which were considered insuperable objections to an operation gradually give way after the pain and irritation, occasioned by the original disease have been removed'. Here surely is prescience of the therapeutic triumphs of surgery that were to come.

Yet into the reader's mind, as the tale of progress and development unfolds, there steals the whisper "plus ça change, plus c'est la même chose". Consider this, written in 1797 by a benefactor in Bombay, 'You have judged very rightly in electing for short periods the different officers of your hospital for I have observed where allowed to continue for life or for a long time that the business falls at last under the direction of some individual who generally manages it ill. Have we solved the problems of administration? Is the urge to more and more specialization in the best interests of medicine? Do we still need two kinds of nurse, as they did in 1798? At any rate we may hope with Dr Gibson that the spirit of the hospital has not changed and will not change, and that 'the relief of suffering will continue the paramount concern of all who serve this house'.

E R C WALKER

When it was first published during the war there may have been a use for *Standard Radiographic Positions* by Nancy Davies, M S R, C T and Ursel Isenbarg, M S R (second edition, 21s, Baillière, Tindall and Cox) among Service personnel who were unable to take the normal two year course in radiography, but it is difficult to recommend it now to radiography students. It is too elementary and has not been brought up to date in this the second edition. The authors do not mention phenolol, nor do they describe tomography. The exposure chart given at the end of the book suggests a lamentable lack of knowledge of modern technique—witness that recommended for chest and barium meal examinations. The modern student will want something more than this if she is to defeat the examiners for the M S R.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Modern Clinical Psychiatry* By A P Noves M D 3rd ed (Pp 525 30s) London W B Saunders 1948  
Based on lectures in psychiatry delivered to medical students

*Science News* Edited by J L Crammer (Pp 158 1s 6d) London Penguin Books 1948

Articles for the layman on a variety of topics including demography, viscosity, and group psychotherapy

*Legislacion sobre Seguridad e Higiene del Trabajo* By Ministerio de Trabajo (Pp 202 No price) Madrid S. Union de Prevencion de Accidentes e Higiene del Trabajo 1948  
The regulations governing industrial health and hygiene in Spain

*Living Anatomy* By R D Lockhart M D, Ch M (Pp 71 12s 6d) London Faber and Faber 1948

Labelled photographs of the nude body illustrating surface contours and muscular action

*Die Primäre Tuberkulose bei Erwachsenen und Kindern und ihre Entwicklung* By St J Leitner (Pp 157 15 Swiss francs) Berne Hans Huber 1948

Report of an investigation into primary tuberculosis in 160 adults and adolescents and 106 children

*Malignant Disease and its Treatment by Radium* By Sir Stanford Cade, K B E, C B, F R C S M R C P Vol 1 2nd ed (Pp 383 52s 6d) London Simpkin Marshall 1948

The first of four volumes, contains Part I, on the radioactivity of radium, and Part II, on the biological effects of radiation

*The Medical Clinics of North America* Mayo Clinic Number By various authors (Pp 305 No price) London W B Saunders 1948

Includes a symposium on anomalies of the heart

*Textbook of Pharmacology and Therapeutics* By H N Wright M S, Ph D, and M Montag R N M A 4th ed (Pp 720 20s) London W B Saunders 1948

This edition contains much new material on drugs introduced into therapeutics in the last few years

*Nursing of Children* By G Sellow B S, R N Ph D, et al 6th ed (Pp 486 20s) London W B Saunders 1948

A textbook for nurses

*Nursing History* By M Goodnow, R N 8th ed (Pp 404 17s 6d) London W B Saunders 1948

A short history of nursing throughout the world

*Hygiene and Health Education for Training Colleges* By M B Davies, B Sc 4th ed (Pp 438 9s 6d) London Longmans, Green 1948

An outline of health education intended particularly for teachers in training

*Childhood and After* By S Isaacs, C B E M A D Sc, Hon D Sc (Pp 245 15s) London Routledge and Kegan Paul 1948

Studies on the psychology of young children

*An Apple A Day* By P Gosse (Pp 195 10s 6d) London Cassell 1948

Stories and reminiscences from the author's varied life

*Correlative Neuroanatomy* By J J McDonald, M S M S D, M D et al 4th ed (Pp 156 \$3 00) California Univ Press Medical Publishers 1948

A students' manual relating the physiology and anatomy of the nervous system to clinical signs and symptoms

*Medicine and Science in Postage Stamps* By W J Bishop, F L A, and N M Matheson, F R C S (Pp 82 7s 6d) London H K Lewis 1948

Includes many illustrations of stamps of medical interest

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## HABITABILITY OF SHIPS

Macdonald Critchley<sup>1</sup> in his Croonian Lectures described the hardships due to extremes of climate which the seamen serving in the ships of the Arctic convoys and in the Indian and South-West Pacific Oceans had to endure. The reports from the Tropics in some respects disclosed a new experience, because before the second world war no sea battles had been fought in modern steel steamships in tropical waters. In the 1914-18 war action stations in the temperate climates of the North and Mediterranean Seas had not been in any way intolerable. However, the possible effects of hot climates combined with the "wild heat" which escapes from the machinery of the ship herself and accumulates between decks had been carefully examined in peacetime, and the means of maintaining a satisfactory atmospheric environment in the key positions of the ship during action had been fully investigated.

The conclusions reached in peacetime were that the conditions, if uncomfortable, were not intolerable, and that they did not entail a degree of hardship which the traditional tough and climate-conditioned British seaman of high morale would not be prepared to accept willingly in the day of real battle. When, therefore, in the 1939-45 war lurid stories and bitter complaints of the conditions between decks arrived from ships serving in the Tropics, old and experienced sailors at Admiralty headquarters were at first doubtful about how far these reports should be accepted as factual or as the time-honoured "grouses" which were the recognized safety-valves of all men on active service abroad. However, the Royal Naval Personnel Research Committee of the Medical Research Council was asked to investigate the climatic conditions in warships in the Tropics. Some of the valuable scientific work carried out has been described recently in this *Journal* by Surgeon Commander F. P. Ellis,<sup>2</sup> naval secretary to the R.N.P.R.C. and the naval medical officer in the team of naval and civilian expert observers responsible for the field work. This team confirmed that the complaints and anecdotal evidence were not overstatements. Indeed, scientific tests showed that the heat and atmospheric conditions between decks had more serious physical and psychological effects on fighting efficiency and health than had been indicated by the subjective feelings of the ship's company themselves. There had been failure at the Admiralty a few days to envisage the difference in atmospheric environment during peacetime manœuvres and action in tropical seas. The exercise of action stations in peacetime lasted an hour or two once a week. In war, action stations were of daily occurrence and lasted for

hours at a time. Blackout and "war damage precautions" interfered continuously with proper ventilation. There was no let-up from these austere living conditions in war such as occurred during the pleasant health cruises to cooler parts of the station, with plenty of leave, healthy recreation, and jaunts ashore, which were part of the peacetime routine on hot stations. Again, with ship's companies made up of 85% unseasoned conscripts, the crews were themselves of very different composition in peace and war.

The results of the investigations of the R.N.P.R.C. team of observers combined with the evidence of experienced sea captains on naval operations in tropical waters proved that extensive air-conditioning was the only way of maintaining the minimum effective temperature compatible with the maximum efficiency of a warship on active service in the Tropics. In order to compare the conditions in different types of ships serving in the same or different climates some simple objective index entirely dependent on the human element was found to be necessary in addition to the physical and mechanical measurements of habitability such as effective temperature.<sup>3</sup> For psychological reasons no reliance whatever can be placed on the subjective sensations of any single individual, whoever he may be. An admiral or a stoker may equally be a robust insensitive optimist or a weary nervous pessimist, with corresponding feelings and opinions concerning the same physical environment. The present problem of the effect of powerful heat-producing engines on the health of the ship's company attracted attention from the first introduction of steam into the Royal Navy. Admiral J. B. Sullivan, in 1854, reported to the Admiralty that "it is the large screwships which have been unhealthy. It is the heat of the engines confined under the deck which seems to cause it." This observation can never be repeated, because only during the actual switch-over from sail to steam could the ill effect of "wild heat" on the health of seamen be properly controlled by the presence in the same squadron of the old sailing ships in which no "wild heat" could accumulate.

The sick returns have for long been used as an unbiased gauge of the healthiness of different types of ship, but in some ways the ordinary sick lists are unsatisfactory measures of habitability. The naval medical administration therefore decided, largely on the results of the data collected by the R.N.P.R.C. observers, that the "attending list" might be a more convenient or sensitive index of healthiness or habitability than the sick list. The attending list in naval parlance refers to men with minor ailments or injuries who are not ill enough to be retained in the ship's sick bay or sent to hospital. The attending lists, not being considered important, were usually kept in an irregular and haphazard way, and before they could be used as a comparative index of habitability a simple standard method of recording had to be devised and instructions issued to the medical officers of all ships regarding the way they were to keep the lists and make returns to the medical department of the Admiralty.

The full details of this new statistical return and the conclusions reached after it had been given a trial are embodied in a report prepared by Dr J. A. Fraser Roberts for the R.N.P.R.C. and published recently in the *British*

<sup>1</sup> *British Medical Journal*, 1948, 2, 145-150.

<sup>2</sup> *British Medical Journal*, 1948, 2, 145-150.

<sup>3</sup> *British Medical Journal*, 1948, 2, 145-150.

*Journal of Social Medicine* <sup>4</sup> First, this new index of social health was found to give practical information about ship habitability, and in spite of the short time it was in use clearly showed that the attending list doubled in size in the passage from temperate to tropical waters within a week or two. Skin diseases, always a bugbear in the Tropics, showed a triple increase. As Fraser Roberts points out, the expectation that the attending list might be more sensitive than the sick list "is not completely realized. The trends in the sick list figures are somewhat clearer and the rise somewhat greater." But since attending-list patients are ten times as numerous as sick-list patients the rates gave what was urgently needed, an index that would provide significant figures over short periods of a week or two in one big ship, or in a small squadron of two or three small ships. Secondly, Fraser Roberts' paper clearly demonstrates the usual difficulty met with by all those who try this kind of co-operative statistical research. This is the problem of getting many medical officers (and others) to fill up forms intelligently and accurately even when they are really trying to be helpful. In addition this return was inaugurated at a most unpropitious time at the end of the war, when the use of ships as transports, the giving of leave to ships' companies, and, last but not least, the great psychological relaxation of tension which inhibited all interest in everything but demobilization also accounted for a large number of attending-list forms which had to be rejected as useless.

This experience, and many others of a similar nature, point a lesson no workers in social medicine can afford to neglect—namely that in research dependent on statistical returns it will generally save time, money, and disappointment to employ a few trained and tactful specialist observers to travel around and explain to the non-specialist medical officers or field observers who collect the data exactly what is wanted and why it is wanted. Nevertheless, in spite of these difficulties—indeed, from one aspect, because of them—Fraser Roberts was able to prove that the attending-list return could be made easy and almost foolproof, and that it was the most rapid and reliable method yet devised for enabling the Medical Director-General and his staff to follow at a glance fluctuations in the social health and habitability of the fleets, squadrons, and single ships for which he was responsible. In addition the new return should prove invaluable for testing directly the efficiency of new ventilation, air conditioning, and other schemes for maintaining the health of ships' crews.

Fraser Roberts calls his paper "a contribution to medical climatology." In this context it should be noted that a ship's crew is unique in that its own private physical and social environment is carried around the world with it. Man's success as a species depends not so much on his biological plasticity—his power of adaptation to an ever-changing environment—though that is great enough, but on being the only species that by the use of tools, shelters and clothes has succeeded in adapting every conceivable environment to himself rather than in adapting himself to the environment. This principle should now be applied in the modern warship, which must be adapted to provide a suitable climate for her human complement. This means that ships must be air-conditioned to counteract the cold of the Arctic ocean and the heat of the tropic seas.

## MORBIDITY SURVEYS

In the annual reports of the Registrar-General a hundred years ago Farr produced evidence that the excessive mortality in some areas resulted from unhygienic conditions of life. Since that time changes in living conditions have almost eliminated such diseases as smallpox and typhus and have brought about a steady improvement in mortality figures. In recent years, therefore, studies of mortality have given way to surveys of morbidity. In the first instance studies of the extent and causes of sickness were made in hospital. Hospital reports have always contained figures tabulating in varying detail the causes which led to admission of the patients. It has rarely been possible to relate these patients to the population from which they were drawn, and in addition the reasons for admission to any hospital may change appreciably over a short period. Many of the larger authorities—for example, the London County Council—have published extensive statistics which served rather to indicate the lines along which research might be pursued than to provide answers to specific problems.

Within the last few weeks the Nuffield Provincial Hospitals Trust has published a survey<sup>1</sup> by the Glasgow Health and Sickness Bureau of hospital-treated sickness among the population of Stirlingshire in the 12 months beginning on Oct 1, 1946. This was a pilot study designed as much to find out the difficulties inherent in an investigation of this kind as for its own results. It may serve as a useful guide for further studies of the influence of social factors on the incidence of sickness treated in hospitals. In the past the paucity of data has made the study of the incidence of sickness among the general population almost impossible. Very little was known of minor sickness which caused no incapacity. The frequency of the different causes of illness and the resulting incapacity have been tentatively estimated, however, by inferences drawn from specific inquiries concerning a selected section of the population.

The most recent of these special investigations is that by Dr Cecil Roberts, who has reviewed the sickness experience of Post Office employees over the past 50 years. During this period the staff increased greatly in size. In 1946 three times more men and nine times more women were employed than 50 years earlier. Women had a higher sickness rate than men, on an average each woman was absent for 15.9 days in the year, against 12.3 for men, in 1946. The rate for 1946 was considerably above the rates for the inter-war period, when the differences between the sexes were not so marked. The average number of absences due to sickness was slightly larger for both males and females at ages under 35 than in the older groups, but the average length of absence per illness showed a steady rise with increasing age. There were considerable differences in the sickness rates among various occupational groups and in different regions of the country. Some of the variations over the period were possibly due to administrative policy but the age of the population at risk must be considered an important factor.

<sup>1</sup> *Hospital and Community*, 1. Hospital treated Sickness Amongst the People of Stirlingshire 1946. Nuffield Provincial Hospitals Trust.  
<sup>2</sup> *Mon. Bull. Min. Hlth* 1948, 7, 184.

During the recent war it became necessary to determine whether abnormal living conditions, rationing, and other restrictions were affecting the health of the nation. Since there were no data in existence that could be used to find an answer to this question, the Ministry of Health undertook to arrange periodic sickness surveys. Comparisons of the results obtained showed the general trend of sickness, but for a number of reasons the actual sickness incidence may differ from the picture revealed by the survey. The various types of surveys that have been undertaken, the obstacles encountered, and the difficulties inherent in the schemes are discussed by Dr E. R. Bransby in a paper published elsewhere in this issue (p. 678). As a wartime expedient the morbidity surveys gave a reasonably good indication of changes in the incidence of sickness, but it is open to doubt whether under more stable peacetime conditions the results justify the labour and expense of their collection.

Some over-optimistic hopes have been expressed about the value of the information which may be obtained by morbidity surveys. The object of any survey must be more than the mere collection, tabulation, and sub-tabulation of a mass of figures, since this type of investigation can provide little help to either the administrative or the executive authorities. Dr Bransby suggests that the future of social surveys, including morbidity surveys, depends on the testing and developing of techniques. In morbidity surveys there are two primary conditions to be fulfilled before a start is made. The first is that there should be specific questions to be answered, and these questions must be presented in such a form that they can be answered. The second condition is that the data must be sound—advanced mathematical treatment in the analysis cannot make up for inaccurate fact-finding. The present methods of carrying out surveys contain so many potential sources of error that reservations must necessarily be made in attempting to draw conclusions from them.

### SLIGHT ENLARGEMENT OF THE HEART

Cardiac enlargement is one of the most reliable signs of cardiac disease, and when heart failure is present the size of the heart gives some indication of the gravity of the condition. Considerable enlargement can usually be detected clinically, but x-ray examination is needed for the diagnosis of moderate or slight enlargements. Even radiography, however, is not always able to settle the question. There is a considerable range in size in the normal individual depending on height, weight, sex, and shape of chest. In the past there have been many attempts to find a formula for calculating the size of the heart from exact measurements, and these were fully described by Roesler,<sup>1</sup> who considered that the heart size could be determined correctly only by the method of volumetric reconstruction. But even when the exact volume of the heart is known and compared with figures obtained from a study of normal subjects it may still be impossible to say whether or not enlargement is present. Laubry and his colleagues have expressed the generally accepted view—that such methods of mensuration are useless in determining enlargement which cannot be diagnosed by simpler methods.

In a paper published elsewhere in this issue Dr R. Hartley describes an investigation into the causes of slight cardiac enlargement in a series of 18 cases. The method used to determine enlargement was radioscopy performed by more than one experienced observer. Apparent enlargement was found in deformities of the chest, and sternal depression, as described by Evans,<sup>2</sup> is especially likely to give a false impression of enlargement. The importance of actually seeing the patient before giving an interpretation of an x-ray picture is thus obvious. In some of Hartley's cases slight cardiac enlargement was recognized at a time when no cause could be discovered, yet later a murmur of aortic incompetence was found. Though suspected originally, the aortic lesion could not be confirmed even after a most diligent search for the murmur. In such cases there is clearly a use for phonocardiography. Another cause of slight cardiac enlargement without valvular disease or hypertension which might be added to the list given by Hartley is chronic constrictive pericarditis, for though these cases are not numerous their recognition is of great practical importance because of the successful results of operative treatment.

### SURFACE PHAGOCYTOSIS

Workers in the United States have always been to the fore in studying pneumonia experimentally. Methods have been evolved for producing lobar consolidation at will and with regularity, these have thrown much light both on the genesis of the disease and on the mechanisms concerned in recovery from it. In one direction at least the findings have wider implications: they appear to require that we should recast our ideas about the conditions governing phagocytosis. In sulphonamide-treated experimental pneumonia, examination of the lung at different stages makes it clear that phagocytosis is responsible for the destruction of the bacteria. W. Barry Wood and his colleagues<sup>1,2</sup> have shown, first in connexion with pneumococcal pneumonia in rats and more recently to that due to *Bact. friedlander* that each of these capsulated bacteria, which are supposed to be resistant to phagocytosis unless in the presence of antibody, are in fact actively attacked, ingested, and demonstrably killed by leucocytes before any opsonin can be detected in the blood. They devised an ingenious series of experiments to determine why this phagocytosis occurs in the lung, whereas the same organisms are entirely immune to attack by living leucocytes under ordinary conditions *in vitro*.

That some purely mechanical factor was concerned was suggested by an experiment in which leucocytes and bacteria were introduced into a lung which had been fixed whole and washed free of formalin. Phagocytosis occurred in this environment with or without artificial respiratory movements. Leucocyte-bacteria mixtures were then placed on various surfaces. On glass or cellophane nothing happened, on fragments of boiled tissue of many kinds and on filter paper or cloth phagocytosis occurred. Finally, by using thoroughly washed and dried histological sections of lung the process could be seen taking place in the alveoli. The inert skeleton of lung tissue was placed on a coverslip and the leucocyte-bacteria mixture added, the latter filled the alveoli with a shallow layer of fluid, and the behaviour of its living elements could be studied in a hanging-drop preparation. It could then be seen that leucocytes encountering bacteria away from the alveolar walls passed them by, on the other hand if they happened to pin them against the alveolar wall ingestion followed. The same thing occurred when bacteria were trapped between the surfaces of two leucocytes in contact. The beautiful serial

<sup>1</sup> Clinical Roentgenology of the Cardiovascular System, 1937, Springfield, Ill.  
<sup>2</sup> Radiologie Clinique du Cœur et des Gros Vaisseaux, 1939, Paris.  
<sup>3</sup> Brit. Heart J. 1946, 8, 162.

<sup>1</sup> J. exp. Med. 1946, 84, 387.  
<sup>2</sup> Ibid. 1947, 86, 257.



photographs illustrating the phagocytosis of *Bact friedländer* under these conditions are unmistakable, in their significance. The ingestion of bacteria only when they are immobilized by being trapped between the leucocyte and another surface, whether that of another leucocyte or a fixed tissue cell, has been named "surface phagocytosis". That it occurs in the absence of antibody has been abundantly proved. On the other hand, in the presence of opsonin phagocytosis is independent of this mechanism, bacteria being ingested when in suspension in a fluid medium.

It seems certain that these observations have a wider application, and that phagocytosis anywhere is conditioned by mechanical factors. As these authors point out, one of the reasons why lung abscesses complicating *Bact friedländer* pneumonia cannot be sterilized may well be that in a cavity containing nothing but fluid the physical conditions most favourable to phagocytosis are lost. The same consideration should apply to suppuration and to fluid effusions in general elsewhere. It may well have a bearing on the genesis of diffuse meningitis and on persistence of infections of the urinary tract. It will be interesting to watch the impact of this new idea on the study of inflammation generally.

### KEROSENE POISONING IN CHILDREN

Like all other volatile hydrocarbons kerosene (lamp-oil) is essentially a narcotic, producing cerebral depression and a more or less severe paralysis of the vagus and respiratory centre. It appears, however, that children who recover from the immediate injurious effect of accidentally swallowing kerosene may develop later lesions, both inflammatory and degenerative—inflammatory in the lungs, and degenerative in the myocardium, the liver, the kidneys, and the gastro-intestinal tract.

A recent analysis<sup>1</sup> of 35 cases of accidental kerosene poisoning in children divides them roughly into three groups, according to the predominating incidence of cerebral, pulmonary, and degenerative signs. The cerebral group showed marked drowsiness but very little evidence of lung involvement, and they recovered rapidly. The pulmonary group developed severe pneumonia, and recovered slowly. Children in the degenerative group also had severe pneumonia, but in addition developed signs of cardiac injury, persistent albuminuria with blood cells and casts, and, in some cases, hepato splenomegaly and occult blood in the stools.

Whether aspiration of kerosene or its absorption from the gastro-intestinal tract is the more important cause of the pulmonary and organic lesions is still a matter of some uncertainty, but animal investigations<sup>2</sup> have indicated that vascular damage resulting from absorption into the blood stream is certainly a factor in both.

In any case the treatment is to remove as soon as possible all traces of kerosene from the gastro-intestinal tract in order to prevent not only further absorption but also further injury to the mucous membranes. In the 35 cases referred to emergency treatment consisted of copious gastric lavage with weak sodium bicarbonate solution, administration of cardiac stimulants, of penicillin to prevent secondary bacterial infection of the lungs, and of dextrose solution and oxygen to reduce the hazard of pulmonary oedema. All these children made a complete recovery, even the degenerative changes proving reversible and leading to no permanent damage.

### PERMANENT INTUBATION OF THE THORACIC AORTA

Fifty years ago the problem of intestinal anastomosis was being thrashed out, with Senn and Murphy as the two advocates of the alternative methods of direct suture or the use of some mechanical contrivance. The universal use to day of suture methods indicates how that problem was settled. Similar questions are now arising in connexion with the anastomosis of blood vessels and, to a lesser extent of hollow ducts such as the ureter and bile ducts. It is as well to view these matters against the broad panorama of surgery as a whole rather than to consider the local problem alone, and there is ample justification for reopening the case for mechanical methods of anastomosis now that more suitable substances are available, such as vitallium tubes and the whole range of plastics. Moreover, there are occasions when it is necessary to bridge a gap which it is not possible to close by direct anastomosis.

Owing to his interest in resection of the aorta for coarctation, Hufnagel<sup>3</sup> has experimented with the permanent intubation of the aorta in dogs. He has reviewed the literature on similar mechanical methods of blood-vessel anastomosis, and much of this is reminiscent of the Murphy-Senn dispute. There are obvious advantages in establishing temporary bridges to maintain circulation, if only for a few days while a collateral circulation is improving, and even if thrombosis occurs early in a proportion of cases. Hufnagel suggests that a new plastic, methyl methacrylate (Lucite), possesses properties which may make it suitable for permanent intubation. It is well tolerated by the tissues, has a high tensile strength, absorbs practically no water, is easily worked, and is inexpensive. It also has the highly desirable property of delaying the coagulation of blood.

The tubes used in this study were machined from blocks or cylinders, and the ends, which had two grooves with an intervening ridge, were carefully tapered. The tubes were 4 cm long, and the walls were 1 mm thick, two sizes were used, 1 cm and 1.3 cm in diameter. The inner aspect was polished to an extremely smooth finish with finest jeweller's rouge.

Fifteen dogs were used in the experiments. One to three centimetres of the thoracic aorta below the left subclavian artery was resected and continuity restored by a tube. The time of aortic occlusion was always under 10 minutes and often no more than 5-6 minutes. Seven of these dogs died as a direct result of the procedure—i.e., from shock or from haemorrhage caused by the ligatures cutting through. Three more died soon after operation (from pneumonia and empyema), but the tube appeared to be working well in each case. Five were killed at times up to 6 months, and again the vascular result was satisfactory. In none of the experiments did thrombosis occur. It is clear that the greatest danger is cutting through of the ligatures, and Hufnagel found that braided silk was the best material.

From the result of these experiments it would appear that no case has been made out for a plastic tube to replace direct anastomosis of the aorta by suture—a method that has proved successful. It is, however, a useful technique to have in reserve should some accident occur to make direct anastomosis impossible. It may have a use in cases in which the aortic atresia is too long to permit resection and direct suture. In man large vessels down to the size of the femoral artery could be intubated by this method. Possibly it could also be used for replacing segments of bile duct or ureter.

<sup>1</sup> Steiner M. M. *Amer J Dis Child* 1947 74 72

<sup>2</sup> Deichmann W. B., Kitzmiller K. V., Withrup S. and Johansmann R. *Ann Int Med* 1944 21 803

<sup>3</sup> *Arch Surg Chicago* 1947 84 382

## ANNUAL CONGRESS OF PHYSIOTHERAPISTS

### THE NATIONAL HEALTH SERVICE

The Chartered Society of Physiotherapy held its annual congress from Sept 22 to 26 in St Pancras Town Hall. For the first time in the Society's history the congress was an international one, invitations having been sent to physiotherapists' organizations all over the world, a special session was held for a discussion on international collaboration in physiotherapy.

At the opening session, presided over by Dr W S C Copeman, chairman of council, an address on the National Health Service was given by Sir WILLIAM SCOTT DOUGLAS, secretary of the Ministry of Health. Sir William Douglas began by asking his audience to imagine what it was like in countries where there was no planned health service on a national basis. He quoted from a study made by PEP into conditions in the United States, where only about 4% of the population were voluntarily insured for anything approaching full medical care and 75% were without any kind of health insurance at all. The lowest income groups suffered more from ill-health and received less medical care than the other sections of the population. As for the distribution of general practitioners in the States in 1938, in the counties surveyed where the average income per head of population was \$100 or less a year, the number of doctors was 45.6 per 100,000 population whereas in counties where the average income per head was \$600 or over the number was 170 per 100,000. This was in a country wealthy and up to date, and the condition in other countries not so fortunately placed might be imagined.

Dealing with the finance of the national scheme, Sir William said that there was no real connexion between the payments under the national insurance system and the benefits under the National Health Service. The latter was a free service for all, financed principally from rates and taxes, plus a small contribution—some £30,000,000 out of a total cost of the service in the first year of £150,000,000—from the insurance fund.

In the new hospital grouping the disadvantages commonly associated with State control—uniformity, red tape, soullessness of the State machine—had been obviated. He described it as a great act of abnegation whereby the Ministry had surrendered its powers over the hospitals to regional boards and management committees. It was sometimes said that research and State control could not go hand in hand, but that was disproved in his experience at the Ministry of Supply during the war when the best scientific minds in the country carried out a magnificent work of research under Government auspices in connexion with armament, and he could not believe that in the medical world the research would be less fruitful.

The general practitioner service was a universal medical service, open to everyone, with freedom of choice. Private practice was allowed, and the fears of doctors about direction had been overcome. At the moment more than 90% of the public had signed on doctors' lists, and the great majority of doctors had come into the service. On the subject of health centres a report had been received from the British Medical Association and the Ministry had also a committee of its own to consider their organization. The centres would take different forms up and down the country, uniformity was not desired.

The rush for spectacles in the early days of the service was understandable. A recent survey in Wolverhampton had shown that among men over 65 and women over 60, 90% wore spectacles for reading but one-third of them admitted that their glasses were unsatisfactory and one-sixth that they had obtained them from a general store or a travelling salesman or had inherited them from a relative, 36% had had no sight test for five years. The matter would adjust itself in time.

Dealing finally with physiotherapy, the Ministry was fully alive to its importance, particularly when it was regarded as part of a rehabilitation process and the physiotherapist one of a team associated with doctor and surgeon, remedial gymnast and occupational therapist. It was considered that at the beginning of the health service physiotherapy should be associated with hospitals but in the later stage there would have to be a domiciliary service.

### Physiotherapy in Industry

Dr E H CAPEL addressed the congress on physiotherapy in industry. By the end of the war, he said, there were in industry 180 full-time and 900 part-time doctors, with 7,700 nurses, half of whom were State-registered. Since the war ended there had been some reduction in these numbers, but the majority both of doctors and of nurses remained. He could not give the exact number of physiotherapists employed in industry. He had sent out a questionnaire to the medical officers of about 70 large industrial concerns, and of the 64 who had replied, 54 said that physiotherapy was used in their works. The best physiotherapy services were afforded by large engineering firms and by a certain number of food manufacturers and commercial houses. In 48 of the 54 cases radiant heat and infra-red treatments were provided, in 45, ultra violet, in 41, massage, faradism and galvanism were provided by a much smaller number, and 16 provided short wave and three long-wave diathermy. The number of untrained staff in these physiotherapy departments added up to over 200. It appeared that a large part of physiotherapy in industry was given by persons who had had no special training in that subject, usually by nurses who, of course, were mainly occupied with other duties.

Physiotherapy in industrial medicine, Dr Capel continued, enabled many to continue at work who would otherwise be unable to do so because of the difficulties in attending for treatment at hospital. The cases customarily seen at industrial clinics were of injuries and sprains, all sorts of septic and rheumatic conditions (rheumatic conditions being particularly common in coal mines and in iron and steel and some other heavy industries), and another group of cases were those which arose from routine repetition jobs in which the same group of muscles was used all day long. These last cases very often appeared immediately after the worker had resumed his job following upon a short absence. Postural defects which arose in industry benefited by physical exercises. Except in the case of the more trivial accidents it was usual to notify the workman's private doctor and obtain his approval for any course of treatment.

### The Experimental Approach to Physiotherapy

The Founder's Lecture in connexion with the congress was delivered by Professor L J WITTS with Lord Horder in the chair. Professor Wits spoke on the experimental approach to physiotherapy. In this field, he said, they were largely dependent on the scientists for any advances they were going to make. The number of first-class physicists or chemists who would be prepared to work in physical medicine would always be small and the number who could get the correct biological grasp of things would be even smaller. But when these men did enter medicine the help they could give was out of all proportion to their number, and they soon learned to think clinically. The idea must not be allowed to grow that the physicist did the research and the doctor the clinical work, there was a true combination. Professor Wits illustrated his point by describing some research on the application of radiant heat. In one hospital—hospitals, if we came to think of it, he said, were in some ways the most dangerous places in the world—twice within a week semi-conscious patients were burned by the application of a radiant-heat cradle. Instead of blaming the nurse a physicist was called in to ascertain why the cradle was so dangerous and how it could be improved. As a result the application of the cradle was made quite safe and the transmission of heat much more efficient.

The problem of pain, Professor Wits continued, had always attracted some of the best brains in medicine, but it was a curious thing that at the present time there was a shortage of trained clinical investigators for work on rheumatism. One of the reasons why research was not carried out was because patients were segregated in special departments and the problem of chronic rheumatism was not sufficiently brought to the notice of the young man in general medicine. There was always a difficulty in attracting a young man to borderline subjects—and rheumatism was on the borderline of medicine, surgery, physiotherapy, and other disciplines. The only way to get such men was to provide first rate centres of research directed by scientific workers, and one of the encouraging happenings since the war was the way in which these centres were being developed.

Dealing still with the conveyance of heat to the tissues, Professor Witts said it had been ascertained that the transition from a comfortable heat to the sensation of burning occurred quite sharply at 44–45° C, and it had become clear that much more heat could if necessary be put into the tissues without producing burns. The stage was set for a quantitative study of the local and general effects of radiant heat in health and disease. When we get back to the research on pain it will be simpler to begin by studying the effect of physiotherapy on experimental lesions whose nature and extent we know. Lesions of various kinds can be produced with little or no danger in the muscles, joints and ligaments, and experiments can be carried out on well characterized diseases such as gout and rheumatoid arthritis."

Dr W S C COPEMAN in proposing a vote of thanks to the lecturer said that the profession of physiotherapy was entering upon a new era for various reasons, but as a result of Professor Witts' talk he had hope that the science of physiotherapy was entering upon a new era also. Professor Witts had brought the method of what was known as clinical research to bear upon this subject and the results would be of very far-reaching importance.

Other lectures given in the course of the congress included one on rehabilitation of the injured, by Mr H OSMOND-CLARKE, on the management of the arthritic patient by the physiotherapist, by Dr H A BURT, on the role of physiotherapy in obstetrics and gynaecology, by Professor GREEN-ARMYtage, and on the quadriceps in relation to recovery from injuries of the knee joint, by Mr I S SMILLIE.

The congress had its international side. A special meeting was held to discuss international collaboration in physiotherapy, and at another meeting speakers from Germany, Belgium, Norway, Sweden, the United States, and other countries gave brief outlines of the treatment of poliomyelitis as practised by them. Most of them emphasized the importance of warmth to the limbs, and in particular the avoidance of fatigue of the muscles by excessive electrical or other treatment.

At a luncheon held in connexion with the congress, presided over by Lord Horder, Dr COPEMAN said that there were not enough members of the Society to fulfil the needs of the National Health Service Act. The Council had recognized that a certain amount of temporary dilution was inevitable, but it was anxious that the standards of the profession should not permanently be lowered.

## Preparations and Appliances

### GLOVE DRAINS

Dr A HOVNIANIAN, assistant surgeon, Altounyan Hospital, Aleppo, Syria, writes: Owing to the scarcity of rubber tubing during the war I used discarded surgical gloves as drains. I have continued with this practice because of its usefulness. It is also economical. No claim is made to originality, and the only reason for publication is that it may prove useful to those practising at the outposts of civilization who are handicapped by scarcity of materials. Even during times of peace, all torn and mended gloves that are unsafe for operative use are collected,

loose tags of rubber are removed and the ends of the fingers cut. Long gauze strips with infolded ends are tucked into each finger so that they just show at the tips (see illustration). Gloves thus prepared are put singly in special labelled bags and autoclaved. No powdering is used. Favourable sites for drainage are large pus cavities such as subdiaphragmatic, perirenal, or pelvic where after the initial evacuation adhesions are apt to form between the two flattened surfaces of the abscess. In cavities where there are subsidiary pocketings glove drains might be of value, as the fingers of the drain may be spread out by squeezing the glove at the wrist.



## Correspondence

### R M B F Christmas Appeal

SIR,—I appeal once more to members of the medical profession to help those who are dependent on others for extra comforts. The beneficiaries of the Royal Medical Benevolent Fund are in such a case. They are either aged or infirm practitioners, their wives, widows, or children, and, through no fault of their own, find themselves in need of help.

I hope that subscribers to the Fund will send donations to provide a little extra cheer at Christmas time and I earnestly beg those who are not subscribers not only to send Christmas gifts but to become regular supporters of the Fund. A special effort to obtain new subscriptions is urgently necessary because certain medical bodies such as the Panel Committees, which used to make generous contributions, have gone out of existence with the National Health Service Act.

Donations and subscriptions, marked 'Christmas Gifts', should be sent to the Secretary of the Royal Medical Benevolent Fund, 1, Balliol House, Manor Fields, Putney, London SW15, and will be gratefully acknowledged—I am, etc.

WEBB JOHNSON  
President Royal Medical Benevolent Fund

### Medicine in the Commonwealth

SIR,—I should like to add a few words to your comment (Sept 25, p 606) on the latest development in the activities of our Association. I refer to the British Commonwealth Medical Conference and its complement the Empire Medical Bureau. This is a new departure of which the Association has every reason to be proud. It is all to the good to join in promoting a World Medical Organization, but melancholy experience of what has been done, or not done, by ambitious international bodies seems to me to point to the advisability of cultivating assiduously the much more promising family field. For the British Commonwealth is a family affair. During my official career one of our proudest boasts was that wherever the British flag was found, there you would find the B M A. But I never felt very comfortable when I thought of the unbounded hospitality shown to British medical visitors to other parts of the Empire, and the small return we often made for it. The Council has shown great wisdom in setting up the Empire Bureau with an able and enthusiastic director. The Commonwealth Conference is a natural and welcome sequence.

The future historian of the B M A will, I believe, record this development as one of the wisest things the Association has ever done, and in saying this will I hope, give due credit to our Past President, Sir Hugh Lett, who during his term of office did much to bring home to us a larger conception of the services we could render to our branches and affiliated bodies overseas. Those who accuse this country of imperialism might with advantage consider the way in which those members of the family have shown their belief that their membership of the Empire has been to them a benefit and a source of pride. In no sphere has this been shown more happily than in medicine. There is a great opportunity to increase this feeling of solidarity, and our Association has grasped it.—I am, etc.

London SW 7

ALFRED COX

### Graduates from the Dominions

SIR,—As a Dominions graduate student who abandoned general practice on Vancouver Island in order to come to Britain for surgical training I want to thank the B M A and to congratulate those responsible for the excellent machinery which exists to help those in my position. My wife and I left Canada with considerable misgivings, having given up a reasonably lucrative post to come to austere Britain. Our experience since arrival has removed all our fears. The British Medical Bureau found me a satisfactory interim surgical post while waiting for the Royal College of Surgeons course to commence. The Empire Medical Advisory Bureau has given me much good advice concerning postgraduate plans and at the moment the same

body is helping me to find a London flat. The British Postgraduate Medical Federation and other groups have been similarly helpful. I regard medical experience here as of enormous value apart from the obvious benefits in training. At a time when international unpleasantness is not a remote possibility, the exchange of graduate students would appear a very real way in which Empire co-operation can be furthered. A stream of students in both directions would perhaps be of value to all concerned—I am, etc.,

Hove Sussex

DOUGLAS FINDLAY

### Trilene as an Analgesic

SIR—As I was chiefly responsible for the introduction of purified trichlorethylene as an anaesthetic and analgesic in 1941, may I be allowed to comment very briefly on Mr F Neon Reynolds's plea (Sept 25, p 620) for its domiciliary use by midwives? It is true that 'trilene' is a most effective analgesic and can be given with a simple and portable inhaler, but when it comes to legalizing its use by midwives all sorts of complications arise. The Council of the Association of Anaesthetists of Great Britain and Ireland has had the matter under active consideration for some time and the two research fellows of the association have been engaged on whole-time work on the subject. A brief interim report will be found in the current issue of *Anaesthesia* and it is hoped to include a more detailed account of the important findings in the next number. I would suggest that those interested should peruse these reports, and they will then realize the complex problems which have still to be solved before the ideal 'foolproof' obstetrical analgesic can be provided—I am, etc.,

St Albans Herts

C LANGTON HEWER

SIR—Mr F Neon Reynolds's letter (Sept 25, p 620) brings out the point that some improvement in the means of affording relief of pain during childbirth supervised by midwives is long overdue. The solution of the problem, however, is not so simple as he hints. Two outstanding defects in the "trilene" inhalers at present available for obstetrical analgesia are that the strength of vapour delivered varies both with room temperature and with the depth of respiration of the patient. Also the susceptibility of the individual patient to anaesthetic vapours has to be borne in mind.

There is no doubt that several inhalers give adequate relief of pain in a high percentage of cases, particularly where intelligent supervision is exercised. Nevertheless, a combination of circumstances can arise in which an unduly high concentration of vapour is breathed by a susceptible patient, and then the stage is well set for accidents which the limited training of many midwives in the case of the unconscious patient leaves them incompetent to deal with. Reasonable risks must be taken but it would be hard to justify an occasional maternal or foetal misadventure with apparatus so obviously capable of improvement. If the present inhalers are modified to be safe in all cases they will be practically useless in the great majority.

Work is in hand at more than one centre to construct analgesia inhalers which will be independent of depth of respiration and in which a simple adjustment can be made for different room temperatures—in short a simplified version of a successful chloroform inhaler specially designed for paratroops during the war—I am, etc.,

Oxford

R R MACINTOSH

### Fibrositis

SIR—The letter of Dr M G Good (Sept 25, p 617) adds very little clarity to the article of Dr James Cyriax (July 31, p 251). Dr Good's hypothesis that the myalgic spots are due to abnormal vasodilatation by stimulation of the vagus (vagotonia) which would lead to a deficient circulation and anoxia, is, to say the least, somewhat difficult of comprehension.

The following are some of the many questions that come to my mind on reading his letter: (1) Does vasodilatation produce ischaemia? (2) How may one ask, is the vagus stimulated in these conditions, and, even then, how can it produce myalgic spots in areas so distant from its own areas of distribution? (3) Does Dr Good suggest that the vagus takes part

in the innervation of the latissimus dorsi, or, for that matter of the gluteus maximus—two muscles which may appear to the patient to be the sites of pain? To do so is to suggest that since we first studied the first principles of anatomy we have developed—perhaps tragically—some phylogenetic changes in our 'constitutions'—I am, etc.,

London N 4

I H MILNER

SIR—I must join forces with Dr M G Good (Sept 25 p 617) in the matter of local vasomotor disequilibrium as being the most certain cause of this tedious and extremely painful condition. One can state with some certainty that the aetiology covers almost all forms of the disease in wellnigh any part of, at least the large muscles. Those who have their own experience realize that abuse, disuse, and trauma will bring an attack. Surely it is reasonable to suggest that, as Dr Good has said, ischaemia is the prime cause. We all know of splendid athletes who gave up their sports to sit on an office stool and become what are said to be muscle-bound. If that is not fibrositis, what is it?

I agree entirely with Dr Good in his repudiation of the suggestion that primary fibrositis is an imaginary disease. Anxiety may bring on an attack or vice versa.

In the Tropics chills and dampness are very well known causes, and the complaint seems to be more severe, motor cycling is really dangerous in those who are affected—I am etc.

Reading Berks

A HENRY PRICE

### Suppression and Treatment of Malaria

SIR—I have read with very great interest the reply given under the above heading ("Any Questions?", Aug 21, p 407) to a query regarding the value of paludrine, mepacrine, and quinine respectively, for the suppression and treatment of malaria. But, while I agree most heartily with the statement, "For suppression, the drug chosen must be taken daily," I am convinced that the reference to quinine and blackwater fever needs considerable qualification.

When I was sent by the Indian Government over forty years ago to investigate blackwater fever in the Jilpaiguri Duars of Northern Bengal, we doctors in India used often to wish that we had remedies for other dangerous diseases one-half as effective as quinine was known to be for malaria. At that time I was not the least afraid of malaria personally, because seven years' work in a hyperendemic area of Assam had taught me how to protect myself by the systematic use of quinine. I used to take a 5 grain sugar-coated tablet of quinine sulphate every day, and if I developed any sort of symptom whatsoever, such as a headache, sore throat, indigestion, constipation or looseness of the bowels, instead of stopping the quinine I promptly doubled or trebled the dose for a few days. Before adopting this regimen I had suffered repeated attacks both of benign tertian and malignant tertian malaria so much so that on one occasion I nearly threw up my Assam appointment. But from the time I began to take quinine in the manner described I kept extraordinarily free of malaria, in an area where the spleen and parasite indices exceeded 90%.

At that time little was known regarding the origin of blackwater fever, which was thought by some authorities to be due to a special parasite. Schuffner, for example, had reported seeing bodies resembling spirochaetes in the blood of blackwater-fever patients. I had failed to confirm Schuffner's findings in a few cases examined in Assam, and I must confess that when I went to the Duars where many fatal cases of blackwater fever had recently caused nearly a panic among the planters, I did so rather in fear and trembling.

After I had been at work in the Duars for a few months Major S R (now Sir Rickard) Christophers, I.M.S., joined me and we continued our investigations for the best part of two years eventually publishing two reports—one on malaria in the Duars and the other on blackwater fever. In the latter report, on page 173 we state the following conclusions:

"Blackwater fever results from a condition induced by repeated attacks or infections by malaria. It is precipitated by an acute attack of malaria, especially when under certain conditions this is associated with the administration of quinine. Quinine itself is innocuous and cannot have such an effect on a subject not pre-

pared. The consistent use of the remedy (quinine) by a community may even diminish the incidence of blackwater fever by reducing the liability to malarial infection.

The value of quinine for suppressing attacks of malaria and diminishing the incidence of blackwater fever is referred to again on page 177 of our report on blackwater fever, where, after mentioning four examples quoted by Decker in which the adoption of quinine prophylaxis against malaria was followed in each case by a reduced prevalence of blackwater fever, we go on to remark:

'Quinine prophylaxis, it is obvious, to be of any use must be effectively pushed. In the Duars already a large proportion of the European population has taken to the systematic use of quinine. The result has so far been not only a much reduced amount of malaria amongst those taking the precaution, but a very small number of cases of blackwater fever in this community. Only three cases which occurred among Europeans during the past twelve months were among those who professed not to believe in quinine and only took it when they felt unwell.'

There had in fact been a startling reduction in the number of cases of blackwater fever after the commencement of the inquiry in May, 1907 *pari passu* with the progressive adoption by the planting community of a daily dose of quinine as a protection against malaria. When I came to leave the Duars in 1909 to take up the investigation of malaria in other parts of India I was not only confirmed in my former opinion regarding the value of quinine as a safeguard against malaria, but over and above this I had become convinced that a small daily dose of quinine was an even more certain preventive of an attack of blackwater fever than it was of an attack of clinical malaria. My experience during the next five years only strengthened these views and at the outbreak of war in 1914 led me to volunteer for active medical service on any malarious front specifying for choice any area where blackwater fever was known to be endemic.

It will be seen from the foregoing that my experience affords no support to the statement contained in "Any Questions?" which inspired this letter to the effect that 'If the infection is due to *P. falciparum* or if *P. falciparum* is the prevailing parasite in the area quinine must be avoided both in treatment and in suppression because of the danger of inducing blackwater fever'. On the contrary quinine can safely be used in the circumstances stated if it is used in daily doses for the suppression of malaria. The same rule appears to hold good for mepacrine. Neither quinine nor mepacrine should be used intermittently in blackwater-fever areas if dangerous side effects are to be avoided. T. E. Wilson (*Med J Aust* 1943 2, 414) reports two cases of blackwater fever following mepacrine in men who had intermittent treatment for repeated attacks of malignant tertian malaria. He considers blackwater fever to be consequent upon a sudden dose of antimalarial drugs after a long intermission. "The onset of blackwater fever immediately after use of mepacrine suggests that this disease is not due to a hypersensitivity to quinine itself, but rather to a by-product liberated from the parasites themselves by an antimalarial drug."

The moral appears to be that whatever the drug chosen for the suppression of malaria—whether it be quinine or mepacrine and quite probably paludrine also—it would be wiser to take it daily rather than intermittently—I am, etc.,

Wallington Surrey

CHAS A BENTLEY

### Analgesia by Sympathetic Block

SIR—Mr Albert Davis's article (Sept 25, p 585) prompts me to report a few cases of the use of 'proctocaine' in sympathetic block.

A man aged 68 feeble and suffering from a bluish, cold, and painful hand following an injury to the thumb, had 10 ml proctocaine introduced at the level of the 1st thoracic vertebra. This caused a fairly complete measure of relief, lasting at least four months.

A woman aged 59 had a pressure ulcer on the foot which showed no signs of healing. 10 ml proctocaine at the 2nd lumbar vertebra eradicated the ulcer to heel.

A woman, aged 61 with an old standing hydronephrosis of slight degree, but causing pain had 10 ml injected at the 11th thoracic vertebra. This removed the pain for at least a month.

A woman aged 50, had thrombosis of the left popliteal artery, left foot colder than its fellow to touch. Cramp in calf on walking 100

yards. 10 ml proctocaine was injected at the level of 2nd lumbar vertebra. Now six weeks later, the foot is still noticeably warmer than the other and she can walk two miles without pain.

I was prompted to try this method by reading the book by Mandl, through the knowledge that Kenny had already safely used proctocaine in the sacral canal, and witnessing Mr Haxton's demonstration of the use of a carbolic solution. Many patients requiring relief from pain are old or in poor general health, it may be that a few injections a year may make their lives more tolerable. In cases of popliteal thrombosis it is probable that immediate sympathetic block by proctocaine (until something more efficient is discovered) is the treatment of choice—I am, etc.,

Nelson Lancs

OWEN WILSON

### Medicine as a Planned Economy

SIR—Dr Edward B Hendry (Sept 18, p 567) draws attention to a depressing trend of modern medicine—the use of the laboratory instead of clinical judgment to make the diagnosis and assess the patient's progress. Apart from overloading the laboratory with unnecessary work so that important tests cannot be done or may be done inaccurately, there are other and equally disturbing features.

The first of these is a tendency to regard the patient not as a man but as a factory of blood counts or of interesting x rays. The day is not far distant, if indeed it is not already with us, when the 'clinician' on his morning round will not observe the patient but look at the report on his blood cholesterol. The second of these features is to be found in the articles in the medical press and in the accounts of disease given in the textbooks. More and more the patient is forgotten in a welter of urine and blood analyses, x rays, and electrocardiograms, for all of which the description may well be weighed in the balance and found wanting.

Compare any modern description of pernicious anaemia with Addison's original account.<sup>1</sup> To judge from their writings our modern haematologists pay scant attention to the patient. All too often the reader finds that the description of the cases consists of a series of dates against which are written blood and marrow counts, and he is left with a nightmare picture of large cells, small cells, cells with big nuclei, cells with little nuclei and cells with no nuclei at all. From such descriptions he may derive a little knowledge, somewhat less help in his own recognition of the disease, and no pleasure at all. Let the reader turn to Addison. There he will find a word picture that will live in his memory, enable him, supposing he had never seen the condition, to recognize it when he met it later and give him the immeasurable pleasure that only good descriptive prose can bestow.

I have chosen pernicious anaemia to illustrate my point not for poverty of other examples—Bright gives a better and more helpful account of nephritis, Parry and Graves of thyrotoxicosis, and Heberden and John Hunter of coronary thrombosis and angina than any of our contemporaries and other examples abound—but because it and other anaemias are at present much discussed in the medical press and form examples *par excellence* of the poverty of our descriptive writing as compared with that of our forefathers and of the use of the laboratory to the almost complete exclusion of the clinical picture. Let us then return to clinical observation, to the use of good, clear English to describe what we see, and to more consideration of the needs and feelings of the patient, or our successors will say of us that our hands like the base Indian 'threw a pearl away richer than all his tribe'—I am, etc.,

London SE 10

R DUFF CHALMEPS

REFERIN E

<sup>1</sup> Major R H (1945) *Classic Description of Disease* Springfield Ill

### The Hippocratic Oath

SIR—You reprint (Sept 25 p 616) the translation of the oath made by Jones in his scholarly work *The Doctor's Oath* (1924). This translation differs very slightly from that given by him a year earlier in the Loeb Classical Library (e.g., the 1924 work gives 'obedience to the physicians' Law but to none other, whereas the better version is 'who have

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taken the physician's oath, but to nobody else", the former would appear to be a mistranslation since οὐδεὶς is not an adjective) Your statement that the Oath is reproduced in very few histories of medicine and the somewhat inadequate comments on the reproduction in the most recent history (by Castiglioni, translated by Krumbhaar, second edition, 1947) prompt me to call attention to the important text, translation, and interpretation of Edelstein (*Suppl No 1 to Bull Hist Med* 1943) in which it is convincingly shown that the Oath is a Pythagorean manifesto of the fourth century B.C., and not the expression of an absolute standard of medical comfort

The Pythagoreans believed primarily in the importance of dietetics, it is a pity therefore that the translation you quote gives I will use treatment to help the sick instead of, I will use dietetic measures (δαιτηρια). They believed less in the efficacy of drugs and least of all in surgery (Would we had a few more Pythagoreans to-day) This, Edelstein points out, explains the difficult passage about cutting for the stone. The translation you give has the weak and almost meaningless word "either" for the strong οὐδὲ μὴν. Surely the obvious translation is the alternative Jones gives and Edelstein adopts

I will not use the knife, not even on sufferers from the stone" Certain scholars, perhaps thinking surgery should have a more important place, have made the passage refer solely to castration. Jones and Edelstein decisively reject this, and it would not be worth mentioning had not Castiglioni (*loc cit*) quoted in this vein what he calls Nittis's new interpretation (which was hesitantly suggested by Littré over a hundred years ago)

The Oath is a remarkable document showing a very high ethical standard. Whether the Pythagorean physician who composed it was right in his views on abortion, euthanasia, homosexual practices, and the revealing of confidential information derived from patients (forbidden by him but required under certain circumstances by our law), will no doubt be decided by the World Medical Association if it drafts a new Oath for the highest profession. We should all no doubt like an Oath of some sort but if we follow the Pythagorean manifesto too closely we may have to swear to treat the sons (and daughters) of Ministers of Health as equal to our brothers (and sisters) and to teach them without fee—I am etc

Oxford

H M SINCLAIR

### Breast-feeding

SIR,—Having read with interest Dr Enid L. Hughes's "Study on Breast feeding in a Mining Town" (Sept 25, p 597), I feel it may be helpful to state some of my own experiences which may be factors in early weaning. Having worked as a G.P. in an industrial practice my impression like Dr Hughes's, is that in very many cases the grandmother was the major single factor and easy access to a clinic another. On the other hand I found that many mothers readily responded to enthusiasm and interest shown by the doctor.

As a mother I should like to point out some of the difficulties that meet with little understanding and could be easily remedied by an interested adviser

1 *The Cracked Nipple*—Both my nipples were badly cracked a few days after the birth of my first child. The attitude of the hospital nursing staff seemed to be "you are making a lot of fuss about nothing." When I returned home, nobody had any intelligent advice to offer other than to wean the baby. Finally a friend suggested superficial x-ray therapy for the nipples. This enabled me to feed painlessly from one breast, and to express the other by hand three times a day and give the expressed milk by bottle. Both breasts eventually healed. But it is very much better to take the baby off the affected breast for a few days immediately the crack appears and before its base becomes indurated. A pump must not be used, but the breast should be manually expressed at each feed, and the milk given to the baby after the healthy breast.

2 In some hospitals it is the rule to give one breast only at each feed. When the milk supply is only just sufficient, this practice tends to diminish it still further. Mothers should be told that if there is any sign of decrease they should feed from both breasts at each feed.

3 When there is any decline in the milk supply expressing the last few drops from both breasts after each feed seems to help increase milk secretion.

4 Most patients whose milk supply is poor tend to "save up" and give alternate breast and bottle feeds. It is sometimes difficult to convince them that the supply increases with the demand, and that

therefore both breasts should be given at each feed and followed if necessary by a bottle. I have often found that if the mother understood and followed this practice complete breast-feeding was soon re-established.

And, lastly, encouragement by the doctor and nurse, and praise of the baby's condition, are very important indeed. I firmly believe that a more personal approach to many mothers would substantially decrease the incidence of early weaning.

—I am, etc,

Sheffield 6

ELENA ZADIK

SIR,—I would like to suggest that one can throw some light on the interesting figures given by Dr Enid L. Hughes (Sept. 25, p 597) on early weaning at Newbiggin by comparing them with a very different series, rejecting as causes what is common to both sets of circumstances and listing the differences all of which will be in some degree possible explanations. Here, for instance, are Dr Hughes's figures (all reduced to percentages of the total number of cases) compared with 100 consecutive cases in general practice in York.

#### Dr Hughes's Series

	My Series
29 weaned by two weeks	4
39.5 total weaned by four weeks	21
19.5 weaned between one and three months	12
41 on the breast after three months	67

These figures are so different that factors equally characteristic of the two environments can be ruled out as explanations of the Newbiggin figures. These factors are overcrowding (including exaggerated modesty and interfering mother-in-law) fashion and unwillingness to be tied. Neither milieu is rural. There remain the heavy work of the fisherwives and the high incidence of shift work in a heavy industry—represented at York only by a much smaller percentage of operative railway workers. Finally, there is a difference between the two series which I am inclined to think very important because it affects the whole of the statistical picture—the difference between discontinuity and continuity of treatment. These York cases are closely supervised by the same person from the reporting of pregnancy to the establishment of mixed feeding.

It is striking that Dr Hughes's article says not one word about antenatal treatment of the Newbiggin mothers for education for breast-feeding is undoubtedly needed in these days should begin at the first antenatal examination, and is best done by the person who is to supervise the rearing of the infant. Notice next that under "Reasons for Weaning" Dr Hughes is forced to give the reason advanced by the mother after the event, while I give the reason according to my own observations at the time.

As a first consequence the cases where no reason was definitely established are Newbiggin 14% mine 0%. As a second consequence I am in a position, and Dr Hughes is not, to divide the weanings unhesitatingly into those that were inevitable and those that were not. Of the four weanings before two weeks all were inevitable: two for infantile nipples, and two for illness of the mothers. Of the following 17, seven were again inevitable, the other 10 classed in my records as deliberate. It is obvious that Dr Hughes is severely handicapped in drawing her picture of Newbiggin mothers by the impossibility of making this distinction and this impossibility arises from the discontinuity of the medical organization.

The very first cause of weaning to be considered in any rational survey is genuine failure of lactation. I report four cases. It is unlikely that this factor is very variable in the human species, and probably Newbiggin has about 4% of failures somewhere. Owing to the discontinuity of the medical organization Dr Hughes has to confess that she cannot say where they are, they may be among the unexplained cases but they may equally be due to difficulties with the baby at the breast, for which the figures are Newbiggin 2.3%, mine 0%. These difficulties tend to be distributed under other headings when one is able to observe them on the spot.

Finally, I am quite unable to agree with Dr Hughes that her analyses are likely to be veracious because they are obtained early. I consider them to be obtained very late. My experience is that at three to four weeks it is already very hard to reconstruct the history of an infant's feeding. Even when the mother is entirely honest one can discover only what has

led to her worth noticing. In short when Dr Hughes  
out in the fourth week to discover why the babies are  
born she has the main answer already in her possession. It  
is because she cannot start to investigate until the fourth week.  
—I am etc,  
York

F CHARLOTTE NAISH

### Teaching Occupational Medicine

SIR—In your account of the International Congress on Industrial Medicine (Sept 25, p 613) I have been wrongly quoted as saying that what was needed in teaching [occupational medicine] was fewer general principles and more detail. I did, in fact, suggest the exact opposite—that is more general principles and less detail. Occupational medicine is now being practised in a variety of occupational groups, not only in factories and mines but in commercial and transport undertakings, catering establishments, and even universities. Courses must therefore be designed to equip men and women for the practice of preventive medicine among these different occupational groups. It seems that this can only be done by teaching general principles. An elementary knowledge of such subjects as statistical methods, recording and analysis of morbidity, the influence of working environment on physical and mental health, the placement of the sick and disabled, are of far more value to the future industrial medical officer than a detailed knowledge of industrial health legislation to which reference can be made when necessary, or of the toxicology of a hundred and one metals and chemical compounds which many I.M.O.s will never see. If these courses are designed to teach the principles of preventive medicine it will be possible to have many lectures, visits and demonstrations common to both D.P.H. and D.I.H. courses and thus give teachers more time for research and the preparation of better lectures and less chance of becoming hacks—I am, etc.,

Manchester

RICHARD SCHILLING

### Artificial Insemination

SIR—My attention has been drawn to the letter from the Secretary of the Medical Defence Union in your issue of Sept 11 (p 530). Mr Justice Vaisey is of course precluded by his judicial office from writing to the Press, but I have no reason to doubt that he would agree with the comment that I feel obliged to make.

I am surprised that the Secretary of the Medical Defence Union should take the view that a document "specially prepared and issued by the Medical Defence Union for the guidance of medical practitioners" should only be criticized with preliminary notice. I can assure him that there was no confusion in our minds between the Union's memorandum and the article in the *British Medical Journal* to which he refers.

It remains, in my view, true to describe as "superficial" a document which does not refer to the grave risk, approximating to a certainty that one or other or both of the spouses will make a false declaration of parentage and incur liability to penal servitude. It is in my view, grossly misleading to circulate for use a form such as the first of those annexed to the memorandum containing dressed up in quasi legal verbiage, an assurance which no one properly alive to what he was doing could either give or accept. This point is expressly made on page 40 of the Commission's Report, and I do not understand Dr Forbes' statement that no indication is given of the reason for our description of the memorandum—I am, etc.,

Mardalene College Cambridge

HENRY WILLINK

## POINTS FROM LETTERS

### Artificial Insemination

We publish below points from a number of replies to Dr Norman Haire's letter (Sept 25, p 621).

Dr S J G SPENCER (Oxford) writes: The basic distinction, which Dr Haire seems to have missed, lies between ecclesiastical laws on the one hand like the obligations to receive Holy Communion regularly and fast during Lent which a Church can rightly enjoin only upon its flock, as Dr Haire correctly implies, and on the other hand ethical precepts which a Church submits as a body of experience in moral principles to the moral conscience of all men, its

members and its non members, for their universal acceptance and adoption. It believes such universal ethical precepts to include laws derived intrinsically from the nature given by God to man. For instance, it considers the prohibitions against murder and theft to be derived from man's natural right to life and property, British criminal legislation has of course already embraced these two prohibitions. Now, it is manifest that if a Church impugns all or some facets of artificial insemination, whether rightly or wrongly, it does so not because they offend against its esoteric rules but because they break laws which, in its estimation, are derived inexorably from man's nature and are therefore universally applicable. Such laws as the need to abstain from onanism and to procreate only through one's spouse. Such a Church must therefore inevitably submit to the moral conscience of mankind and the necessity for the universal outlawing of these contrary practices by all possible means, including that of criminal legislation.

Dr G L RUSSELL (London, W1) writes: Dr Norman Haire describes the recommendation of the Archbishop of Canterbury's Commission on Artificial Insemination that "early consideration should be given to the framing of legislation to make the practice a criminal offence as 'monstrous impertinence'." And he makes lavish use of the terms 'totalitarian', 'Nazi', 'Fascist', 'Communist' to support his thesis. I entirely agree with him that it would be intolerable if the Church should attempt to legislate for those who do not belong to it, but no one proposes this. What is proposed is that those who have not only the power but the duty to legislate—that is, Parliament—should exercise that power, and perform that duty, in a matter which this Commission believed to concern all citizens, not only members of the Church. Dr Haire seems to have forgotten in his indignation against totalitarianism, that democracy is "government by discussion"—a continuous public debate to which every citizen, and every group, has the right to contribute.

Dr F S SINKER (Leamington Spa) writes: It is the duty of the Church to proclaim, among other things, the Christian ethic, not solely to its own practising adherents but to society as a whole "whether they will hear or whether they will forbear." That is part of its witness. It knows, and has good reason to know, that medical procedures undertaken without any reference to moral and spiritual values are not fully competent, nor are their long term results conducive to a genuine and lasting rehabilitation of the patient. In the recent statement "Medicine and the Church," approved and published by the B.M.A. Council, occurs this passage: "Moral aspects in the cause, treatment, and prevention of disease cannot be overlooked, and in this field also it is desirable that there should be fuller co-operation. Medicine and the Church working together should encourage a dynamic philosophy of health which would enable every citizen to find a way of life based on moral principle and on a sound knowledge of the factors which promote health and well-being." Here is a clear recognition of the value of any effort officially inspired by the Church to give guidance in those aspects of moral behaviour with which medicine may be concerned, but upon which medicine as such is not competent to express an opinion. There are many of us who regard the annotation on "Artificial Insemination" (Sept 11, p 523) as a most able and fair summary of the value of the report of the Archbishop's Commission, and a well-deserved tribute to its distinguished members. "This Report is bound to stand, as the writer says, 'for a long time to come as an outstandingly able summary of this complicated question'."

Dr CLAUD C M WATSON (Edinburgh) writes: I agree with Dr Norman Haire in that it would be preposterous to make artificial insemination a criminal offence. On the other hand, I think he condemns the Church rather too harshly. I noticed one suggestion in the Commission's Report that I think ought to be strongly challenged, and that was that A.I.D. was "adulterous." Surely the essence of adultery is that illicit sexual intercourse must occur. Not by any stretch of imagination could artificial insemination be regarded as such. My personal opinion is that if a husband has been found to be permanently sterile it is rather hard to prohibit the wife from having a child of her own if, as many such wives are, she is desperately keen to have one.

Dr J HOUSTON PORTER (London, W2) writes: The extraordinary letter of Dr Norman Haire makes such exaggerated and extravagant accusations against "the Churches" that few of its thinking men and women to whom he refers will be misled by it. To suggest that the much vilified Churches, all of which are deeply deploring their present loss of membership and influence could or ever would exercise totalitarian tyranny over the community at large is merely ridiculous. The Archbishop's recommendation which has provoked such an explosive reaction from Dr Haire is simply that consideration should be given to the framing of legislation not by Convocation or any ecclesiastical body but by the people's representatives in the House of Commons.

## Obituary

Mr VIVIAN JOHNSON MORCOM TAYLOR, who was orthopaedic surgeon to the Mansfield General Hospital and the Chesterfield Royal Hospital, died suddenly at his home in Chesterfield on Sept 12. Educated at Kingswood School, Bath, and Liverpool University, he graduated in 1927, and took the MCh in 1930 and the Edinburgh FRCS in 1931. After holding a number of resident appointments he became surgeon-in charge of the Lurgan Infirmary in Northern Ireland, and was later assistant surgeon to Harlow Wood Orthopaedic Hospital. Mr Taylor was appointed orthopaedic surgeon to the Mansfield General Hospital in 1941, and to the Chesterfield Royal Hospital in 1944. A surgeon of marked ability, his opinion was widely sought in the districts in which he worked. He combined an enthusiasm for his specialty with a flair for organization, and at the time of his death he was engaged in reorganizing the orthopaedic services for the Chesterfield district. For many years he had suffered from a severe form of asthma, so that he was more often than not working under difficulties. He fought his distressing complaint with great courage, and would never admit his disabilities even to his friends. In the end it proved more than he could withstand and his premature death at the age of 44 was due to this condition. A charming personality and a man of great integrity he will be missed by many. He leaves a widow, a son, and a daughter.—F J M

Dr CHARLES COWAN MCCALLUM died at his home in Middlesbrough on Sept 16, at the age of 50. A native of Glasgow, he graduated there in 1924, and took the Edinburgh FRCS in 1934. He was first of all a house-surgeon and subsequently honorary surgeon at the North Ormesby Hospital.

Dr I R writes: By the death of Charles McCallum the profession in Middlesbrough has been robbed of one of its most respected and well loved members. Both in his hospital and in private practice he was endeared to professional colleagues and patients alike by an unassuming charm and sympathetic understanding, nothing was ever too great a trouble for him to do, though for him it often meant working to a degree which would have been too much for many a younger man. A surgeon of considerable competence, it was perhaps in his own practice, and particularly in dealing with children, whose confidence and friendship he never failed to gain, that he was at his best. This was surely a reflection of his own ideally happy home life, as those of us who had the privilege of knowing him and his family well can testify. Our loss is great, but theirs is immeasurably the greater.

Dr WILLIAM STEWART who died at Sleights Yorkshire on Sept 16 at the age of 67, had been in practice in Southampton for over thirty years until he retired two years ago. A native of New Zealand, he graduated MB ChB at Edinburgh in 1911. After a period as a hospital resident and a short assistantship in Yorkshire he came to Southampton and settled in general practice there in 1914. During the 1914-18 war he served in the R.A.M.C. at Netley his general health, which was never robust, precluding him from service overseas. Then followed a period of study at the Central London Throat, Nose, and Ear Hospital where he became registrar. He then started in specialist practice, and in 1922 took charge of the ear, nose, and throat departments of the Royal South Hants and Southampton Hospital. He resigned this appointment in 1934 and became a consulting surgeon. During this time Dr Stewart had also acted for various periods as surgeon in charge of the ear, nose, and throat departments at the Royal Isle of Wight County Hospital and at the Southampton Children's Hospital. Professionally he had a keen clinical sense and a particularly clear conception of the essentials of his specialty qualities which made his teaching of junior colleagues particularly helpful. His opinion was widely sought and by patients and colleagues alike he was held in high esteem. For many years an active member of the B.M.A. Dr Stewart was elected president of the Southern Branch in 1931. He also served as president of the Southampton Medical Society and during the recent war gave invaluable service as chairman of the Southampton Medical War Committee. His death is felt as a personal loss by a large number of old patients and by a wide circle of friends, and their sympathy will be extended to his widow.—N W M

Dr ALFRED WILSON DANIEL died on Sept 17 at the age of 75 some weeks after undergoing an operation. He was educated at Lancing College and Emmanuel College, Cambridge. After taking his M.A., he qualified MRCS,

L.R.C.P. as a student of St Thomas's Hospital in 1898, and graduated MB, BCh a year later. Soon after qualifying he joined the staff of the South-West Fever Hospital, and while there, in 1902, obtained the MD of Cambridge University. The same year he entered the service of the London County Council and joined the staff of Hanwell (now St Bernard's) Mental Hospital, where he spent the rest of his medical career. Having passed successively through the lower grades he was finally appointed medical superintendent in 1917, and in 1936 he retired. Dr Daniel was quiet and unassuming in manner and disliked ostentation and display. Under this quiet exterior he was very kind-hearted and generous, and many of his patients, colleagues, and friends have had personal experience of these qualities. At all times he had an unflinching sense of humour of a pawky kind which never failed to be most apt. In his work his greatest interest always lay with the patients among whom he spent countless hours so that he knew them all by name and in most cases remembered some facts of their history, a marvellous feat when dealing with more than 2,500 patients. How often did a medical officer who was in charge of a group of wards find that, when a case was being discussed at the morning conference, his chief knew so much more about the history of the case than he did himself. Dr Daniel believed that the only way of really learning about mental illness was to spend as much time as possible in the wards with the patients, and the wisdom of this belief was proved by his own great clinical insight and acumen. His unflinching interest in his patients and also in his staff led to his being held by them in great esteem, and his retiring was felt as a great loss by all. Apart from his work he excelled at golf and for many years was rated scratch. During his retirement he played a daily round as long as his health permitted, and his carefree attitude towards the game made him a delightful opponent as well as a doughty one. In his passing, psychiatry has lost someone who at all times lived up to the highest ideals of this exacting branch of medicine. He is survived by a son and two daughters, and to them the sympathy of his friends and colleagues will be extended.—J S H

Dr GEORGE DE JONCOURT PATTERSON, of Lechlade, Gloucestershire, died on Sept 19 at the age of 91. He had been confined to bed for some months with gradually increasing weakness but his mental faculties, always acute, were quite undimmed up to the time when he peacefully lost consciousness. He was a B.A. of Dublin and graduated MB, BCh in 1881 proceeding MD in 1902. He made his own way in the profession and became a family doctor of the best type respected and liked in his practice at Heckmondwike in Yorkshire. He worked there for thirty-one years, and at Lechlade from 1915 until he retired, still full of energy, in 1932. Midwifery was always Dr Patterson's strong point. He was ideally suited for it with his calmness and patience, his natural aptitude, and his training at the Rotunda. He said he liked midwifery because he was so fond of seeing the smiling mother the next day. He saw many smiling faces in his fifty years of work and not only smiling mothers but all kinds of cheerful faces in his long and happy life. They were mirrors of his own face which was very seldom clouded with impatience.—H E B

Dr JOTINDRANATH GHOSH died at the Salford Royal Infirmary on Sept. 24, at the age of 61. Beyond the fact that he is said to have been a Bengali and to have been born at Coal Harbour Calcutta, on Oct 16, 1886, nothing is known of his early life. He died without a relative in the world. His medical school was Grant Medical College, Bombay, and he obtained the LMS there in 1910. He appears to have come to Britain immediately afterwards for he took the DPH in Dublin in 1912 and the FRCSI in 1913. During the first world war he was an A.M.O. at Portsmouth for three years, and in 1916 was appointed house-surgeon and later RSO at Salford Royal Hospital. After a period he changed over from surgery and he served Salford Royal and Hope Hospitals as an anaesthetist efficiently, silently and kindly until a week or two before his death. In 1926 he was appointed visiting radiologist to Hope Hospital and combined these duties with his others. Most of us would say that his life had been spoilt by ill-health. It would not have been his own view. Many years ago while giving an anaesthetic his quiet voice inquired of the surgeon if the operation would take much longer. The surgeon thinking that the patient's condition was giving rise to anxiety asked why. The reply was 'I shall be the next patient on this table. My gastric ulcer has just perforated. Within an hour it had been operated on. Unhappily, the succeeding years necessitated was the last one which led to his death. Yet though he suffered intense pain very frequently no murmur ever passed his lips, and it is doubtful if less intimate colleagues knew he was not

Throughout all aspects of his life Joe was one of the most retiring and humble of individuals. His home, in which he lived alone was a treasure house of books, cut glass china, postage stamps and pianos. He admitted—he would never claim—that his collection of dictionaries, which formed part of some 6000 volumes, was superior to that in the Rylands Library. No one knows how many languages he spoke. He was an authority on Sanskrit and to him high authority appealed for assistance when in doubt. His command of the English language was superb, and though he never made his mark in his profession by any published works or in the outside world by any public action, to a very wide circle of friends he was invariably spoken of and to with love and deference.—W S C

## Universities and Colleges

### UNIVERSITY OF ABERDEEN

At a graduation ceremony held on Sept 29 the following degrees were conferred

MD—JE K Cruickshank IC E. Lumsden J A McC Smith  
MB ChB—JE McKay JW G Smith 2 Catherine C Budge 2 Valene A Cowie (née Field) 2A M C Duffus 2G P McNair 2Doris I Manson Margaret D Paterson 2Margaret P B Reid 2F G G Shepherd R G Blues A J Booth G Bruce A R Burnett R F Cant G T M Cummins Wendy J A Davie A M Donaldson I McI Duguid L Dunbar A H Duncan G D Duncan J Duthie H W McG Edwards Margaret Farquharson A J B Gibb Margaret G Hay G A Hendry Margaret R Inglis A G Jessamine A G Laing Josephine M Lomax Simpson A H Lorrimer A C MacDonald I A McIntosh W T D McKenzie I MacLeod June M MacTaggart (née Davis) P T Main Doreen Meldrum Irene Milne John M Milne J C Mitchell D Mortimer T D Ness Norma Pringle H G Richmond R S Ritchie J A Shanks Elma M Simpson Edith M Skea R W Smith Elizabeth M Somerville (née Macdonald) Helen M Soutter Elizabeth M Spark Cecily J M Stewart D B Strachan Gillian R Struan Marshall Audrey Sutherland J Symonds Elizabeth H Thom Margaret H Thomson J Wilkie G G Youme

1 With honours 2 With commendation

### UNIVERSITY OF LONDON

John Vivian Dacie MB BS (Lond) has been appointed to the University Readership in Haematology tenable at the Postgraduate Medical School of London as from Oct 1, 1948

Sir Henry Dale, OM, GBE, FRCP, FRS, has been re-appointed a Crown Member of the Court for a further period of five years from Oct 1

J R Learmonth CBE, FRCSed, regius professor of clinical surgery and professor of surgery in the University of Edinburgh, has been appointed Heath Clark Lecturer for 1949 and has been invited to deliver a course of lectures on 'The Contribution of Surgery to Preventive Medicine'

### UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated

MD—E Cope (with distinction) Dorothy D Jones J H Kahn S Lask H Lee S Madden R H Seville

FINAL MB ChB—Part III (Medicine Surgery Obstetrics and Gynaecology Therapeutics) H Black Ellen M Chippindale J W Daggett M Dales R England Kathleen Gillen Roxie Glossop Edwina E Green D C Hall R T Heylings E Menchovsky C H Morris Sarah L S Phillips Marjorie Pitman Elizabeth Price Jones P J Reynolds P D Roberts Etienne Sandford C J Sharp Barbara Welburn A B Wharton J C Woodrow D P Wright

The West Riding Panel Practitioners Prize has been awarded to J R Bowker

The *London Gazette* has announced the award of the Albert Medal to ARTHUR RICHARD CECIL BUTSON, MB, BChir, a member of the Falkland Islands Dependencies Survey, in recognition of his gallantry. The citation reads as follows: 'On the evening of July 26, 1947, an American member of the Ronne Antarctic Research Expedition fell into a crevasse some six miles from Base. Two teams were sent to the rescue but the hazards of crossing a heavily crevassed glacier were much increased by darkness and it was not until 4 o'clock on the morning of July 27 that the crevasse into which the American had fallen was located. Butson immediately volunteered to be lowered into the crevasse where he found the American tightly wedged 106 ft down and suffering from shock and exhaustion. For nearly an hour he had to chip the ice away in an extremely confined space in order to free the American who was brought to the surface and placed inside a tent. Butson then rendered the necessary medical aid and at dawn a return to Base was made carrying the American on one of the sledges.'

## Medical News

### Emergency Reserve Schemes

The Ministry of Labour and National Service has announced the setting up of Emergency Reserve Schemes, the object of which is to enrol volunteers with Service experience who would be urgently needed in the early stages of any emergency. For the time being, volunteers will not be accepted from a number of industries or services and from the following groups: (1) State registered nurses and midwives, (2) Student nurses, pupil assistant nurses, and pupil midwives, (3) Medical, dental, veterinary, and pharmaceutical students. Among those persons who can be accepted only provisionally as volunteers are members of the medical profession, dentists and veterinary surgeons, enrolled assistant nurses and mental nursing assistants, opticians, pathological laboratory assistants, pharmacists, physiotherapists, and radiographers.

### Royal College of Obstetricians and Gynaecologists Dinner

The annual dinner of the Royal College of Obstetricians and Gynaecologists was held at the Dorchester on Friday, Oct 1. Replying to the Dowager Marchioness of Reading, who proposed the toast of the College, Sir William Gilliatt, the President, referred to the revolutionary changes brought about by the National Health Service Act. The College would be represented on the statutory advisory committee on midwifery and they would continue to press the Minister to maintain the highest level of efficiency in the midwifery services. The toast of the guests was proposed by Dr V B Green, Armytage. Dr Emil Novak, President of the American Gynecological Society, who earlier in the day had been elected an honorary fellow of the College, handed over to Sir William Gilliatt a gavel which had been made from a door knob in the house at Danville where Ephraim McDowell performed the first ovariotomy on Jane Todd Crawford in 1809. The gavel, which is a replica of that used by the American Gynecological Society, is inscribed 'Presented to Royal College of Obstetricians and Gynecologists by the American Gynecological Society, October 1, 1948'. Sir Henry Dale as President of the Royal Society of Medicine, also replied for the guests and so did Mrs Finletter and Professor Newell W Philpott. Professor Philpott paid tribute to the work done in Canada over the last few months by Sir William Fletcher Shaw, work which had led to the setting up of a regional council of the Royal College.

### King's College Hospital Medical School Dinner

At the annual dinner of King's College Hospital Medical School which was held at the Mayfair Hotel on Oct 2 with Mr John Everidge presiding, two different points of view were expressed about nationalized medicine. Dr Macdonald Critchley, proposing the toast of the Medical School mentioned excessive regimentation and the multiplicity of committees as being serious handicaps to clinical research. Professor Henry Cohen, replying to the toast of the guests proposed by Sir Cecil Wakeley, said he was convinced that it was essential for those in practice to devote some of their time to committee work in order to establish acceptable conditions. Mr H C Edwards, the Dean of the Medical School referred to the overcrowded syllabus of instruction. He looked forward to the day when it would be said about King's that they had stopped instructing students and had started to educate them. Dr Wilfred Attenborough proposed the health of the chairman, and in responding Mr Everidge mentioned some well known King's men of a past generation and expressed his confidence in the future of the medical school and hospital.

### Middlesex Hospital Dinner

The future of the Middlesex Hospital was referred to by Mr M H Whiting at the annual dinner held at the Savoy Hotel on Oct 1. He said that the hospital to which he first came in 1907, had wonderful buildings and well equipped laboratories in the new era there must be enough money to keep them in perfect order. A ship and her crew were one and it was to be hoped that when the ship continued her voyage in strange and uncharted seas the crew would preserve and enhance the fine reputation of the hospital and medical school. Dr H E A Boldero emphasized the importance for teaching of the hospital's new association with the Woodside Hospital for Functional Nervous Disorders, the Arthur Stanley Institute, and the Hospital for Women, in Soho. He also stressed the advantage of a medical school now having a charter. Dr R S C Couch, senior Broderip scholar was glad to see women students in the medical school and regretted that national service regulations limited the experience of young men in hospital appointments immediately after qualification.

### Doctors' Two Duties

Addressing Westminster Medical School at the inauguration of the academic session, Dr W J S Stallybrass, Vice-Chancellor of Oxford University, said that one result of the Act was that the duty of public patients now owed two duties—one to the patient and one

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References: Lancet 1944 247 pp 175 and 176 British Medical Journal 1946 1 p 50 Pharmaceutical Journal 1945 155 p 245  
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\* Iron 2.7 mg. per oz.  
Copper 0.45 mg. per oz.

### essential amino acids

	fresh weight basis	16% N basis
arginine	2.5%	8.3%
histidine	0.9%	3.0%
lysine	1.8%	6.0%
tryptophane	0.3%	1.0%
phenylalanine	0.9%	3.0%
cystine	0.3%	1.0%
methionine	0.5%	1.6%
threonine	1.2%	4.0%
leucine	2.1%	7.0%
isoleucine	1.3%	4.3%
valine	1.6%	5.3%

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to the State. That had a bearing on the old question whether a doctor should tell. He understood that at present registration forms were open to inspection by any member of a regional board, so that it might follow that an employer serving on the regional board could discover information detrimental to any employee. It was of vital importance that the communications made to a doctor should be known to be confidential. Turning to the problem of the expert witness, he asked whether, now that all doctors were paid by the State, it was right that some of them should always appear as witnesses for the prosecution and others for the defence. Would it not be more satisfactory if there were a panel of expert witnesses on subjects like insanity? But the Bench was suspicious of expert witnesses.

#### Nuffield Medical Fellowships

In the past the Nuffield Foundation has offered medical fellowships each year in four subjects—child health, industrial health, social medicine, and psychiatry. From 1949 the scheme will be widened to include all branches of medicine, though special consideration will still be given to those whose interests lie in the subjects listed. In general the Foundation will award these fellowships to people who wish to qualify for an academic career as teachers and research workers. Applications for awards in 1949 should be received not later than April 1, 1949, by the Secretary, Nuffield Foundation, 12 and 13, Mecklenburg Square, London, W C 1.

#### Princess Tsahai Memorial Hospital Fund

An exhibition of British and Ethiopian children's drawings will be held at Seymour Hall, Seymour Place, London, W 1, on Nov. 8, 2 to 5 p.m., and Nov. 9, 11 a.m. to 5 p.m. The exhibition is promoted by the Princess Tsahai Memorial Hospital Council, and a bazaar on behalf of the hospital fund will be held in the same building. The Memorial Hospital Council will be pleased to receive gifts for the bazaar; they should be addressed to the Bazaar Secretary, 3, Charteris Road, Woodford Green, Essex. Donations to the hospital fund will be gratefully acknowledged by Lord Horder and Lord Amulree, c/o H. Reynolds & Co., 1, Bloomsbury Court, London, W C 1.

#### Higher Nurses' Salaries

The Council of the Royal College of Nursing resolved at a meeting held on Sept. 28 that the Functional Whitley Council for Nurses and Midwives be urged to take immediate steps to improve the salaries of trained nursing staff in the National Health Service. It suggests that salaries should be raised by just over £100. Moreover, the nurse's salary should be so calculated as to cover her responsibilities fully, such as the teaching of practical nursing, and compensate her for such features of the nurse's life as spread over duties and week-end work.

#### Poor relief Statistics End

A Government publication which has appeared annually almost without a break for 100 years is now issued for the last time. It is the return which since 1919 has been issued by the Ministry of Health showing the number of persons in receipt of poor-law relief. It has been ended because the poor law system has been swept away by the National Assistance Act. The final return (H.M.S.O., 9d) records that the number of men, women, and children in receipt of poor relief in England and Wales at Jan. 1, 1948, was 469,556. This was 7,372 fewer than at the same date a year earlier. The number of children was 137,442. Among the categories of persons were 1,721 casuals, compared with 1,545 a year before. There were also 2,333 orphans (both parents dead), 1,040 of whom were receiving institutional relief. Only 1,585 were receiving relief because of unemployment. When the first return in this series was compiled the number of people receiving poor relief in England and Wales in July 1848 was 893,743. During the following century the highest total of persons in receipt of poor relief was returned on Jan. 1, 1935, when it reached 1,472,891. Of these, 452,075 persons were receiving relief because of unemployment. On Jan. 1, 1922, 744,797 persons received relief because of unemployment, the highest total for this cause recorded.

#### Christmas Cards

The Grenfell Association has once again produced a delightful series of Christmas cards depicting the arctic scenery of Labrador and Northern Newfoundland, where it carries out its invaluable medical work. Profits from the sale of these cards help the work to continue among the fishermen and fur traders. Funds are desperately needed for fish and fur have been scarce for two years with the result that food and clothing are short and the dogs on which transport depends in winter, have died. Tuberculosis is reported to be dangerously increasing and some of the original wooden hospitals which have withstood the arctic storms for over 40 years must be rebuilt. Cards are available in black and white or in colour at prices from 9d to 1s. packets of six postcards may be bought for 2s., and stamps for philatelists are sold. There is also an illustrated leaflet price 1d. Orders for Christmas cards should be addressed

to the Secretary, Grenfell Association, 6, Victoria Street, London, S W 1, or to Miss Betty Fyfe, Westland, Kilmaccolm Renfrewshire. The stamps may be obtained from Mrs. D. M. MacKay, 88, Exeter House, Putney Heath, London, S W 15.

### COMING EVENTS

#### Royal Society of Medicine

Dr. Philip S. Hench, of the Mayo Clinic, will give the Samuel Hyde Lecture before the Section of Physical Medicine of the Royal Society of Medicine, 1, Wimpole Street, London, W, on Wednesday, Oct. 13, at 4.30 p.m. The title of the lecture is 'A critical evaluation of current remedies for rheumatoid arthritis.' The Officers of the Section extend a cordial invitation to those who are not Fellows of the Society to attend. Admission to non-Fellows will be by ticket only, and application should be made to Dr. Doris Baker, Honorary Secretary of the Section, at 1, Wimpole Street.

#### Industrial Health Lecture

An address on 'An Industrial Health Service' will be given by Dr. E. H. Capel, chief medical officer to the National Coal Board, to the North-west Middlesex Branch of the Socialist Medical Association on Oct. 14 at the Town Hall, Wembley. It will be preceded by a C.O.I. film, 'They Live Again,' at 7.30 p.m.

#### University of Leeds

The inaugural lecture of the Faculty of Medicine of the University of Leeds will be given in the Ryley-Smith Hall of the University Union on Tuesday, Oct. 12, at 3 p.m., by Professor W. E. Le Gros Clark, F.R.S. His subject is 'Intellectual Adventure.' Members of the medical profession are invited to be present.

#### Facilitation of Visual Tasks

The 23rd Etlles Memorial Lecture will be delivered under the auspices of the Association of Optical Practitioners by Mr. H. C. Weston at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Wednesday, Oct. 13, at 7.45 p.m. His subject is 'The Facilitation of Visual Tasks, with Special Reference to Near Visual Problems.' Admission to the lecture is free, and all those interested are invited to attend.

#### Society of Medical Officers of Health

At the first ordinary meeting of the Society of Medical Officers of Health for the session 1948-9, on Thursday, Oct. 14 at 5.40 p.m., R. H. Parry, M.D., F.R.C.P., D.P.H., Medical Officer of Health for the City of Bristol and Professor of Preventive Medicine in the University of Bristol, will be installed as president of the society and will deliver his presidential address.

#### Society of Chemical Industry

A joint meeting of the Nutrition and Microbiological Panels of the Food Group of the Society of Chemical Industry will be held at Gas Industry House (No. 3 Room), 1, Grosvenor Place, London, S.W., on Wednesday, Oct. 13, at 6.15 p.m., when Dr. E. F. Gale will read a paper entitled 'The Role of Vitamins and Metals as Co-enzymes in Bacterial Metabolism.'

#### Chelsea Clinical Society

Chelsea Clinical Society will hold the opening meeting of the 1948-9 session at the South Kensington Hotel, 47, Queens Gate Terrace, London, S.W.7, on Oct. 12 at 7 for 7.30 p.m. Discussion on 'Empiricism in Medicine' to be opened by Mr. Geoffrey Evans.

#### National Safety Congress

The public safety sessions of the 1948 National Safety Congress, organized by the Royal Society for the Prevention of Accidents (Terminal House, 52, Grosvenor Gardens, London S.W.1), will be held at the Central Hall, Westminster, London S.W., from Tuesday to Friday, Oct. 12 to 15. At the child safety session on Oct. 13 Dr. Charles Hill, Secretary of the British Medical Association, will speak on 'The Road Safety of the Young Child' and at the home safety session on Oct. 14 'Home Dangers to the Under Fives' will be discussed by Dr. J. L. Burn. The full programme may be obtained from the secretary of the society at the above address.

#### American Group Therapy Association

The sixth Annual Conference of the American Group Therapy Association will be held on Jan. 21 and 22, 1949, at the Einhorn Auditorium, Lenox Hill Hospital, New York. One session of the conference will be on analysis of the nature of leadership in ordinary groups and therapy groups. Dr. S. H. Foulkes (England) will deliver one of the main papers in this symposium. The topic of another session is 'Contemporary Research in Group Psychotherapy.' The Association's address is 228, East 19th Street, New York 3, New York.

## SOCIETIES AND LECTURES

## Monday

MEDICAL SOCIETY OF LONDON 11, Chandos Street, Cavendish Square  
W—Oct 11 8 p.m. Annual general meeting 8.30 p.m. *Thyrotoxicosis* Presidential address by Dr T Jenner Hoskin

## Tuesday

INSTITUTE OF DERMATOLOGY, 5 Lisle Street, Leicester Square, London, W.C.—Oct 12, 5 p.m. *Histology of the Skin* by Dr I Muende

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION—At Royal Free Hospital School of Medicine 8, Hunter Street Brunswick Square, W.C., Oct 12, 8.15 p.m. Annual general meeting  
ROYAL COLLEGE OF PHYSICIANS OF LONDON Pall Mall East, S.W.—Oct 12, 5 p.m. Croonian Lecture *Prefrontal Leucotomy* by Dr R D Curran

## Wednesday

GLASGOW UNIVERSITY DEPARTMENT OF OPHTHALMOLOGY—Oct 13, 8 p.m. *Experimental Corneal Grafting* by Dr Paul Bacsich

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY 330 2, Gray's Inn Road, London, W.C.—Oct 13 10 a.m. *The Treatment of Cardiac Spasm* by Mr J D McLaggan

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28 Portland Place, London, W.—Oct 13, 3.30 p.m. *Modern Trends in the Weaning and Mixed Feeding of the Infant* by Dr W G Wyllie

ROYAL SANITARY INSTITUTE, 90 Buckingham Palace Road, London, S.W.—Oct 13 2.30 p.m. *The Control of Milk Quality* by Mr E B Anderson and Mr L J Meanwell

WEST LONDON HOSPITAL, Hammersmith Road, W.—Oct 13, 11.45 a.m. *Psychogenic Rheumatism* lecture by Dr Philip Hench, Associate Professor, Mayo Clinic Rochester, Minn U.S.A. followed by Dr Spencer Paterson

## Thursday

INSTITUTE OF DERMATOLOGY 5 Lisle Street Leicester Square, London W.C.—Oct 14, 5 p.m. *Erythematousquamous Eruptions* by Dr H J Wallace

ROYAL COLLEGE OF PHYSICIANS OF LONDON Pall Mall East, S.W.—Oct 14, 5 p.m. Croonian Lecture *Prefrontal Leucotomy*, by Dr R D Curran

BRITISH INSTITUTE OF RADIOLOGY 32 Welbeck Street, London, W.—Oct 14, 8 p.m. *Carcinoma of the Buccal Cavity* Discussion to be opened by Sir Stanford Cade Dr J L Dobbie, and Mr W D Harmer

## Friday

FACULTY OF RADIOLOGISTS THERAPY SECTION—At Royal College of Surgeons of England Lincoln's Inn Fields, London W.C., Oct 15 2.15 p.m. *Palliative Treatment in Advanced Breast Cancer* Discussion to be opened by Mr A J Durden Smith, Dr J R Nuttall and Mr G W Blomfield

ROYAL INSTITUTE OF PHILOSOPHY—At University Hall, 14 Gordon Square, London, W.C., Oct 15 5.15 p.m. *Morality and Nature* by W D Falk M.A.

## APPOINTMENTS

DURAND R W MRCS LRCP Superintendent Belfast City Hospital  
FRENCH ALISTAIR R MRCS LRCP Secretary Medical Protection Society Ltd Victory House Leicester Square London WC2

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

Bridley—On Oct 1 1948 to Fanny Morrow Bright M.A. wife of Dr Arthur A Bradley 10 Howard House Dolphin Square Westminster SW1 twins—a boy and a girl

Cox—On Sept 25 1948 at Nuffield House Guy's Hospital to Betty (née Padbury) wife of Dr A G C Cox a brother for Christopher—Charles Antony

Merry—On July 15 1948 at Point à Pierre Hospital Trinidad B.W.I. to Kathleen wife of Dr C H Merry a son

Rollason—On Sept 27 1948 at the Scunthorpe Maternity Home to Margaret (née Rowbotham) wife of Dr W N Rollason a second son—John David

Scurr—On Sept 24 1948 at Westminster Hospital to Jean (née Spiller) wife of Dr Cyril Scurr a daughter—Judith Ann

Turner—On Oct 1 1948 in Edinburgh to Paula wife of Dr Richard Duke Turner a son and a daughter

Venning—On Sept 25 1948 at Hammersmith Hospital to Dr Ruth Venning wife of Dr G R Venning of 153 Fairfax Road Teddington twin son and daughter

## MARRIAGES

Ingram—Iorbes Irving—On Sept 25 1948 at the English Church Montana Switzerland George Iorbes Irving M.R.C.P. son of Mr and Mrs G S Ingram of the Church Missionary Society Etmadpur India to Patricia Margaret Forbes Irving second daughter of the late Roy Forbes Irving M.Inst.C.E. and of Mrs Forbes Irving of 17 Church Street Tewkesbury Gloucestershire

Pack—Stanton—On Sept 4 1948 at Aliphington near Exeter Devon Gordon James Pack M.B. B.S. of Great Bookham Surrey to Dorothy Mary Stanton M.B. B.S. of Exeter

## DEATHS

McCallum—On Sept 16 1948 at 20 Thornfield Road Middlesbrough Charles Crown McCallum F.R.C.S. Ed. aged 50

Ord—On Sept 9 1948 Frederic William Ord L.R.C.P.I. and L.M. of The Victoria Hospital near Sockport, aged 57

Russell—On Sept 11 1948 at Petona Transvaal William Russell M.C. M.D. Commis. over in Mental Hygiene for the Union of South Africa

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept 18

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland  
Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland  
A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	26	2	11	—	—	35	6	17	3	—
Diphtheria Deaths	126	12	34	6	2	189	13	50	6	8
Dysentery Deaths	50	5	39	—	—	100	18	25	1	—
Encephalitis lethargica acute Deaths	1	—	—	—	—	3	—	—	—	—
Erysipelas Deaths	—	—	35	6	3	—	—	32	7	2
Infective enteritis or diarrhoea under 2 years Deaths	36	3	6	58	2	82	4	30	92	6
Measles* Deaths†	2 614	83	45	11	39	1 066	48	53	84	2
Ophthalmia neonatorum Deaths	47	9	14	—	—	55	6	4	—	—
Paratyphoid fever Deaths	17	2	—	—	—	23	2	(B)	—	—
Pneumonia (influenzal Deaths (from influenza)‡	283	9	3	2	4	252	8	—	3	1
Pneumonia primary Deaths	108	10	136	16	5	12	141	20	5	7
Polio-encephalitis acute Deaths	2	—	—	—	—	23	1	—	—	—
Poliomyelitis acute Deaths§	72	6	2	2	—	571	53	148	11	10
Puerperal fever Deaths	—	—	17	—	—	—	10	—	—	—
Puerperal pyrexia¶ Deaths	101	9	4	—	—	115	8	8	1	1
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	925	62	220	91	49	805	57	142	21	44
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	28	—	5	2	—	16	4	4	3	2
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2 635	166	68	49	10	1 378	131	38	51	6
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	266	33	37	14	8	348	29	67	23	15
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	3 860	601	506	159	95	3 721	579	517	147	114
Live births Annual rate per 1 000 persons living	7 332	1194	882	427	212	8 350	1395	960	45	251
Stillbirths Rate per 1 000 total births (including stillborn)	203	24	29	—	—	209	23	32	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the rate are therefore an approximation only

† Deaths from measles and scarlet fever for England and Wales (London administrative county) will no longer be published

‡ Includes primary form for England and Wales (London administrative county) and Northern Ireland

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London administrative county) are combined

¶ Includes puerperal fever for England and Wales and Eire

## EPIDEMIOLOGICAL NOTES

## June Quarter, 1948

The latest quarterly return, issued on Oct 7, contains some further vital statistics for the years 1946 and 1947. The general mortality ratio (the ratio of mortality from all causes to that of the previous year) for 1947 is given as 1 028 compared with 0 987 in 1946. The infant mortality rate for the year 1947 was 41 per 1,000 related live births against 43 in 1946. This is the lowest rate of deaths of children under one year of age ever recorded for a complete year in this country, although the provisional rate for the June quarter of 1948 was 31 which is the lowest for any quarter recorded in this country.

The number of civilian deaths from diphtheria continued to fall in 1947, there being only 242 compared with 455 in 1946 and 1,348 in 1943. This was the lowest number ever recorded in England and Wales. Civilian deaths from influenza numbered 3,303 in 1947, compared with 2,669 and 5,272 in the two preceding years and 12,576 in 1943. Deaths from influenza in the second quarter of 1948 (provisional total excluding non-civilians) numbered only 204.

The prevalence of acute poliomyelitis and polio-encephalitis during 1947 resulted in 688 civilian deaths (407 males and 281 females) compared with 116 and 126 in 1946 and 1945 respectively. Deaths from these causes in the second quarter of 1948 (provisional total excluding non-civilians) numbered 27 compared with 40, 429, 196, and 82 in the four preceding quarters.

There were 31 469 civilian deaths from bronchitis and 22,659 from pneumonia during 1947, which was more than for any year since 1943, when the corresponding figures were 31 386 and 24 638 respectively.

## Discussion of Table

In England and Wales there were decreases in the notifications of whooping cough 242 dysentery 34, and paratyphoid 15 the only increase was in the incidence of scarlet fever 92.

The rise in the notifications of scarlet fever was due to small increases throughout the northern section of the country, in the southern section no change occurred. A small fall in the notifications of measles was recorded in most areas, the only exceptions of note were rises in Yorkshire West Riding 97 and Cumberland 99. The rise in the latter county was due to outbreaks in Maryport UD 83 and Cockermouth RD 25.

The largest falls in the incidence of whooping cough were London 63 Middlesex 58, and Lancashire 59 the largest rise was Yorkshire West Riding 67. A decrease of 8 in the notifications of diphtheria in Lancashire was the chief feature of the returns of this disease.

A further 16 cases of typhoid fever were notified from the outbreak in Shropshire, Oswestry RD. An outbreak of dysentery affecting 11 persons was notified from Somerset, Taunton MB and this was the largest centre of infection during the week.

There was no change in the number of notifications of acute poliomyelitis, the largest returns were Lancashire 7, London 6, Gloucestershire 5, Glamorganshire 5 Norfolk 5 Warwickshire 5 Essex 5, Buckinghamshire 4, Cheshire 4 and Middlesex 4.

In Scotland decreases occurred in the notifications of whooping-cough 42 diphtheria 26 and dysentery 14, and a rise of 23 was recorded for scarlet fever. The increase in scarlet fever was due to a rise in the western area, all counties in this area had an increased incidence except Lanarkshire where the notifications decreased by 16.

In Eire increases were recorded for scarlet fever 36 and diarrhoea and enteritis 12 while decreases were reported for measles 17 and whooping cough 9. An increase in the incidence of scarlet fever occurred in most areas, and in Dublin CB the notifications were 15 more than in the preceding week. The incidence of diarrhoea and enteritis in Dublin CB remained unchanged.

In Northern Ireland an increase of 20 in the notifications of scarlet fever was the chief feature of the returns. There was a small rise in the notifications of scarlet fever throughout the country.

## Week Ending September 25

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1 068 whooping-cough 2 259 diphtheria 125 measles 2 703 acute pneumonia 277 cerebro-spinal fever 26 acute poliomyelitis 70 dysentery 68 paratyphoid 15 and typhoid 29.

The Ministry of Health has announced that persons who are incapable of work by reason of mental disablement must be registered for National Insurance and pay contributions as non-employed persons. The only exceptions are children under the age of 15 men over the age of 65 and women over the age of 60.

## Any Questions?

## Treatment of "Tennis Elbow"

**Q**—What is the latest treatment for tennis elbow? I have been plagued with this condition for about six months and it is steadily getting worse. In its earliest stages I thought I had mildly bruised the external condyle now I can scarcely lift a small book. X rays reveal no abnormality in or round the joint. No focus of infection can be found. Manipulations by an orthopaedic surgeon produced no results the same applies to ultra-short-wave therapy and massage pressure bandaging and simply leaving it alone.

**A**—Many forms of treatment are in common use for the relief of 'tennis elbow'. No single one of them except operation, can be relied upon to produce rapid relief in a given case. It is usual to start with the simplest measures such as short-wave diathermy, deep massage, and faradism to the extensor muscles of the forearm. If these are unsuccessful the injection of a solution of local analgesic into the exact site of the tenderness may occasionally give dramatic results. It is worth while repeating the injection if the first is incompletely successful. If this also fails the effect of immobilization in plaster should be tried. The plaster should extend from the upper arm to the metacarpal heads and should hold the elbow at 90 degrees. The immobilization should be maintained for six to eight weeks. It is successful in a fair proportion of cases. Manipulation under anaesthesia (local or general) is also worth a trial in obstinate cases.

As a last resort operative treatment may have to be considered, but as 'tennis elbow' will almost invariably resolve spontaneously if given sufficient time (often twelve months or more) operation should not be advised unless the condition is severe enough to cause significant incapacity. The operation consists in raising the humeral origin of the forearm extensor muscles from the bone and displacing it downwards. This is the most certain way of relieving the symptoms within a reasonable time and in some cases it will be advised in preference to the more time-consuming conservative methods simply on economic grounds.

## Squatting in Congenital Heart Disease

**Q**—What are the mechanics of squatting? This position is adopted not only by young patients with congenital heart disease but also by patients with congestive heart failure from rheumatic carditis and from bronchial asthma. These patients may be seen in hospital in bed with knees up and body and head forward the elbow being on the bed-table the resulting position being very nearly the same as the squat.

**A**—No explanation has been put forward to account for the squatting position in congenital heart disease. It is possible that in the squatting position the pressure of the thighs on the abdomen and its contents increases the venous return to the heart and so increases the cardiac output. This temporarily improves the oxygen supply to the body tissues, the blood oxygen saturation remaining the same. In the case of asthma and congestive failure from rheumatic heart disease, the essential point is the elbows being on the bed table. This fixes the head of the humerus near which the pectoralis muscles and latissimus dorsi are inserted. This then becomes the origin of these muscles, which are used as accessory muscles of respiration in an attempt further to expand the thoracic cavity. The knees are drawn up automatically in sitting forward on the bed-table.

## Stable Solution of Calcium Gluconate

**Q**—What is the most reliable method of preparing stable solutions of calcium gluconate (10% and 20%) for injection purposes? What are the stabilizers generally used and in what concentration? Of late calcium laevulinate is becoming popular—how is it manufactured?

**A**—The British Pharmacopoeia solution of calcium gluconate for injection is a supersaturated solution of 10 pure calcium gluconate prepared by dissolving it in the B.P. water for injection with the aid of heat and clarifying the hot solution by passing through a suitable filter. While still hot the solution is distributed into carefully washed ampoules which are then

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# BRITISH MEDICAL JOURNAL

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## AN INQUIRY INTO THE EFFECT OF H 11 IN THE TREATMENT OF MALIGNANT DISEASE

REPORT OF A COMMITTEE\* APPOINTED BY THE MEDICAL RESEARCH COUNCIL

According to Thompson *et al* (1941) the substance H 11, which is an extract prepared from a concentrate of normal human urine, has an inhibitory action on malignant tissues in the human being, and may in certain cases lead to recovery from cancer. Their claim is founded on the results of animal experiments and of the treatment of human beings.

Although no claim for a cancer cure has been specifically made, it is clear from the published reports that the "arrest" or "regression" of the growth said to be produced by the treatment with H 11, and that disappearance of symptoms, in some cases amounting to "cure," is said to follow the "arrest" of the growth. The implication clearly has been that the substance has clinical value, and as a result interest has been aroused.

Advocates of the alleged remedy have said that responsible bodies, in particular the Medical Research Council, by withholding support and refusing to recognize work which marks an advance in the treatment of cancer. It was therefore decided that the Medical Research Council should appoint a special committee, and this was done in November, 1944. The primary task of the committee was to collect the available evidence on which the claims for H 11 were based and to assess its value. At this point the committee would like to acknowledge that all the information received by the Hosa Research Laboratories was placed at its disposal.

The committee approached this inquiry in two ways—namely, (1) a study of the clinical case records supplied by the Hosa Laboratories in order to find out the results of administering H 11 to human patients suffering from cancer, (2) an experimental investigation into the effect of H 11 upon malignant tumours in mice. In addition to these two approaches all the available literature on the subject has been carefully examined.

### Study of the Clinical Case Records

An attempt was made to assess the results of administering H 11 to human patients. It is obvious that the laboratory method of control is not applicable to man. In the case of cancer, therefore, the only substitute for strict control has been the comparison of records of patients not treated in some other way, with the records of patients treated in the particular way under study. At the end of the committee's study the Hosa Laboratories had clinical case records of over 3,000 patients who had

been treated by their doctors with injections of H 11 supplied to them by the Hosa Laboratories. The committee appointed Dr Dora Colebrook to make a detailed extract of these records. The Hosa Laboratories put all the records at her disposal, and she, with the co-operation of Dr Ollerenshaw, of the staff of the Hosa Laboratories, transcribed the findings in Hosa case records on to special forms which had been drawn up for the purpose. Dr Colebrook extracted the information in this way from 1,000 case records. Before continuing with this work the committee concluded that it must first determine whether the records available in the Hosa Laboratories were such as would ultimately allow any statistical analysis of value to be carried out and thus enable a conclusion to be reached.

For this purpose a random sample of 100 cases was drawn from the 1,000 case sheets extracted by Dr Colebrook. To these were added, again at random, 39 further records to give a wider picture of those cases in which the Hosa Laboratories considered that "arrest" or "regression" of the malignant growth had taken place. The complete details of these 139 records have been closely studied by the committee so that it might, from such representative groups, (1) examine the kind of evidence on which the Hosa claims rested, (2) consider whether the data could be used in a scientific assessment of the results of the treatment, and (3) decide whether any further analysis of the available 1,000 case records was warranted and whether extraction of the remaining 2,000 to 3,000 records was desirable. In selecting this sample of the records for detailed study the committee had the advice of Professor Greenwood and Professor Bradford Hill.

The committee concluded that the assumptions made by Hosa with regard to the behaviour of malignant tumours are fallacious and that the recorded data on which their conclusions are founded cannot be used as the basis of a scientific judgment on the effect of the treatment.

One of the contentions of the Hosa staff is that the decrease in size (or volume) of a malignant tumour is necessarily a favourable prognostic sign, and that a patient under treatment showing signs of diminution in size of the tumour is thereby giving evidence of regression of the disease. The committee is unable to accept this point of view. The reduction might be due to necrosis of cells without replacement by new formation, or to diminution of inflammatory reaction. Clinicians are quite familiar with such changes. A further point is that once metastases have formed subsequent changes at the primary site may have little or no bearing on prognosis.

In a review by E. Cronin Lowe (1944) of patients treated with H 11 there is a section on the subjective signs and symptoms. Pain is mentioned as a prominent symptom in 150 cases, and in 98 reduction of pain is reported. It is suggested that this reduction of pain is evidence of the

\*Members of the committee were Professor G. E. Gask, the Right Hon. Lord Balfour of Burleigh, Sir Ernest Jones, Professor M. Greenwood, Professor A. Bradford Hill, J. R. Leitch, Professor M. J. Stewart, Professor L. J. and Dr. Mary Gilmore (Secretary).



value of the treatment. The committee is unable to accept this claim. No control is available. In all diseases pain is a variable symptom.

The Ministry of Health has in the past issued a series of reports by Dr Janet Lane-Claypon and others on cancer and the results in terms of survivorship of various forms of treatment. It was hoped that a comparison might be made of these results, as well as of the survivorship of untreated patients, with those of the Hosa records of patients treated with H 11, but in fact it was not found possible to do so. The ultimate test of the value of any form of treatment in cancer is survivorship. If it can be proved that patients suffering from cancer treated in a certain way live longer than patients untreated or treated by other methods, then it may be claimed that some success has been achieved. The Hosa records do not enable the committee to determine the average length of life of patients treated even from the time of the first treatment with H 11, still less from the first date, or alleged date, of the onset of the disease. It is impossible to obtain from these records anything to compare statistically with such analyses as those published by the Ministry of Health.

After making a prolonged study of the analysis of the Hosa case sheets referred to above the committee has arrived at the conclusion that details of the onset of the disease are often lacking as well as records of the total duration of survivorship and duration of survival after the beginning of treatment with H 11. The conclusion it has come to is that it is unable to infer from the Hosa records that the administration of H 11 to those patients did in fact have any effect on the growth of the cancer or prolong the life of the patients. To attempt to follow up the subsequent life histories of the patients by inquiry of general practitioners or through the Registrars-General would involve an amount of time and labour incommensurate with the results likely to be achieved. Enough information is now available on which to form an opinion, and further work on the records is not advised. In short, the records are not such as to supply any valid evidence which can be statistically analysed. To illustrate the clinical histories from which the Hosa Laboratories deduce that "arrest" or "regression" has taken place the committee gives in Appendix 1 the summaries of 25 cases selected at random.

### The Effect of H 11 on Animals Suffering from Cancer

H 11 was reported by Thompson *et al* (1941) to inhibit growth of the Twort carcinoma, a tumour which can be grafted in mice and which in favourable circumstances can be carried through many generations. It is, however, well known to experimental pathologists that this particular tumour is especially liable to regress and even to disappear without any treatment of the tumour-bearing animals.

In 1943 Dr Gye, Director of the Imperial Cancer Research Fund and Professor of Experimental Pathology in the Royal College of Surgeons, was invited by the President of the Royal College of Surgeons to test the value of H 11 in animals. Dr Gye, being fully aware of the liability of the Twort carcinoma to spontaneous regression, and regarding this particular tumour for that reason as unsuitable, employed in his experiments not the Twort tumour but the mouse mammary carcinoma known as M 63 and other tumours which he regarded as more stable and therefore more likely to give a true answer. In July, 1943, Dr Gye published his results. *His conclusions were that H 11 had no growth-inhibiting effects on the tumours used in his experiments.*

Mr Thompson (1943) objected that this research was irrelevant as the claim of the Hosa Laboratories in the experimental field was made with respect to the Twort

carcinoma only. He objected, further, that neither the strain of mouse used nor the manner of administration nor the dosage chosen was appropriate. It may be remarked here that no evidence has ever been produced that the Twort tumour has any closer biological analogy with cancer occurring in human beings than have the mouse tumours used in Dr Gye's experiments.

After careful consideration the committee decided that a satisfactory conclusion could not be reached until the objections raised by Mr Thompson had been fully investigated. The committee accordingly sought for an entirely independent expert who would conduct a further series of experiments using the Twort tumour under conditions laid down by Mr Thompson. The choice of the committee fell on Dr Georgiana M Bonser, Brotherton Fellow in Cancer Research in the University of Leeds, who kindly consented to undertake this long and laborious series of experiments.

Dr Bonser has conducted a series of animal experiments extending over many months. She has used the Twort tumour in five of the experiments. In addition she has performed two parallel experiments using (a) mice grafted with a spindle-cell sarcoma, (b) mice bearing spontaneous mammary cancer. A full account of these investigations has been prepared by Dr Bonser, and is included in Appendix 2. *The conclusion of her inquiry, confirming that reached by Dr Gye, is that there is no evidence that H 11 had any growth-inhibitory effect in any of the experiments carried out.*

The committee, having considered Dr Bonser's report, entirely agrees with the above conclusion. In the opinion of the committee this memorandum also fully confirms Dr Gye's conclusion that the Twort tumour is not a suitable tumour on which to test therapeutic substances, in consequence of its great liability to spontaneous regression.

The committee, after taking further expert advice, is of the opinion that no useful purpose will be served by undertaking experiments designed to test the theory of optimum volume and concentration in dosage so heavily stressed by the Hosa staff. In its opinion the theory as applied to H 11 is untenable in the light of existing knowledge.

Before writing their final report the committee invited Mr Thompson and Dr Ollerenshaw to meet it and to make any comments they wished on the findings of the committee.

### The Committee's Conclusions

The conclusions at which the committee has arrived after careful consideration are: (1) It has not been possible to deduce from an analysis of the Hosa records that H 11 has any effect either on the rate of growth of cancer in man or on the clinical course of the disease. (2) So far as the experiments in mice carried out under its direction are concerned no inhibitory action by H 11 has been demonstrated.

### REFERENCES

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### APPENDIX 1

A random sample of the case histories extracted from the Hosa records and from the associated reports sent to the Hosa Laboratories by the medical attendants of the patients.

For the guidance of the reader the following are the criteria laid down by the Hosa Laboratories for their assessment of the results of treatment with H 11. The committee is indebted to Dr Ollerenshaw of the Hosa Laboratories staff, for this

atement of their methods of classification (and also for having checked the accuracy of each of the sample case records which were extracted for the committee's particular study)

"1 The method of classification of results in use is based solely on the result of treatment as shown by the size of the neoplasms. It is not based in any way on the subjective response. Thus a patient showing an objective advance of disease but with marked relief of pain and other evidence of subjective response would be classified as failure (A).

2 It is assumed that a therapeutic procedure is 'of value' if it produces subjective improvement, objective improvement, or both. The lettered classification in use, indicating objective results only, does not therefore cover value shown by subjective response.

3 The classification used is as follows

A No indication of any objective effect on the disease

B Evidence of arrest or partial inhibition of growth for a period of two months or longer where the tumour/s had been actively increasing in size prior to treatment. If treatment has only been in progress for two months or slightly more arrest or partial inhibition is claimed if the tumour/s, previously growing, have ceased to grow.

C Clinical (or other adequate) evidence of regression of tumours as indicated by an observable decrease in size. In the case of visible or palpable tumours, regression can more easily be observed, in the case of internal or impalpable tumours, evidence of decrease in size is obtained from radiological or other special methods of examination."

In the body of the committee's report reference is made to a sample of 139 cases which, in the light of these definitions, the committee studied in detail. These records were at the same time submitted to the Hosa Laboratories, and their accuracy was, as stated above, checked by Dr Ollerenshaw. Arising from this check a few changes in the classifications were accepted by the committee—namely

(a) A patient classified as Group C (regression) was withdrawn from the series, since treatment with H 11 had been irregular and the series studied by the committee was defined as patients who had received at least two months' prescribed treatment.

(b) In eight cases the Hosa classification of the results of treatment had been changed with the passage of time—e.g., from arrest to regression. The committee had studied the situation at both points of time but the classification at the latest available point of time in the patient's history was finally adopted as that most relevant.

(c) One patient had two primary tumours—one showing "no objective improvement" (Group A) and the other classified as arrest (Group B). This case was included in both Group A and Group B.

With these slight adjustments the committee had for its final detailed study 139 case histories, relating to 138 patients, of which 47 had been allocated at the latest point of time to the Hosa Group B ('arrest') and 30 to its Group C ('regression'). The remainder at that point of time either showed "no objective improvement" (Group A) or had remained unclassified on account of insufficient evidence, etc.

Having examined the protocols of these cases the committee has stated in its report that it is entirely unable to accept the evidence upon which the arrest or regression of a tumour is based. To illustrate to others the nature of these cases and the available evidence the committee has taken at random every third case of the 47 'arrests' (15 cases) and of the 30 'regressions' (10 cases) and gives these 25 histories in detail below. These cases form a small but sufficiently illustrative sample of those in which the Hosa Laboratories conclude, in accordance with their criteria set out above, that there was evidence of either an arrest or a partial inhibition of a growth which had previously been actively increasing in size or of its regression as shown by an observable decrease in its size.

For convenience the 25 case histories are arranged in the following order

I Fifteen cases classified by the Hosa Laboratories as showing 'arrest' of the growth (Group B). (a) 12 dead when the committee's extract of the records was completed, (b) 3 known to have been alive on the date specified when they were last heard of by the Hosa Laboratories.

II Ten cases classified by the Hosa Laboratories as showing 'regression' of the growth (Group C). (a) 6 dead when the committee's extract of the records was completed, (b) 4 known to have been alive on the date specified when they were last heard of by the Hosa Laboratories.

In each case history the sex and age of the patient are given first, followed by the primary site and any available information on the growth—its size, etc. The summarized reports of subsequent progress from the patient's medical attendant include all the available evidence on objective changes, but they do not necessarily provide a comprehensive history of the case, as details may not in all instances have been sent in by the medical attendant. They also do not include reports on merely subjective changes—e.g., on general condition or pain—unless it appeared to the committee, in a few cases, that these reports had some bearing upon the Hosa Laboratories classification of the results of treatment with H 11. For the duration of treatment with H 11 the date of the first issue is given and one of the following alternatives: (a) the date of the last issue of the customary four-weeks supply, (b) the date of death if it occurred within four weeks after the last issue, (c) a specified date on which treatment was reported to have ceased.

### Group B

*Fifteen cases classified by the Hosa Laboratories as showing "arrest or partial inhibition of growth for a period of two months or longer where the tumour(s) had been actively increasing in size prior to treatment"*

1 M, 62, small intestine, secondaries, liver and glands, diagnosis: columnar celled carcinoma, too advanced for operation, result of biopsy uncertain but probably positive, date not given, laparotomy, 1941, previous duration of disease and size of tumours not stated. Previous treatment none mentioned. H 11 first issue 24/11/41, last issue 16/4/43. Progress reports Dec, 1942, developing obstruction, Jan, 1943, lateral anastomosis, at operation primary reported to be larger and secondaries of the same size as at the laparotomy in 1941 (no evidence that the same observer was present at the two operations). Death, May, 1943.

2 M, 55, prostate, secondaries in pelvis, femur, and tibia, no report of a biopsy, diagnosis: adenocarcinoma, advanced, previous duration of disease and size of tumours not stated. Previous treatment none mentioned. H 11 first issue 27/4/43, last issue 23/11/43 (with 3 months' interval from Aug to Nov, 1943 for a course of stilboestrol). Progress reports primary, Aug, 1943 (before stilboestrol) *in statu quo*, no report on secondaries, final report, "Did very well on stilboestrol". Death from uraemia and oedema, Jan, 1944.

3 F, 49, ovary, invading abdomen, diagnosis: carcinoma, inoperable (date of laparotomy not given), microscopical section (date not given) "did not indicate a high degree of malignancy", previous duration of disease not stated. Previous treatment none mentioned. H 11 first issue 9/1/43, treatment ceased 1/7/44. Progress reports April, July, Sept, Dec, 1943, and July, 1944, *in statu quo* (Sept, 1943, "enormous"), final report, "Prolonged life". Death, Oct, 1944.

4 M, 62, pelvic colon (growth palpable), secondaries generalized in abdomen, diagnosis: carcinoma, advanced, no report of a biopsy, but laparotomy, 1940, previous duration of disease and size of tumours not stated. Previous treatment: colostomy, May, 1940. H 11 first issue 14/5/41, death 22/12/41. Progress reports Aug, 1941, ? slight decrease, Dec, 1941, marked increase with obstruction, laparotomy showed disseminated malignant peritonitis, final report, "No good effect". Death, Dec, 1941.

5 F, 59, rectum (tumour in wall 1 in by 2 in (2.5 by 5 cm)), involving uterus and colon, secondaries in omentum, diagnosis: adenocarcinoma, advanced, inoperable (no date), no report of a biopsy, but laparotomy, 1943, previous duration of disease not stated. Previous treatment: colostomy just before start of H 11 treatment. H 11 first issue 9/12/43, death 23/5/44. Progress reports Feb, 1944, toxic, April, 1944, primary larger and softer, bacilluria, final report, dissemination of carcinoma. Death, May, 1944.

6 F, 62, ovaries, secondaries, omentum and peritoneum, diagnosis: confirmed by biopsy, 1944, adenocarcinoma, advanced, progress a few months, previous duration of disease and size of tumours not stated. Previous treatment: March, 1944, double oophorectomy, secondaries inoperable. H 11 first issue 3/4/44, last issue 25/7/44. Progress reports June, 1944, still palpable, Sept, 1944, much larger. Death from intestinal obstruction, Oct, 1944.

7 M, 61, pelvic colon, secondaries in peritoneum and liver, diagnosis: carcinoma, advanced, no report of a biopsy, but laparotomy Oct, 1943, previous duration of disease and size of tumours not stated. Previous treatment: colostomy, Oct, 1943. H 11 first issue 20/4/44, last issue 25/7/44. Progress reports Sept, 1944, liver enlarged, no report on primary. Death, Sept, 1944.

8 F, 60 breast, secondary, skull (2 small nodules), spine (3 collapsed vertebrae) diagnosis scirrhus carcinoma, advanced, confirmed by biopsy Dec, 1941, and secondaries by radiographs, previous duration of disease about 3 years Previous treatment radical amputation, Dec, 1941, no recurrence, radium, 1943, deep x rays, 1943 and 1944, 2 courses, "of no avail" H 11 first issue 15/5/44, death 28/8/44 Progress reports July, 1944, nodule in skull *in statu quo*, radiologist's report, "Vertebrae partly collapsed but better consolidated than before The condition is evidently due to metastases, but the improved consolidation suggests some bone regeneration" Death from rapid carcinomatosis, Aug, 1944

9 F, 72, breast, secondaries in glands, diagnosis carcinoma, advanced, no report of a biopsy previous duration of disease and size of tumours not stated Previous treatment radical amputation, 1938, deep x rays (4 applications), Feb, 1944 H 11 first issue 28/8/44, treatment ceased 12/5/45 Progress reports Oct, 1944, primary *in statu quo* secondaries larger, March, 1945, secondaries much larger, final report, "Hopeless to start with" Death, Oct, 1945

10 F, 49 cervix, secondary in left iliac fossa, diagnosis columnar celled carcinoma, confirmed by biopsy, Oct, 1943, advanced, prognosis 6 months, previous duration of disease not stated secondary reported as small Previous treatment pan-hysterectomy, Oct, 1943, no recurrence H 11 first issue 30/10/44 last issue 2/12/44 (ceased treatment Jan, 1945) Progress reports Dec, 1944, secondary *in statu quo*, Jan, 1945, "very much better" Final report general abdominal carcinomatosis, "H 11 seems to have prolonged life" Death, Jan, 1946

11 F, 34, breast, secondaries in bones, diagnosis carcinoma, confirmed by biopsy, 1941, advanced, 'hopeless', previous duration of disease and size of tumours not stated Previous treatment "amputation" May, 1941, no recurrence, deep x rays, Oct, 1944, stilboestrol, date not given H 11 first issue 12/1/45, treatment ceased 7/7/45 Progress reports May, 1945, secondaries new and enlarging, final report, "Objective improvement at first" Death, Oct, 1945

12 F, 64, breast, subcutaneous and pleural secondaries, diagnosis carcinoma, ? confirmed by biopsy, 1939, advanced, prognosis 12 months, previous duration of disease and size of tumours not stated Previous treatment radical amputation, Oct, 1939, no recurrence H 11 first issue 3/7/45, treatment ceased 23/9/45 Progress reports Sept, 1945, pleural effusion less, nodules *in statu quo*, Oct, 1945, nodules *in statu quo*, final report, "Slowed down rate of growth", arrest during treatment Death following haematemesis, Oct, 1945

13 F, 50, Fallopian tubes, secondary in vagina, diagnosis adenocarcinoma, no report of biopsy previous duration of disease and size of tumour not stated Previous treatment Dec, 1942, pan-hysterectomy H 11 first issue 25/5/43, last issue 19/8/43 Progress reports July 1943, vaginal haemorrhage, appeared to be moribund Aug, 1943, general condition much improved, haemorrhage ceased final report, Jan, 1944, "Has gone downhill since ceasing H 11, which kept the growth in abeyance" Last heard of Jan, 1944

14 M, age not given, pelvic colon, no secondaries, diagnosis carcinoma, advanced, prognosis ? 12 months, no biopsy, but laparotomy (date not given), previous duration of disease and size of tumour not stated Previous treatment colostomy (date not given) H 11 first issue 12/4/44 treatment ceased 12/8/44 Progress reports June, 1944, primary, *in statu quo*, Sept, 1944, liver enlarged, final report "No effect" Last heard of, Sept, 1944, moribund

15 M, 61, rectum (involving three quarters of circumference of gut), fixed, no secondaries, diagnosis carcinoma, prognosis 1 to 1½ years, no report of a biopsy, previous duration of the disease not stated Previous treatment colostomy, March, 1944 H 11 first issue 10/5/44, treatment ceased 22/12/44 Progress report, Sept, 1944, primary *in statu quo* Last heard of, Dec, 1944

### Group C

Ten cases classified by the Hosa Laboratories as showing clinical (or other adequate) evidence of regression of tumours as indicated by an observable decrease in size

16 M, 42, rectum no secondaries mentioned, diagnosis carcinoma, confirmed by biopsy (date not given), advanced, prognosis 6 months, history of 18 months in bed and of rectal haemorrhage, size of tumour not stated Previous treatment none, inoperable (date not given) H 11 first issue March, 1942, death 23/3/43 Progress reports May, 1942, rectal haemorrhage had ceased, general condition markedly improved, Sept, 1942 walking and working, March, 1943, two tests for occult blood in faeces negative final report, "The agent appeared to be causing retrogression of the cancer" Death from uraemia, chronic nephrosclerosis, and bedsores, March 1943

17 M, 55, caecum, secondaries in mesenteric glands, diagnosis carcinoma, confirmed by biopsy, ? Dec, 1941, advanced, previous duration of disease and size of tumours not stated Previous treatment none H 11 first issue 2/1/42, death 11/6/42 Progress reports primary, March, 1942, slightly smaller, April, 1942, *in statu quo* (ileostomy performed between these two dates), no report on secondaries Death, June, 1942

18 F, 53, cervix, diagnosis carcinoma, confirmed by biopsy, 1941, no secondaries Previous treatment Wertheim's hysterectomy and radium, May, 1941, no recurrence Prophylactic course of H 11 first issue May, 1941, last issue May, 1942 Progress reports no recurrence, no secondaries Death from ascending urinary infection following vesico vaginal and recto vaginal fistulae, Dec, 1945

19 M, 31, rectum, mass completely occluding lumen, secondaries in glands, diagnosis carcinoma, confirmed by biopsy (date not given), advanced, previous duration of disease, 18 months Previous treatment colostomy, Jan, 1943, general improvement until March, 1944, followed by relapse H 11 first issue 12/4/44, last issue 30/8/44 Progress reports June, 1944, thrombophlebitis of leg, Aug, 1944, phlebitis resolved, faeces passed per rectum for first time for 18 months, Sept, 1944, progress maintained, stool size of thumb passed regularly, "rapid objective and subjective improvement" Death from peritonitis following rupture of rectum, Sept, 1944

20 F, 64, breast, secondaries in sigmoid, bladder, liver (July, 1942), diagnosis carcinoma (Broder's grade III), confirmed by biopsy, 1939, previous duration of disease and size of tumours not stated Previous treatment radical amputation, Dec, 1939, ? recurrence H 11 first issue 28/6/44, death 28/9/44 Progress reports Aug, 1944, secondaries "seem smaller", Sept, 1944, primary, *in statu quo* Death, Sept, 1944

21 M, 49, bronchus, no secondaries, diagnosis carcinoma, no report of a radiological examination, previous duration of disease and size of tumour not stated Previous treatment, none H 11 first issue 11/10/44, treatment ceased 1/3/45 (with one month interval in Jan, 1945) Progress report, March, 1945, "Clinically much smaller" Death from haemoptysis, May, 1945

22 F, 68, cervix, invading bladder, diagnosis carcinoma, grade III, advanced, inoperable, 1941, no biopsy, previous duration of disease and size of tumour not stated Previous treatment, none, too advanced for radium, 1941 H 11 first issue 10/1/42, treatment ceased June, 1942 Progress reports Jan, 1942, no vaginal examination because of "danger of haemorrhage", May, 1942, no haemorrhage after vaginal examination, growth therefore presumed to have regressed, June, 1942, suitable for radium (two applications given) Last heard of, Aug, 1946, well

23 F, 70, rectum, mass size of fist, no stricture, multiple diverticulitis, no secondaries, diagnosis ? carcinoma, no biopsy, but laparotomy, 1943, the surgeon "and a colleague" considered the growth to be malignant, but stated that "proof whether malignant or inflammatory not possible", previous duration of disease not stated Previous treatment, colostomy, Jan, 1943 H 11 first issue 1/2/43, last issue 14/2/44 Progress reports March, 1943, smaller, May, 1943, smaller, size of chestnut, July, 1943, smaller and softer, Jan, 1944, only a little thickening, July, 1946, *in statu quo* Last heard of, July, 1946, well

24 F, age not given, lung, diagnosis carcinoma, no report of a radiological examination, previous duration of disease and size of tumour not stated H 11 first issue 26/8/41, last issue 27/8/42 Progress report, April, 1942 general condition much improved, gain of 2 st (12.7 kg) in weight, no reference made to growth Last heard of, Nov, 1944, well

25 F, 40, cervix, ? secondary in lumbar glands, diagnosis primary carcinoma, prognosis one year or ? many years, no report of a biopsy on cervix or glands, previous duration of disease and size of tumour not stated Previous treatment radium, Oct, 1944, result, Jan, 1945, primary had apparently disappeared, no recurrence, radiotherapist doubtful of diagnosis of malignancy in the persisting enlarged glands H 11 first issue 10/3/45 last issue 2/11/45 Progress reports May, 1945, oedema left leg (due ? to phlebitis, ? to pressure of glands), subsided Oct, 1945, "Disease appears to be arrested", Dec, 1945, x ray report no sign of any active secondaries, no sign of malignancy Last heard of, Dec, 1945

### APPENDIX 2

Report to the H 11 Committee of the Medical Research Council on experiments performed by Dr G M Bonser in the Department of Experimental Pathology and Cancer Research, University of Leeds, designed to test the growth inhibiting properties of the extract H 11 supplied by the Hosa Laboratories.

Following the request of the H 11 Committee that I should investigate the growth inhibiting properties of H 11, it was decided that I should visit the Hosa Laboratories in order to

TABLE I—Summary of Grafting of Twort Carcinoma

Source of Grafts	Mice Grafted at Leeds		No of Takes	No of Spontaneous Regressions	Remarks
	Type	No			
First tumour from Hosa Laboratories	White label	24	0	0	All mice died within two days
Second tumour from Hosa Laboratories	White label	37	20	11	Tumour died out at 4th generation Tumour died out at 8th generation Generations 4-6 were used for experiments 1-5
Second generation in white label mice of second tumour from Hosa Laboratories	Leeds stock	360	171*	79	
Third tumour from Hosa Laboratories	(a) Leeds stock	150	80	46	Tumour discarded at 8th generation Tumour died out at 4th generation
	(b) Leeds stock	47	18	8	
Fourth tumour from Hosa Laboratories	(a) Leeds stock	8	4	2	Tumour died out at 3rd generation
	(b) Leeds stock	36	25	14	
Total		662	318*	160	

\* 50 of these mice were treated with H 11 regressions among these mice are not included in the next column  
 Note—The mice were bred in the laboratory

I see for myself the exact conditions recommended to obtain the maximum experimental effect. At this visit the details of procedure were explained to me by Mr Thompson and his assistant, and plans were made to start the work at once. At the same time I pointed out that I should not regard the investigation as complete unless experiments were made with a homologous tumour transplanted into inbred mice in addition to those with the Twort mammary carcinoma, which is the only test tumour in use at the Hosa Laboratories. Mr Thompson agreed to this procedure, but expressed the opinion that it would be necessary to find out the optimum dosage required to inhibit any tumour other than the Twort carcinoma.

#### Attempts to Obtain Suitable Grafted Twort Carcinomas

1 After my visit to the Hosa Laboratories in August, 1945, I brought three mice bearing grafted Twort carcinomas back to Leeds. The 24 mice which received grafts from one of these tumours all died within a short period, this was thought to be due to an infection grafted with the tumours. The host mice, chosen after discussion with Mr Thompson, were pure-line "white label" mice, originally given to me by Dr Kreyberg (Oslo).

2 Later in the same month three more tumour-bearing mice were sent from the Hosa Laboratories. Grafts were made into "white label" mice and were maintained for four generations, when the tumour was obviously about to be lost. For this reason grafts were made from generation 2 of "white label" mice to our own laboratory mixed stock and were maintained for eight generations, when the tumour died out. Mice of generations 4, 5, and 6 were used for testing H 11. Of 360 mice grafted only 171 takes were obtained, and many of these tumours regressed spontaneously.

3 In July, 1946, four Twort-bearing mice were sent from the Hosa Laboratories. Grafts from two of these were made into stock mice. One tumour died out at the fourth generation, the other reached the eighth generation and was then discarded.

4 In December, 1946, two Twort-bearing mice were received from the Hosa Laboratories. These tumours were maintained for a few generations and were then discarded.

A summary of the graftings is given in Table I. I would emphasize the difficulties of working with this tumour, from which less than 50% of takes can be obtained. In these takes regression is very frequent (approximately 50%). The tumours which do grow to a large size are usually mere bags of fluid, with cystic necrotic centres. The more rapidly growing the tumour the more likely is the centre to be cystic. Proof that the type of mouse used was suitable as a host was forthcoming from an experiment in which 96 similar stock mice were grafted with mammary cancer M 63. Eighty-six takes were obtained, of which three tumours regressed and the rest grew progressively and rapidly.

#### Results of Five Experiments in which Grafted Twort Carcinomas were Treated with H 11

The conditions recommended by Mr Thompson were rigidly followed. (1) The tumour from which the grafts were made was allowed to grow to an optimum size of approximately

20 by 20 mm. Tumours which had caused skin ulceration were discarded. (2) The tissue for grafting was taken from the non-necrotic periphery of the tumour, each graft measured approximately 2 by 2 mm. The grafts were made subcutaneously into the flank. (3) The criterion of suitable growth of the grafts was that they should double their size in seven days, attaining a size of approximately 5 by 5 mm before treatment began. Usually the tumours were single, but a few were formed by fusion of two separate masses. (4) The mice used were young adults of either sex, pregnant mice were discarded. (5) The injections of H 11 were made into the peritoneal cavity twice daily at approximately 9 a.m. and 5 p.m. On two occasions only (one evening and the following morning) were injections not given. (6) The tumours were measured in two dimensions with mm callipers once a week.

The results of five experiments (Nos 1-5), comprising in all 50 experimental and 58 control mice, are summarized in Table II. The treatment consisted in the administration of

TABLE II—Summary of H 11 Treatment for One Month of Twort Carcinoma (grafted) in Five Experiments (Nos 1-5)

$\frac{a \times b'}{a \times b}$	$\frac{a \times b}{a \times b'}$		Rate of Growth
	Experimental	Control	
Disappeared	22	36	Complete regression
<1	7*	11†	Partial regression
1.0-1.49	2*	3*	Slow growing
1.5-1.99	1	3*	
2.0-2.49	3	1	Moderately growing
2.5-2.99	1*		
3.0-3.49	1*	1	
3.5-3.99			
4.0-4.49	3		Quickly growing
4.5-4.99	1	1*	
5.0-5.49	1		
5.5-5.99	2	1*	
6.0-6.49			
6.5-6.99	1*		
7.0-7.49	1		
7.5-7.99	2	1	
8.0-8.49			
8.5-8.99			
9.0-9.49	1		
15.0-15.49	1		
Total mice	50	58	

\* One mouse of each of these groups had three weeks of treatment or observation only.

† Two mice of this group had three weeks of observation only.

a × b = Measurement at start

a × b' = Measurement at four weeks

the standard dose of 0.5 ml of H 11 intraperitoneally twice daily for four weeks, at which time all the surviving mice were killed. In spite of the large dose the mice stood the injections well. The index  $\frac{\text{area at 4 weeks}}{\text{area at start}}$  was calculated (Table II, column 1) and used to express five rates of growth (column 4). Complete regression of the control tumours occurred in 36 of 58 mice. This in itself is sufficient evidence that this particular

tumour is not suitable for assessing the growth inhibitory powers of a test substance. It will be noted (column 2) that there were 13 rapidly growing tumours in the treated group as against 3 such tumours in the control group. The general conclusion is that the tumours grew rather better in the treated than in the control group.

#### Use of Another Type of Grafted Tumour to Test H 11

The tumour chosen was a spindle cell sarcoma growing in a highly inbred strain of mice kept in the laboratory (CBA). (a) Grafts of this tumour rarely fail to take, and therefore it was thought that it would not be difficult to get a large number of suitable tumours. (b) The growth rate of the grafts is rapid and continuous. (c) These mice breed readily and quickly and are robust. (d) The treatment of a sarcoma would make a useful contrast to the treatment of a carcinoma, although it was realized that sarcomata are usually more resistant to growth-inhibiting substances than carcinomata. (e) As pointed out by Gye *et al* (1943) there are advantages in treating a homologous tumour in inbred mice.

It was decided to use the same dosage and method of administration of H 11 as was claimed by Hosa Laboratories to be inhibitory for the Twort carcinoma for the following reasons: (1) From the experience gained in experiment 1 it was unlikely that the mice would tolerate doses larger than 7 ml per week for four weeks. (2) It did not seem advisable to reduce the dose until an inhibitory effect had been demonstrated with the maximum dose. (3) No evidence could be found that chemotherapeutic substances act only at an optimum concentration and volume specific for each type of tumour. (4) In the treatment of human cancer of all types H 11 is first administered in arbitrary dosage of 12.5 ml per week. Some adjustment of this dose may be advised if certain reactions are observed (Ollerenshaw, 1946). Even allowing for the known fact that animals require larger chemotherapeutic dosage than man, the Hosa standard mouse dose is overwhelmingly larger weight for weight than that for man.

#### Results of Two Experiments in which Grafted Spindle-cell Sarcomata in CBA Mice were treated with H 11

**Experiment 2B**—Groups of 34 experimental and 33 control grafted tumours, averaging 7 by 8 mm after 20 days growth, were available for testing. During the second and third weeks of treatment with H 11 it was noticed that many of the mice suffered from convulsions immediately after the injection, and by the end of the third week 22 animals had died from peritonitis with or without pleurisy. This was attributed to the toxic effect of this batch of H 11, as during the same period only three of the control animals died. Six mice completed the full course of treatment and in these animals the tumours were growing with great rapidity. No conclusion in regard to the growth-inhibitory effect of H 11 could thus be drawn from this experiment.

**Experiment 6**—Groups of 43 experimental and 40 control grafted tumours, averaging 5 by 7 mm after 20 days growth, were available for testing. The standard dose of H 11 was

administered to the experimental mice for one month at which time the 40 surviving animals were killed. Regular growth of both experimental and control tumours was observed throughout the period of treatment and a statistical analysis of the rate of growth was made by Dr W J Martin (Table III). Three methods were used for estimating the growth rate of a solid tumour when two of the three diameters (designated  $a$  and  $b$ ) are known.

(1) **Volume**—Blum (1943) based his formula on the assumption that the volume of a tumour could be approximated to by a spheroid. Simplifying this formula, the value  $\log a \cdot b - \log ab$  may be calculated where  $a$  and  $b$  are the two diameters at the beginning of the experiment and  $a \times b$  the same diameters after a period of time.

(2) **Area**— $a \times b$  was used as a measure of the area, which is proportional to the area of an ellipse with diameters  $a$  and  $b$ . The Hosa Laboratories use this quotient, which is proportional to that found by method 1.

(3) **Linear**—The actual measurements of the minor and major axes were used separately. These measure linear growth and are proportional to Blum's formula when only one diameter is given.

In analysing the data certain approximations were adopted where the measurement of the axes was not entirely straightforward. (1) Five experimental and two control tumours, so small at the beginning of the experiment that accurate measurement was not possible, were assigned the measurements 3 by 3 mm. (2) Four experimental and three control tumours which at some period of growth appeared in two parts and later fused were treated as one tumour. (3) Measurements of three experimental and two control tumours in mice which failed to survive the experimental period by three days are included in the analysis, the measurement at death being taken as the measurement on the last day of the experiment.

Table III shows the size of the tumours on the first day of treatment (column 3), the weekly differences in growth (columns 4-7) and the differences over the whole four weeks (column 8). It is to be noted that the average size of the tumours on the first day of treatment did not differ between the treated and the control series. Furthermore there are no significant differences between the weekly growths of the control and experimental animals for each of the four weeks, or for the total growth during the four weeks. The tumours did not grow at a uniform rate as for both series there was a spurt during the third and fourth weeks.

The conclusion to be drawn is that there is no evidence that treatment with maximum doses of H 11 had any effect on the growth of a spindle-cell sarcoma grafted in homologous mice.

#### Use of Spontaneous Mammary Cancers in Inbred Mice to Test H 11

This type of tumour is the counterpart of human breast cancer, is easily observable, and happened to be readily available when the experiment was planned. The standard dose of H 11 (0.5 ml twice daily into the peritoneal cavity for one month) was adopted. In these mice observation was made of the growth rate of the tumours, of the appearance of new tumours, and of the occurrence of metastases.

**1 Effect of H 11 upon the Growth Rate of Spontaneous Mammary Cancer**—The size of the tumours before treatment ranged from 5 by

TABLE III—Treatment by H 11 of Spindle cell Sarcoma Growing in CBA Mice (Experiment 6) Analysis by Dr Martin (43 experimental and 40 control animals)

Measurement of Growth		Size of Tumour at Start of Experiment	Differences between Size				
			1st week/1st day	2nd week/1st week	3rd week/2nd week	4th week/3rd week	4th week/1st day
Log $ab$	Controls	1.51 $\pm$ 0.05	0.37 $\pm$ 0.03	0.28 $\pm$ 0.02	0.13 $\pm$ 0.02	0.27 $\pm$ 0.02	1.04 $\pm$ 0.02
	Experimental	1.49 $\pm$ 0.03	0.30 $\pm$ 0.02	0.32 $\pm$ 0.02	0.13 $\pm$ 0.01	0.29 $\pm$ 0.02	1.04 $\pm$ 0.03
	Controls/Exp	0.02 $\pm$ 0.06	0.07 $\pm$ 0.04	-0.04 $\pm$ 0.03	0.00 $\pm$ 0.02	-0.02 $\pm$ 0.03	0.00 $\pm$ 0.03
$a \times b$	Controls	39.7 $\pm$ 3.98	53.7 $\pm$ 6.61	104.6 $\pm$ 14.0	63.6 $\pm$ 11.9	197.3 $\pm$ 21.0	413.9 $\pm$ 43.1
	Experimental	35.0 $\pm$ 2.48	39.6 $\pm$ 4.77	83.2 $\pm$ 7.9	56.1 $\pm$ 5.9	188.4 $\pm$ 19.3	363.4 $\pm$ 31.1
	Controls/Exp	4.7 $\pm$ 4.7	14.1 $\pm$ 8.2	21.4 $\pm$ 16.1	7.5 $\pm$ 13.3	8.9 $\pm$ 28.5	50.5 $\pm$ 53.1
Major axis	Controls	6.55 $\pm$ 0.37	3.68 $\pm$ 0.31	4.53 $\pm$ 0.49	2.33 $\pm$ 0.37	6.13 $\pm$ 0.46	16.54 $\pm$ 1.16
	Experimental	6.05 $\pm$ 0.24	2.86 $\pm$ 0.30	4.44 $\pm$ 0.33	2.58 $\pm$ 0.23	6.19 $\pm$ 0.40	16.00 $\pm$ 0.91
	Controls/Exp	0.50 $\pm$ 0.44	0.82 $\pm$ 0.43	0.09 $\pm$ 0.59	-0.25 $\pm$ 0.44	-0.06 $\pm$ 0.61	0.54 $\pm$ 1.47
Minor axis	Controls	5.53 $\pm$ 0.25	2.83 $\pm$ 0.22	3.20 $\pm$ 0.32	1.70 $\pm$ 0.21	4.33 $\pm$ 0.34	11.92 $\pm$ 0.77
	Experimental	5.9 $\pm$ 0.18	2.23 $\pm$ 0.22	3.14 $\pm$ 0.24	1.51 $\pm$ 0.22	4.52 $\pm$ 0.34	11.32 $\pm$ 0.73
	Controls/Exp	0.04 $\pm$ 0.31	0.60 $\pm$ 0.31	0.06 $\pm$ 0.40	0.19 $\pm$ 0.30	-0.19 $\pm$ 0.47	0.59 $\pm$ 0.97

6 mm to 17 by 17 mm, a range inevitably much greater than in a group of grafted tumours. The growth rate was estimated by calculating the index  $\frac{a \times b'}{a \times b}$  (Table IV). Twenty eight tumours in

animals bearing palpable tumours at the beginning of the experiment were rejected the following figures for mean growths would be obtained

*Average Size on First Day of Treatment ( $a \times b$ )*

	Controls	Treated	Difference
All observations	39.7	35.0	$4.7 \pm 4.7$
Omitting palpable tumours	44.1	36.2	$7.9 \pm 4.7$

Thus the omission of the palpable tumours gives a group of treated tumours which were rather smaller at the beginning of the experiment than the controls

At the end of the first and third weeks the following figures are obtained

	Average Increase in Size between the First Day and the First and Third Weeks ( $a \times b$ )					
	First Week			Third Week		
	Treated	Con- trols	Difference	Treated	Con- trols	Difference
All observations	39.6	53.7	$14.1 \pm 8.2$	178.9	221.9	$43.0 \pm 32.9$
Mr Thompson's results	40	57.5	17.5	181	244	63.0
Omitting palpable tumours	41.1	57.7	$16.6 \pm 8.6$	184.3	243.8	$59.5 \pm 33.1$

Thus at the end of the first week the difference between the two groups when all the observations are included is not significant, when the palpable tumours are omitted the P value is  $>0.05$ , but according to Mr Thompson's calculations the P value is  $<0.05$ . Taking into account the fact that the treated tumours in the selected group of mice were rather smaller at the beginning of the experiment than the controls, there is no evidence that growth was actually inhibited by the treatment during the first week.

The question arises whether the experiments were suitably planned to demonstrate the growth-inhibitory action of a chemotherapeutic substance. The five experiments in which grafted Twort carcinomata were used obviously gave no conclusive answer because of the high regression rate in the control series. Difficulties were also encountered in propagating this tumour many grafts failing to take and regressions being frequent (Table I). Experiment 6, using a spindle cell sarcoma growing in homologous mice, was satisfactory with regard to survival and numbers, but it might be argued that this was likely to be a resistant tumour and therefore not suitable for such a test. The final experiment using spontaneous mammary cancer in inbred mice would appear to have been satisfactory from all points of view, and it, also, failed to demonstrate growth-inhibitory properties in H 11.

As it was thought advisable to confirm these findings in a more extended series of experiments, a request was made to the Hosa Laboratories for further supplies of H 11 to be used as follows: (1) To test the M 63 mammary carcinoma grafted in stock mice a tumour known to be easily propagated and with a low regression rate. This was the tumour used by Gye *et al* when they tested H 11. (2) To test a mammary carcinoma grafted in homologous mice of the C3H strain. There is good evidence that trials of chemotherapeutic substances are more reliable when made upon homologous transplanted tumours. (3) To control the above test more rigidly by the use of groups of mice (a) injected intraperitoneally with saline only, and (b) treated with urethane, a known tumour inhibitor.

TABLE IV—Summary of Growth Rates of Spontaneous Mammary Cancer in Inbred Mice

$\frac{a \times b}{a \times b'}$	Treated	Un- treated	Rate of Growth	Percentage of Treated	Percentage of Untreated
Disappeared	—	—	Complete regression	—	—
$< 1$	—	—	Partial regression	—	—
1.0–1.49 1.5–1.99	2 3*	1 3	Slowly growing	17.9	23.5
2.0–2.49 2.5–2.99 3.0–3.49 3.5–3.99	10* 3 4 —	3 1 4 1	Moderately growing	60.7	52.9
4.0–4.49 4.5–4.99 5.0–5.49 5.5–5.99 6.0–6.49 6.5–6.99 >7.0	1 — 2 1 1 1 —	1 — — 2 — — 1	Quickly growing	21.4	23.5
Total tumours	28	17			

\* One mouse failed to complete the month of treatment by four days

23 mice were treated for one month,\* and it is to be noted that not one tumour regressed or disappeared. In fact, the great majority grew either moderately or quickly. The growth rates of 17 similar untreated tumours in 15 mice were observed. There was a striking similarity of growth rate in the two groups, any slight difference was on the side of a rather more rapid rate in the treated tumours.

2. *Appearance of New Tumours*—In the treated and control groups, 8 and 5 new tumours appeared respectively in other breasts. It would thus appear that treatment with H 11 was not inhibitory in this regard.

3. *Occurrence of Metastases*—Metastases in the lung occurred in one treated mouse but were not observed in the control series.

### Discussion

Using three types of test tumour—grafted carcinoma in stock mice, grafted sarcoma in homologous mice, and spontaneous mammary carcinoma in susceptible inbred strains—it has not been possible to demonstrate a growth-inhibitory action of H 11. At the request of the Hosa Laboratories the tumour measurements in experiment 6 were submitted to Mr Thompson for statistical analysis.

Dr Martin had found that there was no difference between the two groups in any week of the experiment, whereas Mr Thompson found that there was a 30% inhibition of growth (regarded as significant) in the treated animals in the first week. There was no significant inhibition in the second, third, and fourth weeks (Table V).

This difference of analysis could be explained as follows. Dr Martin included all the animals—i.e., 40 controls and 43 treated—accepting a measurement of 3 by 3 mm for palpable tumours which were too small to measure accurately. Mr Thompson, however, rejected five control and two experimental animals for reasons unstated. If a guess is made that those

\* Two mice failed to complete the month of treatment by four days

TABLE V—Experiment 6 Spindle cell Sarcoma Growing in CBA Mice 1 ml H 11 Injected Daily Analysis by Mr Thompson

Weeks	35 Mice Untreated			41 Mice Treated with H 11			Difference Between the Means (mm)	Significance of the Difference (P)	Inhibition (%)
	Mean Growth (mm)	Variance	Standard Error	Mean Growth (mm)	Variance	Standard Error			
1	57.5	41	6.4	40.0	25	5.0	17.5	$<0.05$	30
2	172.0	462	21.5	127.0	151	12.3	45.0	$>0.05$	26
3	244.0	983	31.3	181.0	244	15.6	63.0	$>0.05$	26
4*	455.7	2040	45.2	376.7	1044	32.3	79.0	$<0.20$	17

\* 39 treated, 34 non treated

Notes—P factor is fully significant for the 1st week, probably significant in the 2nd and 3rd weeks and without significance in the 4th week. The standard error is high after the first week. Only in the 1st week of the experiments are the various data fully significant.



This request was refused, and the experiments were therefore terminated. The refusal was based upon the contention that unless preliminary experiments were undertaken to test the effects of optimum volume and concentration of H 11 upon M 63 and C 3H tumours the results would be valueless. After considerable thought had been given to this suggestion it was decided that no useful purpose would be served by undertaking dosage experiments.

#### Summary

Evidence is presented that grafted Twort mammary carcinoma is not a satisfactory tumour upon which to test a chemotherapeutic substance for growth inhibitory properties. This statement is based upon extensive attempts to propagate this tumour, which often does not take and has a high regression rate (Table I).

No growth inhibiting effect of H 11 could be demonstrated in experiments in which grafted Twort carcinoma was the test tumour (Table II) nor in experiments in which a grafted spindle cell sarcoma in homologous mice was tested (Table III).

H 11 had no effect on the growth rate of spontaneous mammary cancer in inbred mice as compared with that of similar untreated tumours (Table IV). New tumours were not prevented from arising, and metastasis took place in spite of the treatment.

Grateful acknowledgment is due to Dr E C Armstrong and Dr W J Martin to the former for much help in propagating the grafted tumours and in administering the H 11 treatment, to the latter for the statistical analysis of the experiments.

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## DEFICIENCY OF VITAMIN A IN UNIVERSITY STUDENTS

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In spite of the intense current interest in the nutritional state of the people of this country there are few positive data from which it is possible to draw any very definite conclusion (see *Lancet* 1948). It might therefore be of interest to describe the results of a recent investigation which suggests that about one-fifth of a group of university women students are deficient in vitamin A.

#### Dark-adaptation and the Effect of Vitamin A

This investigation was carried out in February and March, 1948, and consisted in the determination of the dark-adaptation of a group of students and the study of the effect upon it of vitamin A. The dark-adaptation was measured by the Crookes adaptometer (Goddard, 1945). The principle of construction and the technique of use of this apparatus are similar to those of the Haines apparatus employed in previous studies (see Yudkin, 1945). The complete dark-adaptation curve was determined twice for each subject and the second curve taken as representing the true course of dark-adaptation, since it has been shown both in this and in previous investigations that any improvement due to a "learning factor" is almost, if not quite, completed in the second test.

Some of the students were then given three capsules containing 100,000 i.u. of vitamin A daily for 14 days, and others were given capsules containing arachis oil for the same time. The dark-adaptation was measured about 24

hours after the last dose by one of us (S.D.), who did not know which students had received the vitamin A or, indeed the proportion of these students.

It has been shown that an improvement in dark adaptation is always accompanied by a decrease in the "final rod threshold" (Yudkin, Robertson, and Yudkin, 1943). We have taken as a significant improvement a decrease in this threshold of more than 0.15 log  $\mu\text{l}$  (micromicrolamberts). None of the 19 control subjects in this investigation showed any improvement after the administration of the capsules containing arachis oil. Of the 46 subjects given vitamin A, seven showed a significant improvement of dark-adaptation. Of a smaller series of six postgraduate students given 200,000 i.u. of the vitamin daily for eight days, two showed a significant improvement (Table I).

TABLE I—Effect of Vitamin A on the 'Final Rod Threshold' of 52 Students

Effect of Vitamin A on Threshold	No. of Students
Increase of 0–0.15 log $\mu\text{l}$	3
No change	13
Decrease of 0–0.15 log $\mu\text{l}$	27
Decrease of more than 0.15 log $\mu\text{l}$ — i.e. significant improvement	9

#### Dietary Intake of Vitamin A

The studies of dark-adaptation suggest that nearly one fifth of the students were deficient in vitamin A. It is of interest, then, to know something of their dietary intake of the vitamin. It has not been possible to determine this for all the students whose dark-adaptation has been measured, but we have some information about the diets of other students, both resident and non-resident, of the same college.

It is the practice here for the postgraduate dietetic students, who are not in residence, to record by weighing their own intake of food for one week in October. Records of 14 students were kept in 1946 and 1947. The composition of the foods eaten was assessed by reference to the tables (M.R.C., 1945a). The values for carotene were divided by three, the commonly accepted factor, in order to convert them into equivalents of vitamin A. Of the 14 students, three had an average daily intake of less than 2,500 i.u. of vitamin A, seven an intake of between 2,500 and 5,000 i.u., and four an intake of more than 5,000 i.u.

The dietary intakes were also recorded of 20 first year residential students during November, 1947. The data were collected by dietetic students for an investigation carried out by Dr Magnus Pyke and Miss K. Chamberlain, of the Ministry of Food. The total amount of food consumed by the students was recorded for a week by the "matching" method, and in addition the food of three meals each day, comprising about one-half of the total intake, was recorded by the "weighing" method. Since the latter method is the more accurate we have assessed the intake of vitamin A by a combination of the two methods, adding the intake of the three meals as determined by the weighing method to that of the rest of the food as determined by the matching method. Of the 20 students, four had an average daily intake below 2,500 i.u. daily, 14 an intake between 2,500 and 5,000 i.u., and two an intake of more than 5,000 i.u. Table II summarizes the dietary intake of vitamin A for the total of 34 students of both groups.

TABLE II—Average Daily Intake of Vitamin A by 34 Students

Average Daily Intake	No. of Stud.
Below 2,500 i.u.	7
Between 2,500 and 5,000 i.u.	21
More than 5,000 i.u.	6

There is reason to believe that 2,500 iu of vitamin A represents, as nearly as can be ascertained, the average minimal daily requirements of the vitamin for young adults. It is of interest, therefore, that the proportion of students whose consumption of vitamin A was below 2,500 iu daily is very similar to the proportion whose dark-adaptation improved with vitamin A (7 out of 34, or 21%, and 9 out of 52, or 17%).

Since nearly all the preformed vitamin A in the diet is derived from rationed foods—butter, margarine, cheese, and milk—it is interesting to see how much vitamin was consumed by the students. At the times of the surveys the rations of these foods contained between 1,000 and 1,100 iu of the vitamin daily. Of the 34 students whose diets were examined, the intake of preformed vitamin A from these foods was between 700 iu and 4,000 iu daily—mean 1,700 iu. Thirty of the students consumed more than the 1,100 iu daily to which their rations entitled them. We do not wish to comment on this beyond pointing out the relevance of such findings to recent rather heated discussions which attempt to evaluate accurately the probable intake of nutrients from a study of the foods theoretically available from the rations.

The remainder of the vitamin A consumed was almost entirely in the form of the provitamin carotene. Assuming again that carotene has one-third of the activity of preformed vitamin A, the intake was between 750 and 4,000 iu daily—mean 1,850 iu. The proportion of the preformed vitamin A to the total intake was between 22% and 79%. It is perhaps not surprising that the range of intake of vitamin A and of carotene was larger in the group of non-resident students (Table III).

TABLE III—Average Daily Intake of Preformed Vitamin A and of Carotene

Group	Total A (i u)	Preformed A (i u)	Carotene (i u)	Proportion of Preformed A
20 residents	1 650-4 900 (3 450)	700-2 950 (1 600)	950-3 000 (1 850)	31-67% (46%)
14 non residents	2 300-6 650 (3 750)	900-4 000 (1 900)	750-4 000 (1 850)	22-79% (51%)
Total	1 650-6 650 (3 550)	700-4 000 (1 700)	750-4 000 (1 850)	22-79% (48%)

### Correlation of Dark-adaptation and Intake of Vitamin A

Thirteen of the students took part in the two investigations described, so that data are available for each of them both of their intake of the vitamin and of the effect of vitamin A upon their dark-adaptation. Three of these had intakes of vitamin A of less than 2,500 iu daily, each of these three, and no others, showed a significant improvement of dark-adaptation following administration of vitamin A (Table IV).

TABLE IV—Correlation between Vitamin A Labile Dark-adaptation and Dietary Intake of Vitamin A

Subject	Daily Intake of Vitamin A (i u)	Effect of Supplements of Vitamin A on Dark adaptation
47	6 650	—
42	5 650	—
5	4 900	—
4	4 350	—
19	4 050	—
46	3 750	—
44	3 450	—
9	3 050	—
16	3 050	—
45	3 000	—
11	2 450	+
43	2 400	+
	2,300	+

+ Indicates a decrease of more than 0.15 log  $\mu$ l in the final rod threshold. Subjects 42-47 were non resident; the remainder were resident in college.

## Discussion

### Requirements of Vitamin A

It should be stressed at once that the determination of the requirements of any nutrient is a much more complex matter than is usually realized. There has been a tendency to suppose that it is possible to stipulate a definite amount of a nutrient, a consumption below this amount leading inevitably to a state of deficiency and above it to a state of optimal nutrition in respect of that nutrient. This attitude is quite unrealistic for many reasons, which have been discussed in some detail elsewhere (Yudkin, 1948). Two aspects in particular concern us here. The first is that there is undoubtedly with many nutrients, and probably with all, a range of intake between the minimal, which is necessary to prevent frank deficiency disease, and the optimal, beyond which no improvement in any respect will occur. Whereas it may be comparatively easy to determine the former, since below it obvious signs will develop, it may be extremely difficult to determine the latter, since increasing amounts of the nutrient may produce such ill-defined effects as increased resistance to infection or increased general well-being.

The second important difficulty in determining requirements is that there are differences between various individuals even of the same sex and age, and also differences in the same individual at different times. One cannot therefore suggest an amount of a nutrient as the requirement for, say, young women and assume that any one of them consuming less than this would necessarily be receiving an insufficiency and any one consuming more would necessarily be receiving a sufficiency.

With these considerations in mind, we must conclude that it is only within fairly wide limits that we can ascertain what the requirements of vitamin A are for such subjects as we have examined. First, if we know just how much vitamin A will prevent a deterioration of dark-adaptation we cannot assume that this amount will be adequate for all other physiological functions. Secondly if we find that 2,500 iu of vitamin A daily will just prevent a deterioration of dark-adaptation in one individual it is more than likely that higher or lower amounts will be necessary for other individuals.

An examination of the published work confirms these conclusions. Callison and her colleagues studied in young adults the effect on dark-adaptation of diets deficient in vitamin A, to which was then added vitamin A or carotene (Booher and Callison, 1939; Booher, Callison, and Hewston, 1939; Callison and Orent-Keles, 1947). The carotene was given either as the pure provitamin in oil or in its natural state in vegetables. The amount of vitamin A required to restore normal dark-adaptation was between 1,300 and 3,900 iu (mean 2,400) and of carotene in oil between 2,200 and 7,200 iu (mean 4,300) daily for five subjects. They found that carotene was less well utilized from oily solution than from spinach and peas, but better than from carrots.

A subcommittee of the Medical Research Council (M.R.C., 1945b) reported that in three subjects 1,300 iu of vitamin A or 2,600 iu of carotene in oil daily restored normal dark-adaptation of subjects on a diet deficient in the vitamins. Unlike the American workers, they found that carotene is less well absorbed and hence presumably less well utilized from spinach, as well as from cabbage and carrots, than it is from oily solution.

Since the subjects in these investigations were on special diets and it is known that other dietary components affect requirements, and since it is commonly held that, in

general, carotene is not so effectively absorbed from vegetables as from solutions in oil, it is likely that more vitamin A is needed in normal diets than the amounts suggested by the M R C subcommittee

Our results show that, in a small number of subjects, dark-adaptation was apparently normal in 10 subjects consuming more than 3,000 i.u. of vitamin A daily and abnormal in three consuming less than 2,500 i.u. It should be emphasized that these figures include variable amounts of carotene, which has been assumed to have an activity in the human being of one-third that of vitamin A. Since this value is not accurately known, but varies both with the subject and with different types of food, and since the number of subjects is small, we do not wish to overestimate the importance of our findings in this respect. We would only justify this discussion about the relevance of our findings to the requirements of vitamin A by pointing out that, unlike previous work, our data refer to subjects on a normal diet, and that such correlative studies of physiological function and dietary intake clearly offer a most important means of gaining knowledge of requirements. We hope it will be possible to carry out observations of this nature on a much more extensive scale.

#### Previous Studies

It would have been of great interest if we had been able to compare the data presented here with similar evidence of deficiency of vitamin A obtained in previous years. There exists unfortunately very little work of a similar sort referring to conditions in this country. Most of the work which does exist relates to estimations of vitamin A in the blood or in the liver, where standards of normality are not yet agreed. As regards dark-adaptation, very few previous reports include studies of the effect of vitamin A. In a series of 335 factory workers in whom only the "final" rod threshold was measured, the proportion which showed improvement after supplementation with 5,000 i.u. daily for eight months was significantly greater than the proportion in the control subjects—73 out of 147 (50%) compared with 58 out of 188 (31%) (Yudkin, 1944). In 320 school-children, on the other hand, studies involving determination of "final" rod threshold or of the complete course of dark-adaptation showed that no improvement followed the administration of vitamin A (Robertson and Yudkin, 1944). In a small series of adults, studied intensively in the way described in the present report, six out of a total of 14 given vitamin A or carotene showed an improvement in dark-adaptation in which the "final" rod threshold decreased by more than 0.15 log  $\mu$ l (Yudkin, Robertson, and Yudkin, 1943). In another small series of 15 Army officers, studied in the same way in the winter of 1944-5 by one of us (J.Y.), none showed a significant change in the course of dark-adaptation following large supplements of vitamin A. This may well have been due to the appreciably higher amount of vitamin A in Army rations than in civilian rations. For example, the chief sources of preformed vitamin A—butter, margarine, cheese, and milk—supplied between 1,500 and 1,600 i.u. daily in the Army rations and between 1,000 and 1,100 i.u. daily in the civilian rations.

It seems then, that, on the basis of improvement of dark-adaptation following administration of vitamin A, deficiency of the vitamin among civilian adults is not a new phenomenon. It is unfortunately impossible to answer adequately the important question whether there has been any increase or decrease in the proportion with this deficiency. This of course does not make it any the less disturbing that as many as one-fifth of a sample of young adult women should show deficiency of vitamin A at the present time.

#### Significance of Impaired Dark Adaptation

There are two attitudes one might adopt towards the findings that about one-fifth of our subjects have a dark adaptation which improves with vitamin A. One is that, since dark-adaptation is a normal function of the body, any impairment in it which can be improved by vitamin A must be taken as indicating that the physiological demands of the vitamin have not been met. It is indeed possible that other functions not so readily investigated are also affected. Moreover, even if the intake of the vitamin is sufficient just to restore dark-adaptation, one cannot assume that such other functions are also restored. The second attitude one might adopt is that dark-adaptation is not a very important physiological function anyway, so that a slight impairment is of little practical consequence and need not cause any concern about the adequacy of the diet. We can say at once that we believe this attitude to be quite untenable. We would stress that most of the methods which are used to determine the probable state of nutrition of individuals, such as the determination of levels of nutrients in the blood or in the urine, involve many assumptions in their interpretation, here, on the other hand, we are concerned with the measurement of a normal physiological activity of the body. If we find that such an activity is in one fifth of a population adversely affected by the diets they consume we must consider that the situation is far from satisfactory.

#### Summary

The course of dark adaptation of 52 women university students was measured and the effect of supplements of vitamin A observed. Nine showed a significant improvement of dark adaptation—that is a decrease of more than 0.15 log  $\mu$ l in the "final" rod threshold.

A study of the dietary intakes of 34 students showed that the average daily intake of seven of them was below the probable average requirement of 2,500 i.u. daily. Thus both the measurement of dark adaptation and the assessment of the dietary intake of the vitamin reveal a similar proportion of subjects (about 20%) who were probably consuming a diet deficient in vitamin A.

Of the 13 students for whom measurements of both dark adaptation and dietary intake were available the three whose average daily intake of vitamin A was below 2,500 i.u. were the only three whose dark-adaptation improved with vitamin A.

It is impossible to say whether the proportion of deficient subjects has been influenced by recent dietary restrictions but the fact that something like 20% of women university students are deficient in vitamin A is one which cannot be regarded lightly.

We are indebted to the Ministry of Food for permission to quote the results of their dietary investigation. Our thanks are also due to Crookes Laboratories for the loan of the adaptometer and the gift of capsules, and to the British Drug Houses, Ltd., and Allen and Hanburys, Ltd., for grants towards the expenses of this work.

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Dr D. J. A. Alban-Jones has been awarded scholarships by the Belgian and Netherlands Governments through the British Council to study obstetrics and gynaecology. He will work at the Hospital St Pierre in Brussels for eight months and then go to Amsterdam in April, 1949, to take up the Netherlands scholarship for four months.

## THE DIETARY INTAKE OF A CLASS OF STUDENTS

BY

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Dundee)

For the past two years medical, dental, and science students attending the classes in biochemistry here have measured their dietary intake over a period of one week by the log-book method. Admittedly this method is not as accurate as is the weighing method of computing the dietary, but it is simple. Moreover, it is not difficult to persuade students to make notes of the portions of food they have eaten. If the exercise is taken into account in the practical examination it is surprising how co-operative the students become!

It was possible to check, in part at least, the values obtained by measuring the nitrogen excretion on a 24-hour sample of urine. This experiment was carried out by approximately half the members of the class. The main data with regard to the participants in the experiment are as follows:

**Number and Sex** 44 males and 14 females (44 were ex-Service men and women)

**Age** 17-31 years

**Residence** 35 lived at home, 12 in university hostels, and 11 in lodgings, about 35 took their mudday meal in the University Union dining hall

**Health** All were apparently in good health

**Period of Study** The dietaries were carried out for a period of one week between the months of October and December, 1947

**Dietary intake** Each student was provided with explanatory sheets in which were given the approximate weights of portions of the commoner foodstuffs, a separate table gave the composition of portions of the commoner soups. It was recommended that butter, margarine, jam, etc., and milk be set aside as a separate daily ration. A log was kept by the student of the portions of foodstuffs served at the various meals throughout the seven days. The portions were then converted into gramme equivalents of the different foods.

**Food Tables** The values in Table I (i.e., composition of the 'edible portion' per 100 g) of 'Nutritive Values of Wartime Foods,' MRC War Memorandum No. 14, were used for the calculations.

In Table I are given the values obtained by the class. These values are contrasted with those of Widdowson (1936) for men and Widdowson and McCance (1936) for women. The standard deviation has been calculated by the method advocated by Bradford Hill (1942). No values for vitamin A are given in Table I as there was some doubt about the conversion of carotene into vitamin A units. Carrots were a popular article of diet during the period of study, and an apparent average value of approximately 10,000 i.u. of vitamin A a day was obtained.

**Bread** The range of consumption per week was for men 22-108 oz (624-3060 g), mean 56.4 (1599 g), for women, range 18.5-41 oz (525-1162 g), mean 28.5 (908 g).

**Potatoes** Men range per week 22.5-98 oz (636-2778 g), mean 53.6 (1520 g), women, range per week 22-62.5 oz (624-1762 g), mean 40 (1134 g).

**Nitrogen Excretion**—As a class exercise the determination of nitrogen in a 24-hour sample of urine is carried out by about half the class of medical students. The Kjeldahl method of estimation was employed, and it was

TABLE I—Showing Intake of Dietary Constituents for a Group of Students

The values obtained by Widdowson (1936) and by Widdowson and McCance (1936) are shown for comparison

		Males		Females	
		Dundee (44 persons)	W (63 persons)	Dundee (14 persons)	W and McC (63 persons)
Calories	R	1994-3595	1772-4955	1803-3095	1453-3110
	M	2878 ± 409	3067 ± 714	2376 ± 378	2187 ± 388
Total protein (g)	R	62-129	53-167	58-107	28-90
	M	92.5 ± 12.8	97.6 ± 23.8	78.8 ± 4.0	67.3 ± 12.4
Animal protein (g)	R	29-79	30-121	26-79	9-64
	M	46.6 ± 12.7	66.6 ± 19.2	38.9 ± 14.2	46.0 ± 11.3
Per cent of calories from	Carbohydrate	R	40-68	33.5-59.8	41-67
		M	51.5 ± 6.0	46.7 ± 5.4	49.6 ± 6.2
	Fat	R	21-48	29.0-50.8	23-47
		M	35.3 ± 5.7	39.1 ± 4.9	37.5 ± 6.4
	Protein	R	10-17	8.3-19.3	10-16
		M	13.2 ± 1.6	13.1 ± 1.9	12.8 ± 2.1
Iron (mg)	R	11.5-27.0	7.8-28.5	10.0-26.3	5.5-17.3
	M	18.4	16.8 ± 4.64	15.8	11.4 ± 2.50
Calcium (g)	R	0.6-1.40	0.36-1.96	0.58-1.55	0.23-1.16
	M	0.91	0.87 ± 0.36	0.83	0.63 ± 0.16
Vitamin B (mg)	R	0.8-2.18	—	0.71-1.49	—
	M	1.47	—	1.11	—
Ascorbic acid (mg)	R	36-233	—	57-234	—
	M	119	—	125	—

R = Range M = Mean ± = Standard deviation

usual to determine the concentration of urea in the same specimen. Typical results obtained are shown in Table II. It should be stressed that these determinations were carried

TABLE II—Excretion of Nitrogen (as g) in 24 hour Sample of Urine (Men and Women Students)

N by Kjeldahl Method	Urea N	N by Kjeldahl Method	Urea N
14.1	11.2	15.2	10.6
—	17.4	—	11.3
—	11.0	14.1	—
14.5	9.4	10.4	7.5
13.3	9.9	18.2	—
—	10.7	8.8	—
8.3	11.2	7.2	—
16.2	14.5	8.8	—
18.2	—	13.0	8.8
10.4	7.7	15.2	14.7
18.0	10.1	—	—
11.9	—	Mean 13.3	10.9
12.2	—	N × 6.25 83.1	68.1
18.4	8.3	—	—

out by the students themselves, and the results, owing to inexperience with technical methods, are not of a high degree of accuracy. It will be seen that the average values obtained by multiplying either total urinary nitrogen or urea nitrogen by 6.25 are of the same order as the values for total dietary protein. It should be noted, however, that the collection of the urine samples did not necessarily coincide with the period at which the dietary was taken.

### Summary

The dietary intake of a class of university students has been determined by the logbook method. The results are summarized in Table I, which reveals considerable variation in individual intakes. Determination of nitrogen in a 24 hour sample of urine gives a value which when multiplied by 6.25 corresponds to the calculated dietary intake of protein.

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## CONGENITAL OCCLUSION OF THE DUODENUM

BY

S GLASER, FRCS

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Duodenal obstruction in the newborn is a relatively rare lesion, though numbers of cases have been reported in the literature. The following two cases are considered of sufficient interest to merit recording.

### Case 1

A female child, aged 10 months, was admitted to hospital because of persistent vomiting. The mother stated that the patient had suffered from projectile vomiting shortly after birth until she was three months old. (The history obtained from the mother about this phase was difficult to interpret. Later inquiries from the family doctor revealed that he had treated the child for pylorospasm, as there was projectile vomiting but no tumour and that she had made slow but definite progress with medical treatment.) After the age of 3 months the vomiting had stopped and she had progressed satisfactorily. While away on holiday the child had started vomiting again, and for the last three days all feeds had been brought up. The vomiting was projectile, effortless and very forceful. The child had become very ill and the parents had terminated their holiday and rushed her home. The mother told the ward sister that the vomit had at first contained some wool which she thought might have been plucked from a shawl.

Examination revealed a desperately ill, apathetic, dehydrated child with lax skin and sunken eyes. The abdomen was fallen in and scaphoid. Peristalsis was not seen but a typical projectile vomit was observed. A tumour 1 in (2.5 cm) long was felt in the region of the pylorus. This disappeared under the fingers but was felt once more. A provisional diagnosis of pyloric stenosis was made and saline was given rectally. Next morning the general condition was slightly improved, but she was still vomiting anything given by mouth and was extremely ill. She was seen in consultation with a senior colleague. Peristalsis could not be seen and no lump could be felt and it was decided to wait. A few hours later the child died.

Necropsy revealed a large empty stomach. The proximal half of the duodenum was very distended, with thickened and hypertrophied musculature. There was an almost complete septum across the lumen of the bowel, causing the obstruction. The septum was just proximal to the opening of the bile duct which was running into the septum. The small aperture was plugged by a tangle of threads.

A sister born later has been seen since with a similar history of vomiting soon after birth but a barium meal revealed no obstructive lesion.

### Case 2

A female child, aged 9 days, was sent in with a diagnosis of pyloric stenosis. The history obtained from the father was that he thought the child had been all right on the first two days but he was uncertain. He was sure, however, that from the third day she had vomited every feed, even when changed to glucose-water. The vomited material was and had been bile stained. During the last three days vomits had become projectile in character. The bowels had not been open for six days but before that meconium had been passed normally. The child was healthy, very hungry and fed well, but she was losing weight. Of two older sisters one had vomited for a few days after birth.

On examination the child was found to be in surprisingly good condition slightly but not severely dehydrated. No lump could be felt in the abdomen. After a test-feed a wave of gastric peristalsis was observed and a bile-stained projectile vomit occurred. A diagnosis of congenital duodenal stenosis was made and consultation sought with a paediatrician. He agreed with the diagnosis and urged immediate surgery because of the good general condition.

Under open ether anaesthesia the abdomen was explored through a right rectus muscle splitting incision. The duodenum

was found to be obstructed across its second part by a large band. The caecum was in the region of the spleen and the small gut occupied the right part of the abdomen, the ileum entering the caecum from the right. There was no duodeno-jejunal flexure, the duodenum continuing on direct into the jejunum without any bend. The constricting band appeared to contain an artery, and it was thought wiser to do a short circuit than to divide the band. An anterior gastro-jejunostomy was performed, making a stoma about 1 in (2.5 cm) long. The abdomen was closed without drainage and without making further anatomical investigations.

Post-operatively the patient's feeding was supervised by the paediatrician, it followed roughly the same routine as in the case of a congenital hypertrophic pyloric stenosis. Occasional non-projectile vomiting occurred during the first four days, but the child fed well and her bowels opened. After the fourth day she ceased vomiting and began to gain weight. A week later she was feeding well without vomiting, the bowels were open normally, and she was gaining weight. The wound was well healed and the sutures were removed. When seen again two months later she looked puny and had not been putting on weight well. There had been some difficulty with feeding, but that was improving. Her doctor wrote eight months later that the child, then 10 months old, was eating well and putting on weight. She then weighed 16 lb (7.26 kg).

### Discussion

An excellent review of the whole subject, with four case histories, has been published by Forshall (1947), and the problem is discussed in detail with a review of most of the literature. Following Ladd, cases are classified in two groups, depending on whether the obstruction is extrinsic or intrinsic. In the first group the obstruction is usually due to some abnormality of intestinal rotation, the distal duodenum being compressed by abnormal peritoneal bands or there being a volvulus of the midgut loop. The anatomical abnormality commonly found in these cases is the colon in the left abdomen, with the ileum entering the caecum from the right. In the second type of obstruction the cause may be a complete stenosis of the duodenum, a narrowing of its lumen, or a septum partially or completely occluding it. This usually occurs in the region of the ampulla of Vater. Keith (1933) points out that the lumen in this region of the duodenum is normally occluded by proliferating epithelium during the fifth and sixth weeks of embryonic life, when the liver and pancreatic buds are growing out, and that in cases of congenital occlusion of the duodenum the epithelium becomes organized instead of being absorbed.

In both groups the clinical picture is similar and characteristic. Vomiting is the main symptom and starts within a day or two of birth. It is usually bile stained, as in most cases the obstruction is below the main bile duct. The child becomes dehydrated rapidly and loses weight, and if untreated dies of inanition. Each of the above cases illustrates one of these varieties.

In Case 1 the main interest lies in the length of survival of the child. The aperture in the septum across the duodenum was large enough to take a fluid diet and the early stages of a mixed diet. The obstruction was caused finally by the blocking of the small hole by some cotton or wool. The possibility arises that many cases are undiagnosed, and it is striking that great numbers are reported from Boston (Mass.), where there is a very keen interest in congenital lesions. Many may die unrecognized, and without post-mortem examination may be wrongly certified. Furthermore, this case of incomplete septum shows how careful medical treatment carried the child over the initial obstructive stage. Some cases, like this one, survive the early stages and become obstructed later. Forshall quotes Seidlin's case of a child who died of obstruction at the age of 24 years, after eating canned corn. Balfour (1932) records the case of

a patient aged 12 on whom he operated for increasing obstruction with vomiting, and in whom the duodenum was two-thirds closed

In Case 2 the obstruction was of the extrinsic variety and showed the main characteristic features—i.e., bile-stained vomiting coming on soon after birth, loss of weight, and dehydration. At operation the colon was on the left side of the abdomen with the caecum in the region of the spleen, while the small gut was on the right side. The main interest, however, lies in the fact that the child survived the operation of gastro-jejunostomy. Forshall tabulates in her paper the previously recorded survivals after an anastomosis and reports two further cases, making in all a total of 32. Case 2 adds another to the small list.

### Summary

Two cases of duodenal obstruction in the newborn are described, one of which survived gastro-jejunostomy.

The syndrome of congenital occlusion of the duodenum is clear cut, and though rare it should be recognized when it occurs and should be diagnosed early. This is important, as the condition is amenable to surgical intervention, and, contrary to general belief, the very young infant stands up extremely well to the required major surgery.

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## URETERIC CALCULUS CAUSING ANURIA

BY

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AND

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Anuria due to mechanical obstruction is an uncommon phenomenon. In the following case the patient had absolute anuria, which was found to be due to a calculus blocking the ureter just below the pelvis of a solitary kidney. He made a complete recovery after removal of the calculus.

### Case Report

The patient, a man aged 63, had been gassed during the 1914-18 war and subsequently had had bronchitis. In 1936 a perforated duodenal ulcer had been oversewn. He was fit until 1946, when frequency and difficulty of micturition began. In June 1946 a transurethral prostatectomy was performed. He remained unwell and lost a considerable amount of weight. He was admitted to hospital on Dec. 9, 1946, his general condition being very poor. The urine contained pus and grew a culture of *B. coli*. An intravenous pyelography showed a non-functioning right kidney. A course of sulphathiazole combined with penicillin had no effect.

On Dec. 20 the right kidney was explored by Mr. E. R. Flint. There was a large pyelonephrosis but no obvious cause could be found. The right kidney was removed. After operation the patient made an excellent recovery, the urine cleared up, and he gained weight rapidly.

On Aug. 19, 1947 he was readmitted complaining of pain in his left loin and anuria. On catheterization only 1 oz (28 ml) of urine was obtained. The urine was normal. The blood urea was 279 mg per 100 ml of blood. Anuria persisted for seven days in spite of intravenous 4.285% sodium sulphate solution, fluids, hot packs to the loin, light baths, pilocarpine, and cupping. Cystoscopy was carried out and intravenous indigo carmine given. There was no secretion from the left kidney.

A second operation was performed by Mr. E. R. Flint on Aug. 26. The left kidney was explored and freed from its bed. A stone was palpable in the ureter 3 in (7.5 cm) below the

renal pelvis. An incision was made in the ureter. There was a profuse discharge of pus, and a stone the size of a plum-stone impacted in the left ureter was removed. The ureter was drained and a superficial drain was also inserted into the wound. Eighteen hours after his return from the theatre 6 oz (170 ml) of urine was passed normally. Urine drained freely from the ureteric drain, but each day the amount of urine passed normally increased. The ureteric drain was removed on the fifth day, the wound healed, and no residual sinus occurred. The patient was discharged on Sept. 29, 1947, perfectly fit and passing urine normally.

We are indebted to Mr. E. R. Flint for permission to publish this report.

## Medical Memoranda

### Unusual Case of Twins

The following case is unusual enough to merit publication.

#### CASE HISTORY

A married woman aged 23 was referred to us on May 22, 1947, as a possible case of twins. She had had a normal delivery of a living healthy child on April 7, 1946. Her previous medical history revealed nothing of note. On examination a severe degree of anaemia was present. The abdomen measured 38 in (96 cm). Palpation of the abdomen suggested the presence of twins. X-ray examination next day confirmed the diagnosis and showed that both foetuses were presenting by the breech.

The patient later stated that after the X-ray examination she went home and spent most of the afternoon scrubbing her kitchen floor. She was sick and vomited once during the night. Next day she was uncomfortable all day, complaining of a dragging pain on the right side of the abdomen. She retired to bed at 8 p.m. and slept until about 5.30 a.m., when she was awakened by the onset of labour. The pains were frequent and strong. The midwife did not arrive until about 7 a.m., by which time the first child had been born (at 6.15 a.m.) by the vertex. A neighbour who was present at the time is quite certain about this. The midwife separated the infant and, because of a mass in the vagina, sent for us. By the time we arrived, about 8 a.m., a placenta had been expelled, but the cord led into the uterus. The cord of the already born infant also led into the uterus.

Vaginal examination revealed the second foetus presenting by the vertex in the L.O.P. position. Manual rotation was easily carried out, and two more pains sufficed to expel the infant—dead. The placenta of the living twin was easily expressed some 15 minutes later. At no stage during labour or after did any undue haemorrhage occur, which was fortunate considering the degree of anaemia present.

Both placentae appeared healthy. The opening in the first bag of membranes delivered (that of the second child) was close to the edge (that of the second nearly central). The first child weighed 5½ lb (2.5 kg), the second 6½ lb (3.1 kg). Both were males. The mother made an uninterrupted recovery.

#### COMMENT

The outstanding points in this case seem to be (1) Spontaneous version so near to the onset of labour—less than 43 hours. The events of the day before delivery suggest that version occurred on that day. (2) The unusual sequence of events during labour: foetus A, placenta B, foetus B, placenta A. Such an occurrence must be very rare. We can find no similar case in modern textbooks. Meigs (1856) mentions a case in these words: "I saw a twin labour in which the first child pushed the placenta of its brother before it into the world." He gives no further details and we are left in doubt whether this case was exactly similar to ours. Smellie (Case 411) describes a case in which the membranes of the second child came down in advance of the head and membranes of the first child (McClintock, 1876). Commenting on this, McClintock states that he never met with such an anomaly, and adds "Were it not recorded by such a careful and accurate observer as William Smellie, I would feel inclined to doubt its actual occurrence."

J. H. YOUNG, MB, ChB, DRCOG  
F. E. CULL, MB, ChB

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## Reviews

### AMERICAN HOSPITALS

*Hospital Care in the United States* Commission on Hospital Care (Pp 631 \$4 50 or 25s.) New York The Commonwealth Fund London Geoffrey Cumberlege (Oxford University Press) 1947

This book is the outcome of an extensive survey, lasting two years of the hospital resources of the United States. It was conducted on behalf of an influential Commission on Hospital Care by a study staff with technical advisers. The Commission was set up by the American Hospitals Association and had the assistance not only of the Public Health Service but of many State administrations and voluntary agencies. While the whole United States is considered, the most complete investigation was carried out in the State of Michigan, and the final recommendations for a co-ordinated system are based upon that territory and the conditions existing there.

The book is described as a study of the function of the general hospital "and is regarded notwithstanding a long list of recommendations as a source book." So it is, and the greater part of its statistical information its tables and charts are applicable only to the USA and of no direct interest to other countries. Indeed it illustrates very well the truism that, interesting and instructive as visits to the hospitals of other lands may be the traveller returns to find his own problem still his own and not to be solved by the experience or the practice of others.

To anyone versed in the survey of British hospitals and familiar with the drastic scheme of reorganization proposed, it will quickly appear that between the lines of carefully worded criticisms and recommendations there is to be read a reluctant recognition that only a national plan nationally financed, will really meet the case. It is stated in so many words that the fundamental financial plan is to enable the patient to buy the service he needs and recognized that the very best service ought to be available to every citizen. To that end voluntary insurance—the Blue Cross Plan—is strongly advocated, and nearly twenty-three million enrolled people pay their hospital bills through its agency. But those bills do not apparently include the doctors' fees and recent visitors to America hear on all sides the complaint that costs and fees have reached a pitch that is beyond the competence even of the insured. Strong as is the feeling in the United States against anything like socialized medicine (by which is meant a national health service such as our own) there is an undercurrent of uneasiness which one can trace too in this book lest the force of circumstances should impose something of the kind.

The survey resulted in some 180 recommendations for the integration and more adequate care of the American public, a study of the function of the general hospital is promised but is borne out only to the extent of present function and does not include examination of fundamentals. There is no satisfying answer to the questions: What should be the function of a hospital in a modern community? What is its job? and Who should do the component parts of the job? Yet there are plenty of indications that the time is ripe there as here for a thorough revision of our ideas if for no other reason than that there is here an immense building and rebuilding programme must be carried out in the future—an immediate future for them, a distant one alas for us.

It is worth listing some of the recommendations. The first is that the survey organization should continue in being. Governmental agencies should use voluntary hospitals so far as possible and all types of hospital including sanatoria those for mental disease and those for chronic diseases should be consolidated as one service with common facilities of all kinds the general hospital being the focal point. State county and municipal hospitals should have advisory boards broadly representative of the public. Full authority and responsibility for administration should be vested in a single administrator but there should be liaison arrangements with the medical staff. The administrator should be responsible for all phases of the nursing programme but the nurses should have ready access

to all levels of authority in the department. Emphasis in a school of nursing should be on the educational aspects, and to that end should be operated by colleges or large hospitals. Non-professional nursing staff should be employed to supplement the work of the professional nurses. Authority should be delegated to the heads of departments. Staff conferences at which attendance is required should be held regularly, their agenda to include 'a careful audit of the medical work in the institution. "Sabbatical leaves" should be open to doctors and nurses of smaller hospitals for further study and experience. Training programmes should be arranged for service staff. Communicable disease should be provided for in general hospitals, which should also undertake the diagnosis and treatment of mental disorders not requiring long-term institutional care. There should be an organized service of convalescence, with dietetic and therapeutic facilities for those returning home but still needing out-patient service. Social service should be financed through regular budget sources. Hospital diagnostic facilities should be at the disposal of the local medical profession, a recommendation which has here been found impracticable however sound in theory. There should be rentable consulting rooms for doctors on the hospital premises. Group medical practice should be promoted. Rehabilitation services should be correlated with community centres. Hospitals and health departments should integrate their functions with joint use of facilities. Public health officers should rank as members of the hospital staff and the department should be housed in or with the hospital. Special inducements should be offered to attract doctors and nurses to rural practice. On finance, 'the maintenance of hospital service should be a direct responsibility of the residents of the area who use the facilities, but there is a saving clause 'in so far as possible' and "general tax funds should be used to purchase hospital care for the indigent. From the same source should come subsidies for research.

The proposed plan for the State of Michigan is not unlike our own. There are two teaching hospitals at the head, with regional centres, community centres and community health centres in rural parts with no hospital. There is far more in the book than is mentioned here. It should be in the hands of all those in this country so busily engaged in similar preoccupations.

E. ROCK CARLING

### RADON

*Radon Its Technique and Use* By W. A. Jennings B.Sc. A.Inst.P. and S. Russ C.B.E. D.Sc. F.Inst.P. (Pp 222, 49 figures 14 plates 18s.) London John Murray

In recent years there have been such remarkable developments in atomic physics that a new light has been shed on the whole of man's scientific endeavour, and for those who have been concerned with the use of radiation in medicine it has illuminated paths along which they have hitherto groped their way. The knowledge accumulated through practical experience of medical needs in treating cancer is and will be for a long time the sound basis of radiotherapy. Radon has played a large part in the past, and in experimental technique especially, both clinical and laboratory, it still has important uses for the future. Now that there is a shortage of beds even if radium is preferable to radon for routine clinical work the use of radon offers a chance not to be lightly relinquished of early treatment of some cases. A book on radon is therefore of practical interest to all who are concerned with radiotherapy. This particular book, written by specialists in the production and use of radium and based as it is on many years' experience in improving and adding to the technical and scientific knowledge of radon should appeal to a wide public of scientists because of the wealth of information it contains and because it is a lively example of the diversity of interest that may result from the sincere and painstaking exploration of a relatively narrow field for practical purposes.

Everything one may wish to know about radon is to be found within its pages, including its source, physical and chemical properties, extraction, purification, measurement and uses. There is much discussion of its clinical use and the authors consider the dosage systems and methods which may be used to determine the distribution and content of radon sources to achieve a known uniform dose. Clear line diagrams and excellent photographs contribute to the easy understanding of a

lucidly written text, which is impressively up to date in referring to pertinent work in the same field

The authors suggest a layout for a national radon centre. It is to be hoped that the work may be continued in such a centre and that radon will continue to be available so that the tradition of hard and careful work which lies behind this book can continue. The technicians who have helped to build this tradition may rightly consider that the authors have produced a worthy memorial to their skill and devotion.

FRANK ELLIS

## OCULAR MUSCLES

*Neurology of the Ocular Muscles* By David G. Cogan, M.D. (Pp 214 121 illustrations \$6.00 or 25s) Springfield, Illinois Charles C. Thomas Oxford Blackwell Scientific Publications

*The Oculomotor Muscles* By Richard G. Scobee, B.A., M.D. (Pp 359, 112 figures 40s) London Henry Kimpton 1948

The little book by Dr Cogan, the Associate Professor of Ophthalmology at Harvard and Director of the Howe Laboratory of Ophthalmology at Boston although restricted in scope, is good. The author discusses the neurology of the extraocular muscles and the pupil, their nerve pathways and intramuscular connexions, from the point of view of the neuro-anatomist. The subject is difficult and confused, on the borderline between ophthalmology and neurology, and the author has done a considerable service in collecting much information which may not readily be available to those concerned primarily with either specialty. He emphasizes throughout the topographical analysis of the lesions which cause the multitude of signs and symptoms associated with the ocular motor system rather than the aetiology of the lesions themselves or their treatment. To a large extent this is rational, for the clinical evidences of disease in this region are determined by its site rather than its nature, and in clinical practice the primary concern of the neuro-ophthalmologist is with location. The unravelling of the clues presented in cases of this type may be one of the most difficult and perplexing tasks the ophthalmologist or the neurologist has to face and a topographical approach is the only one which offers an easy solution. With these reservations the book is very complete and up to date, it is fully and instructively illustrated, and not the least of its virtues is the exhaustive list of references.

The book by Dr Scobee has evolved from the writer's lectures to graduate students at the Washington University School of Medicine and covers the whole field of ocular motility. He briefly describes the anatomy, physiology, and neurology of the extraocular muscles, then follows sections on heterophoria and squint—surprisingly, nystagmus is not mentioned. In a large section he discusses the clinical methods of diagnosis, and the final chapter is on treatment in which non-operative methods receive little attention, orthoptic techniques are brushed aside even in cases of insufficiency of convergence, and attention is given almost entirely to surgery. In surgery the author is an enthusiastic follower of Chavasse in advocating the value of weakening the antagonist of a paretic muscle rather than strengthening the muscle itself—a thoroughly sound orthopaedic principle which however, has its limitations.

STEWART DUKE-ELDER

The vastness of current literature makes it difficult for an individual to keep pace with the advances in medicine. The 1947 *Year Book of General Medicine* edited by Dr G. F. Dick and others (H. K. Lewis, 21s), is especially welcome not as a substitute for the reading of original papers, but as a guide to observations of clinical interest made during the past year. It covers the fields of infectious diseases of the chest, haemopoietic system, kidney, heart and blood vessels and gastro-intestinal tract. It is impossible to comment on all the articles of note but, choosing at random, we have for example an account of the accumulated experience of American workers with streptomycin, not only in tuberculosis but in various other infections for which the drug is not yet available in Britain. The advent of folic acid has given a great stimulus to research in the field of megaloblastic anaemias and there are several papers in the *Year Book* on the complicated relationship of pteroylglutamic acid to these anaemias. Such interesting rarities as a severe necrotizing form of pyelonephritis in diabetics are also discussed. The papers are in general well selected and the book is up to the standard of its predecessors. The editorial comments add greatly to the value of the summarized articles.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Reid's Practical Sanitation* By J. J. Buchan M.D., D.P.H. 24th ed. (Pp 300 18s) London Charles Griffin 1948

Intended particularly for students who propose to become sanitary inspectors

*Voluntary Medical Care Insurance in the United States* By F. Goldmann, M.D. (Pp 228 16s) London Geoffrey Cumberlege 1948

An analysis of the present situation and an account of its development

*Motivation in Health Education* The 1947 Health Education Conference of the New York Academy of Medicine (Pp 53 5s 6d) London Geoffrey Cumberlege 1948

The theme is how the educator can best make his teaching effective in the conduct of his pupils

*The Leptospiroses* By P. H. van Thiel (Pp 231 16.50 francs) Leiden Universitaire Pers Leiden 1948

A monograph on the morphology of the leptospirae, with an account of the diseases caused by them

*Aids to Anaesthesia* By V. Goldman, L.R.C.P. M.R.C.S., D.A. 2nd ed. (Pp 316 7s 6d) London Baillière, Tindall and Cox 1948

A summary for students and house officers

*A Handbook of Parentcraft* By L. G. Housden O.B.E., M.D. (Pp 152 5s) London Eyre and Spottiswoode 1948

A practical handbook for women

*Practical Section Cutting and Staining* By E. C. Clayden, F.I.M.L.T. (Pp 129 9s) London J. and A. Churchill 1948

An introductory book for laboratory technicians

*Advances in Pediatrics* Edited by S. Z. Levine et al. Vol. 3 (Pp 363 45s) London Interscience Publishers 1948

Eight monographs on physical and mental disorders of children

*Men of Stress* By Harley Williams (Pp 374 15s) London Jonathan Cape 1948

Biographies of Woodrow Wilson, Andrew Carnegie, and Lord Leverhulme

*Elective Alimentary Rest and the Elimination of So Called "Paralytic Ileus" After Abdominal Operations* By V. J. Kinsella, M.B., Ch.M., F.R.C.S., F.R.A.C.S. (Pp 3s 3s) Sydney Angus and Robertson 1948

Reprints of three articles on post operative treatment

*At Home with Income Tax* By R. W. Harris (Pp 191 8s 6d) London Stone and Cox 1948

An exposition of income tax in simple terms

*Medical Writing* By M. Fishbein, M.D. 2nd ed. (Pp 292 No price) Philadelphia Blakiston 1948

A manual to help the medical man express his thoughts clearly in English

*Physiology of Muscular Activity* By E. C. Schneider, M.P.E., Ph.D., D.Sc., and P. V. Karpovich, M.P.E., M.D. 3rd ed. (Pp 346 20s) London W. B. Saunders 1948

Intended particularly for students of physical education

*A Textbook of Surgery for Dental Students* By G. P. Mills, M.B., B.S., F.R.C.S., and H. Humphreys, O.B.E., M.C.T.D., M.B., Ch.B., M.D.S., F.D.S. 5th ed. (Pp 368 18s) London Edward Arnold 1948

The text has been extensively revised and many new illustrations have been added

*Occupational Medicine and Industrial Hygiene* By R. T. Johnstone, A.B., M.D. (Pp 604 50s) London Henry Kimpton 1948

A textbook for the medical practitioner

# BRITISH MEDICAL JOURNAL

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## H 11 IN MALIGNANT DISEASE

The report of an inquiry by a committee of the Medical Research Council into the effect of H 11 in the treatment of malignant disease is published in the opening pages of this issue. H 11 is an extract of male urine which is claimed to have an inhibiting effect on malignant disease in man. The idea that growth-controlling agents may be present in the tissues, serum, or urine is not new. At various times extracts of connective tissue, placenta, gonads, thymus, spleen, and other tissues have been used in the treatment of cancer. All have much the same effect. There is a transient diminution of pain, improvement in appetite and sense of well-being, and in many cases a diminution of the size of the tumour, often with softening at the margin or throughout. Very rapidly, however, the malignant process resumes its downhill course. For this reason such treatments have rarely spread beyond their enthusiastic originators.

The Medical Research Council committee comes to the conclusion that there is no evidence of inhibition of malignant disease by H 11 in man or animals. It must be noted that the claims made for H 11 in human cancer are hedged by certain restrictions. Cases are not included for analysis unless they survive for at least two months after beginning treatment with H 11. The criterion of success is arrest or regression of the primary growth, and no claim is made for prolongation of life, though there is inevitably an implication to this effect. There are no figures in the literature for the natural history of patients with cancer who are well enough to survive two months and who will usually have had treatment by operation, radium, x rays, or other measures. Most surgeons of experience would conclude that many such patients would live for long periods, and some of them would have apparent remissions. The data on the effects of H 11 are collected by postal follow-up, in most cases from general practitioners. Few general practitioners will see more than three or four cases of cancer a year, and the measurement of tumours is an extremely difficult operation. In records of any new treatment of cancer the statistician expects that at least 90 to 95% of patients will be followed up. How very different the position is with H 11 is shown by the following quotation from a paper<sup>1</sup> from the Hosa Laboratories:

A total of 3 885 patients had received injections of H 11 Extract. Of these 1,551 had received treatment for less than two months and were therefore not considered adequately treated for any analysis and 963 had been treated for over two months but were insufficiently documented for analysis. Of this latter group of 963, 571 cases were outside the United Kingdom in itself an adequate explanation for the lack of data. There remain 1,371 cases who have been treated for an adequate

length of time to be of significance and whose details are sufficiently known for analysis.

It is not surprising that the only conclusion the committee could draw from the Hosa records was that there was no evidence that H 11 had any effect on cancer and that the records themselves were worthless as material for clinical research. The acid test of any remedy for cancer is increased duration of survival, but the methods of distributing and reporting on H 11 are such that no information about this crucial point can be obtained. It may well be asked why better-controlled trials of H 11 have not been performed. No clinical trial will carry conviction unless a series of cases is observed throughout the course of treatment by a cancer specialist or group of specialists and compared with similar patients not treated with H 11. The reason no such trial has been made is that the conditions imposed by Mr Thompson, the discoverer of H 11, have appeared to investigators to restrict their freedom of action and judgment and have not been acceptable. Some of the difficulties in satisfying Mr Thompson can be seen from the account of Dr Bonser's animal experiments, which seem to the unbiased reader to show an entire absence of scientific foundation for the therapeutic use of H 11.

It is unfortunate that a group of sincere laymen who are interested in H 11 have apparently come to the conclusion that there is a conspiracy on the part of organized medicine, and particularly the *British Medical Journal* and the Medical Research Council to suppress a discovery which is of enormous benefit to mankind. It is difficult to see any grounds for this belief, or for the attacks made on the good faith and scientific competence of investigators like Dr Gye who have given up time and facilities to testing H 11 and have obtained negative results. Details about H 11 have been published in papers in *Nature*<sup>2</sup> and in other journals. It has been available to the whole world for confirmation, but no confirmation has arrived. No, it is not convincing to cast Mr Thompson in the role of Semmelweis or a Freud, as a pioneer who is misunderstood by his generation. There is already a vast literature on the chemotherapy of cancer. There has been no hesitation in the use of oestrogens in prostatic cancer, nitrogen mustard in Hodgkin's disease, or urethane in leukaemia. Incurable cancer is a painful condition to the attendants as well as to the patient, and no remedy which offers any chance of effect is likely to be left untried. The cost of treatment with H 11, including the associated biochemical tests, is high, but that would be no bar to its employment if it were effective. The plain fact is that H 11 has been tried and found wanting, and whatever justification there may be for further experimental work on it there is little or none for continuing to distribute it to patients.

## WORK AND THE MAN

In our present industrial predicament, when the greatest possible output per man hour is demanded, continuous efforts to fit man and job together are obviously necessary and important. As is so often the case, study of experience in the U.S.A. is well repaid, provided that judgment is carefully reserved on whether the methods used and the conclusions reached there are relevant to our problems.

<sup>1</sup> Olfert-shaw G J W. and Lowe E. *Cronin Medical World* 1946 65 231  
<sup>2</sup> Thompson J H. Holt P F. and Jones R. *Forbes Nature* 1943 151 24

here On the west coast of the Atlantic the problem is posed as "What affects capacity and fitness for work?" On the east coast, however, the question is put somewhat differently "What is occupational or industrial health and how is it modified?"

In discussing the respiratory and circulatory capacity for work Dill<sup>1</sup> points out that the heaviest known lumbering work requires only about a third of the greatest possible respiratory effort of which a man is capable, although naturally the effort has to be sustained for many hours a day and not merely for a few minutes He thus raises the question of the relevance of the short "all out" respiratory test to the less intense but more sustained effort needed in the highly complicated situation which is found in most industrial jobs Moreover, he points out that it is highly artificial to separate the circulatory from the respiratory capacity, since both are clearly parts of a combined operation for the transport of the factors necessary for the functioning of the cell Perhaps, therefore, the best commentary on Dill's experience is the common observation many of us made as schoolboys that the boy who wins the hundred yards is never the boy who wins the three miles

The importance of adequate nutrition is stressed by Keys,<sup>2</sup> who questions the existence of so-called "sub-clinical" deficiencies and the efficacy of multiple vitamin supplements Few, however, will be so dogmatic as to doubt that there is some falling off in health between the onset of deprivation and its obvious appearance as a clinical deficiency May not the effect first be shown, for example, in an increased incidence of disease or by some falling off in performance at the job? In England the late war taught the receptive industrial dietitian much about such things as the regularity of meal timing and the importance of variety in the menu Night work demanded (and may demand again) a different kind of food as well as different hours of eating, and sentiment and habit were found to be almost as important as science in the right design of diet

Disease reduces the capacity for work, and in America, as in England, the emphasis of interest is on the extent of the reduction which occurs in the industrial pneumoconioses and in heart disease—which is mainly of social (i.e., rheumatic) origin Whether welder's siderosis causes incapacity is still an open question, and in silicosis it seems to be the complications of emphysema or infection, usually with tuberculosis, which produce the disability rather than the original disease Evidence on both sides of the Atlantic suggests that the extent and nature of the radiological opacities in this disease bear little or no relation to the disability of the patient in relation to his job

In no branch of medicine are clinical courage and steadiness of decision more called for than in cardiology, and the real dangers are not that the patient may suddenly drop down dead from doing too much work but that he may have his capacity for work injudiciously lowered by his physician and become thoroughly frightened about his condition even to the extent of developing a cardiac neurosis Once acquired this is not easily cured In Czechoslovakia during the war patriotic doctors certified

that large numbers of their countrymen were suffering from heart disease in order to prevent their employment by the Germans When the war was over, however, many of these patients were found to have cardiovascular neuroses which could not easily be thrown off Full employment within the real cardiac reserve irrespective of the noises made by the heart, careful supervision of the recovered rheumatic case to detect subsequent attacks, and suitable self-control by the physician in the diagnosis of cardiac disease seem to summarize the experience both here and in America

In a discussion of the factors essential for fitness Fishbein<sup>3</sup> stresses the overriding importance of the common-sense psychology of the total situation The significance of this is being more and more appreciated here, having been underlined by Bashford<sup>4</sup> and more recently by both the new Nuffield Professors of Industrial Health at the 1947 meeting of the British Association in Dundee No one can quarrel with Fishbein's recommendation that personal hygiene and dietetics should be included in the educational curriculum and that accident and disease prevention should receive more attention in industry However, his suggestion that a programme of physical fitness must start by deciding first of all who shall marry and who shall conceive is good logic but poor politics, and would probably be received here with either cold hostility or incendiary language, according to taste

The figures showing why some 6,700,000 young Americans were rejected for military service in the late war are quoted by Eanes<sup>5</sup> to support the need for a campaign for fitness in the USA But it is surely important to realize that fitness is a relative term and that it is necessary to ask not only what fitness is but also what it is for Thus we read that only 9.5% of whites but as many as 32.6% of negroes "failed to meet the minimum standards of intelligence," which was the second commonest cause for rejection This both prompts the reflection that there are many jobs in the Services which do not need much intelligence, and also poses the questions, How was the "intelligence" tested? and, Was the tester a white man or a negro? In addition there was said to be a considerable proportion of illiteracy among the otherwise mentally normal, but even here there are pitfalls, as was recently demonstrated at a meeting when an expert on this subject was asked his definition of illiteracy He replied that it was inability to spell monosyllabic English words at a given age, and after a short pause one of his audience remarked, "Such as phlegm!" In England, with our much smaller population in relation to the job to be done, such "above or below the line" methods have little place, and what is needed is a flexible assessment of both man and task with subsequent fitting of the two together The late war demonstrated a fact which is confirmed by everyday civilian experience that, given enough determination, grave physical disability does not necessarily stand in the way of a good day's work, and the USA itself has provided an outstanding example of this in the personality of the late President Franklin Roosevelt

The general conclusion, then, both from American experiences and from our own, seems to be that capacity

<sup>1</sup> *Occup Med* 1946 2, 531    <sup>2</sup> *Ibid.* 1946 2, 536    <sup>3</sup> *Ibid.* 1946 2, 566  
<sup>4</sup> *Brit J Ind Med* 1947 1, 7    <sup>5</sup> *Occup Med* 1946 2, 572

or work can best be measured by trying a man on a real job, or on as close a copy of it as can be arranged, and then by expressing the result numerically. No simple test of a single system is likely to be successful, and the relevance of a short "all out" effort to a whole day's work needs further consideration. Moreover, the question of incentives must not be ignored, especially in the armed Forces or in geographical areas where the industrial morale is low.

Fitness for work means nearly the same as health, it is a term relative to the task to be attempted, and differs not only between individuals but in the same individual at different times. Its definition and measurement are both at present two of the growing points of medicine. Moreover, the maintenance of fitness depends at one end of the scale upon such elemental necessities as food and houses, and at the other upon the successful prosecution of research by our new departments of social medicine and industrial health. These and many other problems of industrial medicine were discussed at the Ninth International Congress of Industrial Medicine held in London last month.

### VITAMIN-A DEFICIENCY

Since it began work ten years ago the Ministry of Food has always been aware of the risk of vitamin-A deficiency in this country. As a safeguard the addition of vitamin A to margarine was made compulsory, this was possible mainly because of the large amounts of this vitamin in the livers of antarctic whales. The public has also been exhorted from time to time to eat more carrots and green vegetables for the sake of the pigment carotene, which is converted to the vitamin in the animal organism. It thus comes as an unpleasant surprise that Dr John Yudkin and Miss Stella Doraiswami, in an article appearing elsewhere in this issue, should report that about one-fifth of the women university students whom they examined appeared to be suffering from vitamin-A deficiency. They used two independent methods of investigation, both of which gave similar results. The efficiency of dark-adaptation was measured before and after dosing with vitamin A, and students whose powers of adaptation improved significantly on the second occasion were assumed to have been deficient in the vitamin. Investigation by the usual method of dietary survey showed defective intakes in about the same proportion of students as were found defective by the dark-adaptation test. Unfortunately only a few could be examined by both methods, but the limited evidence indicated that the administration of the vitamin improved dark-adaptation only in those with the lowest intakes of vitamin A and carotene.

Many investigations have been concerned with the clinical importance of degrees of vitamin-A deficiency. In 1937 Moore<sup>1</sup> described a survey in which the liver reserves of persons accidentally killed were estimated by a chemical method. A median reserve of 220 i.u. of vitamin A per gramme was found, which was calculated to be sufficient to allow survival on a diet deficient in vitamin A for several months. This conclusion was later fully confirmed in experiments conducted during the war at Sheffield by the vitamin A Subcommittee of the Medical Research Council,<sup>2</sup> when members of a group of volunteers all subsisted for at least a year on a deficient diet without signs of depletion. Moore's investigation, however, had shown a wide variation in the vitamin-A reserves of individuals, with extreme values of 10 and 1,500 i.u. per gramme. The possession

of adequate reserves by the majority of the population, therefore, was no evidence against a significant degree of deficiency in a minority. Harris and his colleagues,<sup>3</sup> using the dark-adaptation method, found support for this: there was evidence of deficiency in about 36% of elementary school-children in the poorer quarters of London. On the other hand, signs of deficiency were found in only 5% of adult men examined at Cambridge, presumably they were better nourished. In 1944 Yudkin and his colleagues<sup>4</sup> observed that the administration of vitamin A to school-children was without effect, but there was some statistical evidence that the nutrition of factory workers was improved.

While we may expect wide variations in the consumption of vitamin A by different groups of people, and by the same groups at different times, care is needed in interpreting results obtained by the dark-adaptation test. Good vision in the dark presumably depends *inter alia* upon the ability of the blood to keep the retina supplied with vitamin A. The actual amount of vitamin present in the retina, however, is only a minute fraction of that in the blood stream, which in normal circumstances is again less than 1% of the main store in the liver. Between the intestines, liver, blood plasma, and non-hepatic tissues such as the retina a sensitively balanced system of absorption, storage, mobilization, and distribution must operate. It is therefore possible that giving large doses of vitamin A may improve dark-adaptation by temporarily increasing the amount in the blood rather than by making good a real deficiency. Doraiswami and Yudkin, however, made allowance for the temporary rise in the level of vitamin A in the plasma by testing for dark-adaptation 24 hours after the vitamin had been given. Their conclusion that a proportion of students were really deficient in vitamin A therefore seems justified. It is doubtful, however, whether we should infer from these observations that there is not enough vitamin A and carotene in the national dietary. Other students, living under similar conditions, succeeded in getting far more than they required, while the Scottish students examined by Dr R. P. Cook, whose paper appears on page 711 of this issue, seem to have had no difficulty in attaining satisfactory intakes. It would be logical to ask, therefore, whether the vitamin-A-deficient students had poor appetites for all foods or a special dislike of vegetables or fats. But all the same, if faulty eating habits can be so prevalent in a well-managed women's college where the teaching of nutrition is part of the curriculum, it would be unwise to be complacent about the vitamin-A intake of other groups.

### MINORITY REPORT ON NURSES

Minority reports are usually limited to a few disapproving paragraphs, but Dr John Cohen,<sup>1</sup> of Leeds University, in his dissent from the report of the Working Party on the Recruitment and Training of Nurses extends himself to two-thirds of the length of that document. He was unable to sign the report with his colleagues because he believed that, in the first place, their recommendations failed to take sufficient account of the relation between the planning of nursing and other health services and between all such planning and that of the country's manpower resources as a whole. He thought also that the extent to which the methods of psychological research can provide information for determining nursing and medical staff ratios or the length of training periods for nurses was inadequate, as appreciated by the majority. At present, in Dr Cohen's view we are as ill equipped to plan a nursing service as we

<sup>1</sup> Working Party on the Recruitment and Training of Nurses Minor Report.  
London: H.M. Stationery Office, 1948. 1s. 6d. net.  
<sup>2</sup> British Medical Journal, 1947, 2, 422-426.

<sup>1</sup> Blackett J. 1937, 31, 155.

<sup>2</sup> Nature, 1945, 156, 11.

<sup>3</sup> Lancet, 1937, 2, 1009, and ibid.

1939, 2, 1299 and 1355.

<sup>4</sup> Publ. Hlth. Lond. 1944, 57, 109.

and Brit. J. Ophthalmol. 1944, 28, 556.

architect would be in planning a house without knowing the size of the projected dwelling, the labour and materials required, or the number of tenants. No solution, he says, can be found without a radical change of attitude towards research in the social sciences. What is wanted is a comprehensively planned health service with a correct determination of the number of hospitals, beds, and doctors required, and such a plan in turn presupposes a planned national economy in which the correct proportion of our national resources is devoted to health.

The majority report<sup>2</sup> spoke of an outworn disciplinary system in hospitals, and here Dr Cohen dots the "i's" and crosses the "t's." He believes that the disciplinary system, associated with unsympathetic handling of pupil and junior nurses by ward sisters and other senior nursing staff, is probably the main cause of student wastage. He says that the average hospital so far as its nurses are concerned tends to be a self-contained, segregated community of women, functioning through a more or less rigid hierarchy of staff, sometimes of a quasi-military character. It tends to perpetuate ways of life which in the outer world are obsolescent. Hospitals are run as authoritarian, not as democratic, institutions. The situation might be improved by bringing into the hospital the equivalent of the joint production councils which have proved useful in industry.

Two other suggestions in Dr Cohen's report may be mentioned. One is that more attention should be given to the amount and quality of nurses' food. It may well be true that in an institutional environment where the range of interests and activities is severely limited diet assumes a special significance. The other is that the nurse's remuneration should be assessed on the basis of her productivity—the savings, primary and secondary, direct and indirect, which result from her labours. The outcome may be quite surprising. The nurse may prove to be, not only sentimentally but in terms of hard economics, one of the most valuable members of the community.

### ABDOMINAL DISTENSION AND DFP

Di isopropyl fluorophosphonate or DFP, which was prepared in the course of research on chemical warfare, is the most active of the group of substances first shown by Adrian, Feldberg, and Kilby<sup>1</sup> in this country to inhibit the action of cholinesterase. Its properties are very similar to those of physostigmine. Thus the movements of the gut, now known to be maintained by the liberation of acetylcholine in the wall of the gut, are greatly increased by DFP because it prevents the destruction of acetylcholine. It has been used successfully in the treatment of abdominal distension. Grob, Lilienthal and Harvey<sup>2</sup> first observed that the daily administration of DFP to 60 normal subjects caused abdominal cramps and diarrhoea, and they therefore investigated its action in three volunteers by recording the pressure changes inside a Miller-Abbott balloon lying in the intestine. The intramuscular injection of 2 mg of DFP in 0.1% solution in arachis oil increased the motility of both small and large intestine about one hour after the injection. Rhythmic contractions of greatly increased amplitude occurred every two to three minutes over a period of two to five hours. The increased intestinal motility caused by DFP was inhibited by giving morphine or pethidine or atropine. This observation is important because of the practice of some surgeons in this country of treating paralytic ileus with morphine. The authors also found that when DFP was being given the intestine became more sensitive to the action of pituitary (posterior lobe) extract and to the action of neostigmine ("prostigmin").

This increased sensitivity persisted for one to three weeks after the last dose of DFP.

Harvey and his colleagues then tested the action of DFP on 64 patients with moderate or severe paralytic ileus, 46 of these had distension following major abdominal operations, eight had peritonitis, five had severe pneumonia, and five had lesions of the spinal cord. Enemas and the use of a rectal tube had been ineffective. In the less severe cases relief was obtained after the intramuscular injection of DFP alone. An initial dose of 2 mg was followed by further doses at intervals of eight to twenty-four hours. In some of the more severe cases DFP did not fully relieve the distension, but the additional injection of neostigmine (0.5–1.0 mg) proved effective. Pituitary (posterior lobe) extract was given in addition to neostigmine in a few cases. The authors state that they had no failures in this series. It is to be hoped that DFP will soon be available for use in this country.

### DILATATION OF THE OESOPHAGUS

The underlying cause of cardiospasm has so far eluded discovery. The most favoured hypothesis at present is that the condition has a psychogenic origin, and in a recent review of 47 cases Wooler<sup>1</sup> is inclined to support this opinion. It is difficult to believe that this can be the whole truth, since the condition not uncommonly occurs in children of less than one year of age. It seems probable that the solution lies in the search not for one but for several causes. The association of cardiospasm with congenital megacolon is known, and the high incidence of the disease in Brazil is as remarkable as the frequency of congenital dislocation of the hip in Italy. Both these facts suggest a familial origin for at least some of these cases. Wooler rightly stresses the importance of observing the barium swallow rather than relying on radiographic examination alone, and he describes the return after treatment of the three different types of muscular movement of the oesophagus in the reverse order of their disappearance. Once cardiospasm has become established a mega-oesophagus, which is in fact a "large, tortuous, patulous bag," may eventually develop. This presents a mechanical problem which psychotherapy cannot hope to cure.

So long as it is undecided whether this type of dysphagia is an achalasia, a true spasm, or indeed whether, as suggested by Negus, the trouble lies at the crico-pharyngeal sphincter rather than at the cardia, the treatment must be empirical. Wooler has had good results with the Negus hydrostatic dilator. He treated 38 of his patients by this method, and in 27 relief of symptoms was complete. He has found, however, that young children do not respond as satisfactorily as adults. When the mechanism of this cardiac "sphincter" and its relation to the diaphragmatic "pinchcock" have been decided the problems of cardiospasm and of peptic ulceration of the oesophagus will be further elucidated, and the place of sympathectomy, oesophago-gastrostomy, and Heller's operation (longitudinal incision of all the muscle fibres down to the mucosa) will be more definite. For the present the treatment of choice is the use of the hydrostatic bag for dilatation of the sphincter, the other methods being held in reserve for those cases in which it fails.

The cardia is one of the great meeting-grounds of the surgeons. The thoracic surgeon gets the best view of it from above, it is rather less accessible for the abdominal surgeon, and even less so for the otolaryngologist. Each approaches the problem of cardiospasm from a different standpoint, both intellectually and physically. The pooling of their respective views should continue.

<sup>1</sup> E. J. F. 19-7 2, 56  
<sup>2</sup> E. J. F. 19-7 81 245

<sup>1</sup> Thorax 1948 3, 53



## FUNCTIONING TUMOURS OF THE OVARY

ADDRESS BY DR EMIL NOVAK

The Royal College of Obstetricians and Gynaecologists has instituted an Anglo American Lecture designed to cement more closely the bonds of friendship between Great Britain and the United States. The first lecture was delivered on Oct 1 by Dr EMIL NOVAK of Johns Hopkins University President of the American Gynecological Society. The interest in the lecture, over which Sir William Gilliatt presided, was so great that the meeting room at the Royal College proved insufficient to accommodate those attending, and an adjournment was made to the Barnes Hall of the Royal Society of Medicine, which was crowded out.

Dr NOVAK said that his main interests were clinical, but his scientific recreation had always been in the fields of pathology and endocrinology and this had led him to the study of certain functioning tumours of the ovary. These tumours were relatively rare but clinically important, and the signs and symptoms included sex disturbances of an unusual character. In his laboratory he had material from about 160 cases only a fraction of which had come from his own clinic. No clinic could expect to have any large number of these tumours, his own collection had been assisted by the ovarian tumour registry of the American Gynecological Society—a registry which had been in existence for four years.

There was nothing new in the concept that tumours might retain functioning capacity. That was true of a cancer of the liver, which in some cases maintained the capacity to secrete bile, certain tumours of the intestine could still produce mucin. But this characteristic pertained particularly to the endocrine group of tumours, of which many examples could be given, such as the calcium and phosphorus metabolism of hyperparathyroid tumours and the remarkable sex changes seen in association with certain tumours of the adrenals. The ovary being included in the endocrine mechanism, might also contain tumours which functioned. Meyer, from a careful study of his material and a critical analysis of much that had been reported previously, gave a good classification and a fair working theory of the nature and histogenesis of these tumours. Perhaps this was now somewhat inadequate, but his groupings had been useful during the last sixteen years.

A common characteristic of these tumours was that they were made up of cells relating to an early embryonic phase of ovarian development. At a very early stage in the embryonic history of the ovary there appeared on the posterior surface of the abdominal cavity a structure on which was formed the so called genital ridge. Here a collection of cells indicated the future location of the gonad, either ovary or testis, and a point to be stressed was that in the early stage no one could tell which it was going to be. Therefore embryologists spoke of an early undifferentiated stage of gonadal development. In this stage certain collections of cells might be detached and remain dormant for years while differentiation went on above them.

From these undifferentiated cells tumours might arise later in life. These separated tumours had been given by Meyer the name of dysgerminomas. If the theory was correct, tumours of this group should also be observed in the cells of the testis, and this was certainly the case. It was impossible to distinguish histologically a dysgerminoma of the ovary from a seminoma of the testis. When these dysgerminomas were first described it happened that many were found in individuals who presented some degree of sex abnormality, a number were found in pseudohermaphrodites and others in women with moderate degrees of homosexuality. It was at first thought that this was a characteristic association, but since then a great majority of the cases had been found in normal women. There might be minor degrees of abnormality—small ovaries or long periods of amenorrhoea—but even if the dysgerminoma were seen in a pseudohermaphrodite it had nothing to do with that condition and if the tumour were removed the pseudohermaphroditism would remain as before.

### Beginnings of Sex Differentiation

In the development of the ovary the undifferentiated phase was succeeded by evidences of differentiation. Evidence was accumulating in favour of differentiation *in situ* and not by

invagination from the surface epithelium. In the gonad which was destined to become a testis zigzag cords of cells formed which later became canals, and the testicular structure went on to completion. In the case of the ovary exactly the same scaffolding was laid, the ovary first passing through a sort of testicular phase. It appeared, said Dr NOVAK, that woman as the superior being, was built upon the vestigial remains of the male structure. This primitive scaffolding was first laid down, and then a second phase of differentiation began, again *in situ*. Vestiges of the first testicular structure persisted in the ovary, and the tumours came from cells of the proto testicular type which were latent in every woman. The tumours to which these gave rise were the arrhenoblastomas.

In further development of female differentiation, with the formation of large accumulations of cells, evidence was seen of a peculiar architecture. Around each potential ovum there appeared a group of satellite cells—the first suggestion of the primitive follicle of the ovary. According to the original concept of Meyer, which had now to be extended, these were redundant granulomatous structures from which grew granulosa cell tumours. But this theory did not explain closely allied cells which were made up of connective tissue, and from these cells also connective tissue or epithelial tumours might arise. The glands were definitely of the feminine gender and produced sex hormones. Thus there were arrhenoblastomas which were thought to arise from vestiges in the ovary and of which no one could give a stereotyped description, for the term covered a wide range of tumours, and there were tumours which presented a resemblance to adrenal tissue and were spoken of by some authorities as lutein cell tumours. It was necessary to bear in mind in considering the histogenesis of these tumours the great differentiation potency of the ovarian tissues, which even without the spermatozoa by some unknown mechanism could occasionally produce some resemblance to a foetus or parts of organs or tissues.

### Problems of Treatment

In treating these tumours the important issue was between conservative and radical procedures. When the tumour was inclined to burst the capsule treatment should be radical, but in the young woman, if the capsule was unbroken, the treatment should be conservative and the outlook was relatively good. The lecturer mentioned one case in a child aged 7 who had a huge tumour filling the abdominal cavity. On section it was found to be a dysgerminoma. Under radiation it faded away, returned and was again treated, but there always remained the irreducible nodule which grew continually and caused death after a few years. Such cases always ended fatally.

Another case of which he gave the clinical history was a woman aged 32 who had had one child and had menstruated quite regularly until 13 months before he saw her. Her voice was then deep, raw, and husky, and she had a fine growth of hair on face, chest, and extremities. She proved to have a unilateral adrenal tumour about the size of a golf ball. That sort of history, plus a unilateral tumour, in a woman who had had a normal feminine make up should always make one think of a masculinizing tumour, but a mistake was often made when a unilateral tumour was found in a woman who had always had certain masculine characteristics. In such cases the tumour was often taken to be of the masculinizing type, whereas generally it was of some simple everyday type. If, on the other hand a woman had had a feminine history and then passed through a masculinizing phase, the significance was far greater. The first of the symptoms was usually amenorrhoea, this was not a masculinizing symptom, but it was a de-feminizing one and the same was true of regression of the breasts and loss of subcutaneous tissue around the hips. These changes were likely to be followed by positive stigmata—growth of hair on upper lip, chin, cheeks, forearms, and chest. Hirsutism again was not in itself evidence of masculinization, every gynaecologist had seen women who had had a succession of children and yet were covered with hair. But it might be a part of masculinity and, associated with a deepening voice, must be regarded as something positive. With the removal of the tumour these symptoms disappeared, menstruation returned, almost within a month, and the figure became fuller, but the regression of the positive symptoms—hirsutism and the deep voice—might be much slower. These tumours were much less malignant than

the ordinary ovarian tumour, but he thought nevertheless that many gynaecologists took them too lightly. There was a great risk of recurrence, which he put at 25%, and recurrences ultimately proved fatal.

Speaking of feminizing tumours of the ovary, Dr Novak said that the physiological characteristic was the production of oestrogen, and in a woman no outstanding changes might be expected, though menstruation might be excessive and irregular. On the other hand, if the oestrogen was released in childhood long before the time of normal production very striking effects were seen in the way of premature puberty. In young children a tumour was usually thought of, but if it could not be palpated it was unwise to assume that it was present. It was better to watch the case, and if no tumour developed the child must be considered normal, except for precocious puberty, entailing long periods of embarrassment which called for psychological treatment. A girl with a granulosa cell tumour could not conceive. In appearance the substance of such tumours was greyish, sometimes yellow, and there was a tendency to cavity formation. The microscopical diagnosis was not difficult, it was based on two considerations—the morphological resemblance of the constituent cells to granulosa cells and the typically granular architecture. One new line of research in connexion with granulosa-cell tumours was suggested by the fact that if ovarian tissue were implanted in the spleen of a castrated animal a granulosa-cell tumour or lutein-cell tumour would develop in the implanted area.

## PORT OF LONDON AMBULANCE LAUNCH

A new timber-built ambulance launch, named the *Alfred Roach* after the former town clerk of the City of London, was put into service on the Thames by the Port of London Health Authority on Sept 28. The launch, which has been built by John I. Thornycroft and Co., Ltd., is intended for the reception and transport of cases of infectious disease to the isolation hospital at Denton, Gravesend; it will also be used for the medical officer of health's general inspection work in the lower reaches of the river, from Erith eastwards for some thirty miles. It is 53 ft long with a 13 ft beam, and for normal service has a speed of 13½ knots or of 14½ knots at full power. The machinery installation comprises two six-cylinder diesel engines, and an important development is the remote control of the machinery from the helmsman's position. To handle stretcher cases a specially designed mast with derrick boom is fitted on the roof of the sick bay. Stretchers are lowered into the sick bay on to a table so fitted that the stretchers may be easily moved on runners to the settee on each side of the compartment. There is also room for eight sitting patients. The hull has well rounded quarters to minimize the risk of damage when getting away from steamers, and measures have been taken in the engine room to reduce noise and vibration to a minimum. The crew consists of a navigator, deck hand, and deck-boy, who are accommodated forward in a well furnished messroom. The launch will carry an illuminated sign for recognition in hours of darkness. When not engaged on the lower river it will lie alongside the hulk *Hygeia* which is moored off Gravesend and serves as a boarding station and base for launches.

The Port of London Health Authority now has two hulks and four launches. The second hulk, a converted sailing vessel lies at an anchorage off Gravesend. The first motor launch *Howard Deighton* is a strongly constructed steel vessel stationed at Gravesend for the use of the boarding medical officer. It has a spacious ambulance room, with accommodation for four stretcher cases or eight seated patients. The motor launch *Alfred Robertson* is allocated to the Middle River inspector and has a saloon which can be used for the reception of two stretcher cases or six sitting patients. The *Frederick Whittingham* is a small vessel allocated to the Upper River inspector, with no provision for the transport of stretcher cases but with room for four sitting patients. To these is now added the *Alfred Roach* with accommodation for three stretcher cases as well as the eight walking patients. On its inspection service it will deal with foreign home, and coastwise traders, small craft, and some houseboats, and the inspector's saloon can when required, be converted easily into an ambulance room.

## Correspondence

### Medicine as a Planned Economy

SIR—Among lay people and even among doctors there is a widespread impression that the scientific quality of medical practice is in some way dependent on the part played by the laboratory. There is a failure to appreciate that science is an intellectual method and does not reside in an instrument or manifest itself in a technique. Dr Frangeon Roberts (March 13, p 487) and Dr E. B. Hendry (Sept 18 p 567) have pointed out that as a result of this erroneous belief radiologists and bacteriologists find themselves overwhelmed with unnecessary demands for their services.

New methods of investigation are trusted too highly and in their haste to use them physicians tend to dispense with older but well tried clinical methods. It takes time and patience to take a careful history, observe the patient, and think about the diagnosis, and these methods have no novelty, do not appeal to a superficial desire to be scientific, and are too likely to be treated by the patient and doctor as troublesome preliminaries to the reports from laboratories on which the diagnosis will eventually be made. Dr E. B. Hendry has reported that an unenlightened attitude to biochemical investigations has resulted in countless demands for unnecessary tests which seriously hinder more valuable work in the laboratory. As the number and complexity of modern techniques of investigation increase other specialists will face the difficulties which to-day harass biochemists and radiologists. Although many solutions are proposed for this difficult problem none is alone of value.

**Mechanization**—There are a small number of really valuable tests which are frequently called for, and it is surely not beyond human ingenuity to devise semi-automatic methods so that such tests can be done accurately and rapidly in large numbers by unskilled workers. The estimation of the haemoglobin content of blood, the detection of tubercle bacilli in sputum, and blood urea estimation would be such tests which would require urgent consideration.

**The Valuation of Tests**—Workers in laboratories and x-ray departments have contributed to their own discomfort, and deserve criticism for failing to impress upon their colleagues the limits of accuracy of many of their present techniques. Haematologists know that an ordinary red blood-cell count has wide limits of accuracy, but they have failed to make this widely appreciated if they had their technicians would be asked to do less terminable red cell counting. In radiology it is too frequently assumed that an accuracy of diagnosis is obtained which can only be reached by the most skilful the most painstaking, and the most time consuming radiological technique. Radiology is not aiding clinicians if it continues to allow them to accept such a high valuation of radiological diagnosis that clinical examination and history are either neglected or their evidence ruled out as inapt, inaccurate, and unscientific. It is an increasingly more important duty for all who provide technical assistance to inform their colleagues of the true value of the information they supply.

**Medical Teaching**—Although it is desirable and most stimulating that some teachers should be pursuing active research it is a tragedy that their students fail to realize that many investigations used for research purposes are frequently unnecessary or unsuitable for routine use. Sir Thomas Lewis used to teach that, although the electrocardiogram had been needed to make clear the nature of disorders of cardiac rhythm, these disorders, once they were fully understood, should be recognized by clinical methods alone. Because a number of complex renal function tests are used during research into the nature of renal disease there is no reason to use them to make a diagnosis of chronic nephritis—a diagnosis that can be made perfectly adequately by clinical methods with the aid of only the simplest urine analysis.

A detailed chemical study of fat in the stools, as used during investigations on a group of patients suffering from sprue may not be essential as a diagnostic test or as a preliminary to efficient treatment of this disease. Yet misconceptions of this type lead many conscientious men to impose upon ill patients the tedious burden of investigations the results of which cannot alter treatment or prognosis and are as valueless to science as to the patients. Competent scientific workers do not make haphazard investigations; they know that more is to be gained by thorough investigation of selected cases. For science is not merely the recording of random observations; observations must be combined with generalizations, hypotheses, and other intellectual instruments that can transform information into knowledge before scientific advance can be made.

It is increasingly difficult in these days of specialization for men to see their work with wide perspective. A critical attitude

not encouraged by a hasty and unbalanced education in which scholarship is so lacking that students do not have time to think and never learn to express themselves concisely and clearly in their own language. I maintain that on all sides we see evidence of a sad lack of 'scep sis scientifica,' and until this is corrected clinical medicine will remain in uncritical subservience to analyses, tests, laboratories, and specialists. Rational methods of investigation are being allowed to deteriorate to mystical rituals which are applied empirically. Dr Hendry and Dr Roberts are to be congratulated on drawing our attention to these dangerous tendencies—I am, etc.,

Cardiff

O L WADE

### Age and Retirement

SIR—There must be many, now no longer as young in years as they feel, who read with great, if perhaps wistful, interest the inspiring advice recently given by Sir Ernest Rock Carling to the British Association that age alone should not be a reason for giving up work.

It has always been possible, at least until last July, for doctors in general practice to carry out this maxim, often to the untold benefit of the community. But what of those who feel that the most important part of their work has centred round their hospitals? The imposition of an age limit makes it impossible for them to continue working there, and without hospital beds their practice must inevitably dwindle even more quickly under this new regime than heretofore.

Far be it from me to suggest it should be otherwise. They too have watched their seniors depart, with a regret perhaps not invariably so profoundly felt as they sought to imply and now it is right that when their time comes they also should go and make way for their juniors. Must this, however, inevitably continue to mean that when they reach the age of 60 or 65 they are cut off from all hospital work? They cannot all be 'committee men' and some have little taste for this. We hear of the serious shortage of doctors of all kinds, presumably including hospital specialists. Would it be beyond the dreams of possibility that a general hospital could be founded whose visiting staff consisted entirely of consultants retired from their own hospitals? I believe such a hospital would prove so successful that it would not long remain an isolated experiment. The patients would be in the hands of those who rated the love of their work higher than the luxury of retirement, while as for the consultants one could almost visualize a Utopia free from the misunderstandings or rivalries which could have caused discord in their younger days, and with an atmosphere at last sufficiently unhurried to allow each to share in and profit by the others work.

I do not forget that the gift to see ourselves as others see us' is notoriously withheld from those of advancing years. But I think they could be trusted to intimate to each other, if necessary, when they were getting past their work.

As things are, is it surprising if those who await the inexorable approach of their retirement are sometimes assailed by the temptation to rest now on their laurels, since the time left is so short to explore further fields of knowledge or research? And yet it cannot be just vanity that compels them to believe the evidence of their senses that their results are still as good as ever they were, and that they can yet stand up to a long day's work better than some of their junior colleagues. Is there really no use, Sir, for what they still have to offer?—I am, etc.,

London NW 1

MARGARET M BASDEN

### Out-patient Electric Convulsion Treatment

SIR,—May I express the pleasure which I took in Sir W P Mallinson's article (Oct 2, p 641), a pleasure which was certainly shared by all those who during the long lasting controversy defended the use of ECT (about 1½ years ago). I feel that their point of view has been finally vindicated in the best possible way.

During my years of experience with ECT I have been able, due to careful selection, to raise the ratio of social recovery to about 85%, and using a quite familiar technique as described in the above mentioned article, complications have been practically nil in all my cases. I strongly concur especially in the use of oxygen, as according to my observations the excitements after the fit are mainly due to air hunger. I also administer a half-

pint of glucose solution as soon as the patient awakes. This combined administration of O<sub>2</sub> and CH I believe benefits the patient and cuts down the number of necessary shocks.

Regarding the out patient ECT, I should like to point out that a well frequented out patient department in a city or bigger town meets with no difficulties, but the conditions are quite different in the country. Here very often the only mental hospital is also the only place for the whole county where ECT is given. Apart from a few, the overwhelming majority of the would be out patients are debarred from the benefits of this treatment by lack of transportation. These difficulties, I think, could be overcome by a mobile ECT unit. For this purpose a car, a machine, and a doctor and a nurse would be sufficient. An electric current can be found—I hope—almost everywhere. Two or three attendants could be easily trained and supplied by the local cottage hospital or from the Red Cross and St John personnel.

Touring the country at specified places and days, ECT could be given to patients who otherwise would need hospitalization or to patients who require a maintenance dose and therefore must stay longer at the hospital. If one considers the costs of those two categories of patients alone, the mobile ECT unit would, I think, pay for itself and at the same time relieve the increasing demand for hospital beds—I am, etc.,

Bodmin

ERNEST E FELDMESSER

### Traumatic Amputation

SIR—I have just read Dr J D C Millar's medical memorandum (Sept 18, p 559) in which he states that he cannot

find a record in the literature of instantaneous traumatic amputation of the forequarter. May I quote Cheselden's *The Anatomy of the Human Body* (7th edition, p 321) which was published in 1756? Here Cheselden describes such a case, which is illustrated by a delightful engraving by Vander gucht showing the patient and the amputated arm together with the mill in which the accident happened. The miller, Samuel Wood, had his right arm torn off in 1737 while working in the mill. Cheselden notes that there was very little bleeding because the arteries were stretched. The patient had no severe symptoms and was cured by superficial dressings only—I am, etc.

Newcastle-upon Tyne

J DUDFIELD ROSE



\*\* Readers will no doubt be interested to see the Vander gucht engraving mentioned in Dr Rose's letter, and we have therefore reproduced it here. Dr R G Bartelot, of Trowbridge, has also drawn our attention to Cheselden's account of the accident.—ED BMJ

### Ruptured Uterus

SIR—Mr Keith Vartan (Sept 25, p 602) has done a service by describing his case of intrapartum uterine rupture following classical caesarean section in a previous pregnancy. Unfortunately the real lessons which are to be learnt have not been emphasized. He writes that a classical caesarean was performed—but does not say by whom—on a primigravida of 26 on account of a breech presentation, with extended legs. Unless there was some other condition present this can only be judged as bad obstetrics. It reads as if she could quite well have been delivered vaginally, but if caesarean section was necessary, why not the

lower-segment approach? The classical operation, except in some rare cases where the foetus cannot be extracted through the lower segment because it has not formed, is an abomination, and it is time those who frequently practise it correct their ways. Even without any previous operation the upper segment of the full-time pregnant uterus may have thin areas in it, so it can hardly be surprising that once it has been cut it occasionally ruptures. I have seen two cases of rupture of a classical scar in the last year.

The second lesson is that an afebrile convalescence after a classical caesarean section is no guarantee of the integrity of the scar. This depends just as much on the extent to which the puerperal contractions of the uterus have loosened the sutures and so upset the close approximation of the cut surfaces. The advantages of the lower segment incision are that the wound is at rest during healing, that the scar is covered by peritoneum, that abdominal adhesions are reduced to a minimum, and that subsequent spontaneous rupture of the scar—particularly if the incision has been placed as low as possible—practically never occurs—I am, etc.,

Manchester

C SCOTT RUSSELL

### Treatment of Burns

SIR—The successful treatment of two persistent cases of second-degree burns with a 1% solution of silver dinaphthyl methylmethane disulphonate is reported.

**Case 1**—An epileptic and mentally defective female aged 36 was admitted to hospital on March 10, 1948, with first and second-degree burns of a large area of the back following a fall into the fire during a fit. She was treated until March 20 with tulle gras and local and systemic sulphonamides and penicillin, and then sedatives only, as she refused further local treatment. When seen by me on April 20 she was complaining of great pain and showed a large area of necrosis and sloughing on the right side of the back. She was treated with daily wet dressings of 1% silver dinaphthylmethylmethane disulphonate solution. By April 27 the burn was granulating well. On May 11 a 1% ointment of the same compound was applied twice daily, and by June 29 the burn was completely healed with a freely movable scar.

**Case 2**—In March, 1946, a soldier sustained a second degree burn of the right thigh and leg, due to the explosion of a phosphorus bomb which he was carrying in his trousers pocket. Four attempts at skin grafting during the next two years were only partially successful. When seen by me on March 16, 1948, he showed large unhealed infective areas of the right thigh and multiple pustules above and below the knee. Bacteriological examination showed *Staphylococcus aureus* and *albus*, *Bacillus proteus*, and diphtheroids. The upper part received twice daily dressings of 1% silver dinaphthylmethylmethane disulphonate solution and the lower part 1% of the same compound in "eucerin" ointment. After seven days the upper part was dry and the lower part showed no lesions at all. The ointment was then applied to the whole leg and he was allowed up. Bacteriological examination on March 26 showed no growth after 48 hours. On April 20 he was discharged from hospital with three small granulating areas, having been in bed for over two years.

—I am, etc.,

London W1

MICHAEL J FENTON

### Treatment of Varicose Ulcer

SIR—It would appear to be a common misapprehension that the treatment of varicose ulceration lies in ligation and sclerosis of the concomitant varicose veins. Dr John Borrie (Sept 5, p 618) indicates that lumbar sympathectomy was not resorted to until adequate high ligation, multiple division of tributaries and excision of veins had been performed without any healing of the ulcer, and again, "ulcers of considerable size" whose possessors refused to have their veins treated. (Dr Eric Puddy, Sept 25, p 619).

At the Metropolitan Hospital we have seen, and propose in the future to produce figures in support of the contention that ligation and sclerosis of veins will not alone produce healing of a chronic varicose ulcer. The only certain way of healing a chronic varicose ulcer is to use the elastic-compression bandage technique. Ligation and sclerosis of veins are performed either during treatment or after the ulcer has healed, and the patient is supplied with elastic stockings which she must wear for the rest of her life but these measures are purely incidental to the healing of the ulcer and are carried out to prevent a recurrence in the future.

One other most important point lies in ensuring that the patients receive the permanent personal attention of an enthusiastic member of the medical staff. So often the varicose-ulcer clinic is the *bête noire* of the most junior member of the 'house,' who, remembering the "Unna's clinic" of his student days, rushes in at weekly intervals holding his nose, inscribes the magic 'Rep,' and disappears even more quickly than he materialized. It should be remembered that a well-run varicose-ulcer clinic has no odour—I am, etc.,

London N 10

S M RIVLIN

### Self-administered Pneumothorax Refills

SIR—The remarkable knowledge of their disease possessed by certain patients suffering from pulmonary tuberculosis as a result of prolonged institutional treatment is an accepted fact. Most workers in this field will also have witnessed the courage and resourcefulness of such patients in an emergency. The courage required to devise an apparatus for and to self-administer pneumothorax therapy must, however, be unique and for that reason worth recording in your columns even though the venture was misguided and fraught with danger. I myself was so curious about the procedure that I persuaded my patient to describe it in his own words, the relevant part of which I reproduce here. I should be greatly interested to learn of any comparable experience.

A seaman aged 25 was found following repeated haemoptyses, to have pulmonary tuberculosis, with a positive sputum. He had tuberculous lung infiltration and cavitation involving the upper zone of the left lung and a left artificial pneumothorax was induced which was contra selective owing to adhesions. Following thoracoscopy and pneumonolysis a fairly selective collapse was obtained although there was some fluid at the base. Regular refills were maintained for two years after which the patient moved from one area to another where the facilities for getting refills were unsatisfactory and he discontinued them. Soon afterwards the upper zone of the right lung became affected and he took action as follows.

"I had a few yards of medical rubber tubing on hand, and a knowledge of the Lillingston-Pearson apparatus and how to use it. I did not see why I could not construct one within a few days and so I obtained some glass tubing of 3/10 in diameter from a chemist and bent a length of it over a gas ring and formed a U-tube. I then got two Horlicks bottles cleaned out and marked them off into divisions by using a file. Each division represented 100 ml. In order to get the bottles marked out as accurately as possible I used a 20 ml syringe and repeatedly filled it with water and emptied it into a bottle. You will quickly see that I needed only to fill the syringe five times and empty the water it contained into one of the bottles in order to make up each 100 ml. As soon as I made up each 100 ml of water I marked it off on the outside of the bottle. When I completed one bottle which, incidentally, held 550 ml, I went through the same procedure with an identical bottle. I completed the apparatus by making two corks from a couple of heavy rubber torches and bending some more glass tubing to form two siphons also a further two tubes for air to run through. Afterwards I made two air filters.

"I did not use the apparatus immediately, as I wanted to see if the straining would stop of its own accord, but one morning I woke up with a terrible headache and a general feeling of there being something wrong. A few minutes after that I began to cough up thick bright red blood which not only came from my mouth in great quantity but also poured through my nose. My doctor was called and he prescribed linctus codeine and gave me an injection of ½ gr (32 mg) of morphine. After having a further eight or nine haemoptyses during the following week, I decided to collapse my left lung completely and without my doctor's knowledge.

"Perhaps you will wonder how it was that I did not puncture my lung with the needle, which was not an induction needle but just an ordinary refill one, but the explanation is simple—I knew that I had a fair amount of fluid surrounding the lung in question and that consequently it would be partly collapsed.

"I got my apparatus ready one morning carefully boiled the needle, a piece of rubber tubing and a glass joint, and after thoroughly washing my hands, I cleaned a place on the side of my left chest. I then pushed the needle between two ribs which were not much above where I estimated the fluid level to be, as I was anxious to select a place for the needle where, maybe the greatest degree of collapse should be present. My brother stood by to attend to the clips on the rubber tubes.

"The needle passed through the outer pleural surface quite easily and with very little discomfort. I pushed the needle in until my breathing produced a regular swing on the manometer, and then after my brother had closed the tube which led to it with a clip I tied

to let the air in slowly, which he did. I let 150 ml of air pass into the pleural space, then had the siphon stopped with the other clip, and before I removed the needle I took a final pressure reading. I took no intermediate readings. The initial pressure was -16-1 and the final pressure -10-1. I repeated the refill next day, when the initial pressure was -10-1 and the final pressure -4-1.

"After the first refills I gave myself air once a week for three months and then once a fortnight for three months. By the time I was admitted to hospital, in June, 1947, I was giving myself three weekly refills of 250 ml of air. My fluid had dispersed by that time, but for several weeks I had been getting some queer pressure readings after the induction of air—some were very high positive pressures—and I came to the conclusion that perhaps I had a spontaneous pneumothorax, but of course I could not prove it to myself."

He came under my care early this year—3½ years after the induction of his left sided pneumothorax. He was afebrile, with a pulse rate of 100, and very breathless on exertion; he had a chronic cough with an ounce of mucopurulent sputum which on repeated examination by routine and concentrated methods was negative for tubercle bacilli.

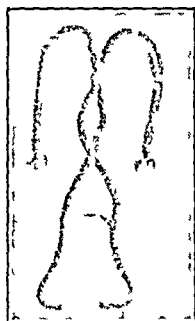
Clinical and x ray examination of his chest showed a healed fibroid lesion of his right lung, complete collapse of his left lung complicated by a broncho pleural fistula, and his lung has remained so well collapsed that he has required no further refills. His left intrapleural pressures have remained constant at about -10. The complication of his broncho pleural fistula cannot be dissociated from his self-administered pneumothorax refills—I am, etc.,

London W 1

PHILIP ELLMAN

### Double Stethoscope

SIR—Some time ago an account of a double stethoscope appeared in the *British Medical Journal* (1935, 1, 1033). It



may interest you to know that about thirty-five years ago I had a stethoscope of that type made for me by Messrs Graham and Curry, Great Victoria Street, Belfast. I enclose a photograph of the original taken by Mr Birtill, the radiographer to the tuberculosis department. The late Dr Trimble was very much interested and had a beautiful model made which Dr Summers obtained on the death of Dr Trimble. Some of the old physicians of that period with their single stethoscope changed quickly from side to side to listen to the breathing in the same phase. The double end was made not to

listen to two places at once except perhaps in the case of a cardiac murmur. However, in chest work, except for a dry pleurisy the radiograph has entirely replaced auscultation in the diagnosis of early tuberculosis—I am, etc.,

Belfast.

JAMES SHAW

### Foreign Body in the Ear

SIR—The following case is reported on account of its rarity.

A young woman attended surgery complaining of severe pain in the left ear. She stated that she was passing close to a hedge when she suddenly felt something brush against her cheek and immediately afterwards experienced acute pain in the ear. I saw her less than half an hour later.

She was slightly shocked, as evidenced by pallor and pulse rate of 120. Examination of the drum was exceedingly difficult owing to exquisite tenderness but the drum was inspected and appeared to be normal. The only abnormality observed was what appeared to be a hair in the external auditory meatus. This was removed with no difficulty, and she experienced immediate relief of all pain.

Careful examination of the drum was possible, and a small bleeding point on the lower anterior quadrant showed where the foreign body had perforated it.

The foreign body was a small grass seed consisting of three seeds fused together at one end, ending as a sharp point.

Foreign bodies perforating the membrana tympani are uncommon and a grass seed accidentally brushed against it must be exceedingly rare. The wound healed uneventfully.

In the writer's opinion the points of interest were the apparently normal appearance of the drum and the ease with which the grass seed could have been overlooked as the cause of the pain—I am, etc.

Westcliff-on-Sea, Essex

A RYDER LEWIS

### The Walking-calliper

SIR—Among the annotations in your issue of Sept 18 was one on improvements in artificial limbs (p 565). It is obvious that a considerable amount of time and thought is given to the subject both by research workers and patients. It is this co-operation between patient and research worker which must be the most important factor in the improvements made in the appliances to be worn.

I want in this letter to raise the question of another type of patient, wearing an appliance of a different kind. I refer to the patient with the 'walking calliper' or 'walking instrument'. As far as I know there is no organization concerned with research in this particular instrument. Perhaps this is because the wearers are fewer, and some are temporary only. Since the recent epidemic of acute anterior poliomyelitis in this country there must be many more permanent wearers.

I think that everyone will agree that, compared with an artificial leg the walking calliper presents itself as a cumbersome contraption to which the term 'Heath Robinson' could also be applied. I feel sure that a research organization in collaboration with patients, as in the case of artificial limbs, could produce a greatly improved instrument and one which would not lay itself open to the remark from a child not more than usually observant, "What are those things on your shoes?"—I am, etc.,

Norwich

H L ROGERSON

### Shortage of Nurses

SIR,—In a different context the *Statist* said 'If a man smitten by infantile paralysis were told by his doctor that one of his limbs showed some slight sign of restored activity, he might well feel relief, but he would hardly stand up and cheer. If a householder were told by a fireman that the house was still blazing merrily but that an outburst of flame in the back attic had been subdued, he might well be grateful, but he would hardly astonish the onlooking neighbours by flinging his hat in the air and publicly congratulating himself on his energy and perspicacity. If the crew of a wrecked ship adrift in an open boat were told that those bailing out the flooding waters had managed to scoop back into the ocean a few pints more than in the previous hour, they might well be grateful to Providence, but they would hardly set up a paean of praise to the bailers.'

Mr L H Hornsby's defence (Sept 25, p 622), therefore will scarcely make us hysterically overjoyed, especially when we find that one district of a town has but one district nurse for 15,000, and that a large general hospital through shortage of nurses has closed at least one ward, which is now occupied by the finance officer and his staff. The truth is that despite the overall increases in numbers the gaps in the ranks are not closing. Local authorities among others have appetites which increase with eating—I am, etc.,

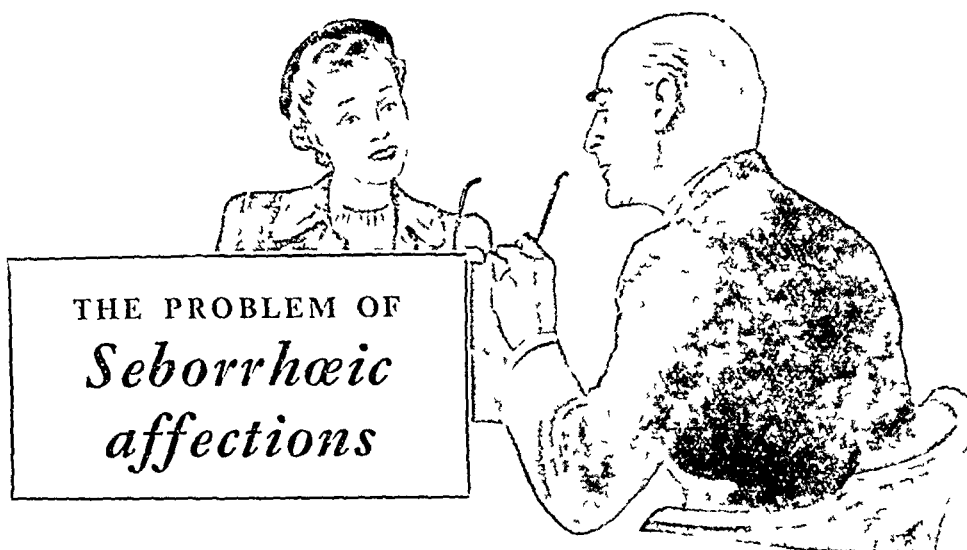
Heanor, Derbyshire

PHILIP TURTON

### POINTS FROM LETTERS

#### Spraying Fruit

Mr MAX C L BEALE (Sissinghurst, Kent) writes: Being a fruit grower I was interested to read Dr James Forrest's letter (Sept 18, p 577). Whether he should attribute his discomfort to spray chemicals is a moot point. The following programme might have been carried out, but it should be remembered that spraying is an expensive business and is seldom done unless really necessary. Strawberries: Lime sulphur (3% solution) in March to control tarsonemus and sulphur dust (about 40 lb per acre) in May and July to control mildew, nicotine vapour (if required) to control aphids, if root-eating grubs present a poison bait of bran and Paris green (copper arsenite) might be put down. A grower might use a growth promoting spray such as alpha-naphthalene acetic acid during blossom period to encourage a set of fruit. Red currants: A tar oil (5%) or petrole D N C (6%) spray during dormant period. Lime sulphur (2% solution) about April to control big bud mite. If aphid serious a derris or nicotine spray might be applied. Raspberries: Derris or DDT applied ten days after first flower opens to control raspberry beetle. If applied in dust form the DDT would be a 5% dust put on at the rate of 40 lb (approx) per acre. Concentration of summer spray: DDT, if applied as a wet spray, 4 lb (35% DDT) to 100 gal of water, nicotine, 8 oz (95-98%) to 100 gallons of water and of oil.



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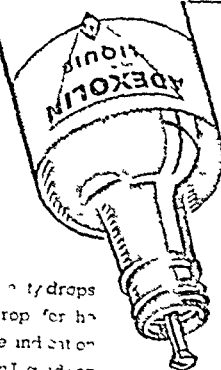
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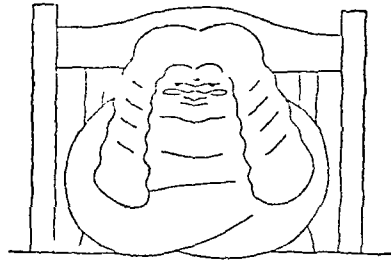
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### "What is Benger's Food?"

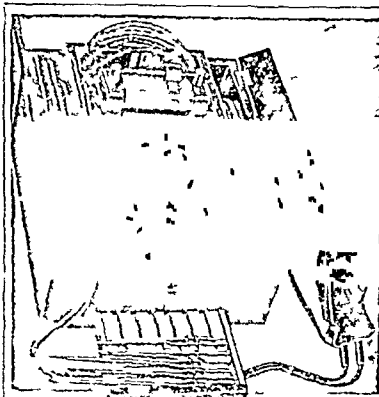
"You have heard the medical evidence and you may have formed the conclusion that in spite of his undoubtedly high qualifications, Dr Telmy-More was not entirely clear in his own mind as to the nature and functions of Benger's Food

'The fact that his father prescribed it and his grandfather before that, whilst indicating continuity in the treatment of gastro-intestinal disorders, is not in itself conclusive evidence that the witness was fully aware of their reasons for so doing

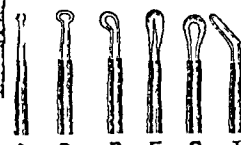
And, whereas at one point in his testimony he admitted the unique enzymic action of Benger's Food in modifying milk, at another he appeared to confuse Benger's Food with ordinary bed-time drinks in which this principle is absent

'Nevertheless Dr Telmy-More's frank admission that a busy practitioner is not always able to keep au fait with a wide variety of proprietary products impressed me, as did his declared intention of questioning the medical representative of the makers of Benger's Food at the first opportunity "

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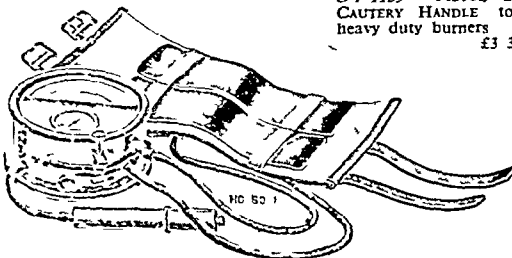
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ready spray about 250 to 300 gallons would be used over an acre. There is a possible explanation. Was the fruit grown by an amateur? If so, he may have doubled the recommended concentrations (an easy thing to do if making up small quantities) in order to ensure a "kill". It would seem he nearly succeeded.

#### Whooping-cough and Measles

Dr S N DHANANJAY (Harihara, India) writes. With reference to Dr B L Hodge's letter about whooping cough and measles (Aug 7, p 312), I wish to bring to your notice a similar case treated by me. A boy of 8 years was brought to me on Sept 6 with a history of cough since fifteen days and slight temperature since that morning. He was found to be suffering from whooping-cough, and as he had slight temperature I postponed administration of anti-pertussis vaccine. Next day the boy developed fever and coryza, and on Sept 9 typical rashes of measles developed. The boy was kept on plain diaphoretic mixture and one tablet sulphathiazole t.d.s. till the signs disappeared on Sept 13. To my surprise he had recovered from the distressing cough and the lungs were also clear. I was also wondering why an attack of measles should cure whooping cough.

#### Third Attack of Mumps

Dr W H SCOTT EASTON (Frinton on Sea, Essex) writes. Dr W W Newton reports (Sept 18, p 577) the case of a young woman with a fourth attack of mumps. I have just visited a boy of 11 who is suffering from his third attack of true mumps since April, 1948. He has now infected his brother.

#### Hippocratic Oath

Dr F J FISH (Whitburn, Co. Durham) writes. I was surprised to read in the leading article on "World Medical Association" (Sept 25, p 605) that the Hippocratic Oath is rarely found in histories of medicine. An English translation of the Hippocratic Oath is to be found in the following histories of medicine: Castiglione, A., *History of Medicine* (New York, 1941, trans. E B Krumbhaar); Guthrie, D., *History of Medicine* (London, 1945); Stubbs, S G B., and Bligh, E W., *Sixty Centuries of Health and Physick* (London, 1931). While none of these books can rival Garrison, F H., *History of Medicine* (Philadelphia, 1929), they are standard works and can be purchased or borrowed more easily than Garrison's book.

#### Caesarean Section in Breech Delivery

Dr K D SALZMANN (Reading) writes. I was interested to read of Mr Keith Vartan's case of spontaneous rupture of the uterus following previous caesarean section (Sept 25, p 602). If that operation was performed only for the reason given—extended breech presentation—his comment on the case is sadly lacking. Here was a primipara of 26 who underwent a caesarean section. As a consequence this young lady lost her uterus, lost her second child, lost all chance of having any more children, and nearly lost her life. If that is not the most damning indictment of those who resort to surgery instead of practising obstetrics I would like to know what is.

#### Liquor Picis Carbonis (B.P.)

Dr J KELVIN (Glasgow) writes. Dr I Berenblum (Sept 25, p 601) finds that 7 out of 12 mice painted with the medicament developed papillomata at intervals varying from ten to forty weeks. He states that "this raises the important question whether its clinical use is not without danger to the patient." Perhaps a pinch of salt put on the tails of the mice might produce similar irritant changes. Dr Berenblum does not say how long it would take the mice to develop lesions after the application of 1% or 2% preparations (in excellent ointment bases) as used harmlessly in protracted medical practice. The answer is probably never.

#### Empirical Methods

Dr R P BEATTY (Swindon) writes. Dr A R McClure's letter (Oct 2, p 662) is a reminder of the tendency to overlook the experiences of the past and to ignore possible remedies until their mode of action is explained. Fifty years ago I was told, with disgust and scorn, of an old "wise woman" in Co. Neath who made a salve from a black mould in which the peasants had great faith. Probably this was one of the penicillium groups. No doubt there are other traditional drugs or herbs whose action would repay investigation.

#### Post anaesthetic Vomiting

Dr F R RUSSELL (London, NW2) writes. During the past two years I have studied the causes of post operative vomiting due to anaesthesia and I found that on questioning those patients in whom vomiting did occur the story given was nearly always the same—namely, that on recovering consciousness they complained of thirst, and that vomiting occurred immediately after quenching this thirst with water, orange juice, or tea. I am therefore convinced that prophylactically, the patient must be warned before anaesthesia is induced that only minute sips of water should be taken on recovering consciousness if they complain of thirst.

## Obituary

Dr HAROLD EDWARD GIBSON who died suddenly on Sept 16 at the age of 67, had been in practice for many years at South Godstone, Surrey. His father was in the I.C.S., and he was born in Madras. Dr Gibson studied medicine at Queen's College, Oxford, and King's College Hospital, and graduated in 1908, proceeding M.D. in 1918. He served in the R.A.M.C. during the 1914-18 war. Dr Gibson held many appointments in the Godstone district. He was medical officer in charge of the electrotherapy department at Edenbridge Hospital, medical officer to St Barnabas Homes for Aged Clergy, medical officer for South Godstone District, and he also looked after the Boys' Farm School at Blindley Heath. He retired from active practice a year ago and had just settled at Seaton, in Devonshire, a few weeks before his death. Dr Gibson was an active member of the Regate Division of the British Medical Association, and was president of the Division from 1942 to 1944. He is survived by his widow and son, to whom the sympathy of his colleagues will be extended.

Dr WILLIAM OWEN-PRICHARD who died on Sept 21, was born in Anglesey on Oct 21, 1875. After leaving Edinburgh where he qualified, he served in the South African War and then entered the Colonial Medical Service. He held appointments in Somaliland, Uganda, and Kenya, at first attached to the King's African Rifles and then as a civil medical officer. He filled the posts of senior medical officer and acting principal medical officer and was in charge of the European Hospital at Mombasa at one time. During the 1914-18 war he served in German East Africa, and then returned to Dar-es-Salaam as S.M.O. of the European Hospital. He retired from the Colonial Medical Service in 1923, and subsequently served with the R.A.M.C. in Aldershot and Bordon as a temporary medical officer. In 1943 he became medical superintendent of the Old Windsor Hospital. He leaves a widow and one son and daughter.

Mr JAMES ELLIOT SQUARE died on Sept 23 as he approached his ninetieth birthday. He was the oldest and perhaps the most highly esteemed member of the medical profession in Plymouth. Born on Oct 1, 1858, he studied medicine at St Bartholomew's Hospital where he became house-surgeon and at the London Ophthalmic Hospital, where he was clinical assistant. Qualifying in 1881, he took the F.R.C.S. in 1883. Throughout his long professional life he practised in Plymouth his native city and for thirty-seven years he was honorary surgeon to the Royal Eye Infirmary. He took a special interest and pride in the Plymouth Medical Society, the seventh oldest in the United Kingdom, and recently he produced a short history of the Society's transactions dating from its origin in 1794. He was honorary treasurer for sixty years—a record tenure of office for the Plymouth Society and believed to be a record for any similar society in this country. Last year his colleagues gave a luncheon in his honour and presented him with his portrait in oils in recognition of his long and devoted services to the Society. Considering his age, Mr Square remained physically and mentally alert, and his final illness was only a matter of hours. Elliot Square was a grand gentleman, ever courteous and kind. Tribute was paid to his memory and good deeds at a service in St Matthias Church where he had been a lifelong worshipper. His wife died many years ago. He leaves a son and three daughters, to whom his colleagues offer sincere sympathy in their loss of a revered parent.—G.D.

Dr CHARLES EDWARD LACEY died on Oct 3 at the National Hospital, Queen Square, after a brief illness. Dr Lacey, who was only 29, graduated M.B. Ch.B. at Leeds in 1942. He served in the R.A.M.C. until September, 1945, when he had to relinquish his commission owing to ill-health. At the time of his death he was registrar to the department of psychological medicine at the National Hospital, Queen Square, and had already won the high regard of all his colleagues.

E.S. writes. Lacey's premature and tragic death robs psychological medicine of a young man who might have gone very far. He was gifted beyond the common, highly intelligent and alert to new ideas. He was interested in every aspect of psychiatry, but particularly in those most closely related to general medicine and neurology. He had a natural clinical gift and applied it in careful and detailed study of his patients. He was an enthusiastic reader and had a grasp and comprehension of surprising maturity. All the requirements were there for a career of brilliance had not fate intervened. His warm uncomplicated, and modest personality made him many friends at the National Hospital who will regret him personally as much as the cutting short of a life of such promise.

## Universities and Colleges

### UNIVERSITY OF LONDON

Robert Cruickshank M.D. F.R.C.P., D.P.H., has accepted an invitation to take the Chair of Bacteriology tenable at St Mary's Hospital Medical School from Jan 1, 1949.

A series of lunch hour lectures on a variety of subjects has begun in the Anatomy Theatre of University College (entrance from Gower Street, W.C.) and will be continued on Tuesdays and Thursdays, from 1.15 to 2 p.m. until Dec 7. The series includes lectures by Dr D. B. Fry Ph.D. on 'Visible Speech', on Oct 26, by Professor J. Z. Young, F.R.S., on 'Process of Learning in Octopus', on Nov 2, by Dr S. J. F. Philpott, D.Sc., on 'Psychology as a Science' on Nov 16 and 18, and by Dr J. T. Aitken on 'Posture', on Nov 25. Admission to the lectures is free, without ticket. Full particulars may be obtained from the secretary of University College, Gower Street, London W.C.1.

The first of a course of four public lectures entitled "The Electron Microscope and its Biological Applications" was given on Oct 11 by Dr E. M. Crook, M.Sc., Ph.D., in the Department of Biochemistry, University College, Gower Street, W.C. The remaining three lectures will be delivered by Dr Crook on Mondays, Oct 18 and 25 and Nov 8 at 4.45 p.m. at the same place. Admission is free, without ticket.

A special University lecture in human anatomy and morphology will be delivered in French by Professor G. Levi, of the Istituto di Anatomia Umana, University of Turin, at University College (Anatomy Theatre) Gower Street W.C., on Friday Nov 5, at 5 p.m. Professor Levi will speak on 'Relations of Interdependency between Various Parts of the Nervous System in the Embryo and in the Adult'. The lecture is addressed to students of the University and to others interested in the subject. Admission is free, without ticket.

## The Services

Surgeon Captain W. J. Colborne, R.N., has been appointed an Honorary Surgeon to the King in succession to Surgeon Rear Admiral J. A. O. Flynn, C.B., R.N., retired.

### DEATHS IN THE SERVICES

#### MAJOR GENERAL R. S. HANNAY, C.B., CMG, DSO

Major General R. S. Hannay, who was Colonel Commandant of the R.A.M.C. from 1939 to 1941, died on Oct 5 at his home in London at the age of 77.

Robert Strickland Hannay Fuhr began his medical studies at Queen's College, Belfast, where he took the triple Scottish qualification in 1893. He joined the Army Medical School at Netley in 1898. During the South African War he was at first with a battalion and was present at a number of the major actions, but when General Roberts reached Pretoria he was transferred to the staff. He received the Queen's Medal with six clasps. When the B.E.F. embarked for France in 1914 Fuhr was detailed for duty with a medical unit but was again transferred to the staff, finally serving as medical director of the 1st Division, which after the war formed part of the Army of the Rhine with headquarters at Bonn. Fuhr was mentioned in dispatches five times and made a C.M.G., and he was also promoted brevet colonel. At this time he changed his name by deed poll to Robert Strickland Hannay. His next appointment was as D.D.M.S. in Turkey, and on his return home he was created C.B. and promoted to the rank of major general in 1926. Hannay then took over as D.D.M.S. Southern Command and in the same year was appointed honorary surgeon to the King. Major-General Hannay retired in 1930. In the following year he became a Member of Council of the British Medical Association and served for three years on the Council and on the Naval and Military Committee.

Under a short term bursary scheme run by the British Council about 120 industrial and professional workers from overseas are visiting Britain this year for three to six months. These include a French radiotherapist, Dr Bertoluzzi, who is spending six months at the London Hospital; a midwife from Iceland, Miss M. Gudmundsdottir, who is dividing her four months' bursary between Edinburgh Infirmary, Perivale Maternity Hospital, Queen Charlotte's Hospital and the City of London Maternity Hospital; a Lebanese, Mr A. M. Talhouk, who is studying pest control with Pest Control Limited, Cambridge; and Miss J. E. Munz, an Australian who is studying nursing administration at the Royal College of Nursing for three months.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept 25.

Figures of Principal Notifiable Diseases for the week, and those for the corresponding week last year for (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	26	2	12	2	1	30	1	18	1	—
Deaths	—	—	1	—	—	—	1	—	—	—
Diphtheria	125	12	38	6	1	184	22	37	19	6
Deaths	1	—	—	—	—	3	—	—	—	—
Dysentery	68	22	49	1	—	87	7	18	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica	1	—	—	—	—	2	—	—	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	30	11	—	—	—	39	7	1
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	22	1	14	29	—	87	5	26	83	4
Deaths	—	—	—	3	—	—	—	—	9	—
Measles* Deaths†	2 703	91	60	11	37	1 139	39	56	117	—
Deaths	—	—	—	—	—	1	—	1	—	—
Ophthalmia neonatorum	36	2	11	—	2	44	2	16	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	15	1	—	1 (B)	—	10	2 (B)	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia influenzal	277	12	1	1	3	257	16	1	1	3
Deaths (from influenza)‡	7	—	—	1	—	2	—	2	—	—
Pneumonia primary	120	17	117	10	6	19	135	6	7	6
Deaths	—	—	—	2	—	—	—	—	—	—
Polio-encephalitis acute	3	—	—	—	—	32	5	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Poliomyelitis acute	70	2	3	—	—	441	30	110	4	1
Deaths§	4	—	—	—	—	1	—	—	—	—
Puerperal fever	—	—	16	—	—	—	1	10	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia	87	8	2	—	—	104	9	3	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1 068	70	216	130	38	880	83	181	33	37
Deaths†	—	—	—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	29	—	1	3	—	22	—	2	1	1
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	2 259	170	64	48	8	1 105	117	39	44	3
Deaths	8	1	—	2	—	6	—	—	4	1
Deaths (0-1 year)	250	30	53	13	12	369	31	67	32	15
Infant mortality rate (per 1,000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still births)	4 008	651	556	149	106	3 665	569	482	179	102
Annual death rate (per 1,000 persons living)	—	—	11.2	9.3	—	—	10.0	11.3	—	—
Live births	7 458	1166	885	463	223	8 659	1349	1076	361	247
Annual rate per 1,000 persons living	—	—	17.9	29.0	—	—	21.7	22.8	—	—
Stillbirths	169	17	23	—	—	222	30	26	—	—
Rate per 1,000 total births (including stillborn)	—	—	25	—	—	—	24	—	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales (London (administrative county)) will no longer be published.

‡ Includes primary form for England and Wales (London (administrative county)) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London (administrative county)) are combined.

|| Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Discussion of Table

In *England and Wales* an increase was recorded in the notifications of scarlet fever 143, measles 89, dysentery 18, and there was a decrease in the incidence of whooping-cough 376.

A small rise in the notifications of scarlet fever was reported throughout the country and no large changes in the local trends were recorded. No changes of any size were noted in the returns of diphtheria. The largest rises in the notifications of measles were Yorkshire West Riding 89, Essex 46, and Gloucestershire 45, the greatest falls were Cumberland 88 and Durham 55. The largest decreases in the incidence of whooping-cough were Lancashire 75, Yorkshire West Riding 62, Cheshire 40, and there was a small decrease in the number of notifications in the remainder of the country except in the West Midland counties, where a slight rise was reported.

A further 20 cases of typhoid fever were notified from the outbreak in Shropshire, Oswestry R D. The rise in the notifications of dysentery was contributed by London, where the notifications rose from 5 to 22, most of this increase was due to an outbreak in Chelsea which affected 10 persons.

Notifications of acute poliomyelitis have been remarkably constant during the past six weeks and have only varied between 70 and 72. During the week the largest returns of acute poliomyelitis were Staffordshire 7 (Wolverhampton CB 3), Warwickshire 7 (Birmingham CB 6), Yorkshire West Riding 7 (Sheffield CB 3), Glamorganshire 7 (Cardiff CB 3), and Essex 5.

In *Scotland* increases in the notifications of measles 15 and dysentery 10, with a decrease for acute primary pneumonia 19 were the only changes of any size in the trends of infectious diseases. The rise in the incidence of dysentery was due to an increase in Glasgow from 29 to 38.

In *Eire* an increase of 39 was reported in the notifications of scarlet fever and a decrease of 29 in the cases of diarrhoea and enteritis. The change in the trends of both these diseases was due to the experience of Dublin CB.

In *Northern Ireland* a decrease of 11 in the notifications of scarlet fever was the chief feature of the returns.

## Quarterly Return for Eire

The birth rate for the June quarter was 23.8 per 1,000 and was 1.4 below the June rate of 1947. The infant mortality was 46 and was the lowest rate ever recorded for any quarter. Infant mortality during the five preceding second quarters had varied between 58 and 77. Maternal mortality was 1.4 per 1,000 registered births, and was 0.1 above the rate for the second quarter of 1947. The general death rate was 12.5 per 1,000 and was 2.5 below the rate for the second quarter of the preceding year. Deaths from pulmonary tuberculosis numbered 702 and from other forms of tuberculosis 150, these totals were 110 and 100 respectively below the number of deaths in the June quarter of 1947. The principal epidemic diseases were responsible for 185 deaths, 125 fewer than in the second quarter of the preceding year. The chief causes of death under this heading were 85 from diarrhoea and enteritis, 63 from whooping cough, and 25 from measles.

## Week Ending October 2

The notifications of infectious diseases in *England and Wales* during the week included scarlet fever 1,234, whooping-cough 2,204, diphtheria 114, measles 3,546, acute pneumonia 402, cerebrospinal fever 28, acute poliomyelitis 83, dysentery 58, paratyphoid 6, and typhoid 40.

## NEW AMBULANCES FOR LONDON

A new type of motor ambulance designed for the service of the London County Council was shown at the Motor Exhibition at Earl's Court on Oct 7. The chassis is specially adapted for transporting recumbent patients in the most efficient manner. It is low loading, the floor being only 21 in from the ground with three steps each 7 in in height. By means of anti-roll bars and the careful balancing of the periodicity of the front and back springs any unpleasant jolting is avoided. The interior of the vehicle which measures 10 ft by 6 ft has rounded corners, a device for admitting warm air in winter and cool air in summer, and provision for an emergency exit should the door become unusable. The LCC has ordered 20 of these vehicles. The present service of the Council comprises more than 300 ambulances, with an operative staff of over 500 working from 23 ambulance stations, shortly to be increased to 26.

## Medical News

## New Members of Medical Research Council

By an Order of the Committee of Privy Council for Medical Research Viscount Addison and Sir George E. Schuster have been appointed members of the Medical Research Council with the approval of the Committee of Privy Council. The Medical Research Council has appointed Viscount Addison to be chairman in succession to Lord Balfour of Burleigh, and Sir George Schuster to be treasurer in succession to Sir William M. Goodenough, Bt. By the same Order made after consultation with the Medical Research Council and with the President of the Royal Society the following have also been appointed members of the Council: Sir Frederic C. Bartlett, F.R.S., Professor of Experimental Psychology in the University of Cambridge; Sir Howard W. Florey, F.R.S., Professor of Pathology in the University of Oxford, and Professor Geoffrey Jefferson, F.R.S., Professor of Neurosurgery in the University of Manchester.

## Responsibilities in Health Service

Mr Bevan emphasized that the highest ethical standards must be demanded from the public and the medical professions if the Health Service is to be a success, when he addressed the first annual meeting of the Executive Councils Association on Oct 7. Because things were free there was no reason why people should abuse their opportunities, he said. That was a very great test of the maturity of the British people. If any individual abused the opportunities he must reckon with a sum total which might add up to one too grievous to carry and for which it would be very difficult to continue to provide. The general practitioner had a very great responsibility. Over-prescribing could be as bad as under-prescribing. He was gratified that 18,165 general practitioners had joined the Service and that 92% of the population of about 42,500,000 were now on doctors' lists. The total was increasing daily, and he expected that by the end of the year practically all would be participating in the scheme. Over 80% of dentists were in, by Sept 17, 1,000,000 people had sought dental treatment under the scheme. Prescriptions were dispensed at the rate of about twice that under the N.H.I. scheme. If the rate were maintained it would mean that 140-150 million prescriptions would be dispensed annually under the scheme. Mr Henry Lesser was elected president, and Dr N. E. Waterfield vice president.

Sir William Marshall, president of the Scottish Association of Executive Councils, speaking on Oct 8 thought that the idea had crept into the minds of a proportion of the population that while they were contributing a substantial sum weekly they should get some return in the way of dentures, glasses, or prescriptions. He doubted whether all the spectacles demanded were really required. Mr W. T. Shanks, chairman of the Birmingham Council, moved a resolution protesting against the ruling that doctors practising at health centres would not be permitted to treat private patients there. Dr A. Beruchamp seconded it. Dr N. Graham, of West Hartlepool, said that it was not within the power of the Minister to depart from the N.H.S. Act. The motion was defeated by 105 votes to 76.

## Colonial Medical Research Studentships

A limited number of research studentships will be awarded on the advice of the Colonial Medical Research Committee to graduates in medicine and cognate sciences who wish to prepare for research work in tropical medicine and related subjects. The studentships are tenable at any university or other institution approved by the committee, a maintenance allowance being paid. A studentship will normally be awarded for two years subject to a satisfactory report after one year. Candidates should be British subjects and graduates of British universities, and those completing their courses will be offered posts in the projected Colonial Research Service. Applications should be made through the head of the candidate's department to the Secretary, Colonial Medical Research Committee, c/o Research Department, Colonial Office, Sanctuary Buildings, Gt. Smith Street, London S.W.1, and should include details of the candidate's academic record and an indication of the subject preferred.

## WHO Conference

A conference of Government representatives from war-devastated countries in Europe will be held under the auspices of the World Health Organization in Geneva on Nov 15 and 16. The representatives will discuss the establishment of a temporary administrative office to assist the rehabilitation of their countries and the kind of services that their countries need.

## Drinks Not Drugs

The National Pharmaceutical Union has sent out a memorandum reminding its members that the Ministry of Health does not regard whisky, brandy, and other spirits, wines, beer, and stout as drugs which can be supplied under the National Health Service.

**Collection of Type Cultures**

The Medical Research Council published on Oct 15 a *List of Species Maintained in the National Collection of Type Cultures*. This list is not intended to be a substitute for the *Catalogue of the National Collection of Type Cultures*, which was last revised in 1936 and is now out of print but the new edition of the *Catalogue* will take several years to prepare and meanwhile bacteriologists may wish to know what species are available at the National Collection and how many strains of each species are maintained. The information given in the list is correct to the beginning of June, 1948. This new Memorandum (No 21) can be obtained from H M Stationery Office price 9d.

**Norman Gamble Fund of RSM**

The Norman Gamble Fund provides grants in aid of research work in otology. The committee of award will consider applications in December. These should be received not later than Nov 25 by the secretary, the Royal Society of Medicine, 1, Wimpole Street, London, W1. The grants may be awarded to any British subject, lay or medical recommended by the committee of award, or to a research institute selected by the committee.

**COMING EVENTS****Hunterian Society**

The 1948-9 programme of the Hunterian Society has been arranged as follows: Monday Oct 18, 7 for 7.30 p.m., at Talbot Restaurant, 64 London Wall, E.C., dinner, special general meeting, and presidential address by Dr G. R. Mather Cordner on "The Role of Radiology in Relation to the Peptic Ulcer Problem", Monday Nov 15, 8.30 p.m., at Society of Apothecaries of London, Black Friars Lane, Queen Victoria Street, E.C., discussion "That the Practice of Instructing the Layman in the Nature and Treatment of Disease is being Carried to Excess" to be proposed by Dr W. J. O'Donovan and Miss Arnot Robertson and opposed by Dr Charles Hill and Miss Bronwen Lloyd Williams, Monday, Dec 20, 7 for 7.30 p.m., at Talbot Restaurant, dinner and discussion on "Toxic Jaundice," to be opened by Professor John McMichael and Dr Alice M. Stewart, Monday, Jan 17, 8.30 p.m., at the Mansion House, London, E.C., Hunterian Lecture by Dr John M. Finney, jun (Baltimore), on "The Founding and Influence of a School of Surgery", Thursday, Feb 10 at Grosvenor House, Park Lane, London, W., annual dinner, Monday Feb 28 8.30 p.m., at the Mansion House Hunterian Oration by Sir Heneage Ogilvie on "Personal Experiences", Monday March 21, 7 for 7.30 p.m., at Talbot Restaurant, dinner and discussion on "The Treatment of Coronary Thrombosis" to be opened by Dr William Evans, Dr Geoffrey Bourne, and Mr George A. Mason, Monday, April 25, 7 for 7.30 p.m., at Talbot Restaurant dinner and address by Mr Cortlandt MacMahon on "Speech Defects and Voice Affections".

**West London Medico Chirurgical Society**

The West London Medico Chirurgical Society will hold a dinner at the South Kensington Hotel, 41, Queens Gate Terrace, London, S.W.7, on Friday, Oct 22, at 7.15 for 7.30 p.m. The presidential address will be delivered by Dr W. S. C. Copeman at 8.30 p.m. on "West London Worthies—A Retrospect".

**Long Fox Memorial Lecture**

The thirty-seventh Long Fox Memorial Lecture will be delivered by Professor R. Milnes Walker in the Large Physics Lecture Theatre (Royal Fort) University of Bristol, on Tuesday, Oct 19, at 8.15 p.m. His subject is "Some Aspects of Hospital Economy". Admission to the lecture is free.

**Donald Gillies Lecture**

The Donald Gillies Lecture arranged by the National Marriage Guidance Council will be delivered by Miss Phyllis Bottomo, the novelist and biographer of Alfred Adler, on "Love and Marriage," at the Royal Society, Burlington House, London, W.1 on Oct 20 at 6 p.m. The chair will be taken by Sir Eardley Holland.

**Honynman Gillespie Lectures**

A series of Honynman Gillespie Lectures has been arranged in association with the Edinburgh postgraduate courses to be given in the West Medical Theatre of Edinburgh Royal Infirmary on Thursdays at 5 p.m. from Oct 21 to Nov 25 both dates inclusive. The lectures are open to all graduates and senior students. Details will be published weekly in the diary column of the *Journal*.

**Parentcraft in the Home**

A conference on "Parentcraft in the Home" has been arranged by the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality, to be held at Queen Mary Hall, W.C.A. Buildings, Great Russell Street, London, W.C.1 on Friday, Oct 22 at 10.30 a.m. under the chairmanship of Dr Leslie Housden. Admission is free by programme obtainable from the secretary of the association at 5 Tavistock Place, London, W.C.1.

**Lecture-demonstrations on Neurology and Psychiatry**

A series of lecture-demonstrations on neurology and psychiatry began at St George's Hospital Medical School, Hyde Park Corner, London, S.W., on Oct 7 and will continue on Thursdays, at 4.30 p.m., until Dec 16. The lecture demonstrations are open, without fee, to all medical practitioners and senior medical students.

**Course on Chronic Rheumatic Diseases**

A concentrated week-end course on the chronic rheumatic diseases will be held on Oct 23 and 24 at the Rheumatism Unit, St Stephen's Hospital, 369, Fulham Road, London, S.W. The course will consist of lectures, ward rounds, and practical demonstrations, including orthopaedic and manipulative methods of treatment. Sir Adolphe Abrahams will give the inaugural address. Applications to attend the course should be addressed to the Fellowship of Postgraduate Medicine, 1, Wimpole Street, London, W.1.

**British Orthopaedic Association**

The annual meeting of the British Orthopaedic Association will be held in Belfast on Oct 21, 22, and 23, under the presidency of Mr S. A. S. Malkin, F.R.C.S.Ed.

**Monmouthshire Medical Golfing Society**

The autumn meeting of the Monmouthshire Medical Golfing Society will be held at Pontypool Golf Club on Sunday, Oct 17. At 10 a.m. a tankard competition will be played, medal play under handicap (18 holes), and at 2 p.m. there will be a four ball competition.

**Nurses Conference**

The thirty-third Annual Professional Nurses and Midwives Conference will be held on Oct 18-22 at Seymour Hall, Seymour Place, London, W.1, under the auspices of the *Nursing Mirror*. The conference and exhibition are open only to nurses, midwives, and medical practitioners and auxiliaries.

**SOCIETIES AND LECTURES****Monday**

- HUNTERIAN SOCIETY—At Talbot Restaurant 64, London Wall, E.C., Oct 18, 7 for 7.30 p.m. Dinner, special general meeting. *The Role of Radiology in Relation to the Peptic Ulcer Problem* presidential address by Dr G. R. Mather Cordner.
- ROYAL COLLEGE OF PHYSICIANS OF LONDON Pall Mall East, S.W.—Oct 18, 3 p.m. *The Structure of Medicine and its Place among the Sciences* Harveian Oration by Dr F. M. R. Walshe F.R.C.P. F.R.S.
- SOCIETY OF APOTHECARIES OF LONDON—In the Hall, Black Friars Lane, Queen Victoria Street, E.C. Oct 18 5 p.m. *The Clinical Importance of the Rh Factor* by Professor D. F. Cappel.
- UNIVERSITY COLLEGE Gower Street, W.C.—Oct 18 4.45 p.m. *The Electron Microscope and its Biological Applications* by Dr E. M. Crook, M.Sc. Ph.D.

**Tuesday**

- BRISTOL UNIVERSITY LARGE PHYSICS LECTURE THEATRE (ROYAL FORT)—Oct 19 8.15 p.m. *Some Aspects of Hospital Economy* thirty-seventh Long Fox Memorial Lecture by Professor R. Milnes Walker.
- INSTITUTE OF DERMATOLOGY, 5 Lisle Street, Leicester Square, London, W.C.—Oct 19, 5 p.m. *Papular Dermatoses* by Dr F. Ray Bettley.
- INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY 330-2 Gray's Inn Road, London, W.C.—Oct 19 2.30 p.m. *Malignant Diseases and Radiotherapy* by Mr W. A. Mill.
- SOCIETY OF APOTHECARIES OF LONDON—In the Hall, Black Friars Lane, Queen Victoria Street, E.C. Oct 19 5 p.m. *Rehabilitation of the Physically Injured* by Mr H. O. Clarke.
- SOCIETY FOR THE STUDY OF ADDICTION—At Medical Society of London 11 Chandos Street, W. Oct 19, 4 p.m. *Some Advances in the Treatment of Anxiety and Addiction by Apomorphine* by Dr J. Yerbury Dent. A discussion will follow.

**Wednesday**

- GLASGOW UNIVERSITY DEPARTMENT OF OPHTHALMOLOGY—Oct 20 8 p.m. *Plastic Surgery of the Eyelids* by Dr Byron Smith.
- HARVEIAN SOCIETY OF LONDON—At 26 Portland Place, London, W. Oct 20, 8.15 p.m. *Pulmonary Embolism* by Dr Samuel Oram.
- ROYAL INSTITUTE OF PHILOSOPHY—At University of London Institute of Education, Malet Street, London, W.C. Oct 20 5.30 p.m. *Decline or Revival of Religion* by Rt Hon Viscount Samuel.
- ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE 28 Portland Place, London, W.—Oct 20, 3.30 p.m. *Epilepsy in Children* by Dr Peter Henderson.
- SCOTTISH SOCIETY OF THE HISTORY OF MEDICINE—At Royal Faculty of Physicians and Surgeons of Glasgow 242 St Vincent Street, Glasgow, Oct 20 5.30 p.m. *The History of Glasgow* by Professor J. D. Mackie. *The History of the Royal Faculty of Physicians and Surgeons of Glasgow* by Mr A. L. Goodall.
- SOCIETY OF APOTHECARIES OF LONDON—In the Hall, Black Friars Lane, Queen Victoria Street, E.C. Oct 20 5 p.m. *Modern Treatment of some Neurological Disorders* by Dr Macdonald Critchley.

## Thursday

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich, S E—Oct 21, 3 p.m. Clinical demonstration by Messrs S Power and L Lurie

EDINBURGH CLINICAL CLUB, Drumsheugh Gardens, Edinburgh—Oct 21 8 p.m. *The Family Position* by Dr G W Ireland

EDINBURGH ROYAL INFIRMARY—Oct 21, 5 p.m. *Intracranial Tumours in the Aged* Honyman Gillespie Lecture by Mr Joe B Pennybacker

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE 26, Portland Place, W—Oct 21, 7.30 p.m. *The Epidemiology of Fungus Diseases* by Dr J T Duncan, *The Treatment of Fungus Diseases* by Dr Isaac Muende Discussion

ST GEORGE'S HOSPITAL MEDICAL SCHOOL Hyde Park Corner, London, S W—Oct 21 4.30 p.m. *Neurology and Psychiatry* Lecture demonstration by Dr Anthony Feiling

SOCIETY OF APOTHECARIES OF LONDON—In the Hall Black Friars Lane Queen Victoria Street, E C, Oct 21, 5 p.m. *The Treatment of Pulmonary Tuberculosis* by Dr R R Trail

## Friday

MIDDLESEX COUNTY MEDICAL SOCIETY—At Hillingdon Hospital Uxbridge, Oct 22, 3 p.m. Clinical cases *A Report on 450 Caesarean Sections*, by Dr Joyce Morgan *Carcinoma arising in Segmental Bronchi* by Mr K S Mullard

ROYAL INSTITUTE OF PHILOSOPHY—At University Hall, 14, Gordon Square, London, W C, Oct 22 5.15 p.m. *The Present State of Moral Philosophy* by Arthur MacIver M A

ROYAL SANITARY INSTITUTE—At Poole Municipal Buildings Oct 22 10 a.m. *Food and Health* by Lord Llewellyn, *Food and Disease* by Dr G J G King, *The Chlorination of Sewage Effluents* by Mr R Leggat

## APPOINTMENTS

BAIRD I MCL MB Ch B Clinical Assistant to the Medical Unit Sheffield Royal Hospital

BUNTING F W MBE, MD Ch B DPH Medical Officer of Health for Widnes

EASTWOOD C G BSc MD Ch B MRCS LRCP DPH Medical Officer of Health Cambridge

HAND B J MB BCh BAO NUI Deputy Medical Superintendent to the Mid Wales Counties Mental Hospital

MIDDLESEX HOSPITAL London W—First Assistant Professorial Surgical Unit R S Monro MB BCh FRCS Acting Otolological Registrar S Kavanagh FRCS Ed DLO

MURRAY J O MD, MB Ch B DPH Joint Medical Officer for Rochester and Chatham

SLEIGH J C MB Ch B DPH Divisional Medical Officer for St Albans

WILLIAMS T G MRCS LRCP Psychiatric Physician to the North Wales Counties Mental Hospital

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

Evans—On Oct 3 1948 at Bath to Joan wife of Dr David Trevelyn Richard Evans a daughter

Hart—On Oct 5 1948 at Westminster Hospital SW to the wife of Dr F Dudley Hart a daughter

Murphy—On Oct 9 1948 to Drs Mary Patricia (née McHugh) and Grahame Edward Murphy a daughter

Wolfson—On Oct 3 1948 to Nancy wife of Dr L J Wolfson a daughter

## MARRIAGES

Crook—Lockhart—On Sept 25 1948 David Crook MRCS LRCP of London to Ellen Lockhart SRN of Middlesbrough

## DEATHS

Aubrey—On Sept 30 1948 after a short illness Harold Percival Aubrey MRCS LRCP LDS Eng of 1 Down Cottages Lansdown Bath

Blake—On Sept 24 1948 at University Square Belfast Eric Oliver Blake MB BCh BAO

Cameron—On Sept 26 1948 at Kingarth Fortrose John Cameron MB CM JP

Cookes—On Sept 22 1948 Reginald Vincent Cookes LMSSA of Penybryn House Brynhyfryd Swansea

Cosgrave—On Sept 30 1948 suddenly Frederick Robert Cosgrave MD of Offham Manor West Malling Kent

Easton—On Sept 24 1948 William Cochrane Cairnie Easton MB Ch B of 23 Henley Avenue Ilfley Oxford and late of Cleveleys Lancashire

Fisher—On Sept 25 1948 at Woodford Barnston Midlothian Edward Fox Fisher FRCS of Edinburgh

Garrard—Found dead in his surgery in High Street Linlithgow on Sept 20 1948 Andrew Ford Garrard LRCP & S Ed L R F P S Glas

Gavronsky—On Sept 24 1948 Jacob Osip Gavronsky MD of 55 Netherhall Gardens NW aged 70

Ghosh—On Sept 24 1948 at Salford Royal Hospital Jotundranath Ghosh FRCSI agd 61

Owen Prichard—On Sept 21 1948 at King Edward VII Hospital Windsor William Owen Prichard LRCP & S Ed L R F P S Glas Lieutenant Colonel R A M C

Patterson—On Sept 19 1948 George de Joncourt Patterson MD of Lchiade Gloucestershire aged 91

Pillans—On Sept 24 1948 at 14 Aytoun Road Pollokshields Glasgow Annie Fleming Pillans LRCP & S Ed L R F P S Glas

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

## Spondylitis and Kyphosis

Q—What is the modern classification from the aetiological point of view of (a) spondylitis and (b) kyphosis? Have the old terms von Bechterew's disease and spondylose rhizomelique of Strumpell-Marie become obsolete? Is there any relation between the Scheuermann Calve osteochondritis and spondylitis? What is the nature of the very pronounced kyphosis in relatively young and fairly active people which one sees not uncommonly where the spine is almost a segment of a not very large circle? Is this condition progressive and how does it end?

A—The term *spondylitis* strictly implies an inflammatory condition of the vertebral column. Aetologically it may be classified into three main types as follows: (1) tuberculous spondylitis, (2) pyogenic spondylitis, (3) ankylosing spondylitis. By customary usage however, spondylitis has come more and more to imply ankylosing spondylitis, the other two conditions being termed simply tuberculosis of the spine and pyogenic osteomyelitis of the spine respectively. The term spondylitis (or spondylosis) deformans is sometimes used to describe deforming conditions of the spine from any cause. As it does not refer to any specific disease entity the name leads to confusion and should be discarded. Osteoarthritis of the spine should not be referred to as spondylitis, for it is a non-inflammatory degenerative condition similar to osteoarthritis elsewhere.

Kyphosis is classified on an aetiological basis into the following groups: (1) congenital (e.g. congenital wedged vertebra, gargoylism, etc.), (2) postural, (3) traumatic (e.g. compression fracture), (4) inflammatory (e.g. tuberculous or pyogenic infection), (5) neoplastic (primary or secondary), (6) generalized bone disease (e.g. rickets, senile osteoporosis), (7) miscellaneous conditions (e.g. osteochondritis of Scheuermann type, Calve's disease).

The name ankylosing spondylitis is now used to describe the condition which was formerly widely known as spondylitis rhizomelique or as spondylitis of Marie-Strumpell type. These latter terms, though still in use at some centres have been largely discarded by British surgeons. Similarly the term 'spondylitis of von Bechterew type' formerly used to describe osteoarthritis of the spine, has been discarded in this country. There is no relation between Scheuermann's osteochondritis and ankylosing spondylitis.

A pronounced rounded kyphosis occurring in relatively young subjects is likely to be due to one of two conditions. The first and less disabling is osteochondritis of Scheuermann type, often referred to as adolescent kyphosis. This condition may lead to wedging of the lower dorsal vertebral bodies, with well-marked rounding of the spine. It is not a progressive condition although the altered shape of the affected vertebrae may predispose to the development of osteoarthritic changes in later years. The second possibility is ankylosing spondylitis. This leads to marked rigidity of the spine extending from below upwards, and may progress ultimately to solid bony fusion of the entire spinal column, the hips and shoulders are also not infrequently affected. The stiffness is in some cases associated with a fixed kyphosis so severe that the patient is able to look only towards his feet.

## Hyperemesis Gravidarum

Q—What is the latest treatment of the severe disabling type of nausea and vomiting of early pregnancy?

A—The present-day treatment of hyperemesis gravidarum is not very different from that practised twenty years ago, although there is a change in emphasis in that much attention is paid to combating the acidosis which results from vomiting but which in turn causes more vomiting. Various remedies, including most of the vitamins have been tried, but none have proved



specific. It is essential to admit the patient to hospital and isolate her from all her relatives and from other patients, this is enough to cure a large proportion of cases. If vomiting persists in spite of hospital regime and frequent small meals of a fat free nature tried for twenty four hours, the oral administration of both food and fluid is discontinued and 5% glucose in saline is given by continuous intravenous drip. Acetonuria nearly always calls for intravenous glucose therapy. Such treatment gives good results: the dehydration and acidosis are usually overcome within twenty four hours and vomiting ceases. Accessory treatment with vitamin B<sub>1</sub> and calcium gluconate (both by injection) is usually given. Some also administer small doses of insulin, but this is not really necessary. When there has not been any vomiting for forty eight hours, oral feeding is cautiously resumed with dry toast or biscuits and small frequent drinks of glucose fluids or dilute milk. The ease with which intravenous glucose can now be given and maintained has considerably improved the outlook in these cases and termination of the pregnancy is rarely necessary.

### Prevention of Oil Dermatitis

**Q**—Is Dakin's solution used extensively by mechanics as a preventive against oil dermatitis? Is it effective? What are its chief uses to day and how does it compare with other similar solutions?

**A**—Dakin's solution has been advocated as a preventive of oil dermatitis but its value in this connexion has been limited by difficulties connected with its proper use, together with its corrosive action on metal containers. The solution does not, of course, remove dirt from the skin, and washing with soap and water should follow its use. In practice it was difficult to ensure that each machine operative had enough Dakin's solution properly diluted and for his individual use after work. As an oil emulsifier it was reasonably effective, and, since the solution oxidizes organic matter, the risk of sepsis was reduced. In industry a skin cleanser composed of neutral sulphonated castor oil with 1% of a wetting agent has largely taken the place of Dakin's solution for the removal of oil from the skin. It is in practice difficult to remove completely mineral oil from the skin and, while some measure of success may attend the use of alkaline detergents and of soapless cleansers, there is a tendency for these especially over long periods to cause excessive dryness of the skin. Sulphonated castor oil does not seem to produce this effect.

### Sexual Potency in Paraplegics

**Q**—I have heard recently of a drug injected intrathecally in paraplegics which relaxes muscle spasm and often results in ejaculation of normal semen. Is this curative? Is it feasible that a paraplegic after an injection would be able to have intercourse? Presuming the answer to be Yes does ejaculation occur at any fixed time after the injection and is there always an erection? Does the drug relax muscle spasm in all paraplegics no matter what the cause?

**A**—The drug in question is prostigmin. In a communication to the Physiological Society on Dec 6, 1947 L. Guttman reported on the effects of prostigmin after intrathecal injection in paraplegia due to spinal cord and brain injuries. While prostigmin undoubtedly acts as a depressant on the skeletal muscles, as found previously by Kremer, Pearson and Wright (*J. Physiol.* 1937 89 21P), Guttman discovered a stimulating effect on the reproductive organs. About one to two and a half hours after intrathecal injection of 0.3 to 0.75 mg prostigmin he observed erections, followed in about 50% of the cases by ejaculations. In most cases investigation of the seminal fluid revealed motile sperms of normal appearance. Not in every case was ejaculation accompanied by erection, this was found with certain cauda equina lesions.

These findings disprove the widespread belief that paraplegics are sexually impotent and non fertile. Certain types of paraplegics after intrathecal injection would be able to have intercourse provided there is full co operation by the female partner. Where this is not possible artificial insemination could be tried. Unpleasant side effects in some cases following administration of prostigmin are vomiting and sweating. Prostigmin after intrathecal injection relaxes muscular

spasms in all paraplegics, no matter what the cause. However this depressant effect, which varies in intensity, lasts only six to eight hours.

### Sun bathing for the Adult

**Q**—Are there any medical reasons for the firmly held belief that sun-bathing is beneficial to the adult?

**A**—There is no objective evidence that sun bathing has any beneficial action in the normal adult. It must, however, be pointed out that people who sun-bathe usually do it because they enjoy it. The fact that it imparts a tan, which makes them look healthier and possibly more attractive according to present-day standards and also that it affords a pleasant form of rest, may account for the belief that sun bathing has some therapeutic value. But at the same time there is no evidence that individuals leading a conventional life are in any way less healthy than the sun-worshipping nudist, provided their diet and its vitamin D content are adequate. This does not mean that irradiation with ultra violet rays or any other form of radiation contained in sunlight has no therapeutic effect when indications for treatment with such radiations arise.

### Herpes after Coryza

**Q**—My daughter, aged 12 suffers from severe naso labial herpes after every cold in the head however slight. Her mother and grandmother have the same trouble. It is four weeks since her last cold cleared up and she still has a large smooth naevus-like area between lip and nose on one side. Apart from long standing bronchial asthma she is healthy. Can you advise me about prevention and cure?

**A**—If there is any focus of infection or of irritation (as from an unerupted tooth) in the nose, throat, or mouth, removal of this may stop recurrences of the herpes. Otherwise the condition is often most resistant, but it sometimes responds either to fractional doses of x rays to the area affected or to shock therapy. A course of arsenic by mouth in increasing doses to tolerance occasionally stops recurrences, and in some hands vaccination with serum from a vesicle has proved helpful.

## NOTES AND COMMENTS

**Dangers of Cinchophen**—Dr G. H. JENNINGS (Edgware Middlesex) writes: I was interested to read the letter from Dr Ewan F. B. Cadman (Oct 2, p. 668) on the subject of the cinchophen treatment of gout. It was because my views were very similar to his that some years ago I undertook a little investigation in which I compared the effect of 80 gr (5.3 g) daily of sodium salicylate and 45 gr (3 g) of cinchophen on eight cases of chronic gout. With the conditions as favourable as possible for a fair comparison I found that in six of the cases the average daily excretion of uric acid was greater with the sodium salicylate than with the cinchophen treatment, in five of the cases very appreciably so. In the other two cases one showed equal average daily excretion with the two drugs, the other showed a greater excretion with cinchophen. The figures can be seen in the *Reports on Chronic Rheumatic Diseases* (1937, No 3, p. 106). On the clinical side I felt that the improvement obtained with sodium salicylate treatment was certainly as good as with cinchophen. I also found some benefit from sodium salicylate in attacks of acute gout, and as it is a relatively non-toxic drug I would certainly recommend sodium salicylate as a "safer alternative" in the treatment of gout.

**"Harvesters"**—Professor H. E. ROAF (Liverpool, 19) writes: I have heard, and experience seems to confirm, that finely divided sulphur dusted on the skin—i.e. inside underwear and socks—prevents the attacks of 'harvesters'.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: ALICE 11. Western London. ORIGINAL ARTICLES AND LETTERS (work done for publication) are understood to be offered to the *British Medical Journal* unless the contrary be stated. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1 on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required as proof sheets are sent abroad. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: BRITMEDADS. We accept no responsibility for the return of unsolicited material. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, TELEPHONE: EUSTON 2111. TELEGRAMS: MEDICERA. B.M.A. SCOTTISH OFFICE: 7 Drumshugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 16 1948

## British Medical Association

### REPORT OF INSURANCE ACTS COMMITTEE, 1948

#### Chairman

Dr E A Gregg was reappointed Chairman of the Committee for the Session 1947-8

#### Ministry of Health Distribution Committee

The Committee's nominees on the Ministry of Health Distribution Committee in connexion with the Central Practitioners and Mileage Funds are Dr E A Gregg (London), Dr D J B Wilson (High Wycombe), Dr D B Evans (Wrexham), and the Assistant Secretary (Dr L S Potter), together with Dr J A Pridham (Weymouth), Dr J C Pearce (Diss, Norfolk) and Dr J D Wells (Billericay) when questions concerning mileage are under consideration

#### Future Designation of Insurance Acts Committee

Local Medical Committees have already received a communication (July 12, 1948) announcing the decision to rename the Committee 'The General Medical Services Committee, and to leave unchanged, at the outset, the constitution of the new Committee. The election of the various groups of members is proceeding, and the new Committee will begin its work after the Annual Conference. It will probably review its constitution (including the grouping of areas for the election of direct representatives) in the light of experience, and will consider any proposals in this respect which Local Medical Committees or the Conference may wish to make

#### 1947 Conference Resolutions

Owing to the preoccupation of the Ministry of Health with preparations for the introduction of the National Health Service, and the brief period left before the termination of the N.H.I. medical service, the Committee was unable to make progress on some of the matters which were discussed at the last Annual Conference. Included among them was the Ministry's attitude on the reference of patients to specialists after examination by a regional medical officer. This question is down for early discussion in its relation to administrative procedure under the National Health Service.

Several of the Conference resolutions dealt with questions of principle relating to the National Health Service, and these are being borne in mind in negotiations with the Ministry of Health.

#### Dispensing and Prescribing

**Capitation Fee for Emergency Drugs and Appliances**—As the result of representations by the Committee, the amount of the capitation fee for drugs and dressings required in an emergency before a supply could be obtained otherwise was doubled with effect from Oct 1, 1947. In 1938 the capitation fee in question varied between 1s 3d and 2s 6d per hundred insured persons the higher rate being paid in areas where the liability for emergency treatment was above the average.

**Payments for Drugs supplied by Doctors in Special Circumstances**—The Committee was asked by the Ministry of Health

for its observations on a proposal to withdraw the payment of 'profit' on the ingredient cost when a doctor supplied drugs to an insured patient in certain circumstances. The Ministry was informed that the Committee was not in favour of any departure from the existing arrangements for payment in the case of (1) drugs in the special list supplied to dispensing patients, or in an emergency, and (2) drugs not in the special list but for which payment is specially sanctioned.

**Specialty Expensive Drugs**—The Committee was successful in securing the addition of the following preparations to the list of expensive drugs appended to Part II of the Distribution Scheme: Mersalyl suppositories, Anti-histamine agents (covers "benadryl," "antistin," and "anthisan"), Vitamin E (covers ephyal).

**Increase of Purchase Tax on Certain Drugs**—In the autumn of 1947 the attention of the Ministry of Health was drawn to the effect of the increase in purchase tax on certain drugs on the overall cost of supplying medicines to insured persons for whom doctors were required to dispense. Subsequently, certain concessions were made which eased the position, and the Committee's claim for an increase in the dispensing capitation fee on this account was not pressed.

#### Medical Records of Persons no Longer Entitled to Medical Benefit

It was the normal practice, when a person ceased to be entitled to medical benefit, for the person's medical record card to be withdrawn by the Insurance Committee and held for a period of three years to meet the possibility that the person might re-enter insurance during that period. The Ministry informed the Committee that it would not be practicable, under the National Health Service, to reissue records which had been withdrawn, and it was proposed to instruct Insurance Committees to destroy them at the appropriate time. The Committee reluctantly agreed, but asked that Insurance Committees be instructed at once not to withdraw from a doctor's possession any more record cards of persons coming out of insurance.

#### Election of Local Medical Committees

Early in July every Local Medical Committee was urged to hold an election if it had not already done so. A model scheme the draft of which had been shown to the Ministry of Health was circulated to secretaries, and for the purposes of the National Health Service Act it can be assumed that the Minister will recognize every committee constituted in general accordance with the model scheme.

An essential feature of the constitution of every Local Medical Committee is that it shall be representative of all the medical practitioners in the area.

#### National Health Service

Anticipating that the first plebiscite would result in a large majority against service under the National Health Service Act

15 it then stood the Committee decided at a special meeting in January, to convene a Special Conference of representatives of Local Medical and Panel Committees to be held on the day before the Special Representative Meeting of the B.M.A. in March. The object of the Conference was to provide an opportunity for an expression of the collective views of insurance practitioners on the situation confronting the profession as a whole. The Special Conference was held on March 16 and the following resolution, similar in terms to that passed the following day by the S.R.M., was carried without dissent.

**11 Resolved** That this Special Conference of Local Medical and Panel Committees, reaffirming the whole-hearted desire of the medical profession for a comprehensive health service available to everyone, urges that in the public interest such changes should be made in the National Health Service Acts of 1946 and 1947 as are necessary to maintain the integrity of medicine and to prevent doctors being turned into State servants, with harmful consequences to patient and doctor alike. The Conference therefore expresses the hope that the Government will make it possible for the profession to co-operate by making such changes and states its view that it is not in the best interests of the public or of medicine for members of the profession to enter the Service until such changes are made.

**Matters dealt with by the General Practice Subcommittee of the Negotiating Committee**—The Negotiating Committee, at its meeting on May 20 1948 after a general discussion on future policy, decided that future negotiations with the Ministry of Health should be conducted through the Negotiating Committee, and that continued membership of the Committee by the constituent bodies represented should be on the understanding that the Committee would undertake negotiations on behalf of the profession as a whole. After further discussion it was decided to appoint a number of subcommittees for the purpose of further negotiations with the Ministry on matters within their respective fields, subject to ratification of their activities by the full committee. Among the subcommittees appointed was a General Practice Subcommittee with the following personnel: Dr H. Guy Dain, Lord Webb Johnson, Dr J. C. Arthur, Dr J. A. Brown, Dr O. C. Carter, Dr R. W. Cockshut, Dr W. E. Dobnan, Dr Mary Esslemont, Dr F. Gray, Dr E. A. Gregg, Lord Horder, Dr J. A. L. Vaughan Jones, Dr W. Jope, Dr J. F. Lambie, Dr J. B. Miller, Dr H. Seaward Morley, Dr J. A. Pridham, Dr S. Wand, Dr S. A. Winstanley.

The Insurance Acts Committee has received from the General Practice Subcommittee a report of its activities since it was appointed, and this is now passed on for the information of Local Medical Committees (see Appendix).

**Remuneration of General Medical Practitioners**—A special subcommittee has been formed to prepare a case for an improvement in the remuneration of general medical practitioners in the National Health Service.

**Mileage**—It is being recommended to the Central Mileage Distribution Committee that with a view to implementing the Spens Report in its reference to the position of rural practitioners, medical practices should be graded so that the ordinary portion of the Mileage Fund can be distributed on a basis which will give the doctor in a sparsely populated area a higher unit value than those in more populous districts.

**Certification**—The Committee has been concerned jointly with the General Practice Committee of the B.M.A. in the preparation of the Association's memorandum of evidence to the Departmental Committee which the Minister of Health appointed to advise on how far it would be practicable to improve and simplify as well as reduce the number of, forms of certificate then in use. The memorandum was published in the *B.M.J. Supplement* of May 29 1948.

**Medical Card**—The Insurance Acts Committee made a number of proposals for the amendment of the medical card. These proposals could not be made in time for consideration by the Ministry before it was necessary to proceed with the printing of the medical card but they have been noted for discussion with the profession's representatives before the card is reprinted.

**Change of Doctor**—The Committee expressed the view that without prejudice to the proposal that an insured person should be allowed to change his doctor at any time under the National Health Service, it should be a requirement that application be made to the Local Executive Council on each such occasion. The Ministry of Health did not agree with the Committee's pro-

posal, mainly on the ground that patients should enjoy the same freedom to change their doctor as private patients enjoyed.

**Pharmaceutical Services in Rural Areas**—Discussions have taken place between the Rural Practitioners Subcommittee and representatives of the chemists in regard to the provision of pharmaceutical services in rural areas. The chemists desired that the one mile limit which, under the N.H.I. Act, determined whether a patient should receive his medicine from his doctor or a chemist should be increased to two miles, and that the regulations should provide that the insured person's right of choice should operate only where there was a pharmacy within a reasonable distance of the doctor's surgery. The Rural Practitioners Subcommittee came to the conclusion that the extension of the limit of distance suggested by the chemists was impracticable. Doctors in many rural areas were quite prepared to give up dispensing but they felt it was their duty to ensure that a complete twenty-four-hour service could be made available by the chemist regardless of the distance from the chemist's premises. The rural practitioner could not accept a position under which he was asked to undertake the dispensing for a minority of the patients, which would be uneconomical. The problem was not capable of being dealt with on a national basis and would have to be considered in each area in the light of the prevailing circumstances. The Subcommittee favoured the formation of local liaison committees of doctors and pharmacists for the consideration of dispensing in rural areas.

**Chemists' Hours**—The Ministry's instructions to Local Executive Councils concerning the provision of pharmaceutical services included a model scheme providing, *inter alia*, that one or more places of business in each area shall be open at all reasonable times. The model scheme suggests that a rota be established whereby one or more places of business in each district shall be open for one hour in the evening on early closing days, for one hour on Sundays and public holidays, and for one hour in the evening after 6 p.m. on other days.

**Meetings of Local Executive Councils**—**Payment for Loss of Remunerative Time**—Regulations made under Section 54 (5) of the National Health Service Act provide for payment for loss of remunerative time to, *inter alia*, members of Executive Councils. The maximum sum allowed under the regulations is '20s. for one day or 24 hours.' The Committee's view is that it should be left to each individual medical member of a Local Executive Council to make his own decision regarding the application for payment for loss of remunerative time in attending meetings of the Council or its committees.

On the question of subsistence allowance the Committee feels that the minimum period for which it should be payable should be reduced from five to four hours.

**Statutory Levy for Expenses of Local Medical Committees**—The attention of the Ministry was drawn to the absence from the National Health Service Act of provision for a statutory levy method of collecting funds for the expenses of Local Medical Committees. The omission will be rectified in the Amending Bill which the Minister of Health has promised to present to Parliament in the near future. In the meantime Local Executive Councils have been instructed to advance funds to Local Medical Committees on request, the understanding being that any such advance payments will be recovered by deductions from the remuneration of the general practitioners concerned when statutory authority has been given for such deductions.

**General Practitioners and Special Departments of Hospitals**—The Ministry of Health is to be asked to give general practitioners the privileges they enjoyed before the National Health Service in being able to obtain x-ray and pathological examinations by direct application to hospitals.

#### National Insurance (Maternity Benefit) Regulations, 1948

A National Insurance Advisory Committee has been established to consider and report on the representations of any bodies or persons interested in draft regulations prepared under the National Insurance Act 1946. Draft regulations for the administration of maternity benefit came before this Committee and the Association was asked whether it wished to make any observations on them. The Insurance Acts Committee considered the regulations and came to the conclusion that they included one or two provisions which seemed to be objectionable.

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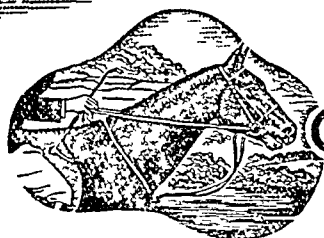


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In Clause 3 (2) the Ministry of National Insurance was given the power to require a woman to submit to a medical examination in any case in which the correctness of a certificate given by a qualified practitioner (defined in the Act as "a registered medical practitioner, or certified midwife, or such other midwife as may be prescribed") was in question.

Under Clause 4 (2) (c) a woman could be disqualified for receiving a maternity allowance if she failed without good cause to attend for such an examination. The Insurance Acts Committee contended that no steps should be taken to require a woman to submit to a medical examination by a second practitioner without reference to the woman's doctor.

Clause 4 (1) (b) disqualified a woman for receiving an attendance allowance if she failed without good cause to follow the advice of a duly qualified practitioner in her case and to answer any reasonable inquiries by the Minister or his officers as to the advice given to her by a qualified practitioner. It was felt that no authority should be given to a lay person to discuss with the patient or comment on advice given by the doctor, which might well include diagnosis.

The Advisory Committee dealt sympathetically with the Insurance Acts Committee's representations, and the regulations in their final form are unobjectionable.

#### Postgraduate Courses for General Practitioners

Several motions on the subject of postgraduate courses for general practitioners, referred to the Insurance Acts Committee by the 1947 Annual Conference, have been carefully considered and the following views expressed.

Wherever possible, and where all the conditions are suitable, general practitioners should be given facilities for attending their patients in hospitals.

Whilst the short course of postgraduate study has its advantages, the Committee is of opinion that a more extensive course of not less than one month is preferable.

Where it is necessary for a medical practitioner to engage a locum (in the normal sense of the term) his claim for a fee towards the cost of engaging a locum, up to the prescribed maximum, should be allowed without question.

#### Part-time Regional Medical Officers

Representations to the Ministry of Health resulted in an increase in the sessional fee for part-time Regional Medical Officers from 2' to 3 guineas for a session of two hours with effect from Oct 1, 1947.

#### Doctors and the Petrol Shortage

The 1947 Annual Conference voted in favour of doctors being given freedom to use their cars at all reasonable times provided they were "on call." This was agreed to by the Minister of Fuel and Power.

#### Doctors' Cars

The 1947 Annual Conference asked that priority be given to doctors by the manufacturers of cars, and not through the usual agency channels. Although it was not possible to achieve this in all cases it was hoped that concerted action by all the interested parties, including Government Departments, would result in an improvement of the situation. Unfortunately, there have been further cuts in the number of cars available for the home market, but every effort is being made to secure early delivery in cases of real need.

#### Pension and Insurance Scheme for Insured Practitioners

The companies concerned in the Pension and Insurance Scheme for Insurance Practitioners have given notice that no new proposals will be accepted after Dec 4 1948. It is hoped that it will be possible to arrange for a new scheme to replace the one which will shortly cease to operate.

#### National Insurance Defence Trust

The balance-sheet and statement of expenditure and income for the Trust for the year ending Dec 31, 1947, are being sent to every Local Medical Committee.

The Special Conference of Representatives of Local Medical and Panel Committees in March last endorsed the action of the trustees in voting the sum of £400 000 as an initial contribution from the Trust to the Independence Fund, which was

established in the early part of this year to finance the profession's activities during the dispute with the Government over the National Health Service. When the Independence Fund was wound up it was agreed that the Trust and the Central Contingency Fund of the B.M.A. should share the administrative expenses of the Fund, thus enabling all individual subscribers to have their contributions returned to them without deduction.

The trustees have already expressed themselves strongly in favour of continuing the Trust for the purpose for which it was founded in 1919, and they are now considering to what extent it is desirable that efforts should be made to enlarge the Fund to meet all possible contingencies.

#### SCOTLAND

This particular section deals with matters which are of a purely domestic Scottish nature and which have not been referred to in the preceding paragraphs, or upon which action in England and Wales differs from that taken in Scotland.

#### Chairman and Deputy Chairman

Dr A. F. Wilkie Millar and Dr W. M. Knox were appointed chairman and deputy chairman of the Scottish Subcommittee respectively for session 1947-8.

#### Advisory Distribution Committee of the Department of Health

The following were reappointed as nominees of the Scottish Subcommittee on the Advisory Distribution Committee: Dr A. F. Wilkie Millar, Edinburgh, Dr John Lambie, Glasgow, Dr G. W. Ireland, Pathhead, and the Scottish Secretary.

#### Medical Advisory Committee

The Department of Health was informed that all members of the Scottish Subcommittee would be available for service on Medical Advisory Committees constituted under the Medical Benefit Regulations (Scotland), 1938.

#### National Health Service

The deliberations of the Subcommittee during the past year have been concerned mainly with matters arising from the National Health Service. The Subcommittee has had before it a number of forms to be issued under the regulations of the Scottish Act and has made suggestions for their modification to the Department of Health.

The Department has been informed that the Subcommittee would raise no objection to the introduction in Scotland of a new form for notification for treatment of temporary residents similar to that proposed for England and Wales.

The Subcommittee has had an opportunity of scrutinizing, in its relation to Scotland, the statement of evidence prepared by the Association for submission to the Departmental Committee on Medical Certificates, and has not considered it necessary to make any suggestion for amendment or addition so far as Scotland is concerned. A recommendation has however, been made to, and accepted by, the Scottish Committee that a small *ad hoc* committee should be appointed for the purpose of giving evidence before the Departmental Committee in respect of those certificates which under Scottish law differ from those required under English law—e.g., Soul and Conscience, and Death Certificates. It has also considered, in conjunction with the General Practice Subcommittee of the Scottish Negotiating Committee, the list of enactments under or for the purpose of which practitioners in Scotland may be asked by their patients to issue medical certificates, and has drawn the attention of the Department to certain directions in which it considers the list requires amendment.

#### Fees for Emergency Treatment and Anaesthetics

The Department of Health has been informed that so far as Scotland is concerned it is not desired that the English example of charging fees for emergency treatment and anaesthetics against the National Pool should be followed and that the question of a deduction for this purpose from the area pool should be left to local determination.

#### Medical Members of Scottish Health Services Council

The Subcommittee has joined with the Scottish Committee of the Association in nominating to the Secretary of State the



names of medical practitioners for his consideration in appointing the 18 medical members of the Scottish Health Services Council

#### Conference of Representatives in Scotland

A useful Conference was held at the Scottish House of the Association on March 10 1948. The Conference was composed of representatives of Divisions in the Representative Body, representatives to the Conference of Local Medical and Panel Committees, members of the Scottish Committee, and members of the Insurance Acts Scottish Subcommittee. The object of the Conference was to give the profession in Scotland an opportunity for general discussion of the National Health Service Act (Scotland) before the Conference of Local Medical and Panel Committees on March 16 and the Special Representative Meeting of the Association on March 17.

### APPENDIX

## NATIONAL HEALTH SERVICE

### REPORT OF MATTERS DEALT WITH BY THE GENERAL PRACTICE SUBCOMMITTEE OF THE NEGOTIATING COMMITTEE

#### (1) Partnership Agreements in Relation to Compensation

A memorandum of evidence has been prepared and submitted to the Legal Committee on Partnerships appointed by the Minister of Health. Witnesses have appeared before the Committee in support of the memorandum, and it is understood that the Committee will report to the Minister very shortly.

The following proposals formed the basis of the memorandum submitted on behalf of the profession:

(a) That where all or both the partners join the Service on or before the appointed day existing partnership agreements should remain operative after July 5, except for the passage of money in respect of goodwill under purchase options and obligations.

(b) That compensation should be based upon the share held by each partner on the appointed day.

(c) That when a partner in the Service is required to take over a share from a partner who is not in the Service, the vendor should be paid forthwith for the share from public funds other than the global sum in accordance with the undertaking given by the Minister of Health to make such payments possible. It would be possible by a mutually agreed modification of the existing agreement for the vendor to sell his share to a third practitioner outside the Service.

(d) That in the case of a practitioner who remains outside the Service and is under an obligation to purchase a share of the practice from a partner who joins the Service purchase options and obligations in the existing partnership agreement should be cancelled.

(e) That if the Legal Committee on Partnerships does not report till after the appointed day, it should be possible for a practitioner in partnership who, because of doubt as to his position has not then joined the Service, to do so after July 5, if he so wishes after considering his position in relation to the Amending Act and that compensation should be payable with retrospective effect from July 5.

#### (2) Medical Practices Committee

An invitation was received from the Minister of Health for nominations for the Chairman and six members of the Medical Practices Committee. The following were nominated and have been appointed: Dr W E Dornan (Sheffield) (Chairman), Dr P V Anderson (Sildon Co Durham), Dr D B Evans (Wrexham), Dr Annis Gillie (London), Dr D T McDonald (Belford Northumberland), Dr J F Murphy (London), Dr J A Pridham (Weymouth).

#### (3) Remuneration of General Medical Practitioners— Distribution of Practitioners' Funds

The Ministry's original intention was to base the remuneration of general medical practitioners for the first quarter on the number of persons on their lists at July 5. The Subcommittee felt that July 5 would be disadvantageous to a number of medical practitioners particularly those who had not previously been engaged in public medical practice and urged that a much later date be fixed. It was therefore suggested that the basis of calculation for the first quarter should be the numbers on doctors' lists at the middle of September but the Ministry pointed out that this would give rise to difficulties in many Local Executive Council offices owing to the volume of work

involved in dealing with applications for inclusion in doctors' lists. Eventually it was agreed that the distribution of the Central Practitioners' Fund between areas should be based upon the total number of persons on doctors' lists on July 31, and that Local Executive Councils would be urged to distribute the Practitioners' Fund in proportion to the number of patients actually on doctors' lists at the latest date in the period on which the Council could make the necessary count. The Subcommittee urged that this should not be earlier than the middle of August.

The Ministry has appointed two Distribution Committees: (1) An International Distribution Committee to determine the apportionment of the Central Practitioners' Fund between England and Wales and Scotland, and (2) a Distribution Committee for England and Wales. The Subcommittee's nominees for these two Committees were accepted by the Ministry, and are as follows:

*International Distribution Committee*—Dr E A Gregg (London), Dr Wm Knox (Glasgow), Dr J D Wells (Billericay, Essex), and Dr E J Rees (Pontypridd).

*Distribution Committee*—Dr E A Gregg (London), Dr D J B Wilson (High Wycombe), Dr E J Rees (Pontypridd), and the Secretary of the General Medical Services Committee of the B.M.A. together with Dr J C Pearce (Diss, Norfolk), Dr J D Wells (Billericay, Essex), and Dr C F R Killick (Williton, Somerset) when questions concerning mileage are under consideration.

The payments to individual doctors for the first quarter ending Sept 30 have given rise to some dissatisfaction. Although these payments are no more than 'payments on account' it is apparent that many of the discrepancies of payment between area and area and practitioner and practitioner were due to the inability on the part of the Executive Councils to check the completed forms EC 1 received in time for the first quarterly payment. An assurance has been obtained from the Minister that every effort will be made to speed up the checking of EC 1s to enable future payments to be made on reasonably accurate lists.

#### (4) The Fixed Annual Payment (Basic Salary)

The Subcommittee had an opportunity of discussing with the Ministry of Health a draft of the statement issued to Local Executive Councils on the conditions under which the fixed annual amount of £300 would be paid. The statement in its final form is as follows:

The new regulations also indicate the conditions of payment of the fixed annual amount of £300. The payment will be made only to those doctors who elect to have it and who receive the consent of the Executive Council (after consultation with the Local Medical Committee) or, on appeal, of the Minister. (When the fixed annual payment is made the capitation fees will be adjusted as indicated in paragraph 3 (b) of the Memorandum on the Remuneration of General Practitioners.) The Minister considers that consent ought to be given in cases where there is reasonable justification for so doing. Such justification might exist in the case of a doctor who is starting a new practice or working up a small one, the doctor who on account of age or ill health is unable to do as much as he has done in the past (when it is necessary that his services should be given), or the rural doctor in a sparsely populated area who cannot attract a large list (though these last cases will normally be covered by an inducement payment). It is possible that in a few areas where the proportion of doctors to the population is at present unusually high the coming into operation of the National Health Service may result in a drop in doctors' incomes. Consent should therefore also be given in the Minister's view in any case where a doctor's income can be shown to have dropped substantially as a result of the new service involving an element of hardship.

The Council are asked in circulating the new regulations, to inquire of doctors whether they desire payment of the fixed annual amount and if so, from what date. (This inquiry should not, for the time being, be made of doctors who are exempted from the liability to have persons assigned to them. A subsequent Circular Letter will deal with the remuneration of such doctors.) Where an application is received and consent refused, the applicant should be informed of his right to appeal.

Further information about the financial arrangements will be circulated later.

The Ministry agreed to a modification of the amending regulation dealing with the fixed annual payment so as to give Local Executive Councils the right to question from time to time the continuance of the payment in individual cases.

### 5) Remuneration of General Practitioners for Services Rendered in Hospitals, Convalescent Homes, Etc

In the Interim Terms of Service under Regional Hospital Boards there is a section dealing with the employment of general medical practitioners. It is stated that the general practitioner may provide general medical care as a member of the staff of a hospital in the following capacities: (a) as one of the staff of a general practitioner ("cottage") hospital, and (b) as a part-time medical officer of a convalescent home or other institution, and that for both these groups it will be necessary to enter into a contract with effect from the appointed day.

This section points out that a doctor's capitation fee covers general practitioner services given to a patient on a doctor's list, or on that of his partner, whether or not the services are rendered in hospital. In order to provide remuneration for hospital work for other patients, however, a staff fund is to be created by making a payment of £25 per annum for each bed (other than private pay-beds) occupied on the average in the hospital, the fund to be shared between the general-practitioner staff as they may themselves determine. This payment of £25 per annum for each bed is regarded as insufficient, and representations are being made accordingly.

In regard to the second group—namely, part-time medical officers of convalescent homes, etc—the average time given to this work will be assessed and aggregated in terms of half-days per week, and a contract offered accordingly. The provisional rates of remuneration are to be £100 per annum (non-resident) for each half day per week up to a maximum of £800 for eight or more half-days, and subject to review when the remuneration of specialists has been determined. A protest is being lodged against what appears to be an assumption that the remuneration of the general practitioner should be approximately one half of that paid to specialists. (In the provisional terms of service consultants and specialists in contract with Boards of Governors and Regional Hospital Boards on a part-time basis are receiving £200 per annum for one half-day per week.)

In so far as these contracts relate purely to non-specialist services, the Subcommittee has made no comment. It has sought an assurance, however, that the permanent arrangements will be based upon a more accurate assessment of the amount of the staff fund created for each hospital. The method of assessment in the case of medical officers of convalescent homes was criticized and the hope was expressed that it would not be applied too rigidly. An assurance has been given that, although there must be an assessment and means of correction, the Ministry is anxious that the assessment shall not be applied with hardship to the doctors concerned. The Ministry has agreed that in assessing a medical officer's remuneration it is reasonable to take time spent in travelling into account.

### (6) Special Inducements Fund

A sum equal to 1% (approximately £400,000) of the Central Practitioners' Fund (but not part of that Fund) has been established to provide inducement payments to assist doctors to practise in particularly difficult areas.

The Subcommittee has discussed with the Ministry the grounds upon which applications for grants from the Fund might be based. These are as follows: (a) Vacancy advertised but no applications received; (b) Vacancy to be advertised for an area which has in the past always attracted too few doctors; (c) An existing doctor unable to remain for the income which he might expect to receive from providing general medical services without an inducement payment; (d) An existing doctor who previously received special assistance under the National Health Insurance Scheme, which will no longer continue and the loss of which will cause undue hardship; (e) An existing doctor with an abnormal number of aged and chronic sick on the list, or a vacancy in an area with an abnormal number of such persons resident there.

In the original direction to Local Executive Councils it was indicated that inducement payments should not be made in cases where the difficulty can be met by an annual fixed pay-

ment (basic salary) of £300. The Ministry was reminded that this was not in accordance with the underlying principles of the Special Inducements Fund, and has been asked to further advise Local Executive Councils that it is not intended that a payment from the Special Inducements Fund should depend upon the receipt of a fixed annual payment. On the other hand, when a fixed annual payment is appropriate—e.g., where a doctor is building up a new practice—it would be payable instead of an inducement payment.

Executive Councils have been asked to inform the Ministry of any cases where they are satisfied, after consultation with the Local Medical Committee, that general medical services adequate to the needs of the district cannot reasonably be expected to be maintained without an inducement payment. In such cases Executive Councils have also been asked to indicate the sum which they consider is required by way of an inducement payment. The Ministry will then refer the Executive Councils' proposals to the Medical Practices Committee for advice on the payments to be made in individual cases within the total sum available for distribution. The Ministry's decision will subsequently be notified to the Executive Council.

All payments approved by the Ministry are to be reviewed annually by the Local Executive Council concerned, and a report as to the need for continuance made to the Ministry, after consultation with the Local Medical Committee.

The Subcommittee has emphasized the desirability of speedy consideration of applications and the importance of making allocations to practitioners from this fund as soon as possible.

### (7) Fees for Specialist Services Rendered by General Practitioners

The Ministry's attention has been drawn to Clause 10 of Part I of the First Schedule to the General Medical and Pharmaceutical Regulations, which makes it unlawful for a general practitioner to demand or accept a fee for any medical treatment, regardless of whether it is a general practitioner service or not, given to his patients or patients of his partner or assistant.

The Subcommittee submitted that it was inequitable to deny a practitioner who possessed the necessary skill and experience the right to render services of a specialist character and receive the appropriate fee if his patients wished him to render such services. The alternative would be to refer the patient to a medical practitioner under contract with the Regional Hospital Board/Board of Governors, a course which might not be acceptable to the patient, and which would inevitably be an unnecessary strain on the hospital services.

One effect of the prohibition in Clause 10 would undoubtedly be to discourage general medical practitioners from raising the standard of their medical knowledge, with consequent disadvantage to the public and the Service. It was pointed out to the Ministry's representatives that a number of services, such as operations for tonsils and adenoids, circumcisions, and injections for haemorrhoids and varicose veins, were frequently given by general practitioners possessing the necessary skill and experience which would otherwise have to take their turn on a long waiting-list at the local hospital, that the present prohibition would be a hardship in country districts where specialist services were often rendered by general practitioners, that in many cases the practitioners concerned possessed a certain degree of professional skill but did not acquire the status necessary to secure an appointment under the Regional Hospital Board, and that the Local Medical Committee had in the past and could in the future effectively check all claims to charge fees for specialist services.

### (8) Fees for Anaesthetics for Dental Operations

A definite assurance has been given that the administration of an anaesthetic for a dental operation is outside the range of treatment which a practitioner is required to give to his patients under the General Medical and Pharmaceutical Regulations, and that he is entitled to receive an appropriate fee. It remains for this fee to be negotiated with the Ministry.

**(9) Grants for Training Assistants**

The Ministry of Health put forward the following suggestions in connexion with the proposed grants to general practitioners for training assistants

1 *Amount of Grant*—£150 plus assistant's salary and boarding expenses (not exceeding £700) Car allowances, if additional car used (not exceeding £150)

2 *Practitioners Eligible for Grant*—General practitioners approved by the local medical committee in consultation with two persons nominated by the University for the area of the Regional Hospital Board. All general practitioners will be given an opportunity to apply

3 *Assistants Qualifying for Grant*—Medical practitioners who have not previously been in general practice in the British Isles otherwise than for short periods as a locum

4 *Conditions Attaching to Grant*—(a) The period of training covered by the grant is one year (b) Grant may not be paid for more than one year's training for each assistant (c) A practitioner is not entitled to grant in respect of more than one assistant during the same period. He may, however, employ an assistant in the ordinary way at the same time as an assistant for whom a training grant is being paid (d) To qualify for a grant a practitioner must have not less than 2,000 patients on his list. He will not be entitled to increase his list of patients beyond the usual maximum in respect of an assistant for whom grant is being paid

The Ministry explained that the doctor training the assistant would be responsible for the employer's share of (a) the national insurance contributions paid in respect of the assistant, and (b) the superannuation contributions payable in respect of the assistant under the National Health Service Superannuation Scheme

It was intended that the payment not exceeding £700 to be made to the principal in respect of the expense of employing an assistant should also cover this item. The grant of £150 would be paid in addition

The Ministry's explanation that the employer's share of contributions payable in respect of the assistant's national insurance and superannuation would come out of the £700 has been strongly criticized. The effect would be to reduce the maximum of £700 to £640 less the assistant's own share of national health and superannuation contributions. It has been pointed out that the doctor training the assistant will not be permitted to increase his list beyond the usual maximum that the £700 he receives will be passed on to the assistant, possibly with an addition by himself, that figures had been published without any hint that they must be subject to these deductions, and that a trainee should be regarded as a student rather than an employee

The Ministry in reply to further representations, states

We agreed to pay £150 grant to principal, £700 towards cost of assistant, plus up to £150 for a second car where necessary. The £700 was intended to cover the additional expense incurred in respect of the assistant and necessarily included the employer's superannuation contributions

An experienced assistant gets £700-£800 (vide current *British Medical Journal* advertisements). A trainee assistant should get less. If the salary were £650 the cost to the principal would be £650 plus 8% plus £11 (N.I.), or £713. At £640 the cost would be £702, but the £63 or £62, as the case may be, would be practice expenses and rank for income tax allowance

An assistant getting £650 would have to pay £51 in superannuation and national insurance contributions, leaving roughly £600. In his case too the contributions would be allowed in assessing income tax

The car allowance of £150 (maximum) is, we think, generous. Current *B.M.J.* advertisements give £100

**(10) Mileage**

It has been agreed that the sum of £1,300,000 shall be set aside for mileage payments to general medical practitioners in rural and semi-rural areas. This figure is subject to review in the light of experience. It has been suggested that mileage payments should consist of two elements (a) ordinary mileage and (b) reserve (special difficulties) mileage, the Central Mileage Fund being divided between these two elements in the same ratio as the former Central Mileage Fund was divided. These two elements will not cover payments for special expenses such as were previously paid from a portion of the Central Mileage Fund known as the 'Special Expenses Portion,' nor will they cover the Highlands and Islands Medical Service

It was suggested that these would be charges on the Special Inducements Fund of £400,000 which the Minister had already agreed to provide in addition to the funds for treatment and mileage

Consideration is to be given to the possibility of establishing a single United Kingdom Mileage Fund with an agreed universal unit as the basis of distribution

**(11) Dispensing Capitation Fee**

After consultation with the members of the Rural Practitioners Subcommittee the Minister's offer of a dispensing capitation fee of 6s 6d per annum for doctors in England and Wales has been accepted without prejudice to revision as a result of negotiations at a later date. Before the fee is reviewed there is to be an investigation into dispensing costs

**(12) Maternity Medical Service**

Following the decision of the Minister that a doctor not on the Obstetric List could make arrangements with a patient on his own list for the provision of maternity medical services for which a fee of 5 guineas would be payable by the Local Executive Council, the Ministry submitted proposals for payment when the complete service is not given. Objection was taken to the fragmentation of the 5 guinea fee, mainly on the ground that doctors not on the Obstetric List are not statutorily required to undertake the full services expected of their colleagues on the Obstetric List, and that the reduced fee of 5 guineas was accepted because the range of medical care which a practitioner will be required to give under the Act to one of his public patients does not necessarily exclude any antenatal care he might consider necessary. The matter is still under discussion. Application is being made for payment for mileage, in appropriate cases, in connexion with maternity medical services

The Subcommittee drew attention to the absence of provision for the administration of an anaesthetic in the arrangements for maternity medical services under the Act, and the Ministry has since announced that a fee of £1 15s will be paid for the services of an anaesthetist with, in addition, mileage at the usual rate for the district (with a limit of one mileage fee for one journey)

The Subcommittee ascertained that the position in relation to maternity cases booked before the appointed day but actually attended in confinement on or after July 5 was that the relevant portion of the agreed fee (7 guineas or 5 guineas, as the case may be) will be paid out of public funds, and the medical practitioner will be entitled to recover from the patient fees for services rendered before the appointed day in connexion with the pregnancy

Where the patient is admitted to a hospital during labour having already been attended in labour by her doctor, the doctor is entitled to receive the full fee for the service rendered

**(13) Local Obstetric Lists**

It is understood that a doctor whose name is included in the Obstetric List for an area may undertake maternity services (on the 7-guinea scale) in any other area

Exception was taken to the publication in post offices and other places of the names of doctors on the local Obstetric List. It was suggested that it would be sufficient for the names of these doctors to be made available to the general practitioners and midwives in the area. The Ministry has not accepted this recommendation but has suggested to Executive Councils, as an alternative, that they can indicate the doctors providing maternity medical services by some suitable symbol on the general part of the list

**(14) Provision of Medicines and Appliances for Private Patients**

The Subcommittee has pressed for the provision through the National Health Service of necessary medicines and prescribed appliances for persons who are being treated as private patients. It was submitted that, subject to reasonable safeguards against abuse, patients receiving medical attendance as a matter of private arrangement should be entitled to receive medicines and prescribed appliances through the National Health Service. It was recognized that there would have to be safeguards against abuse but it was pointed out that payment for

general practitioner services was being withheld in respect of 5% of the population on the assumption that they would prefer to be treated as private patients. It would not be unreasonable, therefore, to ask that the cost of their medicines should be paid from public funds.

It is the Minister's view that prescribing and dispensing are essential parts of the treatment and cannot be dealt with as though one of them were something separate. The Ministry has considered the possibility of making available, through the hospital service to patients treated privately, particularly expensive and life saving medicines (insulin and liver preparations, etc.) where the cost would represent a hardship for the individual, but does not think that any workable arrangement on these lines is possible. In spite of further representations the Ministry has not found it possible to change its views.

#### (15) Treatment of Members of Staffs of Hospitals and Similar Institutions, and Students at Universities and Public Schools

The Subcommittee drew attention to the absence of freedom of choice of doctor for persons employed and resident in hospitals and similar institutions, where such persons are required to join the list of a member of the medical staff. It is understood that a similar situation has arisen in certain universities and public schools, where the students are being required to join the lists of the university or school doctor, becoming temporary residents during vacation. In effect, the parents of these students have no freedom of choice of doctor. It is regarded as important that, normally, the family doctor should keep the record of the patient, and the parents should be able to exercise their right of selecting either the school doctor or the home doctor as the child's normal medical attendant.

The Ministry undertook that on all possible occasions it would be made clear that there is complete freedom of choice of doctor.

#### (16) Model Allocation Scheme

The attention of the Ministry was drawn to paragraph 2 of the Model Allocation Scheme, which requires the practitioner who refuses to accept a person on his list to give the applicant such treatment, if any, as might be required by him pending his acceptance or assignment to a practitioner, but it does not place any limit of time on the period during which the practitioner is responsible for treatment in these circumstances. The Subcommittee suggests that the paragraph should specify a time limit of not more than 14 days.

It is understood that in many of the draft schemes submitted to the Ministry, a time limit of seven to 14 days has been inserted. An assurance has been given that an addition of this nature will not be questioned in other schemes, and the desirability of making it universal will be borne in mind when the model scheme is revised.

(Paragraph 5 (1) of the Model Allocation Scheme requires any practitioner who is summoned to an accident or other sudden emergency, to give any necessary treatment. In the corresponding paragraph of the Allocation Scheme, under the old NHI Medical Service the words "and is available" appear before the word 'summoned' and the Subcommittee asked that these words be inserted in the New Model Scheme.)

The Ministry's lawyers say that the missing words are unnecessary, but an assurance has been given that their inclusion will be borne in mind when the scheme is revised.

#### (17) Change of Doctor

Regulation 14 entitles a person already on a doctor's list to make application at any time to another doctor for acceptance on his list. It was suggested to the Ministry that it was desirable that a person should give notice to the Local Executive Council of his desire to change his doctor, and that the only exception to this requirement should be in cases where the change was arranged with the consent of both doctors concerned.

In declining to adopt the Subcommittee's suggestion the Ministry made a comparison with the position of the private patient who is able to change his doctor whenever he pleases.

#### (18) Sale of Practice of Medical Practitioner on Obstetric List Only

The Ministry is advised that the Act prohibits the sale of the goodwill of a practice where the name of the owner is

included only on the Local Obstetric List maintained by an Executive Council. At the Subcommittee's request prominence was given to the ruling well in advance of the appointed day.

#### (19) Certification

The Subcommittee has considered the list of enactments under or for the purpose of which doctors may be asked by their patients, or the legal representatives of patients who have died, to issue medical certificates free of charge. The list is confined to occasions when certificates may be required and does not include any form of medical report.

A protest has been lodged against the action of the Ministry in issuing the list without first consulting the profession's representatives, and it has been made clear that the list must be regarded as provisional until the Departmental Committee on Certification has reported and there have been discussions with the Ministry on its recommendations. In the meantime three points have been raised.

1. Serial 2 includes a requirement to provide a certificate to support an application for guaranteed weekly remuneration or statutory holiday. These are felt to be purposes for which certificates might be provided by persons other than medical practitioners, and the Ministry has agreed to pass the Subcommittee's comment on to the Departmental Committee.

2. In connexion with Serial 15, the Subcommittee submitted that the only purpose for which a parent requires a medical certificate under the Education Act is when the parent is summoned for the non attendance of a child at school. This is not clearly understood by medical practitioners generally, and the Ministry has accepted this position, with an undertaking to deal with the matter in an early circular to Education Councils.

3. The Subcommittee suggested that whole time medical officers of hospitals and similar institutions should be authorized and requested to issue certificates on the official forms in cases where patients attending the hospital are not under treatment by their own doctors. This has been done.

The attention of the Ministry of National Insurance has been drawn to the wording of the Maternity Certificate, which requires a medical practitioner to specify the day of the week on which the confinement is expected to take place and the words 'on the week commencing' both of which give rise to difficulties.

The Ministry of Health and the Ministry of National Insurance are jointly concerned in the machinery for the investigation of cases of alleged contravention of the certification rules, and the suggestion was made that, in cases where the doctor is a "first offender" or the breach of the rules is not of a serious nature, an informal visit might be made to the doctor concerned by the Regional Medical Officer, who would do little more than bring the matter to the notice of the doctor and discuss any difficulties. In every case of this description no disciplinary action would result from the visit to the doctor. The Subcommittee took no exception to the suggestion on the understanding that the RMO would be unaccompanied on his first visit to the doctor.

#### (20) Postage on Official Communications

Inquiry was made of the Ministry as to the arrangements for refunding to doctors the cost of postage on official communications connected with the National Health Service. The Ministry was reminded that under the National Health Insurance Act the aggregate of postage paid by doctors in each insurance area was passed on to the Panel Committee, and in that way could be used to reduce the levy on the local doctors for Panel Committee expenses. The Ministry was also reminded that franked envelopes or labels were supplied by many Government Departments—e.g., for income tax communications and correspondence with Regional Medical Officers. The absence of similar facilities when doctors were obliged by their terms of service to send communications to Local Executive Councils was a source of irritation to doctors.

The Ministry's attitude is that a new situation has arisen owing to the enormous increase in the number of communications from private individuals to Government Departments such as Food Offices, etc. Apart from repercussions in other fields, the Ministry doubts whether the amounts involved would justify the volume of work necessary to keep account of them. The Ministry is of opinion that postage is a proper charge on a doctor's practice expenses (which were taken into account in

fixing their remuneration) and does not consider that arrangements for franking envelopes are justified. This view is not accepted and further representations are to be made on the subject.

#### (21) Superannuation—Proportion of Practice Expenses in the Assessment of Contributions

Agreement has been reached with the Ministry of Health on the percentage of income to be deducted for practice expenses in the assessment of National Health Service income for superannuation purposes. The deduction will be 50% of mileage payments and 35% of other payments. The range of "other payments" has not yet been finally determined but it is understood that it will include all fees for maternity medical services and grants (up to £150 per annum) for the training of assistants.

#### (22) Purchase Tax on Medical Record Filing Cabinets

The Ministry's attention was drawn to the fact that medical practitioners are being put to considerable expense in the acquisition of filing cabinets for medical service records. The Subcommittee asked that representations be made to the Chancellor of the Exchequer in favour of the abolition of purchase tax on such cabinets. It was important that the risk of damage to these records should be minimized but it was feared that the present high cost of suitable cabinets might result in improvisation at the expense of the records themselves. Relief from purchase tax would go a long way to avoid this probability. The Ministry was reminded that this was one of the few articles on which purchase tax had been increased in the recent budget.

The Ministry has approached the Board of Customs and Excise, who say they have no authority to remit or refund purchase tax on equipment of this nature, and that there is no possibility of obtaining such authority. Not only are there administrative difficulties in giving preferential treatment to particular classes of purchasers since purchase tax is charged at the wholesale stage but a concession to doctors would make it impossible to resist other claims which could be regarded as equally strong.

#### (23) Medical Treatment of Overseas Visitors

The question of overseas visitors and foreign seamen being allowed to take advantage of the National Health Service without payment during their stay in Great Britain has been raised with the Ministry, and a protest has been lodged against the absence of consultation with the medical profession before a public announcement of the concession was made. The Subcommittee is seeking counsel's opinion on the Ministry's interpretation of the Act in regard to overseas visitors.

#### (24) Expenses of Local Medical Committees

The attention of the Ministry of Health was drawn to the absence of any provision in the National Health Service Act for the expenses of Local Medical Committees. The Ministry has undertaken to include in the proposed Amending Bill provision for a statutory levy if so desired by the Local Medical Committee in any area. In the meantime Local Executive Councils have been instructed to advance funds to Local Medical Committees on their request, the understanding being that any such advance of payments will be recovered by deductions from the remuneration of the general practitioners concerned when statutory authority has been given for such deductions.

So far as voluntary levies are concerned the Ministry has undertaken to give favourable consideration to a request that clerks to Local Executive Councils should be authorized to make appropriate deductions at the request of the Local Medical Committee, upon the understanding that it might be necessary to reserve the right to withdraw the concession if at any time the Minister feels that the purpose for which the deductions are being made are placing him in an embarrassing position.

#### (25) Income Tax Relief in Respect of Diminution of Income

Application was made to the Chancellor of the Exchequer for some relief from tax in cases where, owing to the introduction of the National Health Service, a medical practitioner would suffer hardship if required to pay tax on the preceding year's income. It was submitted that this was a situation where the wartime concession, which enabled income to be assessed

on a three-years average, would operate fairly. The Chancellor's reply was that a concession on the lines suggested could not be justified except in the abnormal circumstances of war.

The Minister of Health was asked to support the application to the Chancellor of the Exchequer, but his reply was that he could not agree that many practitioners would lose income owing to introduction of the National Health Service, and that in any event it would be difficult to prove that the loss was due to the Act when it might be due to other causes such as change of popularity, the arrival of new competitors, etc. The Minister's first premise conflicts with a statement in a circular (C.C.L. 34) to Local Executive Councils, "that in a few areas where the proportion of doctors to the population is at present unusually high the coming into operation of the National Health Service may result in a drop in doctors' incomes."

The Minister's reply was discussed with his officers, who thought it was entirely a matter between the doctors and the Inland Revenue. They indicated, however, that if the views of the Ministry were sought by the Commissioners of Inland Revenue the view would be expressed that there were likely to be cases of hardship among doctors in the matter of income tax owing to the introduction of the National Health Service.

#### (26) Medical Card

The Insurance Acts Committee made a number of proposals for the amendment of the medical card. These proposals were not made in time for consideration by the Ministry before it was necessary to proceed with the printing of the medical card but they have been noted for discussion with the professions' representatives before the card is reprinted.

#### (27) Medical Treatment of Services Personnel

An assurance has been given that the total number of persons in the Services is deducted from the total population before arriving at the figure upon which the Central Practitioners Fund is based.

There is to be an early discussion with officers of the Ministry on the position of Services personnel who require medical attention while on leave.

#### (28) Medical Services Committee Procedure

The Ministry's attention has been drawn to Regulation 5 of the Services Committee and Tribunal Regulations permitting (a) a party to an investigation being assisted in the presentation of his case by some other person, and (b) the secretary or other officer of the Local Medical Committee being present when a case is considered by the Medical Services Subcommittee. In the interests of the doctor concerned it is felt to be important that the Secretary of the Local Medical Committee should be acquainted with all the facts of the case, and the Ministry has agreed that copies of all documents issued in connexion with the case might be sent to the secretary of the Local Medical Committee, subject to the agreement of the doctor concerned.

#### (29) Personnel of Tribunal and Tribunal Advisory Committee

The Subcommittee has nominated Dr H. Guy Dain as a medical member of the Tribunal to be appointed under Section 42 of the National Health Service Act, with Dr W. V. Howells (Swansea), Dr J. C. Pearce (Diss, Norfolk), Dr C. F. R. Killick (Williton, Somerset), and Dr A. S. Wilson (Gosberton Lincs) as deputies.

The following have been nominated provisionally for inclusion in the panel of medical practitioners from which the members of Advisory Committees set up under Regulation 11(4) of the Service Committees and Tribunal Regulations will be chosen: Dr P. V. Anderson (Shildon), Dr J. A. Brown (Birmingham), Dr H. Guy Dain (Birmingham), Dr R. O. Eades (Ipswich), Dr W. Glyn Evans (Wrexham), Dr F. Gray (London), Dr E. A. Gregg (London), Dr J. Morgan Rees (Pontypridd), Dr G. H. Sedgwick (Rotherham), Dr W. G. Thwaites (Brighton), Dr N. E. Waterfield (Little Bookham), Dr S. A. Winstanley (Urmston), Dr W. Woolley (Bristol).

#### (30) Fees for Vaccination and Immunization

Discussions are to take place shortly on the fees to be paid to doctors for vaccination and immunization.

## INCORRECT INCOME-TAX DEDUCTION

It has been the established custom over many years for members of the profession engaged in private practice, whether as general practitioners or specialists, to be assessed for the payment of income tax under Schedule D, and this practice has obtained even where the practitioner has held one or more part-time medical appointments. Thus the income from such appointments has been included by the practitioner in the annual return which he has made to the Inspector of Taxes, and he has been able to set against his total professional income the expenses which have been incurred in carrying out his professional work.

The attention of the Association has recently been drawn, however, to cases where a regional hospital board has deducted income tax at source from the remuneration of specialists in part-time contract with the board. This practice is at variance with the normal procedure as outlined above, and not only will it involve specialists in the payment of income tax simultaneously on the income in respect of two separate years but will no doubt lead to difficulty in reclaiming the due allowances on account of professional expenses.

The Association has therefore made a vigorous protest to the Ministry of Health on the subject, and any part-time specialist who has already had income tax deducted at source from his past quarterly remuneration is advised to take the matter up with his regional hospital board without delay.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non County Borough Councils*—Dartford, Radcliffe (limited to future appointments), WallSEND

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley

## Correspondence

### Capitation Fee

SIR—Unless action is taken in this matter immediately the NHS is destined to unpopularity by patients and doctors alike and ultimate failure. In the first place, failure is bound to come if doctors' lists are not limited to 2,500 per doctor. This is roughly the proportion of patients to doctors and is definitely as many patients as one doctor can attend to if he is really going to practise medicine and not just become an automatic machine for delivery of prescriptions and certificates and to indicate the way to the nearest out-patient department. Lists of 2,500 would enable the doctor to give good attention to all patients and practise real medicine—the result an efficient and successful service, the 4,000 lists must produce rushed work, scanty treatment, general dissatisfaction among patients, and finally a service unwanted, disreputable, and useless.

Secondly, if doctors are going to give their best they must be adequately recompensed and the proposed capitation fee falls miserably short in this respect. What a farce a scheme for social security—and one of the most important branches of that scheme left with no security at all—vast numbers with badly reduced incomes. There are legion with panels of only 1,200 or so bringing in income of about £115 gross—i.e., about £750 net and a pension of £2 or £3 per week if they stay the course until they are 65, and on call 24 hours a day for 7 days a week. Is this social security? This will not do, and the sooner we make it clear to Mr. Aneurin Bevan and Co. the better, even if we have to form a trade union. We were promised a fee in accordance with the Spens Report but were given about 18s., and so any more promises will not do.

I would suggest a graduated capitation fee which would give the smaller panels a fairer deal as the overhead expenses of a small practice are greater in proportion than those of a large

practice, and there will always be small panels in sparsely populated areas and of those just setting out on a medical career. The rate I have in mind would be £2 per head for the first 1,000, 25s for the second 1,000 and 20s for the last 500. With regard to the pension scheme, I would suggest that the years a practitioner has devoted to panel work under the old NHI should be taken into consideration so as to give all a reasonable pension on retirement. We were grossly underpaid under the old scheme, and this would only be giving us a small increase in pay retrospectively.

Finally, I suggest that all practitioners who have ideas similar to those above write to the BMA and also to their Member of Parliament stating their views and requesting immediate action being taken. Where several practitioners are in agreement they might send a conjoint letter—I am, etc.,

Wetherby Yorks

S T PYBUS

SIR—With reference to Dr. Jas. J. Dwyer's letter (*Supplement* Sept 18, p. 127) I gave the answer at the last SRM when I asked the representatives if they were prepared to recommend their constituents to enter the Service without knowledge of terms of remuneration or conditions of service. To accept service under these circumstances, knowing the plenary power vested in the Minister, leaves no option for those who have so committed themselves. Now I cannot understand why the BMA should be decried for lack of attention to the financial side. It should be kept in mind that the Negotiating Body was only empowered to act as such on principles alone—details to be entered into later. Why bleat now?—I am, etc.,

Maidstone Ken

S LAURIE SMITH

SIR—I see that the Government has recently negated its recently proclaimed policy of freezing wages and salaries at least so far as its 'am folk' are concerned, by recommending an increase on the engineers' claim. Taking cognizance of this fact one is struck by the thought that the time might also be propitious for a claim for a considerable increase in the medical capitation fee, especially taking consideration of the fact that the principle of almost unlimited free certification, without concomitant fee adjustment, which has been so callously hurled upon the already much overtaxed shoulders of this unfortunate profession so unnecessarily, is causing and is likely to cause much greater encroachment on the doctors' time in the future.

I enclose a propaganda leaflet which I have recently received from another medical body, which in my opinion has not been particularly noted in the last few years for its anti-Government attitude, in which one of its immediate objects is stated to be a 30s capitation fee together with numerous boons and blessings. Reckoning on the basis of the *a fortiori* argument one would imagine that the BMA would be fully justified in going in for a 40s capitation fee, bearing in mind the considerable financial loss likely to be sustained by most practitioners in middle and good industrial class areas—in fact, in all but the poorest areas—associated at the same time by a very considerable increase in work at a time when the popular clamour is for more money, more leisure, and less work—I am, etc.,

Manchester

K. V. DEAKIN

### A Salaried Service

SIR—I write to support Dr. R. J. K. Fleming's letter on a salaried service (*Supplement* Sept 11, p. 119). I feel sure that as time goes on more and more doctors will reach the conclusion that the only way to achieve a National Health Service is by the introduction of a salaried service with the doctors working in co-operation instead of competition. We have chased away this bogey of a salaried service to find we retain all the disadvantages and expenses of private practice while losing its advantages.

Does anyone imagine that a health centre could work under the present system of payment? Opportunities for taking on another's patients would be increased, and agreements not to do this while protecting the doctor, would not act in the interest of a patient wishing to change his doctor. Like most compromises the present system lacks courage, vision, and hope for the future. I feel sure that before much longer the idea of a salaried service will gain general acceptance—I am, etc.,

Worsborough Dale Yorks.

D. W. MAYMAN



## Financial Strain on Young Specialists

SIR—As reported in the *Journal* of Aug 7 (p 318), Sir Ernest Griham Little recently asked a Parliamentary question on the subject of young specialists who were in financial stress. As one of the doctors concerned, I wish to emphasize how urgent is the necessity for relieving this stress as quickly as possible.

I am 30, qualified six years ago, and began medical training twelve years ago. After three years in the Services and with a wife and two children I now earn £650 in a Class III Government grant. Even with the most careful living and considerable self-denial I find that I must borrow a considerable sum each year to maintain this frugal existence for myself and family. Since July 5 our plight is worse, as superannuation and national insurance take approximately another £3 a month.

As mentioned by Dr Clapham Coates (*Supplement* Sept 4 p 105) we are also interested to know how much better off we shall be when new rates of pay are announced. It is not unusual for us to find that a person who has not served in the Forces and who has qualified after ourselves has now reached specialist status as an assistant physician. It is also not unusual to find that a doctor qualified since the end of the war and now starting specialist training is earning as much as ourselves. Their success is well deserved but, denied of their opportunities because of war service we cannot but be envious. The remedy does not lie in placing us without the qualifications in their posts but in giving us the opportunity to continue training without financial embarrassment. The Spens Report in fact recommends this state of affairs. But it must be clear that security for a newly qualified doctor starting specialist training can be achieved at £600 a year but cannot be achieved at that figure after three years in the Services and with a wife and two children. What of the man with six years' service and four or five children?

Let us be given the financial security of a doctor who has not served. This must mean that years served in the Forces must be allowed to count as years of training as far as payment is concerned, but not, of course, of necessity for the granting of hospital posts. We shall still complete training, and so reach high remuneration, later than the non serving specialist but let us at least have financial security in the meantime. May this arrangement come quickly—I am, etc.,

EX SERVICE

## POINTS FROM LETTERS

## Free Medicines

DR T M CUTHBERT (Worthing) writes: Although I am entitled to receive medicines, etc., free, yet, because I am a retired practitioner, every time I require any medicine, etc., I must either trouble a fellow practitioner to write me out a prescription or pay for the medicine, etc., myself. Is this fair?

## RECRUITMENT OF YOUNG PRACTITIONERS

The Central Medical War Committee has been informed that on the recommendation of the Medical Priority Committee, the Minister of Health, with the concurrence of the Secretary of State for Scotland, has decided that the emergency arrangements under which a young practitioner liable for military service is recruited after a six months tenure of an "A" post will cease at the end of October. Young practitioners completing their tenure of "A" posts on or after Nov 1, and selected for appointment to "B2" posts, will be granted deferment of call up in accordance with the regulations in operation before the introduction of the emergency arrangements last July. Hospital authorities are being informed by circular letter of this change in procedure. There is, however, no change in the arrangement under which young practitioners approaching the age of 26 on qualification are recruited before their twentieth birthday, even if this should prevent their completing an "A" post or occupying an "A" post at all.

## RETURN TO PRACTICE

The Central Medical War Committee announces that Mr Gilbert Parker, FRCS(Ed.), has resumed civilian practice at 25, The Crescent Linthorpe, Middlesbrough (Middlesbrough 88945).

## Association Notices

ELECTION OF MEMBERS OF THE COUNCIL BY  
BRANCHES NOT IN GREAT BRITAIN AND  
NORTHERN IRELAND

Notice is hereby given that *nominations* of candidates for election as members of Council by the following grouped Branches for the period of three years, commencing from the termination of the Annual Representative Meeting, 1949 must be forwarded in writing so as to reach the Secretary not later than Jan 29 1949.

	Number of Members of Council to be Elected by Group
Branches within the area of the Medical Association of Eire	1
South Australian, Tasmanian, Victorian, and Western Australian	1
New South Wales and Queensland	1
New Zealand and Fiji	1
Barbados, Bermuda, British Guiana, British Honduras, Grenada, Jamaica, Leeward Islands, St Lucia, and Trinidad and Tobago	1
Aden and Ceylon, and Grouped Branches in India and Pakistan	1
Hong Kong and China, and Malaya	1
Cyprus, Egyptian, Gibraltar, Kenya, Malta, Mashonaland, Matabeleland, Mauritius, Northern Rhodesia, Nyasaland, Sierra Leone, Sudan, Tanganyika, Uganda, and Zanzibar	1

Nominations must be signed by not fewer than three members of any Branch in the Group and should be in the following form.

We, the undersigned, hereby nominate (full name and address to be given) for election by the (state the names of the Branches in the Group) Branch as a member of the Council of the Association for the three years 1949-52.

Signatures and addresses of three nominators  
Branches

Date

A notice will be published by the Council in the *Supplement to the British Medical Journal* of Feb 12, 1949, as to the nominations received in respect of each Group.

Where contests occur, voting papers containing the names of all duly nominated candidates will be issued from the Head Office, British Medical Association, Tavistock Square, London WC1, to each member in the Group.

By Order,

CHARLES HILL  
Secretary

## WEST DERBYSHIRE DIVISION

Notice is hereby given by the Council of the Association to all concerned of the formation of a new West Derbyshire Division comprising the urban districts of Matlock, Wirksworth, Bakewell, the rural district of Bakewell, the civil parishes of Dethick and Lea and Holloway.

The new Division will form part of the Derbyshire Branch.

CHARLES HILL  
Secretary

## Diary of Central Meetings

OCTOBER

27 Wed Council, 10 a.m.

## Branch and Division Meetings to be Held

BATH DIVISION—At Royal United Hospital Bath Tuesday Oct 19 8.30 p.m. Dr Philip S. Hench (Director, Arthritis Unit, M. O. Clinic) 'Psychogenic Rheumatism'.

DARTFORD DIVISION—At West Hill Hospital (County Hospital) Dartford Friday, Oct 15 8.45 p.m. Mr Rodney Mangot 'The Management of Patients with Peptic Ulcer'. A discussion will follow.

SOUTH WEST ESSEX DIVISION—At Thorpe Coombe Maternity Hospital, Forest Road, Walthamstow London E Wednesday Oct 20, 8.30 p.m. Mr Alan Brews 'The Commonplace and Rare in Gynaecology'.

WESTMINSTER AND HOLBORN DIVISION—At Royal Cancer Hospital Medical School, 24, Onslow Gardens Fulham S.W. Wednesday Oct 20, 8.30 p.m. Mr A. Lawrence Abel 'Cancer of the Rectum'. Open to all medical practitioners in the area of the Division.

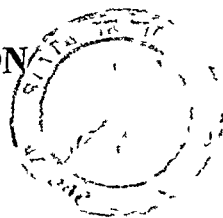
LONDON SATURDAY OCTOBER 23 1948

## THE SIGNIFICANCE OF PROTEINS IN NUTRITION THEIR PARTICULAR IMPORTANCE DURING CONVALESCENCE\*

BY

D P CUTHBERTSON, MD, DSc

Director Rowett Research Institute Aberdeen



The protein component in nutrition is one of the most fascinating of all fields for study, for it deals with the essential fabric of growth, repair, and reproduction and with other dynamic expressions of vital activity involving continuous chemical change such as the maintenance of the osmotic relationships in the tissue fluids, immunity mechanisms, enzyme systems, and hormones

### Quality

There are some 23 different amino-acids in the body, and these are built up into the tissue proteins in the varying linkages and groupings which give to the tissue proteins their peculiar properties. These proteins thus subserve in some way or another the structural and functional requirements of the body, and variations in functional activity are coupled with greater or lesser difference in amino-acid make up of the proteins concerned. Proteins subserving the same function in various species have differences in the proportion or arrangements or even in the numbers of these different amino acids. Thus Williamson (1944) has shown that the proteins of human and cows' milk differ in the proportions of certain of the amino-acids, tryptophan in particular, and Mellander (1945) has shown that the caseins of human and cows' milk vary in their phosphorus content. The contradictory reports about the nutritive value of haemoglobin are apparently due to variations in the amino-acid composition of the haemoglobins of different species. Dog haemoglobin is deficient in methionine but not in isoleucine, while the reverse holds for human haemoglobin (Brand and Grantham, 1946). Prosthetic groups of carbohydrate origin—e.g., as in the pneumococcal antigens—or of lipid (see Cohn *et al.* 1944) may give additional specificity to the proteins.

The proteins of our food are the exogenous source of the amino acids or specific groups required by the body, and as a group they are relatively stable, though liable to suffer a slight change in molecular character on treatment—namely, the process of denaturation—which generally makes no appreciable difference in regard to utilization of the particular protein, although this physico-chemical change is of great assistance in cooking and baking. I need only instance the vast array of appetizing egg dishes, curds and cheese and the texture of bread as examples of this.

Following ingestion, the proteins are digested by the hydrolytic proteases of the alimentary tract, the amino-acids so formed are then absorbed. There is some evidence that certain peptides or even larger fragments are absorbed

in small quantity as such. While the body has the faculty of synthesizing certain of these amino-acids or specific groups, others either cannot be synthesized at all or only at a very slow rate. Diets must therefore contain proteins which, when acting in supplementary fashion, will provide all the essential amino-acids required and sufficient nitrogen to provide for general purposes. It is very necessary that no key amino-acid be lacking, otherwise it will form a limiting factor in growth or even in maintenance. Dissociation in time of ingestion of the essential amino-acids, even though all the necessary ones are provided within the 24 hours (Henry and Kon, 1946), has been demonstrated to lead to inefficient functioning, as all are required at the same time. Further, dissociation in time of ingestion of protein and carbohydrate leads to an inefficient use of the protein (Cuthbertson and Munro, 1939, Cuthbertson, Munro, and McCutcheon, 1940). Better utilization is also obtained when the day's intake is spread over a number of meals than when it is divided over only two meals.

During the 1914-18 war, and in the years which followed, it became customary to divide dietary proteins into two groups, depending on the degree to which the proteins conformed to the then known requirements of man. It became the practice to regard the edible proteins of animal origin (gelatin as the main exception) as being in the first-class category and those of vegetable origin as second-class. These decisions were based on a few incomplete analyses and biological tests of the pure proteins rather than of the mixed proteins of the foodstuffs concerned. Nevertheless, this division was useful and served its purpose in drawing attention to the differences in amino-acid composition.

As the result of careful observation upon himself Corry Mann (1935) obtained evidence which suggested that there were pronounced differences in the biological value of such first-class proteins as those of meat and milk, and that the most likely explanation of his results was to be found in the superior quality of the milk proteins. Credit for pointing out the supplemental action of the proteins, not only in individual foodstuffs but in the diet as a whole, rests mainly with Mitchell (1924) and Terroine (1936). The natural selection of foodstuffs, even when entirely of vegetable origin, seems to permit adequate supplementations, but it is necessary to note that cereals tend to be low in lysine. The terms first- and second-class protein as applied to the mixed proteins in animal and vegetable proteins would appear in this sense to be meaningless provided there is sufficient protein in the diet and that the calorie requirements are fully met. Nevertheless the protein-rich animal foodstuffs are in part the vehicle of our intake of many vitamins, particularly the fat-soluble, and of many essential

\*Read in opening a discussion in the Section of Nutrition at the Annual Meeting of the British Medical Association, Cambridge, 1948.

minerals. The full story of their contribution to the diet has not yet been completely unfolded, and the significance of natural selection in this sense must be explored.

In addition to the major differences in amino-acid composition which characterize the proteins, minor differences in the nutritive value of the proteins of a single foodstuff can be induced by certain natural and artificial means. The studies of Everson and Heckert (1944) have demonstrated that the growth-promoting qualities of legumes seem to vary with the source, the degree of inactivity of the seed, and the method of cooking used. These observers found that all the mature legumes, except peas, were improved by the heating procedures employed. Severe heat treatment of wheat and oat cereals during certain forms of processing confirm the detrimental effects noted by earlier workers (Murlin *et al.* 1938, Stewart *et al.* 1943). More recently Melnick *et al.* (1946) have shown that the biological value of soya and oat flours and of milk processed in different ways is related to the rate of release of amino-acids, particularly methionine, during digestion. Treatment of proteins during processing or cooking may thus alter the biological value of the product.

Mellanby (1946) has made the very important discovery that wheat-flour "improved" by the agene process, involving treatment with nitrogen trichloride, produces canine hysteria or, as it is called in the U.S.A., running fits when given as food to dogs. More recently ferrets have been shown to be susceptible (Mellanby, 1947). Mellanby considers that a toxic factor is produced in association mainly with the gliadin and glutenin fractions, and that the clinical signs are not due to a deficiency disease. Moran (1947) has also provided evidence against the deficiency theory, and has shown that not only the gluten fraction of flour but also certain other, but not all, proteins are capable of giving rise to canine hysteria when similarly treated. Further observations by Moran and his colleagues (Bentley *et al.* 1948) have indicated that methionine has a unique capacity to react with nitrogen trichloride, but that other amino-acids may also be implicated.

#### Protein Allowances for Health

The term "allowance" has come to be used in place of "requirement," as no satisfying data exist to provide us with a real knowledge of actual requirements.

Protein is man's chief source of nitrogen and sulphur, and the rate of supply obviously conditions growth, maintenance, repair, reproduction, and lactation. This is its primary function. It can also serve as a source of energy but in this respect it would apparently be no more useful than carbohydrate and fat unless its simultaneous metabolism with these substances is advantageous, or unless in virtue of its specific dynamic action under certain conditions it is peculiarly suited for those exposed to cold.

It may well be that our intake of protein-rich foodstuffs is also bound up with a need for those other essential nutrients contained in these foodstuffs and with the improvement in palatability and attractiveness of the diet which results. It is therefore possible that for these reasons we take in more protein than is strictly necessary, and also to safeguard against any special requirements that may arise. Very few diets exist in which the proportion of the calories derived from protein falls below 10%, and the level for a particular population tends to remain constant at all ages (except infancy) and at all grades of muscular activity. On the whole, people eat more or less of a mixed diet according to energy requirement.

If those races which are by circumstance predominantly carnivorous are excluded, then the percentage of the total energy derived from protein before 1939 lay generally

between 10 and 14%, and, whenever economic circumstances permitted, the intake of protein of animal origin was raised to the region of 60% of the total protein. How far this qualitative change is bound up with a real need for animal protein of a high biological value without requiring too much variety in foodstuffs, as in the case of the vegetarian, or for other dietary essentials associated with protein in these animal foodstuffs, is impossible to say. There is no doubt that the more attractive flavour and culinary properties of animal protein and its more easy assimilation are contributory factors, but it is possible for people to live and reproduce on diets containing little or any protein of animal origin.

To approach the problem from the experimental side is also very unsatisfactory. There have been three different types of assessment.

1 This is based on the requirement to replace the specific endogenous nitrogen expenditure, together with the requirements for the laying down of any fresh tissues or the expansion of existing tissues or for milk production. A correction is then made for the biological value of the proteins used. Such work is of considerable interest, but involves experimenting under highly artificial conditions. Generalization of dietary requirements from such data cannot be viewed with equanimity.

2 Nitrogen-balance experiments in which nitrogen equilibrium is established at low intakes of protein. The values obtained are thus maintenance requirements but are again the result of a restricted regime. To convert the maintenance requirements into "standard" allowances an empirical 50% has been added by some workers. The scale of this empirical addition is undoubtedly influenced by that required to bring the values in line with customary feeding habits.

3 Tests to determine experimentally the point to which protein intake can be reduced without any impairment to health and physiological efficiency. Such experiments being of long duration become monotonous, and psychological difficulties complicate the issue. Further, children and pregnant and nursing women cannot be subjected to such tests.

In the present state of our knowledge I believe that it is much safer to view our allowances in terms of the dietary habits of the best-nourished section of the community and to pay particular regard to the proportion of the total calories derived from protein. This gives us a measure of protein allowance which is safe. It may be regarded as providing too much protein at higher levels of energy intake, but, as the protein intake naturally rises *pari passu* with the calorie intake, it would in any event be extremely difficult to alter natural selection.

There is evidence that the physique of children is improving—Tuxford (1942) has had to alter his index of nutrition in the course of a quarter of a century, therefore, by basing protein intake on energy expenditure for age rather than directly on age, changing levels of intake are safeguarded.

On the basis of their study of children from 1 to 17 years whose restriction in food selection was at a minimum Holt and Fales (1921, 1922) found that protein averaged 15% of the calories. Gephart's (1917) investigation of adolescent boys in a private school in America indicated that 14% of the calories were derived from protein. Wait and Roberts (1933) obtained a value of 12.4% for adolescent girls living in institutions in the same country. Polteva *et al.* (1935) found that in Russia the corresponding level was 13%.

Widdowson (1947), from her study of the individual diets of children—largely "middle-class"—found that one of the most constant features of the diets was the constancy of the percentage of the total calories derived from protein by children of various ages. The average levels for each age group fell within the range of 11 to 14%.

With regard to infancy, little can be said with confidence except that during the suckling period, when growth is most active and when presumably a perfect mixture of proteins is being consumed, the percentage of the total calories derived from protein ranges from 6 to 9%, according to the analyses quoted by the different authorities concerned. Adding 50% to the 9% gives 13.5%, which might safely cover the requirements of the weaning period and the next 12 months. Cows' milk has some 20% of the calories present as protein.

It should be noted that during the current period of sugar and fat restriction the percentage of calories derived from protein occupies a slightly greater proportion of the calories than was the case in more normal times. It is in the region of 12 to 14%.

It is suggested that an investigation is necessary to determine the level of calorie requirements by ages from 0 to 21 years based on the smoothed-out curves of the best data available for the best-nourished section of the child and adolescent population (Widdowson's might well serve as a basis unless some better data are available) and then to calculate the corresponding allowances for protein as described in the foregoing paragraphs. Similarly the various categories of adults can be treated, probably placing pregnant women during the latter half of pregnancy and nursing mothers at the upper end of the range.

### Protein Deficiency

If the diet is insufficient in energy value, and if energy expenditure is not reduced, proteins which would have been available for growth, maintenance, or reproductive functions may be deflected to meet the energy demands. After the first day or two of starvation some 13% of the calories expended by the body are derived from protein, the rest from fat. The addition of carbohydrate or fat spares this wastage of body nitrogen which occurs on diets that are inadequate in energy. When carbohydrate or fat in excess of energy requirement is added to a normal diet a considerable storing of nitrogen and sulphur takes place (Cuthbertson and Munro, 1937). How long this goes on is uncertain and may depend on the body's facility to raise its metabolic rate. This may well be a highly individual characteristic and account for differences in energy intake by persons of apparently similar build.

At one time it was thought that the proteins could wax and wane in molecular structure without serious alteration in property, but it is now known that the large number of different proteins found in the body remain true to type, and that while alterations in the quantity and quality of protein in the diet or fluctuations in its energy value do not apparently induce the body to form imperfect or unusual proteins they may influence the total or relative amounts of the different proteins in the tissues or tissue fluids. But this does not mean that the proteins, even of the fabric of the body, are in a stable state. The work of Schoenheimer (1942) and his collaborators (Heidelberger *et al.* 1942) has demonstrated that this apparent stability is in reality a dynamic equilibrium in which the proteins are participants in a constantly changing metabolic mixture and in which carbohydrates, fats, and other compounds take part.

For a long time it was thought that there was a store of protein in the body like that of fat in adipose tissue, but the search revealed only some waxing and waning in liver cytoplasm. The easily lost fraction of liver cytoplasm has been called "labile liver cytoplasm" in contrast to the "remaining liver cytoplasm" (Kosterlitz and Campbell, 1945-6). The view is now held that the body has the capacity to lose and replenish again its protein content by the increase or decrease of the existing and characteristic protein components of these tissues. The observations of

Upadhyay (1944) have shown that an intake of 10 g is sufficient to prevent anaemia in the non-pregnant may be insufficient when she is pregnant. Due must be taken of the haemodilution of pregnancy.

In general it may be said that from the dietetic point deficiency of protein intake is generally coupled with a deficiency in calories. Evidence of these combined deficiencies were found only too often in the prisoners of war and political prisoners in the hands of our enemies in Europe and the Far East. The investigations of Keys and his collaborators (1946) on normal men subjected to a profound restriction in calorie intake has added considerably to our knowledge.

Vaughan, Dent, and Pitt-Rivers (1945) found that the best vehicle for administering protein to starving subjects was skim milk rather than a hydrolysate of casein, but that occasionally it might be necessary to give intact protein by vein as plasma or serum.

Jorpes, Mignussøn, and Wretling (1946) seem satisfied that an enzymic hydrolysate of casein fed as a supplement to breast milk produces an accelerated weight gain over breast milk alone. Loehle (1946) advocates the value of human plasma by mouth as the sole nutrient for the first day of life for premature infants and of plasma in addition to other foods thereafter.

Four types of diet for babies have been tested out by Albani *et al.* (1937)—namely an evaporated milk mixture, a mixture based on an enzymic digest of casein, a similar digest of lactalbumin and in each digest of casein supplemented with tryptophan and cystine. The retention of nitrogen and the weight gain of the infants while on the acid digest of casein mixture were respectively about 70 and 50% lower than those obtained when the same subjects were given synthetic diets based on enzymic digests of casein or lactalbumin. The biological value of the enzymic digests was about the same as the evaporated milk mixture. It is thought that the acid digest of the casein lacks certain peptide-like substances ("streptogenin").

### Plasma Proteins

Oedema is a frequent concomitant of a diet low in calories which thus causes a relative or absolute deficiency of protein. Keys *et al.* (1946) produced it experimentally in 34 normal men who lost a quarter of their body weight while subsisting for six months on a European type of semi-starvation diet consisting of whole cereals, potatoes, turnips, etc. providing an average of 49 g of protein daily. Pitting oedema appeared within two months in some of the men and eventually in all but a few. The ratio of extracellular water to cellular water was doubled. It is of interest to note that this development of oedema was accompanied by only a slight decline in plasma protein concentration averaging 0.73 g per 100 ml. Meanwhile the venous pressure had fallen to some 50% below normal. The evidence seems to indicate that it is not simply a result of hypoproteinaemia or of renal or cardiac abnormality. It should be noted that the hypoproteinaemia only predisposes to oedema, and that where dehydration is superimposed it may not be seen until treatment with fluid begins.

Anorexia is a potential and sometimes direct cause of insufficient food intake. It is well known that when there is a deficiency of an essential amino acid in the diet of experimental animals anorexia often ensues. Diarrhoea or undue intestinal hurry may be a cause of impaired absorption of amino acids. Experience at Belsen concentration camp indicated that hydrolysed protein passed largely unabsorbed through the guts of many of the inmates.

The work of Whipple (1942) has emphasized the part played by the plasma proteins in relation to protein

abolism, and recent experiments have shown that in experimental dietary deficiency some 30 g of albumin are required for each 1 g of albumin in the circulation. This dynamic equilibrium between plasma protein and tissue protein means that a fall in plasma albumin concentration of 1 g per 100 ml implies a loss of protein of over 1 kg. In terms of actual muscle this is equivalent to 4 kg. In pregnancy, but more particularly in lactation, there is an increased demand for protein which must be met by an increased intake of food. The development of the mammary gland and its ability to secrete milk is determined by the food intake during the period of mammary development. This my colleagues have shown to occur in sheep. The effects of deficient intake of food during the latter half of pregnancy increased the number of neonatal deaths, and deficient lactation caused many deaths within the first 72 hours after parturition especially in the case of twin lambs.

Not all proteins appear to be equally useful in the maintenance of a normal level of protein in the plasma (Madden and Whipple, 1940, Whipple, 1942). Per unit of protein fed, beef serum will favour the production of three times as much plasma protein as beef heart, and more than five times as much as beef stomach, there is thus a qualitative as well as a quantitative aspect to the influence of animal proteins. Casein and lactalbumin have also high potencies. Animal protein is twice as effective as vegetable protein in combating oedema and hypoproteinaemia. Under certain conditions sulphur-containing amino acids occupy a key position in the synthetic process (Whipple, 1942, Himsforth, 1946).

The evidence points to the liver as being of primary importance in the production of plasma proteins, although some globulins may be produced elsewhere. The association of hyperglobulinaemia with proliferation of the reticulo-endothelial system suggests that certain of the globulins of the plasma may possibly arise in that tissue.

Factors adversely affecting protein nutrition, such as direct or indirect starvation, haemorrhage, etc., lead to a fall in the plasma albumin while the plasma globulin is but little affected. These changes may affect the plasma proteins of the foetus as my colleagues have found in the case of the sheep. The relatively small size of the albumin molecule permits leakage in conditions of increased permeability—e.g., inflammation. Albumin is apparently synthesized more slowly than globulin, and mild damage to the liver seems to affect its formation. Where the protein intake is satisfactory and yet there is a fall of albumin due to deficient formation or loss from the circulation there may occur a slow, apparently compensatory rise in the globulin, probably to offset the lowered osmotic pressure due to the plasma protein.

### Haemoglobin

Hahn and Whipple (1939) have clearly demonstrated that by limiting the protein intake in anaemia haemoglobin production can be reduced. When the erythrocytes disintegrate, much of the globin is saved and is probably used again to form a new haemoglobin or to supply some other protein needs of the body. Infection and to some extent nephritis in its later stages (Whipple, 1942) modify haemoglobin production. Robschert-Robbins, Madden, Rowe, Turner, and Whipple (1940) have found that in dogs given an abundant supply of iron, but fed to maintain a blood level of about one-third normal, two to three times as much haemoglobin was produced as plasma protein even when the stimulus was apparently maximal.

### Protein Regeneration following Partial Starvation

The pattern of recovery of the blood proteins following extreme protein insufficiency has been described by

Rossiter (1946). In his study of Indian prisoners of war who had a normochromic macrocytic anaemia at the time of their liberation he found a reduced serum protein concentration coupled with their reduced body weight, the former being almost entirely confined to the albumin fraction of the plasma proteins. There was also a reduction in the total circulating haemoglobin as well as in the total circulating plasma protein. When these ex-prisoners of war were given a diet rich in calories, protein, and vitamins the above factors returned to normal according to a definite pattern. The first stage, lasting up to four weeks, was characterized by a rapid rise in plasma volume to normal and the disappearance of oedema. The improvement in the haemoglobin and haematocrit reading was not so rapid but the red cells quickly became less macrocytic. The total circulating plasma protein increased, but because of the rapid rise in plasma volume the plasma protein concentration changed but little. More albumin was formed than globulin.

The second stage (2 to 12 weeks) was characterized by a rise in plasma volume to well above normal. There was also a rapid increase in body weight and in total circulating haemoglobin and plasma proteins. The total circulating albumin increased more rapidly than the globulin, but the latter did eventually reach figures in excess of normal. The third phase (8 to 16 weeks) was marked by a return to normal values.

### Immunity

The evidence is fairly conclusive that antibody properties are associated with specific modifications of the globulin molecule, but the definition of the relation between plane of protein nutrition and antibody response is by no means as clear as some workers would make out. Antibody production during active immunization appears to be a continuous process of production and shares in "labelled"  $N^{15}$  which has been added to the diet. On the other hand, passive antibody formation during passive immunity seems to have little relation to dietary nitrogen (Heidelberger *et al.*, 1942). How far antibody formation is affected by competition for available amino acids in conditions of protein under nutrition is not quite clear. It would appear that in animal experiments severe hypoproteinaemia is coupled with a loss of ability to produce antibodies of several kinds (for review see Cannon, 1944), but in man conditions seldom develop which cause a pronounced reduction in the level of globulin in the blood.

My colleagues, Dr J W Howie and Dr E I McDougall have confirmed in the sheep that there is a direct correlation between the rapid decrease in globulin level and antibody titre in ewes' colostrum in the first few days after lambing, and that there is a correlation between the absorption of globulin and antibody ingestion of colostrum by the newborn lamb—a specialized phenomenon which has no parallel in later life. They have further found that the proteinuria of the newborn lamb after ingestion of colostrum is essentially globulin, and it retains the specific antibody properties of that developed in the mother in response to the particular antibody used.

### Convalescence

Convalescence is the recovery of health and strength after illness. The illness may have been of sudden or insidious onset, it may have been the result of infection, abnormal metabolism or growth, or trauma, it may afflict the healthy, or it may supervene when the individual is poorly nourished.

On the surgical side protein depletion may also result from conditions affecting the ability to ingest, digest, and absorb sufficient food, and it may also occur as the result

of disuse atrophy, infection, and as a consequence of trauma, which includes surgical operations, fractures, dislocations, and burns. One, if not the main, problem of convalescence is the restitution of tissue loss. On the medical side protein deficiency may result from impaired digestion and absorption, excessive catabolism in fever, impaired synthesis in liver disease and loss in certain types of nephritis, ascites, and haemorrhage. Reference will now be made to a few out of many clinical states. No reference will be made to liver diseases in relation to protein intake, as Dr Glynn will deal with this aspect.

### Trauma

The protein depletion which follows moderate to severe injury is due essentially to two or more of five main causes: (a) loss of actual tissue; (b) loss of blood or exudate from the damaged area; (c) loss due to excessive protein catabolism which normally follows injury and subsequent surgical manipulations; (d) loss due to infection if that is superimposed; and (e) disuse or reflex atrophy (Cuthbertson, 1947).

During the period of traumatic shock there is a pronounced reduction in anabolism and catabolism. This then gives way to what seems to be a generalized catabolic phase coupled with local anabolic activity at the zone of healing. In injuries such as fractures, dislocations, and even meniscectomies the protein loss is generally due to two factors: atrophy and excessive catabolism of body protein (Cuthbertson, 1932; Berthel, 1947). Of these two factors the excessive catabolism of protein, which reaches a maximum usually between the fourth and eighth day in injuries due to direct violence, constitutes the major cause of protein depletion. Following the peak of nitrogen loss there is a gradual decline, though subsequent surgical procedures may cause further disturbance. Even after a month there may still be a slight negative nitrogen balance, but normally there is a slow merging into a general anabolic phase (Schenker, Stevenson, and Browne, 1946). In burns all five causes generally operate to produce a considerable loss of body nitrogen. In man the negative nitrogen balance in the first ten days after a fracture of the leg may amount to a loss of as much as some 856 g. of protein or 8% of the total body protein (Cuthbertson, 1932). This is some three to four times the total protein content of the liver. Although it would appear that this organ cannot be the source of the material catabolized, nevertheless it may play a vital part in the catabolic path of material supplied to it from other tissues. Occasionally this catabolic phase is not seen or occurs only to a small extent.

Disuse atrophy, though a contributory factor, does not provide an adequate explanation (Cuthbertson, 1929; Keys, 1944). The increased catabolic processes are more general than local, and seem to be conditioned by a reflex mechanism which leads either to the raiding of the body protein reserves in order to supply endogenously the necessary substrate of amino acids or peptide groups for the reparative process or to a mobilization of oxidizable material for the enhanced metabolism of the healing process. The fact that there is a parallel rise in the excretion of nitrogen and sulphur, at least in fracture cases, suggests that there is not a preferential retention of the sulphur-containing amino-acids. It has been suggested that the reflex exists in order to render the healing process independent of food supply (Cuthbertson, 1932). The so-called "toxic destruction of protein" in fever may be explained in this teleological fashion. Wild animals when ill or wounded seek security in hiding until they recover or die. The innate reparative processes must operate irrespective of an exogenous supply of energy or repair material.

When an animal has been depleted of its protein reserves no increase in the rate of loss of body protein occurs on fracture (Munro and Cuthbertson, 1943). Madden and Clay (1945) have shown somewhat the same effect in acute sterile inflammation. The greater the proportion of protein in the diet before and after injury, the greater the nitrogen loss (Munro and Chalmers, 1945). Browne *et al.* (1945) have also noted the apparent absence of a catabolic response after operation or injury in persons in a poor nutritional state at the time of injury.

Attempts have been made to stem the catabolic loss of protein by (a) substantial increases in the energy and/or protein value of the diet, or (b) by administration of amino acids singly (e.g., methionine), as mixtures, or as hydrolysates given intravenously. The evidence is now weighted against methionine having an effect in diminishing the negative nitrogen balance in burns where the previous diet is not deficient in methionine but yet the loss of cystine is quite considerable (Griddle, Peters, and Wakelin, 1947; Sellers and Best, 1947; Meyer, Hirshfeld, and Abbot, 1947). Emerson and Binfley (1946) have reported a retention of nitrogen in a few cases in which the ten amino acids which are essential for the growth of the rat were given intravenously. An increase in the protein content of the diet did not apparently have a similar effect. But much more evidence is needed, and I am doubtful if there is any real merit in such lines of parenteral therapy when the patient's ability to ingest and absorb normal dietary proteins is not impaired.

### Pre-operative Treatment

Despite substantial increases in the intake of abundant protein-rich food by patients with moderate or serious injuries it was found that a negative nitrogen balance generally, but not always, exists at the height of the catabolic period (Cuthbertson, 1936). A similar situation has been reported in acute infections (Peters, 1944). I consider that there is no special need to worry unduly about the loss of nitrogen following injury in the previously well-nourished patient; its measure is rather a measure of the nutritive state of the organism in respect of protein. Where, however, the patient is debilitated before operation it is considered that the ingestion of a diet adequate in protein should be instituted before the operation for this re-alimentation is as effective or more effective pre-operatively than corresponding increments made available in the post-traumatic phase, because a condition of nutritional imbalance is usually present in the latter state.

Satisfactory nutritional preparation will undoubtedly extend the benefits of surgery to a group of patients who in the past have often been denied surgery on the basis that they were too poor a risk. Wherever possible the pre-operative steps should involve not only restoration of the water and electrolyte equilibrium but so far as is possible a high-protein high-carbohydrate diet fed, where necessary, by tubal methods. Skim milk powder has been shown to have many advantages as the principal source of protein in the pre-operative diet of cases in which there is difficulty in management. Varco (1946) has described a regime for the pre-operative treatment of patients classified as "poor risks." Diet 1 consisted of 160 g. of protein, 407 g. of carbohydrate, 18 g. of fat (2,426 calories, 1.6 calories per ml. of fluid diet). Diet 2 consisted of 120 g. of protein, 409 g. of carbohydrate, 37 g. of fat (2,446 calories, 1.6 calories per ml.). This was a less tasty diet rendered suitable for feeding by a nasal tube.

In non-obstructive cases there is presumably adequate enzymic activity without having recourse to predigestion measures. The diets of Varco have applications to the treatment of cases with neoplasms of the colon.



sigmoid, and rectum and of patients with burns Varco has suggested that when the loss in body weight is at least 5 to 10%, three to five days of proper treatment are sufficient. When the loss approaches 20%, 10 to 12 days of proper feeding are necessary, and three weeks are necessary when the loss approximates 25 to 30%.

A more recent prescription by Varco (1947) for a high-protein, high-calorie diet is made up of six whole eggs, two egg whites, 4 oz of skim-milk powder, 300 g of lactose or cane sugar, 1,000 g of skim-milk, and 5 gr (0.32 g) of salt, and is estimated to provide 2,446 calories and 120 g of protein in 1,500 ml. When this is the sole diet Varco recommends about 3 litres, equivalent to 4,900 calories. This recent line of treatment is very suggestive, although it does not yet provide concrete proof that such measures of nutritional readjustment can yield a margin of safety for the patient requiring surgery in spite of previous and co-existing deleterious influences on metabolic processes. The clinical evidence in support of this thesis is certainly worthy of consideration and confirmatory trial.

There is no doubt that too much stress has been placed on forced feeding of surgical cases. Those who have had clinical experience of burns know that it is almost impossible to force-feed patients during the first few days after injury, when fluid and electrolyte balances are becoming adjusted and the illness is at its height.

I have on many occasions stressed the limitations in the use of protein hydrolysate and would deplore much unsound physiology shown by many workers in this field of therapeutics who give the hydrolysate by mouth even when the patient can adequately hydrolyse intact protein. Although Cox and Mueller (1939), Elman and Weiner (1939), and many other later observers have recorded a measure of success with intravenous alimentation by protein hydrolysates and glucose, some using it as a means of total feeding, these preparations nevertheless possess some very distinct limitations owing to the large volumes which have to be given and the time taken—90 g of protein takes eight to nine hours and a volume of 2,500 ml (Elman, 1943)—the febrile reactions, nausea, and vomiting which may occur, and the thrombophlebitis which often results through prolonged intravenous treatment. Plasma and glucose are safer fluids. An extensive study of a mixture of the ten essential amino acids and glycine as an 8% solution has been made by Spence, Evans, and Forbes (1946), but the end-result is somewhat equivocal. Six-molar sodium lactate was given separately to provide a base when the amino-acids were given intravenously.

Subsequent operative procedures may accentuate the degree of negative balance, as the metabolizable material required for the processes of repair may necessitate a further breakdown of protein. This latter response is known to be conditioned by the nutritive state of the organism.

I consider that the immediate phase of protein catabolism is related to the healing process and should not be interfered with. There is little point in trying to supply the patient with food in excess of that which appetite dictates. In severe injuries involving prolonged convalescence every reasonable step should be taken to maintain, if not to extend, the patient's intake so as to make good the tissue losses. A diet of high energy and high protein content is required. An intake of 150 g of protein a day is often desirable. The amount of protein which is lost in extensive burning can be very great indeed (Cuthbertson, 1945).

### Fever

Leaving out of account external causes and certain peculiar forms of hyperthermia, fever generally arises from an infection or in a milder form as a result of trauma—

traumatic fever. In both forms the basal metabolism is increased. For every degree Fahrenheit rise in temperature there is a 7% increase in the basal metabolism. At the height of the fever appetite fails and the energy required comes from a utilization of the tissues. In addition to a loss of fat, an increased excretion of nitrogen, sulphur, and potassium occurs, indicating an actual breakdown of tissue material. The situation is rather analogous to starvation, where some 13% of the energy expended comes from protein and the remainder from fat. The destruction of protein is apparently due neither to the raised metabolism nor to the fever, for the protein breakdown in fever is greater than in normal subjects whose metabolism has been elevated to the same degree by exercise (Kocher, 1914) and is not induced by external sources of hyperthermia (Graham and Poulton, 1912–13). The hyperthermia in traumatic fever is generally very slight unless there is infection.

In *acute febrile illnesses*—e.g., pneumonia—the outcome is generally a matter of a few days, and the diet should be such as to save the patient from undue exertion. There is usually no need to worry about the actual amount of food eaten. It is sufficient to provide small and frequent feeds of milk or milk plus egg, sweetened fruit juice, and, later, light cereal dishes. Nevertheless, in the acute phase of certain infectious conditions, even although there is evidence of a catabolic phase, unless it can be shown that generous diets are injurious, efforts to feed such patients should not be abandoned.

In *long-continued fever*—e.g., typhoid fever—it is necessary to prevent undue loss of body tissue, and for this purpose the diet should have as high an energy and protein value as possible without causing ill effects. The aim is to try to secure an intake about 50% above the normal maintenance intake. A high carbohydrate diet has a protein-sparing effect, and it should be given in a readily digestible form—large meals being avoided. The protein intake should be such as to offset the catabolic loss of tissue protein which takes place particularly during the height of the fever. It should be noted that it is generally impossible to establish nitrogen equilibrium at this stage. Small semi-solid or fluid meals every two to three hours is a good regime. The protein required is readily obtained if two pints (1.14 litres) of milk are used daily. As the patient improves, the diet is modified by the addition of toast or bread with butter or margarine, milk puddings, custards, stewed or fresh fruit, chicken, rabbit, and fish. During convalescence it is wise not to push the patient to take quantities of food beyond his normal capacity.

### Diseases of the Kidney

Apart from rest in bed and protection from cold, dietetic measures constitute the most important part of treatment in acute nephritis. In subacute and chronic nephritis with oedema, massive proteinuria, and hypoproteinaemia, a properly constructed diet is of both symptomatic and general value. In chronic nephritis without oedema but with failure in renal concentrating power there is much less satisfactory evidence that dietetic treatment will delay to any considerable degree the final onset of uraemia. For this reason, and because of the chronicity of the disease, it is unwise to insist on premature or too rigid dietetic restrictions which may depress the patient and impair his strength without appreciably improving his primary lesion (Davidson and Anderson, 1947).

The aims in treating nephritis by dietary means are (1) to spare the diseased kidneys—particularly in acute nephritis, (2) to prevent uraemia—i.e., the accumulation of waste products, (3) to prevent oedema, which is caused by retention of water and salts, and (4) to maintain nutrition.

Apart from acute or subacute nephritis, or in states of renal insufficiency with marked nitrogen retention, the protein intake should be maintained at normal levels

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## BRONCHIAL CARCINOMA\*

BY

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The surgical treatment of bronchial carcinoma is now fully established and is generally accepted as the most desirable treatment of this condition at our disposal. Indeed, the success of surgery has placed bronchial carcinoma among the curable diseases, in marked contrast to the position it held a few years ago, when its diagnosis was synonymous with a death sentence. At the same time it is still a terrible disease with a high mortality, and we must remember that operation is possible in only a minority of cases. Furthermore, the importance of the problem it presents can be realized when it is stated that it occurs nearly as often as carcinoma of the stomach and of the colon.

With the establishment of the successful surgical treatment of bronchial carcinoma it becomes more and more imperative that the disease should be recognized at an early date so that the patient can be referred to the surgeon while operation is still possible. The operative technique is now largely standard, and although there will doubtless be further improvements, notably in regard to a more radical operation, the surgeon's place in treatment is now largely defined. He is, however, powerless to effect a cure unless he receives patients suitable for operation, it is impossible for him to save the advanced case. It follows, therefore, that the most important task in the management of this terrible disease lies not so much with the surgeon as with the general practitioner and the consultant physician, who are usually the first to see these patients. Although the ultimate act of treatment is in the surgeon's hands, the greatest responsibility and the greatest chance of saving the patient's life unquestionably lie in the hands of the earlier medical attendants.

I have often thought, when contemplating a patient successfully operated upon, that his life has been saved not so much by surgery as by the doctor who first made the diagnosis and who directed him to a surgeon. For this reason I will give a simple presentation of the leading clinical features of the disease, and especially the early symptoms and signs, the part that surgery plays in described chiefly to emphasize the need for early diagnosis.

## Clinical Features of Bronchial Carcinoma

Bronchial carcinoma varies considerably in its pathology, in its clinical manifestations, and in the duration of the illness it causes. Occasionally one sees patients who have lived several years with the disease, more particularly elderly patients with a slowly growing squamous-celled growth. These are the exception, and it must be remembered that the average expectation of life from the time the patient first consults his doctor is no more than six months, therefore it is useless to spend three to four months making a diagnosis and to expect the disease to be still in a curable phase. This is especially true in the case of patients below the age of 50. It is almost a truism to-day to plead for early diagnosis in cases of cancer, but the urgency justifies the emphasis.

The most important step in making a diagnosis of any disease is to think of it. So often the patient with a cancer of the lung has been observed or treated empirically

\*Read in opening a discussion in the Section of Diseases of the Chest at the Annual Meeting of the British Medical Association, Cambridge, 1948.



Tudor Edwards (1946) found an operability rate of 7%. Some surgeons have published figures with a very high operability rate—e.g., Rienhoff (1944), 181 cases, 71 (39%) operable—but it is certain that in such series gross selection has occurred before the patients reached the surgeon. Even though in my own work I see a large number of cases without selection I am aware that the overall operability is less than that given above. The figures given by the British Empire Cancer Campaign (1943) of their investigations carried out in 1938, in which the operability was 1.4%, are too pessimistic and were almost certainly due to a paucity of expert surgical facilities. It is reasonable to state that the present operability rate of bronchial carcinoma is about 15%, and the indications are that this figure will continue to improve for a few years more.

### The Operation

The surgical treatment of carcinoma of any organ is based on a radical removal of the organ together with as wide a removal as possible of its associated lymphatic field. This has led to the employment of dissection pneumonectomy as the proper operation for bronchial carcinoma, for only in this way can one hope in most cases to remove the growth widely together with the lymphatic glands. Lobectomy is rarely possible or desirable, and many surgeons condemn it out of hand as a wrong operation. I would not go so far as this, because I have found that in properly selected cases it is still an operation of great value and one that can give good results. I still use it in certain elderly patients who are suffering from a peripheral or parenchymatous type of growth and in whom the hilum appears clear. I have in all used it 15 times in 101 operable cases and have been well pleased with the results, which compare favourably with those of pneumonectomy (Table I).

TABLE I—Results of Lobectomy

Died from operation	1
Died since operation	5
Survived 3 years	1*
18 months	1
under 1 year	3
Alive and well after operation	9
Over 7 years	1
3	3
2	3
1 year	1
Under 1 year	1

\* Suicide

Except for selected cases, however, radical pneumonectomy must remain the operation of choice. As with all operations, one evolves towards a more efficient and more radical procedure, and from simple dissection pneumonectomy we have progressed to intrapericardial pneumonectomy. If the pericardium is widely opened and that part of the sac surrounding the hilar structures is removed together with the lung, a much more radical, and often much easier, operation is possible. Lately I have extended the operation still further to include a complete block dissection of all the accessible mediastinal glands from the superior thoracic inlet down to and including those in and around the main bronchi and continuing down to the level of the diaphragm. This glandular removal includes all the associated connective tissue in the mediastinum. I have called the operation "block-dissection pneumonectomy." It is just as well tolerated by most patients as the usual simple extrapericardial dissection operation. It is of course not possible to make a complete removal of all the lymphatic field as the connexions are so widespread and complicated which is one of the reasons for the gravity of bronchial carcinoma. Moreover, there is always the peril of a blood-borne metastasis having already occurred. Block-dissection pneumonectomy is, however, the only logical evolution of surgical treatment, and time alone will prove whether it is

more effective than the less radical operations. I am at present engaged in a careful study of the glandular field removed at operation to try to correlate the condition of this with the ultimate fate of the patient. At present the results are based on a mixture of operations starting from the very early ones—often done rather falteringly in the early days, with a higher mortality and, doubtless as a result of the less complete removals done at that time, with a correspondingly greater tendency to earlier recurrence. My own figures as they stand at present are shown in Table II.

TABLE II—Results of Operation

No of cases	15	101
Lobectomy	86	
Pneumonectomy		18
Died from operation		28
Died since operation*		
Survived 4 years	1	
up to 3 years	3	
2½	1	
2	1	
1½	4	
1 year	6	
6 months	12	
Alive and well after operation		55
Over 9 years	1	
7	3	
6	2	8
5	2	
3		10
2		7
1 year		11
Under 1 year		19

\* Three of these patients died from causes other than recurrence, the rest died of recurrence of carcinoma either in the chest or elsewhere.

Considering these figures represent an experience over some 15 years, during which approximately 1,000 cases of bronchial carcinoma have been seen, they make somewhat gloomy reading. Nevertheless it is possible to read a great deal of hope into them, seeing that without surgery scarcely any one of the 55 patients now alive and well would have survived, of the 28 who died since operation many obtained great benefit, a number enjoyed a useful extra span of life, and in many cases death came in a kinder form than would have been the case with the primary growth untreated.

Table III includes the largest groups of figures published by other surgeons, with my own series added.

TABLE III—Collected Figures of Operative Mortality

	No of cases	Deaths
Edwards (1946)	70	12 (17%)
Graham (1944)	70	21 (30%)
Rienhoff (1944)	71	15 (21%)
Ochsner, Dixon and De Bakey (1945)	58	16 (27%)
Clagett and Brindley (1944)	43	14 (32%)
Sellers, Cruickshank and Billimoria (1947)	130	19 (15%)
Brock	101	18 (18%)
	543	115 (21%)

There remains much room for improvement, and, while a part of the responsibility for this must rest with the surgeon to better his technique and the efficiency of his curative operation, the greater responsibility rests with those who have the task of making the diagnosis or thinking of the diagnosis and referring the patient for expert investigation and treatment. In this lies the greatest hope of further improvement in our results.

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## PRIMARY POST-PARTUM HAEMORRHAGE

BY

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AND

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"All women, when the placenta separates, and after it is delivered, lose more or less red blood from the quantity of half a pound to that of one pound or even two, but should it exceed this proportion and continue to flow without diminution, the patient is in great danger of her life"

This description of post-partum haemorrhage was given by William Smellie about 200 years ago (circa 1751). Its truth is still plain to day, although we now customarily define abnormal haemorrhage as a blood loss that exceeds 20 oz (568 ml). Haemorrhage ranks next to "toxaemia" and "accidents of childbirth" in maternal mortality statistics, it is a more important cause of death in childbirth than sepsis.

## Present Investigation

During the period 1938-47, 156 cases of post-partum haemorrhage and 56 cases of manual removal of the placenta occurred in patients under charge of the Nuffield Department of Obstetrics, in addition, a considerable number of cases were dealt with by the "Emergency Obstetric Service" in answer to urgent summons by outside practitioners. An analysis of the results is now presented, but in regard to methods of treatment it should be noted that during the course of these years a progressive improvement took place in blood-transfusion technique, in the use of sulphonamides, and particularly in the increasing availability of penicillin.

In the second part of this paper an attempt is made to draw up a list of short and clear recommendations regarding the conduct of the third stage of labour in domiciliary practice.

## PART I

## Analysis of 156 Cases of Post-partum Haemorrhage

*Parity*—Primiparae numbered 94, multiparae 62

*Type of Pregnancy*—Normal pregnancies numbered 100. Of the remainder, 22 showed some form of pre-eclamptic toxaemia mostly mild. There were 4 cases of proved anaemia. Only one case of hydramnios was noted.

*Type of Labour*—Normal labour occurred in 113 cases, forceps deliveries numbered 27, other obstetric manoeuvres, such as version, insertion of bag, etc., were performed in 16. Medical or surgical induction was undertaken in 24. Multiple pregnancies numbered 3 and breech deliveries 4. Two patients with placenta praevia had post partum haemorrhage after vaginal delivery.

From these figures it will be noted that neither hydramnios nor multiple pregnancy figured prominently in the aetiology of post-partum haemorrhage. This is contrary to current teaching. Placenta praevia, another traditional cause of post-partum haemorrhage, contributed only two cases to the list, probably because patients with major degrees of placenta praevia were treated by caesarean section, the placenta was removed immediately, and the bleeding site was directly controlled.

*Length of Labour*—The average length of all the labours was 21½ hours, with extremes of 2¼ hours and 66 hours. In only 25 cases did labour last more than 30 hours.

*Amount of Blood Lost*—The blood loss before and after delivery of the placenta, estimated by the obstetrician or midwife, averaged 35 oz (990 ml). As many patients suffered from blood loss before as after delivery of the placenta.

## Methods of Delivery of the Placenta

	No	Average Duration of Third Stage
Expulsion by fundal pressure	105	30 minutes
Spontaneous delivery	27	15
Crédé's expression	23	70
Retained placenta (found post mortem)	1	
Total	156	

*Crédé's Expression*—Although Crédé's method of expression was used in a relatively small proportion of all cases developing post-partum haemorrhage, the reverse of the picture—i.e., cases in which Crédé's method was used without associated post-partum haemorrhage—is not recorded. No fair conclusion can therefore be drawn regarding the part played by this manoeuvre in causing or preventing haemorrhage or shock.

*Blood Transfusions*—The total number of transfusions was 38. The average amount transfused was 2 pints (1.4 litres).

*Time of Administration of Oxytocic Drugs*—In 113 cases an oxytocic drug was given after delivery of the placenta. In a small minority of cases (11) an oxytocic drug was given before the delivery of the placenta (ergometrine 8, "pituitrin" 2, "pitocin" 1). In the remainder the time of administration of the drug was unstated, but was presumably subsequent to the delivery of the placenta.

*Uterine Packs*—In no case was a pack inserted to control haemorrhage in this series.

*Puerperal Morbidity*—"Notifiable" pyrexia occurred in 17 cases. In the majority of cases this was attributed to urinary infection, birth-canal infection with known pathogenic organisms occurred in less than one third of the whole.

*Mortality*—There were two maternal deaths, giving a mortality rate of 1.3%. One of the patients who died was admitted as an emergency case with a retained placenta. She died before it could be removed. The other died from severe pregnancy toxaemia.

## Analysis of 56 Cases of Manual Removal of the Placenta

The following table gives details of these cases

Primigravidae	38
Multiparae	18
Spontaneous delivery of foetus	40
Emergency admissions	25
Notifiable pyrexia	19
Mortality	0

Regarding the incidence of "notifiable" pyrexia, there was a marked fall subsequent to 1942—only 5 cases out of 30. None of the patients received penicillin therapy, so the improvement may be shared by improved blood transfusion technique and improved sulphonamide therapy. Prophylactic penicillin therapy may further reduce the incidence of morbidity, but was not used in the cases now under review. A similar low morbidity rate recorded by Sewall and Coulton (1946) is attributed by them to the performing of manual removal before the patient had become grossly anaemic and shocked.

## Emergency Obstetric Service

The above 56 cases do not include any "flying squad" cases. These are analysed in the following table

Cases of Primary Post-partum Haemorrhage Service 1946-7		Emergency Obstetric
Traumatic post partum haemorrhage		1
Haemorrhage after removal of placenta		21
Retention of placenta		29
Manual removal	21	
Manual expression	8	
Incomplete abortion		9
	Total	60
Transfusions		49
Blood		
Saline	45	
		4

It will be noted that out of 60 summonses for primary post-partum haemorrhage 38 were directly connected with retention of the placenta

## Conclusions

In the hospital deliveries analysed post-partum haemorrhage occurred as often in primigravidae as in multiparae. It occurred as often after normal as after abnormal labours. Contrary to the usual teaching, there was no evidence that multiparity and hydramnios were prominently associated with post-partum haemorrhage. The puerperal pyrexia rate was high after post-partum haemorrhage. Urinary infections were the commonest cause of this morbidity.

In collecting and analysing these case records the opinion was formed that (a) manual removal of the placenta is a less dangerous procedure now from the point of view of sepsis than is generally supposed, (b) greater use might be made of ergometrine in the control of haemorrhage, (c) larger transfusions of blood might reduce morbidity and shorten convalescence.

## PART II

From the point of view of midwife and general practitioner we believe there is present need for clear recommendations regarding the treatment of post-partum haemorrhage. The following intentionally dogmatic statement is an attempt to remedy these shortcomings, and is based on the evidence presented in Part I.

## Treatment of Primary Post-partum Haemorrhage

Before considering methods directed to the control of uterine haemorrhage we would emphasize that the bleeding may on occasion come from perineal, vaginal, or cervical lacerations. These may require suture.

Since so many cases of primary post-partum haemorrhage occur after normal delivery it must be supposed that the management of the third stage of labour is often mis-handled. The chief requirement is the exercise of patience, but an alert eye must be kept for deviations from normality in uterine function so that prompt and ordered action may be employed when necessary.

## Management of the Third Stage of Labour

As long ago as 1767 John Harvie (Smellie's successor) stated, when discussing this subject, "Nature is to be assisted, to be followed and supported, but seldom or never forced."

To wait for 20 to 30 minutes in the expectation that natural separation and expulsion of the placenta will take place is still the best policy, and is the method favoured by the majority of obstetricians. The hand supports the fundus of the uterus throughout. It is not enough to keep a record of the patient's pulse and to ignore the abdomen, for the uterus may be actively bleeding and the fundus rising because of the retained haemorrhage despite the continuance of a relatively steady pulse rate. Sometimes the con-

dition is overlooked because a lower uterine segment alone distends and a contracted uterine body and fundus are felt at a high level in the abdomen.

The signs of placental separation and descent must be appreciated and not confused with the onset of post-partum haemorrhage. They are the rising of the fundus, the expulsion of a small quantity of blood, and the permanent lengthening of the cord. When, after these have occurred, the uterus contracts and the abdominal muscles are used, the placenta is expelled—aided, if necessary, by downward and backward pressure of the attendant's hand on the uterine fundus (Harvie, 1767).

## Treatment by the Midwife

*Before Delivery of the Placenta*—(1) Provided that the patient's bladder is empty, the midwife should massage the fundus of the uterus to stimulate a contraction, separation and descent of the placenta should then occur. (2) If these do not occur and the haemorrhage continues she should give 0.5 mg ergometrine intramuscularly. She should not wait until the condition of the woman is grave before giving the injection. The time to have prepared this injection is just before the birth of the baby—intelligent anticipation. After the injection the midwife should again support the fundus of the uterus and expel any clots that have collected meanwhile. (3) The midwife will have sent for medical aid at the outset. This action is, of course, required of her, but it will obviously not arrest haemorrhage, and much time may elapse before the doctor's arrival.

*After Delivery of the Placenta*—(1) Massage of the fundus of the uterus (avoiding the region of the ovaries) should stimulate uterine contraction and so control bleeding. In addition, ergometrine 0.5 mg (if not recently administered) should be given by deep intramuscular injection. (2) If the haemorrhage is not controlled the uterus should be stimulated by bimanual compression. This can be made through the abdominal wall if the woman is thin, or by a closed fist in the vagina and an open hand on the abdominal wall pressing down the posterior wall of the uterus if the external method is unsatisfactory. This compression is difficult to maintain, but may tide over an urgent few minutes till medical aid arrives.

## Treatment by the Doctor

*Before Delivery of the Placenta*—The initial treatment is the same as that recommended for the midwife. If the midwife has not already given ergometrine, the doctor should give 0.25 mg intravenously (Moir, 1947). He should be ready to "squeeze the fundus of the uterus like a sponge" (Stabler, 1947) in an effort to deliver the placenta with the strong contraction that almost invariably takes place 45 to 50 seconds after injection of the drug. His grip should be firm but not powerful enough to bruise the uterus. If he fails to expel the placenta there is no more to be done, as there will be a well-contracted uterus and also, incidentally, a contraction ring. It will be necessary to wait for more than half an hour to let the contraction ring relax before removing the placenta manually. It is improbable there will meanwhile be any further bleeding, and this time can be well spent in resuscitation of the patient and transferring her to hospital or making arrangements for the manual removal under anaesthesia in her home.

Instead of giving ergometrine the doctor may elect to remove the placenta manually, but, as this will require administration of an anaesthetic for most cases, he will find ergometrine more immediately available.

*After Delivery of the Placenta*—The treatment should be that recommended for the midwife except that the doctor will give the ergometrine part intravenously and part



intramuscularly Few cases will fail to respond to bimanual compression of the uterus, maintained if necessary for several minutes

### Retained Placenta—No Haemorrhage

We believe that a retained placenta should be removed not later than two hours after delivery of the baby (Sheehan, 1948) In some cases the maternal pulse rate rises although there is no haemorrhage If the third stage is being properly managed and the placenta is still retained after one hour, arrangements should be made for removing it as soon as possible Under general anaesthesia a gentle attempt is first made to express the placenta, if this does not succeed, manual removal should be done without further delay

### Technique of Manual Removal of the Placenta

After cleansing the vulva the bladder is catheterized The whole hand is introduced into the vagina (Stitches in the perineum ought not to have been tied) The tautened cord is palpated and traced upwards It is a guide to (1) the contraction ring of the uterus, if present, (2) the placenta, its site and extent (Fig 1)

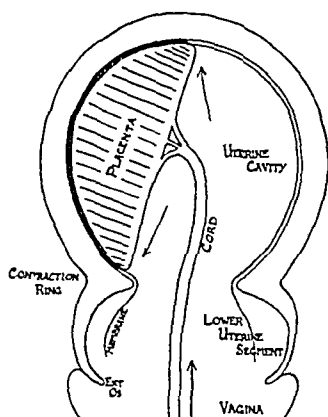


FIG 1

The contraction ring may require stretching by gentle insinuation of the cone-shaped hand The placenta may already be separated and all that is required is its removal If the placenta has not separated, however, the hand is withdrawn to the lower uterine segment (Fig 1) and an attempt is made to get between membranes and uterine wall The placenta cannot be separated adequately unless the hand is external to the amnion and chorion Then we believe it is better to go to the highest point of the placenta and start separation from above downwards This allows the uterus to retract immediately on the sinuses opened by the manipulation Separation is best accomplished by scratching movements of the tips of the fingers directed always towards the placenta and never towards the uterine wall The other hand, placed on the abdomen, is of great help in pushing the fundus towards the hand inside the uterus After the placenta is completely separated it is removed in the palm of the hand, very slowly, to allow separation of the remainder of the membranes

Immediately on removal the maternal surface of the placenta is examined, and if a piece is thought to be missing the hand must re-explore But the best chance of removing the placenta completely is at the first attempt The ragged placental site may make re-exploration most confusing with regard to the recognition of retained fragments Ergometrine, 0.25 mg intravenously and 0.25 mg intramuscularly, is given on completion of the operation

**Difficulties**—(1) On introducing the hand the cervix may be mistaken for the contraction ring, and vice versa (Fig 1) (2) It appears that on rare occasions the contraction ring has been mistaken for the placental edge Here the thicker upper uterine segment joins the thinner lower segment, and separation has, in error, been attempted between the two, so that the hand is soon in the peritoneal cavity This would explain those cases in which manual removal of the uterus has been performed instead of manual removal of the placenta (Wassenaar, 1947) (3) A contraction ring may be situated in the cornual portion of the uterus, pre-

venting the escape of part of the placenta (Fig 2) separation of the placenta is accomplished from below upwards (Fig 2) a fairly large bleeding area is exposed before the contraction ring is felt, and as this constriction is a very much more difficult one to overcome, and is less accessible than the other type (Fig 1), there is unnecessary blood loss It is better first to reach the fundus of the uterus and diagnose this cornual contraction and deal with it It is in this type of case that the hand on the abdomen pushing the fundus downwards is of most value The whole placenta may be within this cornual contraction ring (4) There may be no line of cleavage between placenta and uterine wall This is the very rare condition of placenta accreta One of us has seen this in a case at caesarean section (Lennon, 1947) Possibly the best treatment is to leave the placenta and to cut the cord off short in the hope that a fragmentary discharge of the placenta will take place in the ensuing few weeks (Gemmell, 1947)

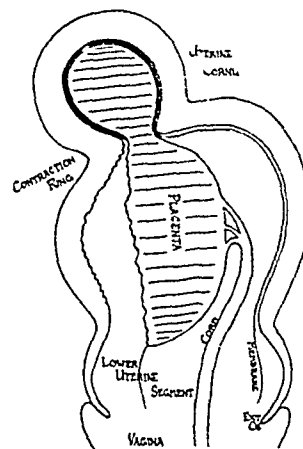


FIG 2

### Comment on Certain Alternative Treatments

Treatment of post-partum haemorrhage by use of a hot intrauterine douche has not been recommended because of the difficulty in adjusting the fluid to the correct temperature—a time-consuming task There is little margin between a douche hot enough to stimulate uterine contraction and one that will burn the skin The oxytocic drugs now available are far easier to use and are at least as efficient

Packing the uterus is difficult and requires special instruments if the pack is to reach the upper as well as the lower uterine segments Packing the vagina is simpler, but is still awkward to carry out in domestic practice and tends to cause shock, it may, however, be necessary if bleeding is due to a high vaginal or cervical tear

Hysterectomy is obviously not a possibility in domestic practice, and in all events should not be required in any but the most intractable cases of haemorrhage

Posterior pituitary extract has not been advocated for two reasons (1) it may cause shock on its own account, resulting in death (Adelman and Lennon, 1941), and (2) it is better for midwife or practitioner to know one drug (ergometrine) and its uses than to be confused in the use of two different oxytocics

It will have been noted that the name Credé has not been used throughout Part II This has been a deliberate omission We have had Credé's own description of his manoeuvre (1853, 1861) translated, and we consider that Harvie, ninety odd years before, gave a much better account of external manual expression of the placenta It is obvious that Credé did not wait for natural expulsion of the placenta, but in all cases immediately after delivery stimulated uterine contraction by manipulations through the lower abdominal wall, gripping the total uterus from outside with the hand so that his five fingers exerted a gentle pressure on all sides of its body and thus expelled the placenta

### Summary

A review of 156 cases of post-partum haemorrhage and of 56 cases of manual removal of the placenta is made

This analysis includes consideration of type of pregnancy type and length of labour blood loss, morbidity, and mortality The main findings are listed at the end of Part I of this paper

A routine for the conduct of the third stage of labour under normal conditions, and when haemorrhage occurs, is outlined

The technique of manual removal of the placenta is described and illustrated

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the tendency to strangulation in women being almost three times as great. The frequency of strangulated femoral herniae to inguinal is also striking (25% and 2.6% respectively), and in the case of inguinal strangulation 76% occurred in men. Of the total number of femoral strangulations 7 were of the Richter type. The average age of strangulation was 64 for women and 63 for men, the overall mortality rate was 6 deaths in 45 cases, or 13.3%.

## Incidence of Recurrence

Of the total number of cases admitted in the period 1942-6, 120 were personally examined and closely questioned about any disabilities following operation. The technique used was the low method of herniorrhaphy, and a careful follow-up revealed no recurrence in the 54 male patients, though there were four such recurrences in the 66 females, thus making an over-all recurrence rate of 3.3%. The cases were not selected in any way, and included strangulated as well as list cases, as previously stated, the ages ranged from 8 to 79. One of the recurrences was first operated upon in 1920, and at the time of the second operation the tissues were in a generally weak condition, but this has been counted in the present series, as it is a definite recurrence. Five other recurrent cases were successfully operated upon, and routine examination has shown no recurrence after periods varying from 2 to 5 years. In each of these cases a very definite sac was presented, and in four out of the six it did not seem to have been adequately removed at the time of the first herniotomy—a finding borne out by the fact that recurrence had taken place a few months after operation. It is certainly true that the most fruitful source of recurrence lies in failure to remove the sac adequately, the commonest mistake being to transfix the sac too low down and to omit to clean the neck thoroughly (a most important step, if indeed not the most important step of the whole operation), so that after excision of the sac retraction through the femoral canal cannot adequately take place, thus leaving the stump of the sac in the crural ring, which invites a further pouch of peritoneum to form, with ultimately the development of another hernia.

There appeared to be no increased likelihood of recurrence taking place in the aged as compared with the young, nor in relation to heavy work, and strangulated cases were no more likely to recur than the non-strangulated. Chronic chest conditions, too, seemed to have no ill effects, and one patient who suffered much from a severe and persistent cough (as he put it, his cough was so bad it knocked him out of bed) was found to be completely sound, so far as his hernia was concerned, when examined 2½ years after operation, at the age of 72. This is in contrast to inguinal herniae, where there seems little doubt that recurrence is favoured by heavy work, chronic cough, and similar undue strain placed upon the abdominal wall and inguinal canal.

It is of interest to note that 9 inguinal herniae (all in men) were discovered on routine follow-up examination on the side of the femoral herniotomy, and in every case no history could be obtained of an inguinal hernia having been present before operation. This is of considerable importance, first because patients often, and very naturally, assume that the femoral hernia has recurred—an assumption sometimes shared by their doctor, and secondly because it casts some doubt on the statement that Lotheissen's operation, by interfering with the posterior wall of the inguinal canal, predisposes to the subsequent development of a direct inguinal hernia. In the present series of cases no such interference took place, yet 7.5% when examined exhibited an inguinal hernia. Presumably a certain number must have been present initially and been

## A REVIEW OF FEMORAL HERNIAE

## WITH SPECIAL REFERENCE TO THE RECURRENCE RATE OF THE LOW OPERATION

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A great deal of attention has recently been centred on the various methods available for the repair of inguinal herniae and the advantages and disadvantages of the Bassini method, figures have been produced to indicate the appropriate recurrence rates of the various operative procedures at present in favour. Comparatively little, however, has been said of femoral herniae, and it was thought to be well worth while reviewing a series of consecutive cases with a view to ascertaining the recurrence rate of the so-called low operation.

In the years 1942 to 1946 inclusive 178 cases of femoral hernia were operated upon in one of the surgical units of the Royal Hospital, Sheffield. 72 were in men and 106 in women, thus giving a ratio of 1 to 1.5—a far higher incidence in men than is usually accepted. There were 45 strangulations, or 25% of the total.

During the same period there were 807 inguinal herniae, 751 occurring in men and 56 in women, with a total of 21 strangulations, or 2.7%, it will thus be seen that in this series inguinal herniae were 4.5 times more common than femoral, and men were affected 13.4 times more often than women. The statement that inguinal herniae are more common in women than femoral is not in accordance with these figures, for there were only 56 inguinal as compared with 106 femoral making the latter almost twice as common. (It should be noted that no children under 6 years of age are included in this survey, as they are admitted to the Children's Hospital.)

Of the 178 femoral cases, 109 were on the right side and 69 on the left, thus there would appear to be a greater tendency to herniation on the right side. (This was also found to be the case with inguinal herniae, the right side being affected more often than the left—438 and 369 respectively.) There were only four bilateral cases, in contradistinction to inguinal herniae where it is undoubtedly much more frequent. The average age was 50 for men and 53 for women, and in the whole series the youngest was 8 and the oldest 79. As already mentioned there were 45 strangulations (25%)—13 in men and 32 in women. Thus there is a marked difference between the two sexes

overlooked, the femoral hernia being the presenting finding, whilst others would appear to have developed subsequently it seems reasonable to suppose that a patient who develops one form of hernia is more liable to develop another. From the practical point of view it is of importance to examine carefully the inguinal regions in every case of a femoral hernia before confining the operation to the femoral canal. It is also of importance to examine recurrent femoral herniae carefully before accepting the fact that recurrence has taken place, for in a number of instances the femoral herniorrhaphy will be found to be sound, the so called recurrence being inguinal in nature.

### Causation of Femoral Hernia

It is usually assumed that whereas indirect inguinal herniae are certainly congenital in origin, inasmuch as there is a pre-existing peritoneal sac, femoral, on the other hand, are probably acquired—that is to say, increased abdominal pressure at one time or another pushes out a peritoneal pouch through the patent femoral canal and so the hernia is produced. With regard, however, to the age limits of femoral hernia, the youngest case in this present series being 8 (though recently a strangulated Richter hernia was observed in a child of 3), such cases cannot be regarded as other than congenital in origin. If some are undoubtedly congenital the possibility of all being so has to be seriously considered—a point of view held by Hamilton Russell, who thought that a peritoneal diverticulum was present in the femoral canal by virtue of the developing limb-buds drawing down the peritoneal lining of the abdomen along the course of the femoral artery.

The fact that the result of operative cure is so satisfactory, especially in the elderly, would tend to support the congenital theory, for efficient closure of the crural ring is difficult to achieve, if indeed not impossible, and if the majority of femoral herniae were acquired it would seem likely that the recurrence rate would be greater, as is indeed the case with direct inguinal herniae when compared with indirect. On the other hand, the average age of development of a femoral hernia is 50 or over, and this is more in keeping with the acquired as opposed to the congenital theory, it therefore seems probable that, although some cases are undoubtedly congenital in origin, the majority are acquired. In this way the greater frequency of femoral herniae in the female sex can be accounted for, as the female pelvis is broader than the male and consequently the femoral canal is larger, with a greater tendency to the development of a hernia, though, as already stated, this has been found to be only one and a half times more common in the female.

Whatever the causation of a femoral hernia, be it congenital or acquired, there can be no doubt that operation should be advised in nearly every case, irrespective of age, and the operation strongly recommended is the low herniotomy repair. For some years now the high operation has not been performed, it was considered unnecessary, and the present follow-up figures of just over a 3% recurrence would appear to justify such a course. Other more complicated operative procedures sometimes recommended, such as Henry's abdominal extraperitoneal approach, would appear to have but very limited use.

### Vital Points in the Low Operation

The vital steps in the procedure are undoubtedly the isolation of the neck of the sac at the highest possible level, the cleaning of the sac completely free from all extraperitoneal fat, and the separation of the bladder from

the upper part of the sac. In carrying out these procedures care must be taken on the one hand not to split the peritoneal sac, thus making it difficult to transfix securely, and on the other not to injure the bladder when freeing it from the neck of the sac. The teaching of the low femoral repair is to transfix the sac, the whole sac, and nothing but the sac, and that means no bladder and no extra peritoneal fat.

It is usually assumed that when a diverticulum of the bladder is found on operating for a recurrent femoral hernia the diverticulum is to be blamed for the recurrence, whereas it is more likely to be the opposite—that is to say, at the time of the first operation the sac was transfixed too low down and the bladder left adherent to the neck, with the inevitable result that recurrence took place, the bladder tending to pull down a further pouch of peritoneum, the mechanism being the same as for a sliding hernia.

From the low approach, either through a short vertical incision over the femoral canal or, better, through an incision just below and parallel to the inner half of the inguinal ligament (this gives a considerably nicer scar and an equally good exposure), it has been found that the neck of the sac can readily be cleaned and defined and freed from all surrounding structures with comparative ease, and when ligated and excised retracts well above the inguinal ligament. It cannot be too strongly emphasized or too often repeated how important is the clean dissection of the sac and its isolation to as high a level as possible, and when transfixed and excised the ligated end should disappear through the canal with perfect freedom, if the sac has not been sufficiently well defined this will not readily happen, as it will be found that the ligature has included other structures as well as the peritoneum of the sac, and recurrence is much more likely to take place subsequently.

It is probably sufficient in most instances merely to excise the sac, but it is a simple procedure to suture the inguinal ligament to the pectineus fascia, and it is as well to narrow the canal in this way. It has been found that the method whereby a flap of pectineus fascia is turned up and sutured to the inguinal ligament, thus obstructing the femoral canal, is of little practical use, as the fascia is too thin to be of much value and the canal is closed at its exit rather than at its entrance.

The criticisms sometimes levelled at the low operation, that the sac cannot be ligated high enough and that the femoral canal cannot be adequately closed from below, have not been found to be valid. The recurrence rate of this procedure has been stated to be as high as 20-30%, but the present series disproves such a statement, which, to say the least of it, is misleading to the inexperienced surgeon and tempts him to embark on one of the more complicated operative procedures, sometimes with anything but pleasing results.

The low repair is so simple, and can so easily be performed under local analgesia with such gratifying end results and in non-strangulated cases with an almost negligible mortality (there were no deaths in the present series), that it would seem to be making surgery needlessly difficult to perform femoral herniotomy in any other way except under very special circumstances.

### Comment

In the present series all the strangulated cases were operated on in this manner and no undue difficulties were encountered. The risk of injury to an abnormal obturator artery when operating from the low approach would appear to be very small, and in a far greater number of cases than are at present under review no such injury has occurred.

In cases requiring a resection for gangrenous bowel it has been found to be more satisfactory to open the abdomen through a separate paramedian incision rather than attempt resection from below, and the various methods whereby more room is obtained, such as division of the inguinal ligament, are not to be recommended. In the vast majority of cases resection is not required, and the operation can be most successfully completed from the low approach only.

### Summary

A series of 120 cases of femoral hernia treated by the low operation have been carefully examined and the recurrence rate found to be 3.3%.

There was no recurrence in the 54 male cases. Heavy work, chronic cough, and the presence of strangulation did not especially predispose to recurrence. Of this series, six cases had previously been operated upon, one of these has since recurred, the other five have remained sound up to date.

Recurrence may take place at any time after operation—in the present investigation from three months to seventeen years—though it is much more likely to recur within the first year.

The clean dissection of the neck of the sac and its high transfixion are of prime importance, and only the sac itself must be included in the ligature. This clean dissection can be adequately performed from the low approach.

The low operation is suitable for almost every case, and gives most satisfactory results.

Even though the inguinal canal was not disturbed, 7% subsequently developed an inguinal hernia on the same side as the previous femoral repair.

Operation should be advised for nearly all cases of femoral hernia, as the results are so good and the low repair is so simple. Remarkably few patients are considered unfit for herniotomy, and the ever present danger of strangulation is an indication for treating all cases by this surgical procedure.

The high incidence of a Richter hernia is to be noted.

Figures sometimes given stating that the low operation has a high recurrence rate would seem to be quite misleading.

The relationship of inguinal to femoral hernia has been found to differ in some respects from the accepted teaching, notably in the finding that femoral herniae are twice as common as inguinal in women, and that femoral herniae occur only one and a half times as often in women as in men.

In inguinal hernia the percentage of strangulations was only 2.6 whilst in femoral hernia the figure was as high as 25%. The presence of a femoral hernia is therefore potentially almost ten times as dangerous as an inguinal, and whilst a truss is sometimes advisable for the latter it is highly doubtful if it should ever be advised for the former.

I wish to thank Mr H. Blacow Yates, senior surgeon, the Royal Hospital Unit, Sheffield, under whose care all these cases have been admitted, for his criticism and help in preparation of this paper.

The first of the series of regional courses in health education which the Central Council for Health Education is providing for various professional groups in university centres throughout the country was held in Birmingham on Sept. 13 and 14 for public health nurses, of whom 117 attended as the nominees of 12 local authorities in Hereford, Leicestershire, Shropshire, Stafford, Warwick, and Worcestershire. The course was held in the extra mural department of Birmingham University, and the six lectures were given by Dr R. G. Record, Lecturer in Social Medicine ('Personal and Environmental Factors Affecting Health'), Dr Jean Mackintosh, Reader in Paediatrics and Child Health ('Physical Care of the Child—the Modern Outlook and Problems of Childhood'), Mr E. C. Cull, B.Sc., Lecturer in Education and Psychology ('Learning and Teaching') of the staff of Birmingham University, Miss M. Slack, S.R.N., S.C.M., Tutor to the Health Visitors' Training Course, City of Birmingham ('Psychological Needs of the Child'), and Dr Norman Parfitt, Deputy Medical Adviser, the Central Council for Health Education ('Health Education—the Nurse's Part'). Dr H. P. Newsholme, medical officer of health for the City of Birmingham, took the chair at the opening lecture. A similar course for sanitary inspectors in this area will be held in Birmingham on Nov. 15 and 16.

## REPAIR OF FEMORAL HERNIA BY A "POSTAGE STAMP" FASCIAL GRAFT

BY

H. A. KIDD, FRCS, MRCOG

Senior Surgeon, St Helier County Hospital, Carshalton, Surrey

The closure of the femoral canal presents a problem which has not yet been solved by the adoption of a standard technique, although numerous methods have been described and have their adherents. As the proportion of femoral to inguinal herniae is about 1 to 15 it is not easy for any individual surgeon to collect a large series and allow an adequate time to elapse before assessing the final results.

The method here described was first performed by me in May, 1938, and has since been employed in 53 cases (51 patients). The principle of the operation is to cut a rectangular section of external oblique aponeurosis, leaving the attachment to Poupart's ligament intact, and then swing it down so that the free margin can be sutured to the periosteum of the pubic ramus. The femoral canal is thus closed by a trap-door of living fascia. The operation can be performed under a regional block with 1% procaine solution, but a spinal or general anaesthetic is preferable.

### Technique

1 The incision extends from the midline, outwards for 4 in (10 cm), parallel to Poupart's ligament and 1 in (2.5 cm) above this structure. It is carried down to the external oblique aponeurosis.

2 Haemostasis is secured and "tetra" cloths are clipped into position.

3 Poupart's ligament is defined and a 3-in (7.5-cm) incision made through the external oblique aponeurosis a full inch above the upper border of the ligament.

4 In the male the cord is retracted. The fibres of the conjoint tendon are then divided transversely for 1 in at the level of the femoral canal.

5 The neck of the sac is defined, the peritoneum opened, the sac dissected out and amputated at its neck.

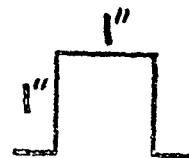
6 The neck of the sac is closed with fine proofed silk and the original opening in the peritoneum closed.

7 The upper edge of the wound is retracted by a Czerny retractor deeply placed and the lower edge pulled down by two Spencer Wells forceps applied to the lower cut edge of the external oblique. The upper end of the femoral canal is then clearly defined, the coverings of the sac are ligated and usually left *in situ* so as to fill up the canal.

8 A flap as illustrated, is cut from the lower edge of the external oblique after delineating the points of section with Spencer Wells forceps. It should be a little over 1 in square according to the size of the femoral canal.

9 The femoral vein is retracted laterally with the forefinger. A very small fully curved steel needle on a holder is made to take a good bite of the periosteum of the pubis at the point where the internal border of the femoral vein lay before it was retracted. The fine proofed silk sutures are then threaded twice through the free edge of the graft (as in inserting a pin). The double bite prevents the tissue tearing, and a knot is tied in the ligature at this point.

10 Two similar sutures are passed and fixed, one in the middle of the canal and graft and the other at the internal end.



## Medical Memoranda

### Herniorrhaphy Plus Appendicectomy

It is generally agreed that it is a wise procedure to perform incidental appendicectomy during any abdominal operation provided that the condition of the patient is satisfactory and that no undue prolongation of the incision is called for.

Thus, following a cholecystectomy for gall stones it is usually an easy matter to withdraw the caecum and perform appendicectomy, provided that there are no adhesions in the ileocaecal region. Even so, it may be possible to separate frail adhesions digitally. Firmer adhesions commonly indicate previous appendicular inflammation, which increases the desirability of removing the appendix. In such cases extension of the incision is usually justifiable in order to gain access to the pathological organ.

The majority of gynaecologists scrutinize the appendix after a pelvic operation and if the condition of the patient is satisfactory, perform appendicectomy. The recognized exception to this routine is the presence of raw surfaces or tissue planes such as may result from removal of a tubo-ovarian abscess or a total hysterectomy. In such cases most gynaecologists consider that the release of a few organisms might result in an inflammatory reaction which would not otherwise have occurred. (The introduction of a few millilitres of "mickraform" sulphathiazole suspension would possibly counteract this risk.)

There is one common surgical operation in which incidental appendicectomy can usually be performed without difficulty, but to the best of my knowledge few surgeons avail themselves of the opportunity. I refer to right inguinal herniorrhaphy. After opening the sac and dealing with the contents, unless the neck is unduly narrow, it is often a simple matter to withdraw the caecum and then to remove the appendix. The caecum normally lies just above the internal abdominal ring, and gentle traction with dissecting forceps the serrations of which are covered with rubber tubing usually coaxes the caecum into the sac. If the caecum does not present itself, or is immobilized by adhesions the manoeuvre must be abandoned, but in more than half of the cases appendicectomy by this route presents no difficulty. Patients who undergo radical repair of a hernia are usually fit enough to withstand a short prolongation of the operation, and they are invariably surprised and delighted to learn subsequently that they have been relieved of an organ which possesses no virtue but only potentialities for mischief.

One very important point when a patient has undergone incidental appendicectomy it is the duty of the surgeon, the assistant, and the sister in charge to inform him and a responsible relative that the appendix has been removed. Any surgeon of experience will recall patients with abdominal scars who are entirely vague about whether they possess an appendix or not. The complacency with which some patients offer their abdomens as a sacrifice to the surgeon's scalpel is a remarkable tribute of confidence, and they are quite content to wander forth again into the world in complete ignorance of the reason for or the results of surgical intervention.

R J McNEILL LOVE MS, FRCS

The Northern Ireland Minister of Health and Local Government Mr William Grant, speaking at the annual dinner of the Northern Ireland Branch of the Chartered Institute of Secretaries, said that the number of doctors in the health scheme was 730 while the number of persons on doctors' lists at July 5 was 996,051. This had since increased to approximately 1,250,000 representing 93% of the total population. New acceptance cards were still being received at a steady rate, and the response had been gratifying. The payment now being made to doctors out of the Practitioners' Fund (calculated at the rate of 17s 6d a year in respect of 95% of the total population) was £266,627. Payments to dispensing doctors for drug capitation fees totalled £12,481. These were the gross figures before deduction of superannuation contributions.

11 When the proximal ends of the ligatures are pulled upon the flap rolls down like a blind to cover the femoral canal opening. The graft is fixed by tying the sutures and tested by the finger to see if a good fit has been obtained with the right degree of tension.

12 The cut edge of the conjoint tendon is then sutured to Poupart's ligament with interrupted silk sutures.

13 The external oblique is closed with interrupted silk sutures. A little ingenuity may be required to close the gap made by the removal of the graft, but it can usually be managed without undue tension or the performance of the relief incision parallel to and above the original cut in the external oblique.

14 The skin is closed with interrupted silkworm sutures.

Patients are taught to do special exercises both before and after operation, and the stitches are removed on the tenth day. They sit out of bed on the second day, walk about on the twelfth day, and go home on the seventeenth day. Light work is allowed four to six weeks after operation and heavy lifting only after a further three months.

The chief danger in the operation is of damage to the femoral vein when passing the first deep suture. The use of a small, strong, trocar-pointed  $\frac{1}{2}$ -in (1.25-cm) needle is essential. The disadvantages in the operation are the small transverse incision in the conjoint tendon and the gap left in the external oblique, as both may tend to the formation of a direct inguinal hernia. It is important to close the opening in the posterior wall of the canal by carefully placed interrupted silk sutures to prevent a direct inguinal hernia.

### Results

There were two recurrences of the femoral hernia, both in men one of which was an emergency operation for strangulation in a man aged 63.

Four patients died—only one in hospital, a few days after an operation for strangulated hernia in a patient of 78. One patient died two years after operation, and her doctor states that there was no recurrence. The third died eight months after operation from a carcinoma of the lung, and when seen two months before death there was no recurrence. The fourth died at home suddenly, aged 67, cause unknown, a few days after discharge.

Table of Results

	Male	Female	Totals
Incidence			
Right	12	25	37
Left	4	12	16
Strangulated			
Right	8	7	15
Left	2	2	4
Bilateral	—	2	2
Recurrent			
Femoral	1 (s)	1	2
Direct	1	1	2
Died	2	2	4
(Age at death)	(67 67)	(78 84)	

Age —Average over 50 oldest 84 youngest 24 Sex —Males to females 1 2 Side —Right to left 2 1 Strangulation —2 5 Pain in scar —3 (1 male 2 females) Follow up —Longest 10 years shortest 1½ years (February) on since January 1947

### Summary

An operation for femoral hernia has been described in which the canal is closed by a "postage stamp" graft of living fascia.

Since 1938 53 operations on 51 patients have been performed and have been followed up for 1½ to 10 years. Only one patient could not be traced.

There were two recurrences of the femoral hernia and two direct inguinal hernia.

## Reviews

### THE YOUNG CHILD'S PERSONALITY

*The Personality of the Preschool Child The Child's Search for His Self* By Professor Werner Wolff (Pp 341, 118 figures 25s) London William Heinemann Medical Books 1947

Intelligence tests are not altogether holding their own. Clinicians trust the results of routine tests on children only in so far as they are carried out by mature and understanding psychologists who make a good guess intuitively after adequate human contact. Tests of children under six are particularly suspected, and perhaps ought to be thought of as research. This study of the pre-school child is very interesting, is in many respects original and is successful in getting behind the objections to the testing with which we are more familiar. The author's aim is to study the child and not to churn out quotients. He discusses the "rhythm quotient," which serves to introduce organized comment on and evaluation of the drawings of children who have not learnt to draw and who draw subjectively rather than objectively. The book is profusely illustrated by children's conversations and drawings, and these ensure that the reader is kept in touch with the child that is being studied and is not lost in theory. The reader is free to see more than the author sees or to disagree with the author's drawings and comments.

The psycho-analyst, who concerns himself specifically with the dynamic aspect, who sees a need in therapeutics for resolving the repressed unconscious, will welcome this alternative non therapeutic approach which enriches his perception of the young child's way of life and natural organization. For the educational psychologist the work described in this book would seem to offer a most welcome opening out of the subject and an escape from the psychologist's dilemma—his being employed more for his comments on cases based on guesswork, than for actual results of tests performed. No doubt much that is published by Wolff as original is a development of ideas already suggested by other workers, but if this is so the author is exonerated by his providing an extensive bibliography of 622 relevant books and papers.

D W WINNICOTT

### VD HANDBOOK

*Handbook of Venereal Infections* By R. Grenville Mathers, M.A., M.D., FRFPG, Ph.D., A.R.I.C. (Pp 116 12s 6d) London Sylvio Publications, Ltd 1948

The author of this little book has been remarkably successful in getting so much information, in fact nearly all that practitioners and senior students require, into fewer than 110 pages. In the opening chapter he considers the legal aspects of the subject, including Regulation 33B (which has now been revoked), and the facilities for free treatment provided all over the country. Chapter II is on penicillin and its use in venereal diseases. Then follow chapters on gonorrhoea, syphilis, and other venereal infections, with a final one on the prevention of V.D. His account of gonorrhoea occupies 27 pages, and he discusses diagnosis and treatment on standard lines. There are 60 pages on syphilis, and they include a good description of the technique of dark-ground microscopy. A fuller account of the morphology of *Spirochaeta pallida* would have been helpful. He describes the Wassermann reaction at some length, but it seems doubtful whether the neophyte would fully grasp its meaning. The description of the various stages of syphilis and the treatment recommended are sound, and the author evidently is not one of those who pin their faith on penicillin alone, very wisely he insists that this must be supplemented by other remedies if the maximum effect of therapy is to be obtained.

Unfortunately the generally low standard of scholarship and the numerous mistakes, typographical and otherwise, somewhat mar this little book. The author evidently has not profited from his study of the *litterae humaniores* at school and the university, such words and expressions as "spirochaetocidal" "flagellae" "grains 1/12" "0.2 mega units," "practice" (substantive) and "one month's rest between each course" should not occur, while singular nouns appear with

plural verbs and vice versa with gay abandon. It is news to most that in meningo vascular syphilis the meningitic gold curve is 00001344300 and that interstitial keratitis is a lesion of the nervous system. If the author will carefully study Sir Ernest Gowers's *Plain Words* and occasionally refer to Fowler's *Modern English Usage* the second edition of this book will be a great improvement on the first.

T E OSMOND

### ENDOTRACHEAL ANAESTHESIA

*Endotracheal Anaesthesia* By Noel A. Gillespie, D.M., B.Ch., M.A., D.A. Second edition, revised and enlarged (Pp 237, 56 figures \$4.00) Wisconsin University of Wisconsin Press 1948

Like so many other arts of the cunning hand, endotracheal intubation can be learnt only by practice. The way of the self-taught intubator is hard and blood-bespattered. An enthusiastic and experienced teacher at his elbow makes difficulties disappear and understanding come easily. When this stage is reached a good book waters the newly flowering skill with knowledge and the erstwhile novice soon becomes an expert. Such a book was the first monograph on endotracheal anaesthesia by Professor Gillespie. The first edition in 1941 seemed impossible to improve, but he has succeeded in doing so by including an account of the latest developments in the technique. There can be little that has been said or written about endotracheal anaesthesia that he does not discuss. Nevertheless, the vast array of fact, historical and recent, practical and theoretical, is put concisely, yet with such excellent style and with emphasis so well placed that one reads the book with no feeling that the subject matter is compressed. The bibliography and references are painstakingly set out at the end of each chapter.

Professor Gillespie is fair when discussing such poor methods and dangerous practices as have inevitably sprung up, but in moderate and scholarly language he manages gently though effectively to shape the reader's opinion to his own. Not only the anaesthetist but his colleagues too will find this book interesting, for the author describes well the great inventiveness, ingenuity, and effort that attend the apparently simple manoeuvre of passing an endotracheal tube and administering an anaesthetic through it. The author is a product of both the London Hospital and of the Madison School of Anaesthesia. This excellent work must be a source of pride to both.

WILLIAM W MUSHIN

### HYPNOTISM

*Hypnotism To day* By Leshe M. Lecron, B.A., and Jean Bordeaux M.A., Ph.D. Foreword by Milton H. Erickson, M.D. (Pp 278 25s) London William Heinemann Medical Books 1947

In the first half of this book the authors give an interesting account of the history of hypnotism and a description of the physiological and psychological phenomena and the theories which have been suggested to explain them. The phenomena are themselves remarkable. There can be no doubt of the reality of the anaesthesia which can be produced. The normal subject can tolerate, though with pain, 15-20 volts, while the hypnotized subject under the same conditions has taken without flinching 120 volts. Major operations have been conducted under hypnotic anaesthesia. This is intelligible on present neurophysiological conceptions, but it is a different matter with hyperaesthesia, about which, to be sure, the evidence is not quite so convincing. Playing-cards with presumably identical backs are shown face down to the hypnotized subject, but each is described as a photograph—for example, of a landscape or portrait. The cards are then shuffled and again shown face down. It is said the subject can identify the cards by the suggested pictures which have been associated with each of them. Some of the subjects who have succeeded with this test have been able to point to minute differences between the cards which, under suggestion, became a feature of the hallucinatory picture. Another improbable phenomenon is that of regression. By appropriate suggestion the subject can be brought to retreat to any age of his life—for instance, early childhood—and then takes on the behaviour, abilities, and vocabulary of that age and can remember precisely and in detail as recent events occurrences of that remote past. Such observations



suggest strongly the desirability of further research in this obscure field

In the second part of the book the authors give useful indications for the treatment by hypnosis of neurotic states. They write in an interesting and informative way and in a critical and cautious spirit emphasizing the need for adequate medical investigation before hypnotic treatment is started.

ELIOT SLATER

## SCIENCE AND SOCIETY

*The Conflict of Science and Society* By C D Darlington FRS Conway Memorial Lecture at Conway Hall April 20 1948 (Pp 51 2s) London Watts and Co

The publishers of Dr C D Darlington's Conway Memorial Lecture justly describe it as provocative. From its denunciation of Government departments in our bourgeois State particularly of the Ministries of Agriculture and Health and its more than Wellsian contempt for our ancient universities a young Marxian might think he recognized a comrade, but, as our readers will remember, Dr Darlington has an even poorer opinion of the USSR than of the Ministry of Agriculture which has not, apparently, murdered anybody yet while Moscow has murdered several geneticists and compelled the Academy of Sciences of Prague to offer a seat to a charlatan from Moscow. The evils of the world are Dr Darlington thinks to be traced to the notion of equality, one of the three chief illusions promoted by the great Semitic religions (which are the Christian, the Muslim, and the Communist faiths). Christian or Muslim equality depends on an equality of souls before God. Germanic equality depended on an equally mystical race-theory. Marxist equality, on the other hand, springs from a variety of sources. Is it possible that Dr Darlington is misstating the Christian ethic? The parable of the talents seems to teach that all men are *not*—shall we say—*genetically* equal, but that there is equality of reward between the possessors of five talents and of two talents provided they have used their greater or smaller genetic abilities as well as they could. However this may be Dr Darlington finds the world very evil and that organized society has no use for research. 'Is our situation so easy, our food so abundant, our empire so rich, our credit so inexhaustible, that we can afford the perennial and increasing archaism of our great departments of Industry, Agriculture, and Health?'

Dr Darlington's remedies for this state of affairs are far from violent. He thinks that nobody should be given a university degree from whose training either science or the humanities has been wholly excluded and that the theory of evolution should become the central idea in teaching and research. These proposals will be found *mutatis mutandis* (viz., without a drum fire of scorn) in the report of the BMA Committee on Education.

The heart knoweth its own bitterness, Dr Darlington's emotion is perhaps sturred by British neglect of genetics, which indeed moved the wrath of Karl Pearson and Galton before Dr Darlington was born. It would be impertinent for a vital statistician without special knowledge of genetics to challenge Dr Darlington's judgment on that issue, but I shall venture to deny as categorically as he affirms that the official vital statistics of this country are 'largely lumber' or that modern statistical methods are despised in Government departments. Indeed the demand for trained statisticians both in Government departments and universities is considerably greater than the supply.

MAJOR GREENWOOD

Professor J H Burn FRS, says in his *Lecture Notes on Pharmacology* (Oxford Blackwell Scientific Publications, 6s) 'These notes were written for the medical students at Oxford because very few of them were able to obtain copies of textbooks on pharmacology.' He gives a concise account of the information needed to pass examinations and this will help students to achieve the necessary goal. The danger of this kind of book lies in the fact that some students may feel that there is no need to consult larger books and so will require a minimum of knowledge. The book is reliable, up to date and well suited for its purpose, but it will be unfortunate if students have to depend entirely on such brief summaries. If the appearance of this book stimulates the publishers of larger textbooks to print more copies of them a useful purpose will have been served.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Practical Zoological Illustrations Invertebrates* By W S Bullough (30 illustrations 15s) London Macmillan 1948  
Labelled diagrams for junior students of zoology

*The Modern Management of Gastric and Duodenal Ulcer* Edited by F Crodon Deller MD, MRCP (Pp 221 20s) Edinburgh E and S Livingstone 1948

A practical account for physicians and surgeons

*The March of CME* Edited by L Machlan for the College of Medical Evangelists Vol II (Pp 208 No price) California College of Medical Evangelists Loma Linda and Los Angeles 1947  
An account of the College of Medical Evangelists, California

*Pharmacology and Experimental Therapeutics* By H A Anderson and others (Pp 368 36s) London Cambridge University Press 1947

A survey of the literature, 1941-6

*Medical Statistics from Graunt to Farr* By Major Greenwood DSc FRCP, FRS (Pp 73 6s) London Cambridge University Press 1948

The FitzPatrick Lectures for 1941 and 1943 an account of the early history of medical and social statistics

*Zinsser's Textbook of Bacteriology* By D T Smith, MD, and others 9th ed (Pp 992 \$10) New York Appleton Century Crofts 1948

For medical students and practitioners

*The Selection and Use of Diagnostic Categories in Clinical Counseling* By H B Pepinsky (Pp 140 11s 6d) London Geoffrey Cumberlege 1948

A monograph on identifying and advising on students' problems

*Father Land* By B Schaffner, MD (Pp 203 18s) New York Columbia University Press 1948

A study of authoritarianism in the German family

*A Synopsis of Regional Anatomy* By T B Johnston, CBE MD 6th ed (Pp 436 18s) London J and A Churchill 1948

For the medical student revising his work

*General Endocrinology* By C Donnell Turner, PhD (Pp 604 35s) London W B Saunders 1948

A textbook for students of biology and zoology

*Malaria Control by Coastal Swamp Drainage in West Africa* By A B Gilroy, OBE, MB, BS, DTM & H (Pp 107 No price) London Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine 1948

A practical handbook intended primarily for medical men

*Human Ancestry* By R Ruggles Gates, FRS (Pp 422 42s) London Geoffrey Cumberlege 1948

A study of the origin and history of the races of mankind

*Insects and Human Welfare* By C T Brues Revised ed (Pp 154 14s) London Geoffrey Cumberlege 1947

An account of insects harmful to man and their control

*Fearless Childbirth* By M Randall, OBE, SRN, SCM, MCSP (Pp 99 3s 6d) London J and A Churchill 1948

A practical handbook for the mother to be

*The Mechanism of Abdominal Pain* By V J Kinnella, MB, ChM, FRCS, FRACS (Pp 230 32s 6d) Sydney Angus and Robertson 1948

Includes a historical introduction and review of the literature, with references

*Brief Psychotherapy* By B S Frohman, MD (Pp 265 20s) London Henry Kimpton 1948

A manual for the general physician

## BRITISH MEDICAL JOURNAL

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## PROTEIN IN FOOD

Many will remember being taught that different proteins contain different combinations of amino-acids and that in all animals a process of selection goes on, the correct proportions of the amino-acids needed for the building up of their own characteristic proteins being sorted out and any which are left over used merely as fuel. Some of us may also have been told that cannibalism is justifiable at least on physiological grounds, because the proteins thus consumed supply amino-acids in the right proportions. While some of these conceptions have stood up well to the test of time, much has been learned in recent years about protein metabolism and about the body's need for protein. Elsewhere in this issue we publish the paper on the significance of proteins in nutrition which Dr D P Cuthbertson read when opening a discussion in the Section of Nutrition at the Annual Meeting of the British Medical Association.

The old division of proteins into two qualities has now become much less justifiable. It is still true that proteins of animal origin, with the main exception of gelatin, contain all the necessary amino-acids in the right proportions, whereas in vegetable proteins certain essential amino-acids are absent or present in inadequate amounts. The food we eat, however, contains many different proteins, and lack of certain amino-acids in one may be made good by their abundance in another. Thus, while beef tea is deficient in tryptophan and tyrosine and bread in lysine, the long-popular combination of the two provides amino-acids in reasonably well-adjusted proportions.<sup>1</sup> The time factor is important when one protein has to make good the deficiencies of another. Cannon<sup>2</sup> has pointed out that an "all-or-none" law applies to the synthesis of protein in the body. Each tissue protein is always built up accurately to its characteristic structure, if any essential amino-acids are missing partial synthesis of body protein cannot take place, nor can surplus acids be stored until the missing ones are provided. Even a period of a few hours between the ingestion of different proteins may be too long if they are needed to supplement each other. We must have bread and beef tea together, not bread in the morning and beef tea in the afternoon.

Cuthbertson's conclusions about the quantity of protein which the diet should contain support the theory that if a diet is adequate in calories it will usually be adequate in proteins as well. Thus American soldiers chose diets containing 11-13% of protein irrespective of the part of the world in which they were serving. The oedema which was a sign of protein deficiency in prisoners in European and Asiatic prison camps during the war was mainly due to the demands of the body for dietary and tissue proteins as

sources of energy. Adults can quite well do without animal protein, but when poverty does not restrict choice of food it is usual to find that 60% of the total intake of protein is in this form. Unless children are given a substantial proportion of animal protein in their diet they may not obtain enough lysine for their needs.

Wounds, accidental injuries, and burns may cause the loss of proteins not only in visible forms, such as detached or broken tissues and bleeding and exudation from the damaged area, but also through the excessive protein catabolism which normally follows injury, through superimposed infection, and through disuse or reflex atrophy resulting from the immobilization of the patient during recovery. As an illustration of the severity of the protein loss after severe injury Cuthbertson mentions that a patient lost 8% of his total body protein within ten days after breaking a leg. While this heavy loss of protein may seem alarming, the process appears to be part of the normal mechanism of repair and provides the amino-acids required to build new tissues. When the protein reserves of experimental animals are exhausted no increase in protein catabolism takes place after injury, this implies that the normal powers of recovery are impaired. Severely injured patients should certainly be given a diet which will restore a positive protein balance without undue delay. For this purpose it is not enough to give protein in amounts equal to those lost, unless sufficient carbohydrates and fats are provided to meet the total need for calories the protein is merely used as fuel. Undernourished patients who are awaiting operation should be put on diets which will meet their nutritional needs, since they may respond to dietary treatment more readily before operation than during convalescence.

Cuthbertson also describes the somewhat similar problems of protein balance during the treatment of fevers, which resemble starvation in causing destruction of the tissue protein. In acute febrile illnesses it is more important that the patient should be saved exertion than that his protein intake should be increased. In fevers of long duration, however, liberal amounts of milk and of carbohydrates should be given. Protein hydrolysates, of which so much was once expected, do not now seem to have a wide application in the treatment of either injuries or disease. When the patient is able to digest intact protein the administration of hydrolysates is physiologically unjustified, while if nourishment has to be given intravenously plasma and glucose usually provide a safer alternative.

## MULTIPLE MYELOMATA

In the *Philosophical Transactions* of the Royal Society of London for 1848 there appeared a short article by Dr Henry Bence Jones in which he described the properties of a substance found deposited in the urine of a patient suffering from mollities ossium. The peculiar characteristic of this substance was that it dissolved in boiling water, and the precipitate formed on the addition of nitric acid was dissolved by heat but reformed on cooling. Knowledge of the condition now known as multiple myelomatosis has grown from this observation. The disease is not rare, but it is often missed. It is more

<sup>1</sup> CHAMBERLAIN, H. *British Medical Journal* 1948 2, 103.

<sup>2</sup> *J. Amer. med. Ass.* 1947 135 10-13 and *Proc. Inst. Med. Chicago* 1948 17 1.

common in males and usually affects those in the fifth and sixth decades. The average time after the onset of symptoms before the patient reaches a hospital is about nine months. The disease primarily affects the marrow of flat bones—the vertebrae, ribs, skull, and pelvis—but occasionally the long bones may be affected, particularly the femur and humerus. The soft tumour tissue may burst through the bone and invade the adjoining tissues, more rarely the liver, spleen, and lymph-glands may be affected, and still more rarely other soft parts. The chief symptoms complained of by the patient are either pain in the back, great loss of weight, or an obvious swelling in a bone, and on examination a pathological fracture may be found, quite commonly a compression fracture of a vertebra. Radiographs often show characteristic rarefaction of one or more bones. In half the cases there is an excess of calcium in the blood, while in a similar proportion (but not the same group of cases) the globulin in the blood is considerably raised. Severe anaemia is common. Material obtained by sternal puncture may contain cells of a type similar to those in the tumour. The urine in about half the cases contains the protein known by the name of Bence Jones and possessing the properties he described, the finding of this is almost but not quite pathognomonic. There is sometimes an atypical nephritis with persistent albuminuria or even renal insufficiency. When sections of the tumour are examined microscopically usually one of two types of cell is seen to predominate—a small cell which has a superficial resemblance to a plasma cell, and a larger cell with more abundant cytoplasm and large round nucleus. According to Lichtenstein and Jaffe<sup>1</sup> cases of large-cell myeloma are characterized by hyperglobulinaemia. There is considerable difference of opinion about how these cells originate, but these authors state that there can be little doubt that multiple myelomatosis “is a disease of unitary cell type, the varieties in cytologic appearance reflecting stages in the maturation of the basic tumour cell”. An interesting point is that at necropsy some cases are found to have amyloid deposits in tissues which are not generally affected in true amyloid disease.

Prognosis in this disease is not good, but remissions sometimes occur. Patients have been known to survive for ten years, but the average duration of life is only about two years from the time when symptoms are first noticed. Treatment by x rays is palliative only. Radioactive phosphorus ( $P^{32}$ ) has been tried by several observers, but with little success. Hall and Watkins,<sup>2</sup> however, apparently cured one patient by a series of injections of radioactive phosphorus followed by x-ray treatment. Because excess of globulin in the blood is a feature of kala-azar, which is cured by administration of antimony, Snapper<sup>3</sup> tried the effect of “sulbamidine” in multiple myelomatosis, pain diminished, and radiographs showed what appeared to be some arrest of the disease and recalcification, but in other ways there was no benefit. Edith Paterson<sup>4</sup> and her colleagues have reported that urethane, which had been found useful in the treatment of leukaemia, produced no improvement in two cases of multiple myelomatosis. Lately, how-

ever, in Sweden Alwall<sup>5</sup> used this drug with success in one out of two cases. The patient was a woman aged 50, with radiographic and other evidence of multiple myelomatosis. Urethane was given in the following doses, first month, 1 g 2-4 times daily, then two weeks' interval followed by 1 g thrice daily for two months, after that 2.5-1.5 g per week. Though improvement was not apparent radiologically the amount of globulin in the blood became normal, the sedimentation rate fell rapidly, and at the end of four months the material obtained by sternal puncture no longer contained myeloma cells. It appears that urethane deserves further trial in this condition.

### FEMORAL HERNIA

Most surgeons of experience in this country practise the high operation for repair of femoral hernia, and there are few who would not use this approach in cases with strangulation. Elsewhere in this issue (p 743) Mr A G Butters reviews the results in a series of 120 cases and puts forward a plea for wider use of the low operation. Numerous American surgeons<sup>1-4</sup> regard the low approach as adequate and the operation of choice in the majority of cases. Wakeley<sup>5</sup> in this country has also given strong support to this view and reported a lower recurrence rate in the patients operated on by him. It is a common criticism of the low operation that complete removal of the sac is not always achieved. Repair of the femoral canal from above would seem to be more certain and effective, but Moschowitz,<sup>6</sup> who was one of the first to recommend this approach, pointed out that the posterior wall of the inguinal canal might be weakened, surgeons who perform the modern high operation are therefore careful to reinforce the posterior wall of the inguinal canal after repair of the femoral region. Butters reports that even with the low approach 7% of his patients subsequently developed an inguinal hernia on the same side. It would be interesting to know what proportion of these were direct herniae, for they at least should be prevented by a properly executed high operation.

Many methods of closing the femoral canal have been used in the last 50 years. The low operation with simple apposition of inguinal ligament to pectineal fascia may be sufficient where the hernia is small and the femoral canal narrow. The inexperienced surgeon finds it easy, but it is doubtful whether the inexperienced surgeon should undertake such operations, and simplicity cannot wholly justify a procedure which may be otherwise unsound. With the inguinal approach the method of repair used by Keynes,<sup>7</sup> a modification of Bloodgood's<sup>8</sup> operation for inguinal hernia, has given excellent results in skilled hands. On another page Mr H A Kidd describes a method in which a flap of external oblique aponeurosis is used. This operation may have the virtue of avoiding the potential actual defect which occurs at the lateral edge of the rectus in the Keynes operation, but it leaves instead a defect (probably of little importance) in the external oblique. Though there is much to be said for using the patient's own tissues the insertion of a lattice of some unabsorbable suture material has grown in popularity. Interrupted sutures of linen or silk are commonly used, tension being avoided.

<sup>1</sup> Coley B L. *Textbook of Surgery* edited by Christopher F 15.  
Philadelphia

<sup>2</sup> Coley B L. *Amer J Surg* 1928 4 335

<sup>3</sup> Erdman S. *Nelson Loose Leaf Surgery* Vol 4 New York

<sup>4</sup> Watson L F. *Hernia* 1924 St Louis

<sup>5</sup> *Lancet* 1940 1 822

<sup>6</sup> *NY St J Med* 1907 7 396

<sup>7</sup> *British Medical Journal* 1927 1 173

<sup>8</sup> *Ann Surg* 1919 70 81

<sup>9</sup> *British Medical Journal* 1948 2, 379

<sup>10</sup> *Lancet* 1936 1 531

<sup>1</sup> *Arch Path* 19-7 44 207

<sup>2</sup> *Med Clin N Amer* 1947 31 810

<sup>3</sup> *J Amer med Ass* 1947 133 157

<sup>4</sup> *Lancet* 1946 1 677

<sup>5</sup> *Ibid.*, 1947 2, 388

In this *Journal* recently Mr A Lawrence Abel and Mr A H Hunt<sup>9</sup> have advocated a continuous lattice darn with fine stainless steel wire. Many surgeons, recalling that stainless steel pins and wires sometimes disintegrate, may be chary of putting wire close to the femoral vein, and time alone will show if this is sound practice.

It is very hard to justify a low approach in cases of strangulated femoral herniae, Butters suggests a separate paramedian incision if resection of gut is necessary, but this may seem irrational to surgeons who prefer the high operation. The low approach may give a totally inadequate view of the strangulated viscus, and cases have occurred where the damaged gut at the edge of an incompletely inspected strangulated Richter hernia has subsequently perforated into the peritoneal cavity. Adequate exposure is vitally important, and though good results are obtained with inguinal or vertical incisions many surgeons favour a paramedian incision, while some find that the pararectal approach devised by Vaughan Hudson gives the best view. Henry's<sup>10</sup> operation is useful for uncomplicated bilateral hernia in suitable patients, but in cases of strangulated hernia the exposure may be inadequate. When a midline incision is used it would seem wise to repair the linea alba with stainless steel wire.

### REGIONAL ORTHOPAEDICS

Thanks to the pioneer work of the late Dame Agnes Hunt and Sir Robert Jones some parts of England have had regional orthopaedic services for about a quarter of a century. The service based on Oxford is a model for the whole country, and a recent pamphlet<sup>1</sup> by one of its past directors, Mr G R Girdlestone, should interest not only orthopaedic surgeons but all who think that the benefits of medicine should be taken to the patient rather than that he should be compelled to drag himself over a greater or lesser distance to a central hospital. A number of orthopaedic surgeons have worked hard to make more widely known the preventive aspect of orthopaedics, and among these Girdlestone has shown very convincingly that in order to make preventive work effective a regional system of clinics is essential. He describes the admirable Oxford service much as it is to-day, with the recent extension of its activities to embrace the treatment of accidents. An accident service, because of its faster tempo, requires something more than a mere expansion of an existing orthopaedic service. Much of the work must be decentralized, surgeons should be installed in the smaller centres of population so that they may deal expeditiously with all accidents occurring in the neighbourhood—the function of the central hospital being to co-ordinate their activities and to provide facilities for the investigation and treatment of the exceptionally difficult or rare case.

Girdlestone's description of a regional orthopaedic service is more likely to be of value to members of regional hospital boards and other laymen interested in the care of cripples than to professional hospital administrators, who will require detailed information on a number of points not dealt with in his pamphlet. For instance, he does not state the number of beds needed per thousand of population, and he gives no information about the size of staff required in relation to the distances to be covered in visiting clinics. The activities of the after-care sisters and the method of arranging their work are not described, nor does he give any indication of the size of the appliance workshops in relation to the population served. There is no mention of

some important clinical problems, such as the best way of treating those troublesome and not infrequent cases of combined pulmonary and joint tuberculosis and the special arrangements required in an outbreak of poliomyelitis. It is doubtful whether anyone in the country is in a better position than Mr Girdlestone to supply all this vital information, and it is to be hoped that he will find time to produce a more comprehensive guide for the benefit of professional hospital administrators and orthopaedic surgeons.

Concentrating his attention on a smaller field—out-patient arrangements and accident services—P W Clarkson<sup>2</sup> has produced a most informative report. He shows how the out-patients' casualty department should be used for medical education, and his description of the arrangements at Guy's Hospital is supplemented by accounts of the organizations at the Royal Infirmary, Edinburgh, the Birmingham Accident Hospital, and the Accident Service at Oxford. A similar report to cover the wider field of orthopaedics and the treatment of accidents on a regional basis is what is now required.

### LATENT RHEUMATIC MYOCARDITIS

In children and young adults with rheumatic heart disease congestive heart failure is almost invariably precipitated by a recurrence of the rheumatic infection and an active carditis. On the other hand, it is customary to regard the congestive failure that commonly terminates rheumatic heart disease in the fourth or fifth decades as being mainly the result of long-standing impairment of valvular efficiency and the associated myocardial fibrosis. However, in recent years the view has been gaining ground that even at the later age a reactivation of the rheumatic process may be the underlying cause of the final heart failure. In an attempt to assess the frequency of active carditis in patients dying with rheumatic heart disease Rogers and Robbins<sup>1</sup> studied the findings at 41 post-mortem examinations carried out at the Mallory Institute of Pathology of the Boston City Hospital between 1933 and 1946. In 20 of these, with ages ranging from 2 to 53, the activity of the disease had been recognized during life on clinical grounds. In 14 there was a history of preceding sore throat or other upper respiratory infection, and all but five had had joint pains or an actual polyarthritis. Clinical evidence of pericarditis was present in 13 of the patients, at necropsy old or recent valve lesions were found in this group, in addition to active carditis as shown by the presence of Aschoff bodies.

In a second group comprising 10 cases the activity of the rheumatic process was not suspected during life. The average age of these patients was 23 years older than that of the first group, the ages varying from 12 to 63 years. In only three was there a history of recent upper respiratory infection, and only three had complained of joint pains. Typical clinical signs of pericarditis were found in none. All had congestive failure. At necropsy these patients were found to have the classical lesions of rheumatic heart disease, all showing an active myocarditis, and in two cases there was a recent acute rheumatic endocarditis superimposed upon the old valve lesion. A further seven patients were not recognized during life as having rheumatic heart disease at all. Their ages ranged from 29 to 63, the average being three years older than the last group and 17 years older than the first. Only three of these patients had signs of congestive failure, and in only one was there clinical evidence of valvular lesions. Yet in these cases too the post-mortem examinations revealed changes as characteristic of rheumatic heart disease as in the two

<sup>1</sup> *Preventive Orthopaedic Service*. Obtainable from the Central Council for the Care of Cripples.  
<sup>2</sup> *G. R. Girdlestone*, 1948, £2, 202.

preceding groups. In all cases there were Aschoff bodies in the myocardium, and in four there was a recent valvulitis. In a further four patients there were no clinical signs of rheumatism, but two had congestive failure. At necropsy no valvular lesions could be demonstrated, but myocarditis with the histological features of acute rheumatism was found in all four. In the last group the diagnosis of rheumatic infection based entirely on the presence of Aschoff-body-like lesions in the myocardium is open to criticism. The specific nature of these changes when found alone is still a debatable matter. Nevertheless this study clearly shows that acute rheumatic carditis is by no means confined to childhood and early adult life. Even after the age of 40 an active rheumatic carditis can occur as the sole manifestation of acute rheumatism, and cardiac failure at this age may be the result of a recurrence of rheumatism. These observations also fall into line with the well-recognized fact that patients with rheumatic heart disease sometimes survive to 60 or over with no symptoms of heart failure and then succumb to some other disease, presumably because they have escaped further attacks of rheumatic carditis.

### PSYCHOTHERAPY FOR SEXUAL OFFENDERS

The Scottish Advisory Council on the Treatment and Rehabilitation of Offenders has recently issued a report<sup>1</sup> on the treatment by psychotherapy of certain offenders. The subject has been approached broad-mindedly, and the adoption of the recommendations would probably help to prevent crime. It is a pity that the report should be limited to a consideration of psychotherapy, which is a form of treatment applicable to comparatively few disorders, the recommendations could well include other forms of psychiatric treatment. A sexual offence is often only an episode in the course of a person's psychosexual development, and the Advisory Council wisely suggests that it would be advantageous in such cases to obtain psychiatric advice and, if necessary, treatment rather than to institute court proceedings. Such a course is eminently suitable in the case of children and adolescents, and on occasions courts already follow this procedure in both Scotland and England. The Council appreciates the value of combining probation with psychotherapeutic or psychiatric treatment, whether out-patient or residential, and approves the new facilities to be provided under the Criminal Justice Act, 1948. The necessity for the therapists to be competent and experienced is properly emphasized.

Apart from those whose offence is merely episodic there is another group of offenders who are likely to respond to long-term psychotherapy or other medical treatment. The Council considers that there should be inaugurated in Scotland arrangements for treatment similar to those at present available at Wormwood Scrubs Prison in London. These were first provided in 1934, and after a break during the war were gradually extended to include most modern forms of therapy.<sup>2</sup> It is pointed out that a sentence will have to be of sufficient length for the completion of treatment, and mention is made of the sentences of corrective training created by the Criminal Justice Act. Unfortunately offenders eligible for such sentences, those convicted for the third time of serious offences, will be unlikely to respond to psychotherapy, since it has been found that adults whose criminal activities show signs of becoming

chronic are unsuitable subjects.<sup>3</sup> No mention is made in the report of the treatment of short-sentence prisoners by extra-mural psychiatrists so as to avoid discontinuity of treatment on release.

Finally, the report considers the disposal of sexual offenders who are unlikely to benefit by psychiatric treatment. It is suggested that a term of preventive detention should be imposed on the lines provided in the Criminal Justice Act, but that the sentence should be served in a special State institution similar to that in existence at Herstedvester in Denmark. In 1939 East and Hubert<sup>4</sup> proposed the establishment of such an institution, which would have a therapeutic wing for the treatment of selected cases. Though no steps have yet been taken to carry out this proposal, the project is still under consideration.<sup>5</sup> An alternative suggestion is that offenders certified by two psychiatrists as unlikely to respond to treatment might be sentenced to detention in a State mental hospital. The Advisory Council prefers this alternative, but gives no reasons for its preference. It is difficult to see what advantage detention in a State mental hospital would have over detention in the type of special institution proposed by East other than the indeterminate sentence so strongly urged by Continental penologists for dealing with these offenders.

### TETRAETHYLAMMONIUM IN VASCULAR DISORDERS

The place of the tetraethylammonium compounds in the management of vascular disorders is not yet settled, mainly because there have been conflicting reports about their clinical action. On the one hand, Lyons<sup>1</sup> and Collier<sup>2</sup> and their co-workers claim that the drug produces a peripheral vasodilatation equal to that obtained by sympathetic or peripheral nerve block, on the other, De Bakey<sup>3</sup> in the U.S.A. and Boyd and his colleagues<sup>4</sup> in Manchester have observed a very variable response to the intravenous injection of up to 500 mg—the maximum safe dose—of tetraethylammonium bromide. In many cases there was little or no increase in the peripheral blood flow, though in the same cases sympathetic or peripheral nerve block produced a marked increase. It is thus apparent that the tetraethylammonium compounds do not give a reliable indication of the improvement which sympathectomy may bring about, and that they are not likely to prove so effective in the treatment of vascular disturbances as are repeated sympathetic blocks. Collier and his associates found that daily intravenous injections for up to three weeks gave considerable and sustained relief in a high proportion of patients with painful post-traumatic conditions in the extremities. Cooper and his co-workers<sup>5</sup> have reported that the drug sustains the circulation in the hind limbs of dogs after excision of the lower end of the aorta. In a control group nine out of ten animals died after one to seven days with cold, cyanosed, and paralysed hind limbs, while 16 out of 20 which received injections of tetraethylammonium chloride for three days survived with excellent function.

It seems likely, therefore, that the drug will be useful in the immediate treatment of sudden arterial occlusions especially since its administration is a simple matter compared with the manoeuvre of paravertebral sympathetic block. The latter is, however, probably more reliable and effective in practised hands. The tetraethylammonium compounds appear to have little beneficial effect in cases of Raynaud's disease and chronic obliterative arterial disease, mainly because their action is so transient.

<sup>1</sup> *Psycho-therapeutic Treatment of Certain Offenders with special reference to the case of persons convicted of sexual and unnatural offences* 1948. Edinburgh H.M.S.O.

<sup>2</sup> *Report of the Commissioners of Prisons and Directors of Convict Prisons for the Year 1947* pp. 62-4. London, H.M.S.O.

<sup>3</sup> *Report of the Commissioners of Prisons and Directors of Convict Prisons for the Years 19-2-19-4* p. 65. London, H.M.S.O.

<sup>4</sup> East W. M. and Hubert, W. H. de B. *Report on the Psychological Treatment of Crime* 1939. London, H.M.S.O.

<sup>1</sup> *Amer. J. med. Sci.* 1947, 213, 315.

<sup>2</sup> *Ann. Surg.* 1947, 125, 729.

<sup>3</sup> *Ibid.* 1947, 125, 754.

<sup>4</sup> *Lancet* 1948, 1, 15.

<sup>5</sup> *Surgery* 1947, 22, 740.

## THE STRUCTURE OF MEDICINE

## HARVEIAN ORATION BY DR F M R WALSH

The Harveian Oration was delivered before the Royal College of Physicians of London on Oct 18 by Dr F M R Walshe, FRS, physician in charge of the neurological department, University College Hospital, and physician to the National Hospital, Queen Square

In a discourse on 'The Structure of Medicine and its Place among the Sciences' Dr Walshe began by quoting Harvey's famous injunction to the Fellows of the College, "To search and study out the secrets of nature by way of experiment," and he drew attention to a further passage in *De Motu Cordis*,

It has been shown by reason and experiment that the blood "—noting the sequence of the operations 'reason' and 'experiment'." Harvey seemed to differ from John Hunter ('Why think? Why not try the experiment?'), but of course both were saying that reason and experiment could not be disjoined. In discussions on the intellectual structure of medicine there was too great a tendency to expound the theme in terms of hard antitheses—observation and experiment art and science—as though there was here a necessary dualism

Some physiologists showed a tendency to deny medicine its place among the sciences, they spoke of it as nothing more than applied physiology. Historically that was easily disposed of for the hospital was the cultural ancestor of the laboratory, and experimental physiology was born of therapy. But the physiologists' argument implicitly was that medicine did not carry its analysis of phenomena back to fundamental notions: it stopped at a half way house, where it might borrow from other sciences. Even so, among the biological sciences medicine was not peculiar in this respect, and physiology itself had been eagerly borrowing from other sciences for the past hundred years. The truth surely was that every successive layer of thought in the annals of nature, living and dead from biology to physics, stopped at a half-way house when tracing its ideas back to their basic elements, yet each remained a field of discourse in its own right: one of the layers in the palimpsest of natural knowledge each with its own distinguishable intellectual content

## The Philosophical Approach

Dr Walshe proceeded to examine some fundamental notions underlying thought and activity in medicine. Such a philosophical approach was a means of escape from their own specialisms. Some generality of understanding was a craving need in medicine to be sought earnestly if they were not to decline to the level of craftsmen and technicians. In the many proposals for the reform of medical education offered within the past few years little more had been seen than superficial and uncoordinated attempts to grapple with the problem. None of these proposals had been informed by an adequate appreciation of those intellectual instruments and methods by which alone the confused data of physicians' experience could be transmuted into a more or less coherent body of ordered knowledge.

At the Renaissance when authority gave place to observation the study of those liberal arts by which alone the fruits of observation were expressed in a grammar of science, rhetorically expanded and logically interpreted was unhappily abandoned. He was referring here to the arts of grammar, rhetoric, and logic the *trium* of the mediaeval undergraduate's curriculum. Some working knowledge of these liberal arts was an indispensable condition of the maintenance of medicine on the level of a true branch of learning.

A. N. Whitehead to whom the orator expressed indebtedness for the ideas put forward in his oration had said that "observation is selection." Observation was indeed a process of selection or discrimination—a process of selecting and discarding from the sum total of presenting objects. What was retained was retained in a subjective order of importance, and this observation involved some distortion of the impartial facts. Further, all observation was subject to interpretation in terms of concepts. It was the product of many elements, and pure reason if indeed it existed as a mental operation had probably no scope outside the reading of instruments of precision and the casting of accounts. There was a continuous interplay between the conceptual and the observational orders of experience.

New observations modified the concepts, but, not less, new concepts led to fresh possibilities of observation

## Scientific Observation in Clinical Medicine

In no field of scientific observation was the presence of this complex of thought and feeling more obvious than in clinical medicine. The experiences there encountered were essentially random and not predetermined, and they had the incomplete and ambiguous character such experience of necessity possessed, and a particular urgency often attended their investigation. The trained observer constantly scanned the flux of presenting phenomena in search of those he had come to regard as pathognomonic, and when the facts he set down did not lie open to the observing eye, ear, or hand he used some formal test procedure to reveal them. In so doing he passed the indeterminate frontier which separated observation from experiment.

The very expression "clinical examination" seemed to suggest the formal grammatical significance which the term "observation" had come to possess. It indicated a picking and choosing according to ideas already entertained. Only the exceptional mind passed beyond the first exercise of this discriminating tendency, to take up a hitherto unobserved or unrecorded phenomenon and grasp its significance. "Indeed many a competent clinician may live out his professional existence never having made a truly original observation."

Simple observation, then, was not the purely rational activity some might have thought it. What was experiment? In part the answer was that the mind that observed was also the mind that devised, performed, and interpreted experimental observations. Experiment was but a method of providing observable data. The distinction between observation and experiment might be described as the distinction between the processes in law known as examination and cross-examination. Observation was the examination of nature, noting the data which lay open to inspection; experiment was cross-examination, forcing from nature by appropriate devices the answers it did not spontaneously yield.

In medicine, more perhaps than in any other scientific discipline, the data had to be taken in all stages of refinement and often in a high degree of incompleteness. When first encountered they were confused and ambiguous. They had to be sorted out, translated into the language and grammar of medicine, expounded by analogy, logically interpreted, and finally made to merge as clearly formulated propositions and as exemplifying the laws of nature. It was owing to the frequency with which important data were lacking that recourse had to be made to some other method than observation—namely, the method of experiment.

## The Experimental Method

The ultimate aim of the scientific observer was to grasp the principles inherent in the stream of evanescent phenomena; the role of experiment was to force this sublimation when it did not yield to simple observation. In an experimental observation the observer, guided by abstract ideas already formulated, standardized the conditions or set up an apparatus to make precise and relevant observation possible. He sought to isolate his material free from complicating factors so as to make it reveal its principles. To quote Whitehead again: "Experiment is a way of cooking the facts for the sake of exemplifying the law."

The method clearly involved an even higher degree of abstraction than simple observation, for many facts out of the presenting total were put in the discard. Perhaps that was why the experimental method, exclusively pursued, might prove somewhat narrowing to the mind, adversely affecting the philosophic generality of outlook and free play of ideas ranging over the sum of phenomena. But in both observation and experiment there was concentration of attention upon specific phenomena and some control of events.

The aphorism that "the only safe way to meet facts is to be well provided with ideas in good order" was brilliantly exemplified in Harvey himself. In his revision of the current theory of the circulation he was not merely employing experiment; he was speculating. It was to Harvey that medicine owed the example that both simple and experimental observation



were inseparable from the active entertainment of ideas and the courage to speculate logically. As Thomas Lewis said of Harvey in his memorable Harveian Oration of 1933, "It was because he possessed breadth of vision that he brought his studies to a conclusion that has proved fundamental to all medical science."

Too often people were inclined to equate the notion of "experiment" with that of animal experiment and to think of experiment as something divorced from the bedside and belonging to the laboratory, but in medicine the use of the lower animals was only a matter of expediency, owing to the severe limitation on the use of the human subject. The use of animals in experiment merely changed the matter but not the form of the experimental method. The routine clinical examination of a patient was a close-knit pattern of observation and experiment, especially perhaps in a neurological examination, though there did remain between this order of experiment and animal experiment the distinction that the former arose out of the investigation of the random material provided by disease, while the latter deliberately created a desired situation in a chosen material so as to compel the revelation of principles common to both the experimental and the human subject. In the one procedure, as in the other, abstract ideas acted as guiding principles. The intention in both was to provide data for observation and interpretation.

The increasing use and value of animal experiment were demonstrated in the contemporary history of medicine. It was playing an ever more essential part in the advance of medical knowledge. But the first and simple order of experiment—clinical experiment—should still be emphasized.

Every time we evoke an extensor plantar response by stroking the sole of the foot, every time we elicit a knee jerk, we are forcing certain spinal mechanisms by their mode of reaction to reveal internal conditions in the central nervous system that unaided observations by the five senses cannot tell us of. We are controlling conditions and isolating our material by a method that has all the essential form of the experimental method. Innumerable examples of a like order could be cited.

Again, the establishment of constant conditions of rest and activity, of nutrition, or of fluid intake—in fact, most of the procedures to which the patient under observation was subjected—were in their nature experimental. "The hospital ward is a laboratory in the fullest sense, is, indeed, the parent of all biological laboratories."

#### Art and Science in Medicine

Dr Walshe next turned to a discussion of the respective roles of art and science in medicine. Here again, he thought, there was a tendency to lean too readily towards a hard antithesis, especially as the practical arts were continually being converted into the applied sciences. Such conversion was only to be expected, for the practical arts were operations according to rule, and rules upon examination were seen to be general propositions referring to particular cases and directed to future situations. Equally germane to the theme were the intellectual arts, and here the problem became not that of art and science but that of art in science.

The way in which the confused data of direct experience were transformed into the clearly formulated propositions of a rational science was by the use of those liberal arts he had already mentioned. For the trained mind every complex of presenting phenomena was a text to be read, translated into the grammar of science, rhetorically expanded, and logically interpreted. Thus in diagnosis the signs and symptoms were noted and translated into a technical language—that is, into an artificial linguistic construction which came to stand for phenomena. A complex process of classification in this language then ensued, signs and symptoms were grouped into patterns and sequences. From these patterns and sequences what might be called their space-time relationships were clarified and the future course of events predicted—the process known as prognosis.

There were further terms in the light of which the original data must be considered. The total complex must be considered in terms of a departure from normal function, of a reaction to endogenous or exogenous noxa, and of the Aristotelian modes of causation—in other words, a physiological, a pathological and an aetiological analysis. Finally there came the

logical interpretation and synthesis of the data thus derived from which emerged natural laws and general principles. This was the method of science, but who could deny that the gift of insight, the ability to discern and develop analogies, to detect patterns and sequences, and to interpret logically were intellectual arts, varying from individual to individual, but constituting an integral element in scientific thought and activity in its best?

He touched briefly on the correlation of the ancient arts of grammar, rhetoric, and logic with diagnosis, prognosis, and therapy in medicine, and with observation, prediction, and experiment in laboratory science.

#### Academic Medicine in Peril

In his concluding passages Dr Walshe appealed especially to professors of medicine for the highest degree of understanding of the foundations of thought and action in medicine so that future practitioners might be prevented from declining to the level of craftsmen and technicians and the profession from becoming a chaotic muddle of technologists. How could medicine be worthily taught on its academic side unless by minds well versed in the liberal arts, understanding the principles on which knowledge was ordered, and capable of expounding and showing in action the reasoning methods involved?

"The need for rebuilding the foundations of medicine was never greater than to day, when we are being swept along on a spate of new knowledge and new techniques, and have so little time for their due contemplation and integration."

If some philosophy of medicine does not find a home among us [in this College] where shall this be found? Not, it is increasingly apparent, in the modern university, nor in a Ministry of Health, and, if we do not show ourselves eager to promote such a philosophy, then the sum of our corporate activities as a College, whatever their immediate importance, becomes trivialized. History does not record what book it was that William Harvey was reading as he sat under a tree with the two younger sons of Charles I at the battle of Edgehill, but we may be sure it did not deal with consultant services nor with the pay and grading of specialists.

The Royal College of Physicians, if it was to survive as something significant in the intellectual life of medicine, must remain a fountainhead of academic medicine, of true learning, the home wherein a philosophy of medicine found a permanent abiding place and disciples eager to learn and teach, and where the liberal traditions of medicine could look confidently for their defence against the constant threat of debasement by the technical arts and by the spiritually and intellectually oppressive materialist dogmas of the present day.

#### ASPECTS OF RHEUMATIC DISORDER DR PHILIP HENCH'S LECTURES

On Oct 13 two lectures were given by Dr Philip S. Hench, Associate Professor at the Mayo Clinic, the first at the West London Hospital, where Dr Hench spoke on psychogenic rheumatism, and the other to the Section of Physical Medicine of the Royal Society of Medicine, where he made a critical evaluation of current remedies for rheumatoid arthritis.

##### Psychogenic Rheumatism

In his first lecture Dr Hench said that there were about 200 conditions which the layman called rheumatism. About half of these were forms of arthritis, and the others were musculo-skeletal conditions. Some 85% of "rheumatic" patients had one or other of the following conditions: rheumatoid arthritis, osteoarthritis, rheumatic fever, fibrositis, psychogenic rheumatism, gout, or gonorrhoeal arthritis. Osteoarthritis was a composite of degenerative chondritis, osteitis, and fibrositis, with no significant synovitis or systemic disease. Rheumatoid arthritis was a composite of proliferating synovitis, osteomyelitis, destructive chondritis, and secondary fibrositis, with systemic disease. In America and probably in this country the diagnosis of arthritis was made too indiscriminately. The criteria for diagnosis should be as definite as for pulmonary tuberculosis.

Of the many terms used to describe psychoneurosis manifested by musculo-skeletal symptoms he preferred "psychogenic rheumatism." It connoted no rheumatic disease. Psychogenic rheumatism was one of the commonest of disorders. It was manifested by pains in the muscles or joints or in both. It might

exist alone or as the functional overlay of some traumatic disorder. In its primary form it was not related to organic disease, in its secondary form it was so related. It might be a functional prolongation of a recently healed condition or a superimposition of functional symptoms on a relatively minor condition such as traumatized joint or mild fibrositis.

Fibrositis was the chief rheumatic disease from which psychogenic rheumatism must be differentiated. In general, fibrositis placed its victim at the mercy of change in external environments (such as heat or cold), while psychogenic rheumatism intensified or receded with change in internal environment (mood, excitement, worry, fatigue). The patient with psychogenic rheumatism was tense, anxious, defensive, antagonistic—"I cannot describe it, doctor, it is like . . .". The chief symptoms were tension, weakness, numbness, tingling, queer or tired sensations—hurting all over, as the patients expressed it—and continuing day and night. Mental preoccupation gave marked relief, but he paid for it afterwards. The pains followed no anatomical pattern. Stiffness was minimal or absent. In the psychogenic patient fatigue caused disability, whereas in the fibrositic patient disability caused fatigue. The psychogenic patient often showed aversion to remedies—"Nothing will help me, doctor." Physiotherapy had variable results, sometimes making the patient worse. There was resistance to examination—the "touch me not" reaction—whereas in fibrositis the examination found a co-operative patient.

Dr Hench mentioned, in recent cases of his own, the factors which had brought about psychogenic rheumatism—stern parents interfering with the child's social development, unattractive girl dominated by mother, "imprisoning" by parents, one vacation in ten years, sexual impotence, June and December marriage, sacrifice of marriage for dependent parent, unfaithful, indifferent, or drunken spouse, father imprisoned for embezzlement—and so through many other fears and frustrations.

Dr Spencer Paterson, psychiatrist to the West London Hospital, who followed Dr Hench, said that it still remained difficult to assess the significance of the accompanying neurosis. He could not help wondering whether in Service cases the fundamental difficulty was not the inadequacy of the patient for the life he was called upon to live, and the development of the neurosis represented failure to meet the stresses of military service. It was quite possible for a patient to translate his emotional conflict into pain.

Dr Hench replied that in the U.S. Army during the war psychogenic rheumatism was far down in the list of neuroses. He added that the pain that these patients endured was real, and he always impressed upon them the following: "Now, I have not said that your pain is imaginary, it is real, and it is just as severe as you say it is. Don't go home and say I said it was 'all in your head'. And don't go home and say that nothing can be done for it, many things can be done for it."

#### Current Remedies for Rheumatoid Arthritis

In his second address, which was the Samuel Hyde Lecture of the Section of Physical Medicine, Dr Hench, saying that he had nothing striking or wonderful to bring before his audience, discussed critically the current remedies for rheumatoid arthritis.

He put forward a basic programme of general measures for supportive treatment: (1) Increased rest for affected joints. (2) Physical therapy daily. (3) Simple analgesics. He thought they were remiss as therapists in failing to give the patient the relief which these afforded. (4) Nutritious diet (high calorie intake and vitamin supplements). (5) Removal of definitely infective foci as a non-specific measure. (6) Prevention of deformity by simple non-surgical or protective measures. He analysed the reports of a number of observers showing that these simple medical and orthopaedic procedures used alone brought about the inactivation of the disease in 15% of cases and improvement in varying degrees in 38%, a total of significant results in 53%. When however this basic programme was combined with special measures such as gold therapy, a similar analysis showed a quite satisfactory permanent result in 25% and improvement in 50%, the significant results thus making 75% as compared with 53%.

The effectiveness of the treatment of rheumatoid arthritis was sufficiently shown by the number of remedies put forward for it.

Dr Hench showed a slide in which a remedy was listed for every letter of the alphabet, even including Z—"zero therapy" (do nothing). The most promising field appeared to be chrysotherapy, with new "safe" preparations, new methods of administration, and the use of BAL for controlling toxic reactions. Much was claimed for certain new gold preparations—calcium aurothiomalate and gold thioglycolamide—which were said to be far less toxic than other forms, but with the former of these compounds certain reactions, sometimes severe, in the skin and mucosa had been noted. Colloidal gold was ineffective therapeutically, the colloidal particles were phagocytized by the reticulo-endothelium and little or no gold appeared in the plasma. With insoluble gold compounds the absorption and elimination varied and toxic reactions were prolonged.

The old method of administering gold salts involved weekly 100-mg injections until 1–1.5 g was given. This had disadvantages in increasing the number of relapses and the toxicity. The new method consisted of weekly doses of 50 mg until 1–1.5 g had been given, followed by small maintenance doses of 25 or 50 mg bi-weekly for several months. With this method it was claimed that 80% of the gold was retained, the plasma content was constant at 0.4–0.8 mg per 100 ml, and excretion in the urine was constant also—about 1 mg daily.

Dr Hench also analysed the reported results of various workers on the use of BAL for severe gold toxicity. In 17 out of 18 cases of gold dermatitis there had been prompt cure. Altogether the balance sheet for chrysotherapy on the basis of recent reports was, on the credit side, complete remission in 10–15% of cases and definite improvement in 50%, and there were no reactions in 50% and mild or moderate reactions in 45%. On the debit side, little or no relief was afforded in 35% of cases, and severe though non-fatal reactions were experienced in 3–5% and (prior to BAL) fatal reactions in 0.4%. Controlled studies indicated that chrysotherapy was of definite value. It was the only treatment which would change fairly promptly the course of the disease in a significant percentage of cases. It might accomplish in six months or less what nature or general measures might take six years or more to achieve.

Copper salts had been recommended for chronic polyarthritis by some workers, and Forestier and others claimed improvements with an intramuscular preparation, cupro-oxyquinoline sulphate, but in America they had found the results disappointing.

#### Miscellaneous Remedies

Among many miscellaneous remedies for rheumatoid arthritis streptomycin had not come up to expectations. Penicillin had no significant action on the course of the disease. Another preparation for which something was claimed—antirheumatic cytotoxic serum (ACS)—had given mostly negative or inconclusive results. There was no direct indication of any antirheumatic action of vitamins. In fact, the crowd of remedies reminded him of a cartoon in an American paper in which a hostess was shown introducing a distinguished doctor to her guests—"This is my friend Dr—, who has invented a cure for which there is no known disease."

He passed in rapid review some of the remedies offered—for example, sodium gluconate, intravenous infusions of procaine, intragluteal injections of tubocurarine for relief of muscle spasm, this last a rather cumbersome and unsatisfactory way of handling a static situation, though it might be used in emergency. The results of radiotherapy were unpredictable. Venom (bee or cobra) had been advocated, and even extract of red ants. Transfusions of blood from pregnant women had been used, and he analysed the reports of seven workers from 1943 to 1948 comprising 113 cases, 5% of which were said to be "cured" and about 50% improved, but he said he was not impressed by these figures. The use of blood transfusions in rheumatoid arthritis gave very variable results. He also analysed 18 reported cases in which splenectomy had been performed in chronic polyarthritis, with marked improvement in 1, mild improvement in 7, and temporary improvement in 2, but if there was an abnormal blood picture it might be restored to normal. It must be supposed that radiotherapy had some use in rheumatoid spondylitis.

Finally, he mentioned the remissions induced by spontaneous jaundice, ranging from 64 to 96% in reported cases and the remissions induced by pregnancy, ranging from 70 to 93%. These figures indicated that there was an unrealized potential

in these conditions which they did not know how to reproduce in treatment. The conclusion might be drawn that rheumatoid arthritis was potentially reversible and eventually would become therapeutically controllable. To the task of making it so they must bring new enthusiasm, new ideas, and new courage.

Dr C W Buckley said that the lecturer had not mentioned the use of sulphonamides in rheumatoid arthritis, as to which there had been two publications, one from America, putting forward opposite opinions. Dr Hench replied that in America they were not enthusiastic about the use of the sulphonamides in this condition. A good many of his friends used them, but they never published their results because the improvement was so transient.

## CONFERENCE ON STREPTOMYCIN MEMORANDUM FOR WHO

At the third session of the Interim Commission of WHO held at Geneva in April, 1947, it was resolved to set up an expert committee on tuberculosis. In the first report<sup>1</sup> of this committee the various field activities and techniques for tuberculosis control were set out, and it was stated that the best contribution which WHO could make to tuberculosis research would appear to be in developing and recommending uniform procedures. Special problems would require the services of subcommittees expert in highly specialized fields. Among the most urgent of these problems was the evaluation of new chemotherapeutic agents such as streptomycin, and a conference on streptomycin therapy in tuberculosis was convened in New York on July 30 and 31. The following experts attended: Professor K. Choremis (Greece), Professor C. Cocchi (Italy), Dr Robert Cruickshank and Dr M. Daniels (United Kingdom), Professor R. Debré (France), Professor R. Dubois (Belgium), Dr H. Corwin Hinshaw and Dr H. McLeod Riggins (USA), with Dr H. E. Hilleboe (USA), a member of the parent committee, as chairman. In addition, Americans expert in different fields of streptomycin therapy and in the pathology and bacteriology of tuberculosis were invited to attend the meetings.

### American Trends

In the first three sessions the discussions covered the general principles of chemotherapy in tuberculosis, the results obtained with streptomycin in different forms of tuberculous infection, studies in combined chemotherapy, and laboratory methods for the diagnosis of tuberculosis and for the control of streptomycin therapy. The reports of members from some European countries gave a strong impression that acute tuberculosis in childhood (tuberculous meningitis and miliary tuberculosis) was much more common there than in the USA, and that the results with streptomycin in these acute infections of childhood were more encouraging than earlier reports had suggested. The present position in America was reviewed by Dr J. Barnwell of the Veterans Association, who analysed over 3 000 treated cases, by Dr Hinshaw, representing the Trudeau Society, and by Dr Riggins of the American Tuberculosis Society, while Dr Floyd Feldman outlined the trials now being sponsored by the US Public Health Service. The tendency in American centres is to reduce dosage to 1 g per day or 20 mg per kg body weight, with a resultant reduction in toxic reactions but with little obvious change in therapeutic effect, and to shorten the duration of treatment to 60, 42, or even 28 days in cases of pulmonary tuberculosis in the hope of preventing or minimizing the development of streptomycin-resistant strains of the tubercle bacillus. Remarkable results were reported by Dr Edith Lincoln in the treatment of small groups of cases of tuberculous meningitis and miliary tuberculosis with streptomycin and promizole (a sulphone compound) the latter drug being continued for many months after streptomycin therapy was stopped. Dr Daniels described the organization by the Medical Research Council of streptomycin trials in tuberculous meningitis, miliary tuberculosis and progressive bilateral pulmonary tuberculosis. Laboratory methods were discussed by Dr Cruickshank and Mr W. Steenken while Dr Rene Dubois made a strong plea for discarding 'egg-concoctions' in favour of the oleic acid-bovine albumin diagnostic medium for the isolation of the tubercle bacillus.<sup>2</sup>

At the final session, attended only by members of the WHO subcommittee, recommendations were drafted concerning the use and value of streptomycin in tuberculosis. The following points were stressed:

In most forms of tuberculosis streptomycin is at best an adjuvant to other recognized therapies; its use is not devoid of risk in the development of toxic reactions, and, more serious, of streptomycin-resistant tubercle bacilli which may be transmitted to exposed contacts. The drug should at present be distributed through Government or other responsible health agencies to hospitals and institutions where it can be used under expert supervision. Patients with tuberculous meningitis and miliary tuberculosis, in whom the use of the drug can be a life-saving procedure, should have priority. In certain other forms of tuberculosis—e.g. acute pulmonary, tracheo-bronchial sinuses, and fistulae—streptomycin, judiciously used, could be a useful adjuvant form of therapy. Size and duration of dosage could not yet be defined within narrow limits. The wide variations in methods of reporting the results of streptomycin treatment from different centres made comparison of the efficacy of different therapies impossible, and the committee urged the adoption of certain minimum standards of reporting which will render such comparisons possible and valid. WHO should continue to encourage and facilitate international study and co-operation in researches on the chemotherapy of tuberculosis.

The memorandum embodying these recommendations has now been accepted by the Tuberculosis Expert Committee and forwarded for approval to the Executive Board of WHO. After the conference the delegates had a most enjoyable week-end outing to the Homer Folks Sanatorium, Oneonta, belonging to the New York State Department of Health, where many clinical and laboratory problems in the streptomycin therapy of tuberculosis were discussed in detail.

## Reports of Societies

### POLIOMYELITIS IN ENGLAND AND WALES

The meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine, held on Oct 4, with Sir Allen Daley in the chair, was devoted to the recent history of poliomyelitis in England and Wales.

Dr A. H. GALE said that the statistical raw material for a study of poliomyelitis was even more unsatisfactory than for most of the other communicable diseases. Its defects were due to a large extent to the nature of the disease. The returns from the hospital survey which W. H. Bradley and he carried out during the epidemic of 1947 showed that among 6 762 patients admitted to hospital with a diagnosis of poliomyelitis or polio-encephalitis the diagnosis was subsequently confirmed in about 70%. If they desired to have patients admitted early they must resign themselves to that order of error in the original diagnosis. In comparison with previous outbreaks the epidemic of 1947 was remarkable rather for its wide distribution than for any very high incidence in particular localities.

Where special inquiries were made the number of deaths was found to be rather smaller than was to be expected from the Registrar General's figures. The possible explanation was that an appreciable number of deaths occurred every year from obscure nervous diseases, and often these were ascribed in the certificates to poliomyelitis and polio-encephalitis, though whether they were really due to these causes was doubtful. The age incidence was generally considered to have risen during the last thirty years, though it had been suggested that this was apparent only and was due to the ageing of the population. This latter suggestion, however, was not borne out by a study of the figures. In the 1912-13 experience the incidence in the age group 5-10 was only 27% of that in the age group 0-5 and in the age group 10-15 only 8%, whereas in 1947 the incidence in the age group 5-10 was 84% of that in the age group 0-5 and in the age group 10-15 it was 62%. The change in age of the population, therefore, would not explain what had happened. In 1947 the rate for the age group 15-25 was 36% of that for the age group 0-5. The distribution of notification in the early stages did rather suggest that they had in poliomyelitis an endemic disease which became epidemic rather than an importation from some outside source.

### Field Investigations

Dr ALLAN MCFARLAN referred to the Malta epidemic of 1942-3 and to the epidemics in Singapore and in Mauritius, in all of which there was a very sharp incidence lasting only for a few weeks, with a sudden rise and an equally sudden fall. Last year, when a widely diffused epidemic occurred in England and Wales, he set out to discover whether it showed the same characteristic. In Essex he found the same kind of geographical spread along the main lines of communication as he had seen in Mauritius. In Eccles, Lancashire, again, there was an early geographical localization, and here also there was a high peak incidence. From various parts of the country he collected material relating to more than 900 cases. Among these were only 23 instances of two cases in the same family, and one instance of three cases in the majority of these cases the second had occurred within ten days of the first. The age distribution of the cases of which he had particulars was very much the same as in the cases of Bradley and Gale. Among 24 cases from rural districts in Essex there were three in which direct contact was shown, six of the other patients had been in London from seven to fourteen days before their illness began, and in three other cases a visitor from London had come to the house or another member of the family had been to London in the same period. Of the cases gathered from the whole country 42% had not been away from home during the three weeks before onset. It might be that the shift in age incidence could be elucidated a little further from the figures obtained by field investigation. Instead of the former 60 or 80% of the patients being under 5, those under that age in these cases in 1947 represented only one-third of the total. At the same time there were slight differences in incidence between occupational groups and between families who had baths in their houses and others who had not, and so forth.

Dr A R WILLIAMSON mentioned the epidemic as it affected Nettlebed, a village on the main London-Oxford road, situated on the lower Chilterns. From July 23 to Sept 12, 1947, there occurred 20 cases of an obscure illness, six of which he notified as poliomyelitis, he thought that perhaps he should have notified all 20. It was an explosive outbreak, and the cases followed a remarkable periodicity, with one week intervals between fresh infections.

Mr BENJAMIN, of the Statistical Department of the London County Council, gave some account of the 1947 outbreak in London. No special interest attached to the London map showing the distribution of cases geographically. Certain different levels of attack were found in the different administrative areas, but no association was discovered between attack rate and social condition. The problem was viewed from the immunity angle, the attack rate being compared with the record of the previous ten years in the particular borough, but again there was no significant association. Nor did a study of the question in relation to returned evacuees appear to discover any significance. The epidemic curve in London was relatively smooth, without the sharp peak encountered in some other parts of the country.

Dr W P SWEETNAM gave an account of the epidemic in the Lancashire borough of Eccles (*British Medical Journal* 1948, 1, 1172), and Dr C O STALLYBRASS commented on the absence from the discussion of any reference to milk transmission—first referred to, he thought, in the outbreak in Liverpool in 1898—or of school infection.

### DIET IN HOSPITALS

A meeting of the London County Medical Society (the new name for what was the LCC Medical Society) was held at Friends House on Oct 7, under the chairmanship of Dr R C HARKNESS, when the subject of 'Nutrition in Hospitals' was discussed.

Dr MAGNUS PYKE said that no stockbreeder would accept the principle that he should give his stock a diet only sufficient to prevent deficiency disease. The minimum cost diets for human consumption which were produced by economists were open to criticism on that score. Even the low-cost diet given in the B M A Nutrition Committee's report of 1933 was capable of improvement. The rational approach to a satisfactory diet had been suggested by Sir John Boyd Orr when he said that the proper consideration should be whether the diet contained

optimal amounts of all nutrients. Of calories it might be thought that at this time of day it was unnecessary to say anything, yet some recognized diets were inadequate in this respect. On the question of protein there was a signal lack of agreement among investigators with different outlooks. Experimental physiologists gave one figure, and observers less restricted in their interests a very different figure. Statistically it had been shown that there was a high correlation between efficiency in its widest sense and a rich protein intake. In recent years it had been customary to pay comparatively little attention to the protein component in normal diet—'Look after the calories and the proteins will take care of themselves'. The estimate of 1 g protein per 1 kg body weight had been made. But there was an additional factor arising during illness to which the hospital dietitian must pay special attention. During many illnesses there was a disturbance of protein metabolism and numerous workers had recommended high protein diets in a wide variety of diseases. There were three good reasons why those responsible for hospital diets should pay attention to supplies of protein: (1) because the calorie requirement for patients in bed was reduced it was not safe to assume that the protein intake might be reduced *pari passu* without disadvantage, (2) a special need for protein might arise as a result of the condition for which the patient had been brought to hospital, (3) hospital diets should be a model for and a guide towards the perfect diet. A rich protein diet would be one containing milk, and the milk would contain calcium. An improvement in the usual and often inadequate level of calcium in the British dietary might prove to have been one of the best methods of benefiting health. The national policy of fortifying flour with calcium appeared to be amply justified.

The vitamin-A problem, Dr Pyke continued, was complex, and its complexity had led unfortunately to a sceptical attitude about the value of vitamin A in the diet. Disturbances of vitamin-A absorption had been shown in a number of pathological conditions, including diabetes and certain fevers. One more nutrient to be mentioned was vitamin C which was easily lost in cooking. An adequate supply of vitamin C was a constant preoccupation of those responsible for hospital diets. Here again it was not possible to be satisfied only with a minimum. The U.S. National Research Council gave an intake of 75 mg of vitamin C daily for the normal man and 70 for the normal woman. Vitamin C was important in the treatment of injuries and following operation, again many of the common drugs affected the excretion of vitamin C. Ammonium chloride, for example, caused a substantial increase in excretion and the same was true of aspirin, the sulphonamides, chloroform and other anaesthetics, and of many other substances. In 1943 the King Edward's Hospital Fund survey revealed a deplorable state of affairs in some hospital dietaries. Since then efforts had been made to improve the diet. But material progress could not be achieved without other measures in addition to ensuring the adequacy of nutrients. One necessity was a better handling of the food, and another was attention to the aesthetics of meals. A large part of the attraction and appetizing value of a restaurant meal was in the manner of its service, and the same was true for patients in hospitals.

Miss SIMMONS, dietitian of Hammersmith Hospital, asked why hospitals should tolerate a second-rate dietetic service. It was to be hoped, she said, that hospital kitchens would be brought up to date by necessary structural alteration and by the appointment of qualified cooks, who should have a higher status and an adequate salary. Many special diets in hospitals were necessary only because their nutritional values were higher than the ordinary diet, and if more attention were paid to the latter the need for some special diets would disappear. One point which might not be generally known was that 1 oz. of dried milk per day was allowed for every hospital patient and enabled a store to be accumulated for emergencies. She favoured a system whereby food, kept hot on trolleys, was served in the wards in such a way as to permit patients a certain choice. It had been suggested that it was waste of time for nurses to serve food to patients, but surely feeding the patient was a form of nursing and gave opportunities for observation of the patients. The preparation of the food, however, should not be part of the nurses' work. Miss Simmons concluded by saying that there was no reason why the same general high

standard of efficiency that was maintained in the best hotels should not also be maintained in hospitals

In some general discussion it was suggested that the fact that patients obtained perhaps 30% of their calories from food sent to them from outside the hospital did not necessarily prove that hospital diet was inadequate, and in fact one constantly saw food returned after ward meals. The superintendent of a tuberculosis hospital said that 4,000 calories was the standard in his institution in pre-war days, but since the rationing system came in it had dropped to 3,500 calories or less. This speaker also expressed the view that food waste in hospitals, which could not be measured without great difficulty, was higher where the diet was richer. Another speaker urged the desirability of changing the routine whereby the same dishes were served on the same days of the week.

## DEVELOPING NEW DRUGS

### FINE CHEMICALS GROUP

The Fine Chemicals Group of the Society of Chemical Industry held its inaugural meeting at the Royal Institution on Oct 5. Sir JACK DRUMMOND FRS, chairman of the Group, presided, and the inaugural address was delivered by Professor J H BURN.

Professor Burn said that the work of pharmacologists obliged them to watch the development of new medicaments in industrial laboratories, and he had always believed that the university worker should be willing to assist industrial laboratories if he could, as a matter of public service. After recalling the early history of the production of fine chemicals for medicinal use and discussing the development of the manufacture in particular of the arsphenamines, Professor Burn suggested that, but for the discovery of the value of sulphonamides and the consequent revindication of chemotherapy, it was possible that the use of penicillin might still be unknown. One reason for the long interval elapsing between Fleming's discovery of penicillin in 1929 and the demonstration of its curative value in 1941 was that in the early thirties there prevailed a widespread belief that 'an antibacterial agent for use in man was an impossibility'. Professor Burn referred briefly to the work of Fourneau which led to 'stovaine' and 'stovarsol', and to the introduction of the first antihistamine substance, neoantergan (anthisan), by Bovet in 1944, a year before 'benadryl' was discovered by Loew, Kaiser and Moore.

As examples of important work on fine chemicals in this country Professor Burn instanced in the academic field the synthesis of thyroxine by Harington, the isolation of muscarine and *d* tubocurarine by King, the preparation of stilboestrol by Dodds and Robinson, the preparation of penicillin by Chain and Florey, and the discovery of BAL (dimercaptopropanol) and its properties by Peters, Stocken and Thompson. In the industrial field he mentioned the work of Glenny on diphtheria prophylactic and antitoxin, the introduction of large-scale manufacture of insulin in this country by Carr in conjunction with Dudley, the work of Sydney Smith on 'digoxin', of Ewins on stilbamidine and on sulphapyridine, and "the admirable work of Curd, Davey, and Rose on paludrine". After quoting from Sir Henry Tizard's presidential address to the British Association in September, Professor Burn said that it was not merely more research that industry needed to-day so much as increased application of what was already known. There must be many more men in executive positions in industry whose practical experience had been preceded by a scientific education. Directors must not merely be good business men who sought advice from scientific subordinates, the scientists must actually take a part in direction. Further, the value of industrial scientific workers could be increased by allowing them to spend a few months in academic laboratories where new technical methods could be learnt and also by submitting them to a minimum of rules and allowing a maximum of freedom. "If the clock is forgotten and provided the head of the department sets an example many scientific workers will voluntarily work ten or twelve hours daily."

### Immediate Objectives

Professor Burn referred to work on tuberculosis, in which, notwithstanding streptomycin the diphenylsulphones and *p* amino-salicylic acid, he considered the great discovery had yet

to be made, virus infections, in which chloromycetin and a nitroacridine made in the Höchst laboratories might become important, and cancer which still remained for the most part an unsolved problem. It was one thing to deal with bacteria in the blood and extra-cellular fluids, and quite another to destroy agents which lived inside the cell or even in the nucleus. More rapid progress might be expected in veterinary medicine because the application to animal and bird diseases of the advances made since the introduction of the sulphonamides had not yet been fully worked out. Many new problems of drug administration had arisen and offered scope for profitable investigation. Turning to the work of university pharmacological laboratories, Professor Burn said that despite the criticism that too much time was spent investigating problems of academic interest which, because of the very methods used, could not be expected to lead to a fundamental discovery, the importance of elaborating quantitative methods for the estimation of biological properties was indisputable. Since 1926 chemical work had been greatly facilitated by the introduction of methods of biological standardization, the principles of which were now universally accepted. Tribute was due to Sir Henry Dale for gaining acceptance of the principle of comparative methods and of the necessity for international standards. He thought the decision of the Pharmaceutical Society to establish a laboratory for the study of biological standardization had had an important influence, for it compelled a concentration of attention on standardization which would not otherwise have been attained.

Another contribution of the academic pharmacologist stemmed from the classical work of Dale and Laidlaw and their colleagues Carr Barger, and Ewins on adrenaline and sympathetico-mimetic amines, and on histamine and acetylcholine. More and more did it appear from subsequent work that adrenaline, histamine, and acetylcholine were three substances which the body used for many different purposes. It now seemed that a large number of chemical substances acted in the body by modifying or interfering with the action of adrenaline or histamine or acetylcholine. It was possible that local anaesthetics and analgesics were substances which antagonized the action of acetylcholine at sensory nerve endings or in other parts of the central nervous system, and that the power of substances to lengthen the refractory period of heart muscle might be related to their antagonism to acetylcholine in the metabolism of cardiac tissue. The interrelation of properties of local anaesthetics, spasmolytics, and analgesics made it worth while to examine all compounds prepared to exert one of these properties for its possession of the others. A substance introduced as a local anaesthetic, for example, might be a still better spasmolytic. It was probably because antihistamine substances possessed the other properties that they produced side effects. The grouping together of many properties as fundamentally the same was useful in that it brought some order into the long list of apparently unrelated plant alkaloids. The similarity in many properties of atropine, papaverine, and quinine, and of conessine from *Kurchi* bark and quinine, suggested points of biochemical similarity which assisted towards an understanding of their relationships.

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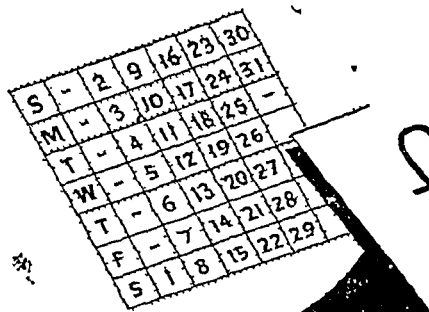
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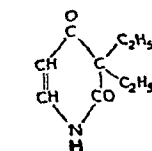
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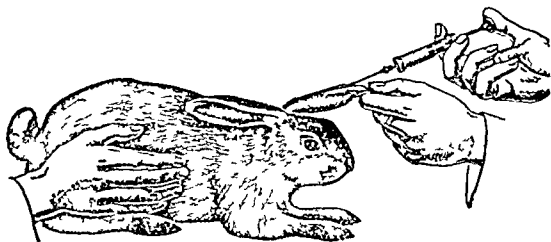
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## Correspondence

### Globin Insulin

SIR,—Perhaps you will allow me to reply to the letters about my paper on globin insulin (July 24, p 191). Three main criticisms are made.

First, your leading article (p 209), Dr Ian Murray (Aug 7, p 313), and Professor D M Dunlop and Dr J B Donald (Aug 14, p 352) sound a warning against oversimplification with, it is implied, inadequate control. My experience shows that adequate control is attained in a large number of cases by one dose of globin insulin a day, and it is surely in the interest of the diabetic person that his regime should be simple and should interfere as little as possible with his working life. Those who have used globin insulin agree that it is useful in mild and moderate cases, and since 70–75% of ambulant patients need less than 40 units of insulin they come into this category. The question of stability is different, and I should have expressed my conclusion better if I had written 'stable and uncomplicated cases'. Many diabetics on large doses of insulin are stable and do well on globin insulin (I gave examples). The unstable are fortunately a small minority, their insulin needs may be large or small, and the instability is often due to a complication such as renal disease lowered renal threshold, or flightiness of life. As Dr Murray points out multiple doses of soluble insulin are the only means of attaining a reasonable balance.

The second point made in your leading article and by Dr R D Lawrence (Sept 18, p 572), is that globin insulin is too much like Hagedorn's delay insulin to be of any use in a single dose. This dictum does not correspond with experience. The duration of action of any insulin is due to the rate of absorption, which varies with factors other than its own properties—e.g., the magnitude of the dose, the condition of the skin and subcutaneous tissues at the site of injection, and the state of the circulation. Globin insulin resembles delay insulin in that the average duration of action is longer than that of soluble insulin and shorter than that of protamine zinc insulin. Experience has shown that it controls the blood sugar during the 24 hours in the majority of cases and that it is less prone than PZI to give reactions at night. The fact that reactions have occasionally occurred in the early hours of the morning is a further proof of the length of action. In only a minority of cases it fails to control the blood sugar in the evening and night.

The third question concerning diet is raised in your leading article and by Dr Murray. They stress the importance of constancy, I agree that constancy is a *sine qua non* in the success of all insulin therapy, and I indicated how the principle is carried out by my patients. Dr Murray takes exception to one of my examples who stated that he eats 'mountains of bread and potatoes'. Although this is an "uncertain quantity" as measured by scales (surely now passed into the limbo of the Allan era), it does not vary from day to day. The diet of an English farm worker who omits sugar and jam is regular, monotonous, and constant to a degree difficult to attain in towns even under rationing. The boy is subject to the temptations of a large family, school, ice creams, etc. His mother is intelligent and conscientious, and he is not allowed sugar or jam and in actual fact maintains a steady balance.

I hope that the experience with globin insulin which I have described will encourage its wider use. It has suffered from the argument, 'Globin insulin is identical with delay insulin'—a false premise—"delay insulin in a single dose was not successful"—was it extensively tried?—therefore globin insulin will not control the blood sugar during the twenty-four hours'. My answer is that it does—I am etc.

Hove Sussex

G M WAUCHOPE

### Post-gastrectomy Syndrome

SIR—On reading Dr W T Irvine's article (Sept 11, p 514) I felt that my own experiences as being slightly different from his findings, might be of interest. I underwent partial gastrectomy in August 1947 for duodenal ulcer of 10 years standing, and on leaving hospital was very soon eating con-

siderably larger meals of any and every food than I could before operation, without any untoward results except on one occasion when I was very sick after drinking a cup of cream in mistake for milk.

Soon after returning to work in December I began to experience severe nausea on getting up, 20 minutes or so after a good strong cup of tea with plenty of sugar. This generally put me off my breakfast bacon and eggs and persisted till about half-way through the morning surgery, but on several occasions was only relieved by vomiting. Most mornings at about 10.30 or 11 o'clock all the symptoms then described by Dr Irvine started—giddiness, dizziness, sweating, tremor, and feeling faint. These responded within a few minutes to large doses of carbohydrate, though on one occasion it needed two cups of hot milk with 2 oz (60 g) glucose, a bar of chocolate, two pieces of cake, and two bananas.

Later I began having nausea immediately after tea as well. Having by then lost over a stone in weight, I was advised that the nausea might be due to tea and coffee. I gave these up and took a few  $\frac{1}{4}$ -gr (16 mg) tablets of phenobarbitone, and the symptoms both of nausea and post-prandial dizziness etc., disappeared completely and have so far only recurred slightly during the early morning while cruising in a sailing yacht.

It would seem therefore that in my own case the symptoms could not have been due to the bulkiness of the meal, occurring as they did after a light breakfast of tea and cereal with plenty of glucose and sugar and after afternoon tea with again plenty of honey, treacle, and sugar in the tea. Incidentally my symptoms were exactly the same prior to operation and responded to exactly the same treatment.

Blood sugar tests revealed a considerable hypoglycaemia, the curve being at its lowest at about the time of onset of symptoms. Dr Irvine's suggestion that these might be caused by stimulation of the sympathetic system is interesting. Might worry be one of the precipitating factors? I gave up worrying after July 5—I am, etc.

Shanklin IOW

F LINDSAY DICKSON

### Carcinoma of the Breast

SIR,—The article by Sir Cecil Wakeley (Oct 2 p 631) on carcinoma of the breast is of great interest as it reviews his conclusions from a wide experience of the subject. The technique of radical excision which he describes starting with the clearing of the axilla and continuing down the lateral chest wall and leaving the reflection of the medial flap to the end, is, I think, the best sequence to follow, and the deferment of the dissection of the medial flap, which I have employed for the last 2½ years, by the reduction in haemorrhage which it entails undoubtedly leads to improvement in the post-operative condition of patients.

There are two points, however, on which I would like to comment.

(1) It is an axiom of surgery that an incision should be planned to give as direct access as possible to the area which has to be dissected, and it will be noted that in Wakeley's description of the operation the skin incision and the line of dissection of the axilla and the side of the chest cross each other. The incision which I now prefer is one which starts horizontally over the cleft between the clavicular and costosternal heads of the pectoralis major. As this incision approaches the anterior fold of the axilla it is made to curve downwards towards the tumour, which it skirts in a curve on its lateral side before passing on to the epigastrium. The horizontal part of the incision overlying the axilla and anterior axillary fold is deepened from the medial end laterally to expose the subscapular vessels, and this can be done with very little undermining of skin and therefore, with diminished bleeding.

I think it is quite unnecessary to divide the pectoralis close to the humerus, as recurrences do not occur in this area and dividing the muscle an inch or more from its insertion avoids unnecessary dissection of the skin. When the axilla has been cleared the vertical portion of the incision is deepened and the dissection proceeded with as described by Wakeley until the breast and muscle have been separated from the chest wall. A curved incision is then made in the skin medial to the tumour, completing the usual ellipse. The medial flap is freed,

and the specimen removed. The resulting scar is, in my opinion, less objectionable than the usual orthodox one. This incision is applicable to the great bulk of cases, but it is not suitable for those growths which are placed well towards the medial margin of the gland.

(2) There is no doubt that interference with the ability of the patient to raise the arm above the head after operation depends mainly, if not entirely, on the level at which the lateral flap becomes adherent to the chest wall. This flap is raised when the arm is vertical but it is intolerable to the patient to attempt to keep the arm in this position during convalescence. The result is that in spite of any padding that may be employed in the axilla the lateral flap tends to slide down and though the patient may be able to raise the arm well during the first day or two after the operation, at the end of a week the flap will have become partly fixed and vertical abduction will be to some extent restricted. This slipping of the flap downwards can be obviated by the insertion of two or three catgut stitches between the deep surface of the flap and the upper intercostal spaces—a procedure which also obliterates dead space and reduces drainage to a minimum. If, as in some cases, it is found difficult to get a hold on the deep surface of the flap with the stitches, then silk stitches can be inserted in the intercostal muscles, their ends being brought out through separate punctures in the skin and tied over small gauze swabs.

I believe this refinement of technique helps considerably to avoid restriction of movement after operation—I am, etc.,

Birmingham 16

J W RIDDOCH

### Vagotomy

SIR,—I beg to question two important statements in the annotation entitled "Reports on Vagotomy" (Oct 2, p 652). It is stated that Vanzant found a late return to normal of gastric acidity after vagotomy in dogs. The reference given is to a publication of Vanzant's of 1932 which dealt with only three dogs.

In 1947 she published<sup>1</sup> the results of her more prolonged experiments with ten dogs, from which she came to these conclusions: that the acid response to a meat meal, though reduced at first, recovers to some extent after a few months and then falls again, and that the acid response to histamine becomes greatly reduced and shows no recovery at all. Since the response to a meat meal is believed to be at least mainly hormonal in origin it was surprising that vagotomy had any effect upon it whatever. Vanzant showed that it was due to a reduced reactivity of the gastric mucosa.

The operation of vagal resection in man is aimed at the all-important resting secretion, and this Vanzant did not investigate in her dogs. In Orr's and my series<sup>2</sup> of vagotomies started nearly four years ago and now numbering over a hundred we have repeatedly found continued depression of the histamine response as well as of the spontaneous resting secretion, nor have we found any return of the totally abolished insulin response.

It is also stated in the annotation that there have been several reports of patients dying from a painless perforation after section of the vagi. I know of reports where this has occurred after both vagotomy and thoraco-lumbar sympathectomy combined the sympathectomy being almost certainly responsible for the anaesthesia of the peritoneum and possibly also for the flare-up of the ulcer. I can trace no publication recording painless perforation after vagotomy alone, and would be grateful for the references not given in the annotation—I am, etc.,

London W 1

H DAINTREE JOHNSON

### REFERENCES

- <sup>1</sup> *Gastroenterology* 1947, 8, 768
- <sup>2</sup> *Lancet* 1947, 2, 84

\* Mr Daintree Johnson correctly summarizes Vanzant's conclusions after her more prolonged experiments, but it is worth noting that motility returned almost to normal in seven out of ten dogs. In humans Moore and others (*J Amer med Ass* 1947, 133, 741) also found that fasting acidity and motility returned to normal or almost normal by the end of one year. Alvarez in the paper quoted in the annotation mentions painless perforations and an account of a case is given by Walters and others (*Arch Surg Chicago* 1947, 55, 151)—ED B.M.J.

### Reactions to Intravenous Sclerotics

SIR,—I have read the comments of Dr R E Sidebotham (Oct 2 p 661) on my report (Sept 18, p 573) of two cases of acute allergy following intravenous injections of sodium morrhuate. I feel that Dr Sidebotham has missed the point of my letter, which was not to add two more descriptions of allergy to the list but to point out (1) the acquisition of an allergic state after a long period of time during which several injections were given—in the first case after the 16th injection and in the second case after the 25th injection—and (2) a repetition, in my second case, of an allergic reaction after changing to a completely dissimilar chemical substance.

I have used monoethanolamine oleate on a number of occasions and have found the sclerosing reaction so unreliable that I abandoned it several years ago. I think I have used most of the intravenous sclerotics, but I have never found that any of them approach sodium morrhuate in reliability for giving satisfactory occlusion. One important point in the technique is to get the assistant to maintain digital pressure for 5–10 minutes at the point of puncture immediately after the injection is made, this gives the sclerosing agent time to act before it is swept along the vein.

My view is that most cases of collapse with intravenous sclerotics which one sees occasionally are not true allergic cases, for in them there is no urticaria and no oedema of mucous membranes. My own observation of them is that they are of psychological origin and are caused by (1) using the standing position (the best), (2) the necessarily slow and deliberate nature of the injection, sometimes involving subcutaneous "seeking" of the vein and puncture of subcutaneous nerves, and (3) the use of ether or other odorous liquid as a skin cleanser. I have noticed that what few such collapses I have had have been at the patient's first attendance.

One must not minimize the extreme severity which psychological collapse can assume. The worst case of psychological shock which I have ever seen occurred while I was injecting varicose veins but in this case the reaction occurred in the husband and not the patient—I am, etc.,

Purley Surrey

C E TAYLOR

### National Hearing-aid

SIR,—The contentions put forward by Mr A Edwin Stevens, Governing Director of Amplivox, Ltd (March 27, p 619), are almost exactly those advanced in New Zealand by commercial vendors of hearing aids when the New Zealand Department of Health's scheme was first mooted. The claims made have been disposed of completely in New Zealand by hard facts.

To those with a knowledge of the incidence of deafness in the various countries of the world the only criticism possible of the United Kingdom Government's estimate of the number of people likely to need instrumental assistance is that it is rather on the low side. American and New Zealand data disclose a higher percentage of the population in need of aids.

That the vast majority of deaf people have not seen a hearing aid is probably true. The high retail cost of aids is responsible for this. It is unreasonable to expect people to be familiar with objects that in the past have been so completely beyond their reach. That there is no widespread aversion to the use of aids is proved by the flood of applications received by New Zealand Hospital Hearing Aid Clinics immediately the availability of hearing aids under the Social Security Benefit was made known to the public. Each release of New Zealand Government "Universal" aids results in an increased number of applications as the aids are shown to friends and relatives also in need of them. The New Zealand experience may reasonably be used to anticipate English experience, for the New Zealand "Universal" aid closely resembles that to be provided by the British Ministry of Health. Prototype aids built to the English specification and with the recommended components disclose almost identical performance.

High standards in mass production are a matter of efficiency of inspection. In any case there is hardly an aid in commercial production in the world to-day that is not more or less mass produced. Contrary to the opinion of Mr Stevens there is a standard aid suitable for the great majority of cases of hearing loss. This has been proved beyond doubt by the investigations made at the Harvard laboratories, USA, as well as the comprehensive investigations made by the special committee in England. If further proof were necessary

it is provided by New Zealand experience in the issue of some 1,500 aids and the results secured from their use. The English committee refers in its Report No 261, *Hearing Aids and Audiometers*, to the need for special aids in a minority of cases. Such special model aids are in any case not provided at present by commercial interests. New Zealand experience shows that bone conduction aids are rarely of benefit, apart from those necessary in middle ear suppuration.

The successful use of an aid certainly depends on a number of factors, as stated by Mr Stevens. These factors are age, education, period of existence of the handicap, and its type and degree. These factors operate regardless of whether a mass produced high-price commercial aid is used or one issued by the Ministry of Health.

Report No 261 does not "admit the unreliability of crystal receivers" as claimed by Mr Stevens. It states, "They are liable to have a short life as a result of excessive forces which are applied to the crystal." The design of the English committee's aid is such that excessive forces are not applied to the crystal. It would appear that the limited use by English manufacturers of crystal receivers has in some cases prevented their appreciation of design requirements. This is indicated from a technical examination of several different English post-war models using crystal receivers. In one model there was no provision for limiting the aid output. At full volume-control setting loud speech or noise generated an output voltage of nearly 40 volts, R.M.S. The effect of this on both the crystal and the user's ear is obvious. In another model the receiver was connected directly across the choke. The cost of an output condenser was saved, but when the choke was burnt out, as sooner or later it would, by electrolytic action arising because no provision had been made to disconnect the "B" voltage when the aid was not in use, the receiver would also be destroyed. In a third model examined the output condenser used was of insufficiently high quality. Current leakage present would sooner or later destroy the receiver. The crystal direct-insertion type of receiver has been used in many thousands of aids in New Zealand over a period up to twelve years. The records disclose that failures are extremely rare, and those that do fail usually may be traced to mechanical damage following careless handling. Their outstanding advantages of extremely light weight, small size, and high sensitivity make them particularly suitable for use with hearing aids, but of course they are more expensive than magnetic receivers.

There has been no reaction against the use of hospital hearing aids clinics in New Zealand. On the contrary, there is widespread and warmly worded appreciation of the facilities provided. The charity atmosphere has been entirely removed from New Zealand hospitals.

Commercial hearing-aid vendors throughout the world have long claimed that the reason for the tremendous difference between the actual cost of aids (in the vicinity of £6 to £7) and their retail price (from £30 to £78) was due to the cost of the extensive after sales service they had to provide. The hard-of-hearing have just as persistently claimed that vendors have enjoyed their great margins of profit without in the vast majority of cases making any effort to provide adequate after-sales service. Mr Stevens will no doubt be consoled by the thought that the public is the best judge of the service it receives or has received, and if that afforded in the past by commercial vendors is as good as claimed then commercial vendors may confidently anticipate at least a share of the business of the hard-of-hearing when the distribution of free aids begins.

It is true that an alternative to the free Government aid is provided in New Zealand by means of a £15 subsidy on approved commercial aids provided they bear and comply with the New Zealand Standard Mark. It is significant that less than 10% of applicants seek the subsidy rather than the free aid. The many pathetic letters from victims of high-pressure unscrupulous salesmen and meretricious advertisements caused the New Zealand League for the Hard of Hearing to press for protection for purchasers. The League has very little sympathy for some vendors whose oncoming elimination will be the result of their lightly restrained greed—I am, etc.,

Auckland New Zealand

JAS HARDIE NEIL  
President The New Zealand League  
for the Hard of Hearing

#### Use and Abuse of Tonsillectomy

SIR—I would like to say from the general practitioner's point of view how sincerely I agree with the letter from Messrs D F A Neilson and G H Bateman (Oct 2, p 660). There are times when I feel that there is almost no more useful purpose to which a hospital bed can be put than for Ts and As in properly selected cases. Further, I can see no justification for

the theory that the operation should not be performed in winter, it is true that it should not be performed on children with colds, and if hospital staffs are watchful it very seldom is, but I have never encountered any real ill effects from doing the operation in the winter. After all, the worst of the common catarrhal infections of childhood, measles, is often more prevalent in summer than winter, and so, if there is anything in this theory, would it not be safer to restrict the operation to the six weeks or so between the "flu" and measles seasons? In this connexion it is worth remembering the recent poliomyelitis outbreak, in which tonsillectomy virtually ceased against the better judgment of many surgeons. A few cases of poliomyelitis may have been prevented in areas where it was prevalent, but in this town the waiting list for tonsillectomy rose from about 50 to about 500, and the length of wait from a week or two to nine months, which in my opinion has been responsible for a great deal of unnecessary morbidity—I am, etc.,

Colchester Essex

J N FELL

#### Trilene as an Analgesic

SIR,—I should like to thank Dr C Langton Hewer and Professor R R Macintosh for their replies (Oct 9, p 691) to my letter (Sept 25, p 620) and for their assurance that the matter is under "active consideration." This expression, however, has a depressing familiarity about it and will bring little comfort to the many thousands of patients who remain unrelieved in labour to a degree quite unjustified in these modern times.

Professor Macintosh refers to the unconscious patient. I do not believe that it is possible under the conditions specified for loss of consciousness to be produced in any patient no matter what the individual susceptibility, the depth of respiration, or the room temperature may be. Short of complicated tricks, difficult to arrange such as placing the inhaler in hot water maliciously overfilling it, etc., such a risk is non-existent. At all events it is very much easier, by accidental or unfair means, to produce a dangerous situation with gas-and-air machines than with a "trilene" inhaler. I have seen it occur more than once. The risks of gas-and-air analgesia in the hands of midwives were for long exaggerated and the difficulties thought insuperable, but both were quickly overcome directly practical action began.

Discussion of this subject could be endless so I must content myself with making my plea for a much more sympathetic attitude to these cinderellas of medicine, largely forgotten and left with precious little aid or attention in this respect. More sympathy and more personal experience of the actual conditions which exist would lead to greater activity and quicker results and would go far to remove what is I believe, the one remaining blot on the escutcheon of British obstetricians—I am, etc.,

London W 1

F NEON REYNOLDS

#### Fibrositis

SIR—Dr I H Milner (Oct 9, p 691) complains that my letter (Sept 25, p 617) "adds very little clarity" to the article of Dr James Cyriax (July 31, p 251). I am glad to say that this is due to a misunderstanding. My letter contains in the main two points.

(1) A statement of facts: non-articular rheumatism is for practical purposes due to and caused by a "myalgia" defined as a muscular disease characterized by the well known subjective symptoms and by objectively localizable "myalgic spots" which can be ascertained in anatomical points of a muscle—viz, origin insertion, the border or its course and its tendon ligaments etc. The diagnosis has to be made not by tender spots which are purely subjective but by objective criteria independently of patients' complaints. Appropriate injections of procaine relieve the complaints and lead to a rapid cure.

(2) I have put forward the hypothesis that myalgia is a functional disease the dynamic pathology of which can best be explained by a deficient circulation in the "myalgic spots," the root of the disease. The deficient circulation leading to a relative oxygen want (hypoxia) is brought about by a relatively diminished blood flow defined as the quantity of blood passing through a unit of tissue per minute. The latter might be caused either by vasoconstriction (sympatheticotonia) or by

vasodilatation leading to a stasis of the blood in the capillaries. The latter mechanism of pain, the leading symptom of myalgia, is for instance responsible for inflammatory pain. The details will be given in a paper, 'A General Theory of Pain', which I hope will be published in the near future—I am, etc.

London N W 11

M G GOOD

### Surface Phagocytosis

SIR,—The fact that you make no mention in your interesting review (Oct 9, p 687) of the work of W Barry Wood and his colleagues of certain other activities of leucocytes suggests that these may not be as well known as they should be. Leucocytes in fluids such as urine and sputum are often seen to send out pseudopodia around objects encountered, such as epithelial cells. That this activity is not engendered by anything specific to the epithelial cell is shown by precisely similar behaviour if a leucocyte comes in contact with an air bubble, long pseudopodia run out round the bubble. It would be interesting to see whether bubbles of an inert gas would elicit the same response.

The phagocytosis of bacteria in such fluids is evidently a complicated phenomenon. In urine a substance can sometimes be seen streaming from the surface of the leucocytes to which motile bacilli stick in huge numbers. On other occasions, and particularly with non motile bacteria such as streptococci, classical amoeboid phagocytosis usually takes place. The phagocytosis of large numbers of dead and moribund cells occurs in a rather different way by means of long filopodia surrounding the masses, usually numerous leucocytes co-operating.

The approach by Wood in an attempt to distinguish the leucocytic and humoral factors seems most promising—I am, etc.,

Cirencester Glos

R E HOPE SIMPSON

### Teaching Occupational Medicine

SIR,—I would like to endorse Dr Richard Schilling's remarks (Oct 9, p 694) with reference to the teaching of occupational medicine. One of the difficulties of planning a course of studies in this subject is that all those taking it are probably destined to work in widely different fields and require different specialized knowledge.

While the basic principles of, for example, environmental control, placement of workers, rehabilitation of the sick and injured, maintenance of records, and the aetiology of specific occupational disease remain constant and can and should be included in any course of instruction, the infinite variety of environment and hazards which occur in different industries makes it quite impossible to provide detailed teaching on them all. Nevertheless it is desirable that the possession of a D.I.H. should reflect a competent knowledge of the more important health hazards of the working environment from which the budding industrial medical officer can take off into the toxicological and other ramifications of his own industry.

Industrial law is a difficult subject to teach and make interesting to the average student. At the same time, if it is taught at all it must be taught in detail otherwise it is worse than useless. The difficulty again is to know where to draw the line. Finally I quite agree with Dr Schilling that the D.P.H. and D.I.H. courses are capable of far more amalgamation than exists at present. This would undoubtedly benefit both pupils and teachers—I am, etc.,

Edinburgh

CATHERINE SWANSTON

### Resuscitation by Rocking

SIR,—Referring to the article by Dr F C Eve and the late Dr N C Forsyth (Sept 18, p 554) I am sure that all will agree that Dr Eve has done a great service in emphasizing the value of rocking in the treatment of asphyxia neonatorum and in calling attention to the too frequent "quiescent" treatment of shock. But in my opinion bias in favour of one particular method of treatment should be avoided for fear of overlooking other useful methods.

Long before Dr Eve gave to this country the life saving rocking stretcher I saw "Mother Gamp" rocking a lifeless baby and splashing its body with cold water. She didn't know the value of the diaphragm in enlarging the capacity of the

thorax or anything about the reflex action of the cutaneous nerves, but I have heard her say, 'It's all right, it's colours coming'.

In my opinion it is wrong for Dr Eve to compare the resuscitation of a drowned boy of 14, or of two adults seriously injured, with a child which has never breathed. When he suggests, "Take care of the circulation and leave respiration to take care of itself," he is slashing at established teaching and reopening the acidosis argument which Professor Yandell Henderson and others so completely closed.

Frequently in the good old days rocking had to be helped by mouth-to-mouth inflation with 4% (or more) of my own CO<sub>2</sub>, but since 1932 I have carried a supply and often used a concentrated CO<sub>2</sub>. In the last score of newborn asphyxias this treatment has given complete success and I have had no fatalities. Moreover, some of my babies which caused no anxiety at birth but failed to cry lustily during the first few days have been given a whiff of concentrated CO<sub>2</sub> in order to avoid any area of atelectasis. I have invariably seen excellent results. Thus my long experience goes to disprove Dr Eve's claim that 7% CO<sub>2</sub> is a deplorable poison—I am, etc.,

Hemel Hempstead Herts

GILBERT BURNET

### Scope of Geriatrics

SIR,—I see in your columns an advertisement for a "geriatric specialist" to be in charge of the chronic-sick wards of a hospital. May I suggest that geriatrics, which is the care of the aged, is not quite synonymous with charge of the chronic sick? Old people are often acutely ill with such diseases as bronchopneumonia, coronary thrombosis, infections of the urinary tract, and so on. Some of the chronic sick are definitely not in the senile age group and are really untreatable disorders in relatively young folk. Success in the practice of geriatrics is measured by the prevention of serious crippling disease and by no other yardstick. This calls for therapeutic activity in the homes of old people, in out-patient clinics and in physiotherapy departments more than in "long term" hospital wards. Unless this distinction is made clear now, the newborn babe of geriatric medicine is likely to be smothered during its tender infancy—I am, etc.,

Putney Surrey

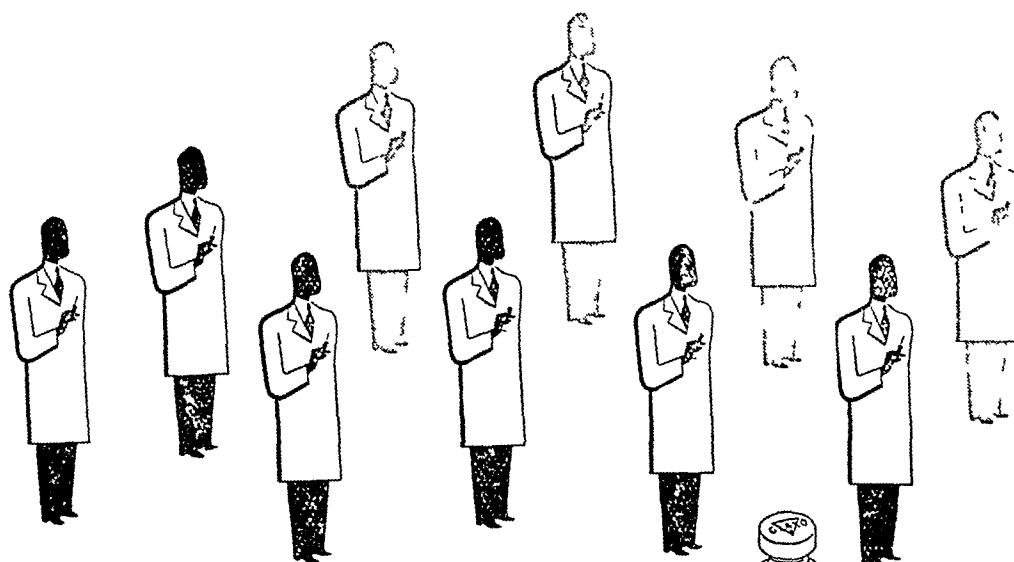
TREVOR H HOWELL

### Hospital Admissions and Records

SIR,—I would like to draw the attention of your readers to a report of the King Edward's Hospital Fund entitled, *Some Observations on Hospital Admissions and Records*. This report which represents the opinions of a group of administrators, will be welcomed by records officers because it recommends the adoption of principles for which those actually engaged in hospital record keeping have been striving for a long while. The most important implication is perhaps the implicit recognition that the job of records officer is a reality. It was, indeed, in order to achieve just such an improvement in the standard of medical records which this report urges that records officers up and down the country have formed an Association of Medical Records Officers. Records officers have, in fact, begun to put their own house in order by pooling their experience and by making arrangements for the more highly trained to provide educational courses for those who are not in touch with modern techniques and for new entrants to the service. Their efforts will receive impetus from the encouragement which this report gives.

The recommendation that the hospital should have a records committee elected by the medical committee from among its members and including the chief administrative officer of the hospital and a representative of the nursing staff in order to lay down a policy with regard to records, if universally adopted will greatly facilitate the work of the lay records officer by encouraging co-operation from all members of the staff and providing a channel through which each member of the hospital team can acquaint other members with special difficulties.

The committee comments that there is at present no recognized training for records officers and urges that some regularized course should be agreed upon. An interim course has in fact been worked out by the Association of Medical Records Officers and a beginning has already been made with weekend lecture courses at teaching hospitals at Bristol, London



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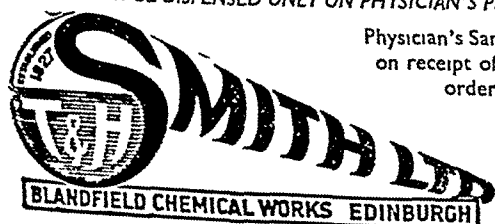
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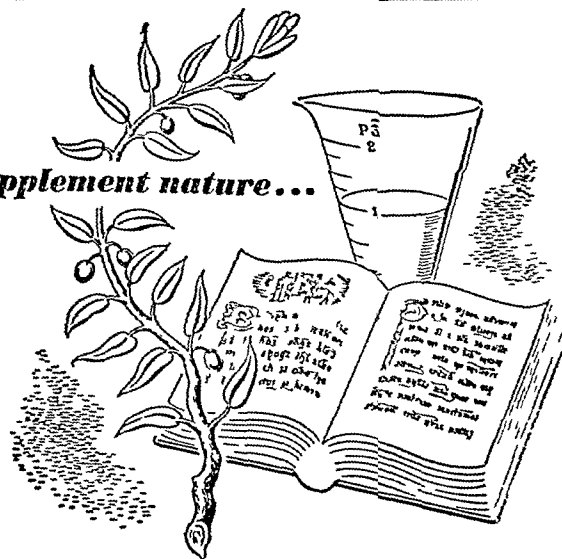
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It may be that abnormal venous permeability and prolonged blood clotting time on one hand and venous stasis from vasoconstriction on the other may both be contributory causes of chilblains.

Trial of a combination of acetomenaphthone and nicotinic acid collaterally, therefore, seems justified. 'Pernivit' is now available as tablets, each containing

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Manchester, Cardiff, and Sheffield, with further courses to come at Leeds, Newcastle, and other centres. At these courses to which hospitals within the appropriate regions are invited to send records staff, lectures and demonstrations are given on the following subjects: hospital organization, office management and selection of staff, appointments system, registration, admission, and discharge procedure, case history routine, follow-up systems, forms, filing methods, indices, office equipment, and paper control, diagnostic nomenclature, hospital statistics. At these lectures standard principles on which progressive records officers have agreed are universally followed. It is hoped later to organize full-time training.

A full comment on the King's Fund report would encroach too much upon space. It has been sent to the committee and will be published in the next A M R O bulletin—I am, etc.,

B BENJAMIN,

London SE 1

Chairman Association of Medical Records Officers

## POINTS FROM LETTERS

### Professional Nomenclature

Mr T W LETCHWORTH (London, W 1) writes: Though not a classical student, might I be allowed to add a word to Dr A Barnsley's protest (Aug 28, p 440) against our appalling professional nomenclature? As a student I remember jeering at the French for coming such a hybrid as calorimeter, but what do we see now? I fear that most of these abominations are too far rooted for any hope of extermination. We have venereology for aphroditology, appendicitis for epityphilitis, audiometer for acouometer, and, worse than all, caecostomy. Stoma is wrong, because it is not a mouth. Contrariwise, if you will stick to stoma the word should be typhlostomy. Is there no authority that can stop this desecration of our language? Scarcely a new name is coined but it needs be a mongrel.

### Treatment of *Lamblia Intestinalis*

Dr K D LOUTFY (Alexandria) writes: The manifestations of lamblial infection are diarrhoea and intestinal colics, with occasional symptoms simulating chronic cholecystitis such as flatulent dyspepsia, and occasional mild biliary colics. The lamblia inhabits the upper intestinal tract, duodenum jejunum, and gall-bladder with its bile ducts. The latter may harbour the parasite and make it resistant to treatment. Mepacrine is usually given in divided doses of 0.1 g three times daily after meals for five days. With this routine the lamblial infection usually recurs and resists the treatment in 90% of the cases. The other routine is to give to the patient in the early morning magnesium sulphate to empty the gall bladder and its ducts and follow this a quarter of an hour later by 0.3 g of mepacrine in one dose for an adult on one day only. This is repeated after one week. I have treated thirty cases by this routine in two years without relapses. Of these thirty cases twenty had been previously treated by the old method of divided doses and had relapsed.

### Anatomy of the Primates

Dr A M FRASER (Birkenhead) writes: My knowledge of the anatomy of the primates is very limited, but the article by Professor F Wood Jones (Oct 2, p 629) on the unsatisfactory present state of our knowledge of this subject dismays me, as it leaves me in the air as to what is meant. Most of the article is occupied with disproving the grounds of Darwin's guarantee that man had evolved from an ape-like progenitor, but no alternative idea is put forward other than further study of the primates. Study for what purpose? For proving Darwin's confident assertion of man's ape-like progenitor?—but that was done 77 years ago. For disproving it?—no real alternative is suggested in the article. For a definition more accurate than "ape-like"?—but is the time and trouble justifiable these days? Animal, vegetable, and mineral are well-defined groups of the present world, but consideration of the principle of borderline cases (crystalline viruses is an example that comes to mind) indicates to me that the connecting similarities are more important than the differences for the understanding of the whole. There is obviously a steady step-by-step progression from the simple atom to complex man.

Dr Robert Cruickshank, director of the Central Public Health Laboratory Services, left Britain on Oct 16 for a short lecture tour in the Netherlands under the auspices of the British Council. He will be speaking in Amsterdam, Rotterdam and Utrecht on various problems connected with the control of infectious diseases. He will then deliver a lecture at Brussels on the diagnosis and control of whooping-cough, a subject which has been specially chosen because much of the pioneer work on the control of the disease was done in Belgium earlier this century.

## Obituary

SUSAN ISAACS, C B E, D Sc

Dr Susan Isaacs died at her home in London at the age of 63 on Oct 11. She had suffered her long illness with great courage, working on her publications almost to the end. Susan Isaacs brought to the study of children and child psychology the unusual combination of sympathetic insight and rigorous scientific thinking. These, together with a facility of expression in both the spoken and written word, gave her an international reputation and led to her great influence on current methods of handling children.

Trained originally in philosophy under Professor S Alexander at Manchester, Mrs Isaacs became a lecturer in logic and later an academic psychologist. This role, however, did not satisfy her, and, when Geoffrey Pyke in the nineteen-twenties set up the Maltng House School in Cambridge, Susan Isaacs welcomed his invitation to join the staff. This opportunity for the study of the spontaneous interests and behaviour of young children in a comparatively free atmosphere was not missed. Detailed records were kept and formed the basis for her two classical works on child development: *Intellectual Growth in Young Children* (1930) and *The Social Development of Young Children* (1933). The combination of observed data and theoretical discussion was unique at that time. Psycho-analysis had for long been appreciated by Susan Isaacs as the most fruitful approach to the study of personality, and after leaving the Maltng House School she trained as a psychoanalyst in London. Specializing in child analysis, she became closely associated with Melanie Klein, whose views she helped to develop and clarify. As was to be expected, Mrs Isaacs took a leading part in the work of the London Institute of Psycho-analysis and contributed many scientific papers. She was active in the reorganization of the Institute after the war, was on the teaching staff and served on both the training committee and the council. Because of her practice as a lay analyst she was diffident about using the title of doctor, to which she was entitled by her D Sc taken in 1931.

Despite her increasing absorption in psycho-analysis Mrs Isaacs continued active work in the educational sphere. From 1933 to 1939 she was in charge of the Department of Child Development in the Institute of Education of London University, and from this key position had a profound influence on the development of nursery school work in this and other countries. Senior and promising workers from the nursery schools began to take the course and to have taken it soon became a valuable qualification for those seeking posts on the staffs of training colleges. The existence of this department and of Susan Isaacs at its head was a great opportunity for the University to develop a research centre in child development such as exist in many universities in the United States. For various reasons this opportunity was missed and Britain still lacks a flourishing university school in child psychology which Susan Isaacs's distinction and ability could so easily have developed. Educational theory and practice and psycho-analysis by no means absorbed all Susan Isaacs's great energy and capacity for work. Her deep concern for the welfare of children led her to play a leading part in the nursery school movement, in the survey of evacuated children undertaken by a group in Cambridge in the first year of the war and in the Press campaign which led to the appointment of the Curtis Committee. The findings of the Cambridge Evacuation Survey were published under her editorship in 1941, whilst her detailed and well-documented evidence put before the Curtis Committee was republished in a recent and valuable collection of her technical papers *Childhood and After*.

Susan Isaacs was remarkable for her mastery of so many aspects of her subject. She was equally at home in educational and psychological theory, in both of which she was deeply read in the practical day-to-day management of children, and in the therapy of patients of all ages. She had the capacity, moreover, for popular exposition both in lecture form and in articles and booklets. *The Nursery Years* published in 1929 at once established itself as a standard manual on child psychology and child care whilst one of her last tasks was to select for republication only a month ago her answers

mothers questions published weekly for some years in the *Nursery World*. With all this she found time for the pleasures of music and an active social life amongst a wide circle of friends. Always modest and approachable, she wore her erudition lightly and was unstinting in her help of colleagues and students.

Mrs Isaacs was the youngest of a large family. She was married twice, first to W B Brierley (her first books were published under the name of Susan Brierley) and secondly to Nathan Isaacs. She had no children. She was made an honorary DSc of Adelaide University, and in the recent New Year's Honours was appointed CBE.

### J W S MACFIE, DSc, MB, DTM

Dr J W S Macfie who had a long and distinguished career in the Colonial Medical Service and was well known as a malarialogist died at St Leonards on Oct 11 at the age of 69. John William Scott Macfie was born at New Ferry, Cheshire, and educated at Oundle, and subsequently at Cambridge and Edinburgh University, where he graduated MB ChB in 1906. After a period in the physiology laboratory at Liverpool under Sherrington Macfie's interests turned to tropical medicine. He took the diploma in tropical medicine at Liverpool in 1910 before going out to Africa and joining the West African Medical Staff. He served in North and South Nigeria and on the Gold Coast, and from 1914 to 1923 he was director of the Medical Research Institute at Accra. During this time Macfie was responsible for much original work on a number of tropical diseases, particularly trypanosomiasis and malaria. In 1917 he was seconded to the Liverpool School of Tropical Medicine to undertake special research on malaria. Two years later he was awarded the Mary Kingsley Medal of this School for his outstanding work in the field of tropical medicine.

Dr Macfie on returning from West Africa, joined the staff of the Liverpool School of Tropical Medicine as lecturer in protozoology. In 1927 he started work on the chemotherapy of malaria, under the aegis of the Medical Research Council, at the London School of Tropical Medicine. In spite of failing health he volunteered for service in Ethiopia in 1935 as second in command of the British Red Cross Unit serving there. His book, *An Ethiopian Diary* was published in the following year. Thereafter he was engaged temporarily in medical activities in London, but in 1941 at his insistent request he was appointed a temporary major in the R A M C. He served with distinction in No 3 and No 8 Malaria Field Laboratories in Egypt and Syria and elsewhere in the Middle East as a malarialogist. Returning to this country after a breakdown in health, he relinquished his commission in 1943 and renewed his old interest in taxonomic studies at the British Museum. Macfie also returned for a short time to the Liverpool School, where he was engaged in the preparation of an instructional film on malaria.

Macfie was a worker of eminence and erudition in many branches of tropical medicine. He was a world authority on the midges (*Ceratopogonidae*) and was largely responsible for the identification and classification of the collection of these insects in the British Museum. Macfie's kindness, unassuming mien and tall ascetic figure endeared him equally to his contemporaries and to his junior colleagues many of whom will recall with gratitude his unostentatious benefactions.

## Universities and Colleges

### ROYAL COLLEGE OF PHYSICIANS OF LONDON

A series of postgraduate lectures in general medicine will be given at the College (Pall Mall East S.W.) on various dates between Nov 2 and Dec 17 at 5 p.m. each day. The inclusive fee for the course is £7 7s and the total entry is limited to 200. Fees are payable in advance and must be received at the College by Oct 25.

### ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

A postgraduate course of advanced lectures for those studying the special practice of obstetrics and gynaecology will be given in the College House (58 Queen Anne Street London, W) from Monday

Nov 15, to Friday, Nov 19, inclusive, at 12 noon and 5 p.m. each day. The fee for the course of ten lectures is £4 4s 10s 6d for a single lecture. There will be no admission without a ticket, obtainable from the secretary of the College.

At a special meeting of Council of the College, held at the College House on Oct 1, with the President, Sir William Gilliatt, in the chair, the Honorary Fellowship of the College was conferred on Dr Emil Novak, of Baltimore, U.S.A.

A F Hollinrake (Ontario) was admitted to the Fellowship. The following were admitted to the Membership:

I S R Bain Henrietta E Banting T L S Baynes S Behrman D C A Bevis C C Bowley T St V W Buss Li W Cox Mary E Egerton T E Elliot G McI Forsyth H D Freeth G T Gibson J H Gibson A Graham A H Grenz Constance A Grey H B Hattam C C Henneberg E Hesselberg D W Higson J C Holman K R Hudson A G Jones J B Joyce W T Kenny G G Kerster R A H Kitch S Lask T L T Lewis E L F McConachie W Macfarlane J M McKiddie S H Madden Helen M Mayer G W H Millington F L E Musgrove J R Norris J J F O'Sullivan J H Patterson, A C Pearson W H Peek S D Perchard D Pryor Jones E H Rees S McR Reid H A Ripman D N S Robertson B W Sanderson G A Siley A A Smith T Smith G J Sophian Christine M Stacey P C Steptoe C S N Swan, R A Thatcher G S Thomas R G Whitelaw R M Williams M S Williamson H G Wolskel P S Wright R B Wright

## EPIDEMIOLOGICAL NOTES

### Discussion of Table

In *England and Wales* an increase was recorded in the notifications of measles 843 scarlet fever 166, acute pneumonia 125 acute poliomyelitis 13, and typhoid fever 11. Decreases were reported in the incidence of whooping cough 55 and dysentery 10.

The incidence of measles tended to rise throughout the country, but large increases were recorded in only a few counties, notably Yorkshire West Riding 318, Lancashire 210 Cheshire 58, and Derbyshire 50. A small rise in the notifications of scarlet fever was reported from most areas, the largest increase was 35 in Yorkshire West Riding.

The local trends of whooping cough fluctuated, the largest variations were a rise of 49 in Lancashire and a fall of 50 in Yorkshire West Riding. There was no appreciable change in the local returns of diphtheria. The rise in the incidence of pneumonia was mainly contributed by the West Midland and Yorkshire regions, and a rise of 39 was recorded in both regions.

The chief centres of dysentery were Lancashire 19 and London 12. A further 31 cases were notified in Shropshire Oswestry R.D. During the past four weeks 87 cases have been notified from this outbreak.

The largest returns of acute poliomyelitis were Yorkshire West Riding 8 (Sheffield C.B. 3) London 7 (Woolwich 2) Staffordshire 7 (Wolverhampton C.B. 3), Glamorganshire 7 (Swansea C.B. 3, Cardiff C.B. 2) Surrey 5 Gloucestershire 5 (Bristol C.B. 5), Warwickshire 5 (Birmingham C.B. 2).

In *Scotland* infectious diseases were more prevalent during the week and increases in the number of notifications were recorded for acute primary pneumonia 54, scarlet fever 33 diphtheria 17, and dysentery 10. The increased incidence of these diseases was mainly contributed by the city of Glasgow.

In *Ireland* a rise of 28 occurred in the notifications of diarrhoea and enteritis, of this increase 20 cases were notified in Dublin C.B. An outbreak of measles affecting 28 persons was notified in Clare, Kilmursh R.D. Notifications of scarlet fever were 20 fewer in the large cities, but this was offset by a rise of 16 in the remainder of the country.

In *Northern Ireland* increases were recorded for measles 34 whooping cough 16 and scarlet fever 13. The rises in the incidence of the first two diseases were due to the experience of Belfast C.B., while a small increase in the notifications of scarlet fever was fairly general throughout the country.

### Quarterly Returns for Northern Ireland

The birth rate during the second quarter was 23.9 per 1000 and was 0.9 below the average of the five preceding June quarters. The infant mortality was 44, and was 18 below the average of the corresponding quarters of the five preceding years. Maternal mortality was 1.1 per 1000 births, being 1.4 below the five years' average. The general death rate was 11.4 and was 1.0 below the average of the June quarters for 1943-7. Deaths attributed to the principal infectious diseases numbered 63, and included 30 from diarrhoea and enteritis and 13 from whooping cough. Deaths from pulmonary tuberculosis numbered 178 and from other forms of tuberculosis 81. These figures were 35 below and 2 above the five year average.

### Week Ending October 9

The notifications of infectious diseases in *England and Wales* during the week included scarlet fever 1,273, whooping-cough 2,073, diphtheria 112, measles 4,061, acute pneumonia 421, cerebrospinal fever 31, acute poliomyelitis 79, dysentery 84, paratyphoid 13 and typhoid 18.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct 2

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland  
 Figures of Births and Deaths and of Deaths recorded under each infectious disease, are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland  
 A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	28	2	26	2	2	46	1	15	5	3
Deaths		3	—	—	—	—	—	—	—	—
Diphtheria	114	15	55	10	2	218	25	55	12	1
Deaths	1	—	—	—	—	4	—	1	1	—
Dysentery	58	12	59	1	—	97	8	20	—	1
Deaths	—	—	—	—	—	—	—	—	—	—
Encephalitis lethargica	1	—	—	—	—	1	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas	—	—	26	12	7	—	—	37	6	7
Deaths	—	—	—	—	—	—	—	—	—	—
Infective enteritis or diarrhoea under 2 years	29	3	5	57	2	85	7	19	84	2
Deaths	—	—	—	3	—	—	—	—	9	—
Measles*	3 546	94	67	45	71	1 256	32	99	130	5
Deaths†	—	—	—	—	—	1	—	—	—	—
Ophthalmia neonatorum	65	6	20	1	—	46	4	7	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Paratyphoid fever	6	—	2(B)	3(B)	2(B)	16	24(B)	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia influenzal	402	22	2	1	—	330	13	2	3	2
Deaths (from influ enza)‡	5	—	—	—	—	5	1	—	—	1
Pneumonia primary	150	21	171	26	7	18	135	7	8	10
Deaths	—	—	—	6	—	—	—	—	—	—
Polio-encephalitis acute	5	2	—	—	—	27	3	—	—	—
Deaths	—	—	—	—	—	1	—	—	—	—
Polio-myelitis acute	83	7	6	1	1	402	38	95	9	14
Deaths§	2	1	—	—	—	—	—	—	—	—
Puerperal fever	—	—	13	—	—	—	2	8	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Puerperal pyrexia	97	5	10	2	—	134	11	14	—	2
Deaths	—	—	—	—	—	—	—	—	—	—
Relapsing fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever	1 234	79	249	126	51	1 086	85	215	56	42
Deaths†	—	—	—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	40	1	—	2	—	12	—	3	3	2
Deaths	1	—	—	—	—	3	1	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	2 204	157	69	44	24	1 086	116	33	42	4
Deaths	5	1	—	1	1	9	3	1	3	—
Deaths (0-1 year)	255	4	39	19	14	392	49	57	32	8
Infant mortality rate (per 1 000 live births)	—	—	—	—	—	—	—	—	—	—
Deaths (excluding still births)	4 239	66	527	168	109	4 207	597	567	140	96
Annual death rate (per 1 000 persons living)	—	—	10.6	10.5	—	—	11.8	8.8	—	—
Live births	8 066	1269	979	473	242	8 995	1329	1044	521	252
Annual rate per 1 000 persons living	—	—	19.8	29.6	—	—	21.0	32.9	—	—
Stillbirths	189	22	36	—	—	204	30	42	—	—
Rate per 1 000 total births (including stillborn)	—	—	35	—	—	—	39	—	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only  
 † Deaths from measles and scarlet fever for England and Wales (London (administrative county) will no longer be published  
 ‡ In the primary form for England and Wales (London (administrative county) and Northern Ireland  
 § The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London (administrative county) are combined  
 || Includes puerperal fever for England and Wales and Eire

## Special Awards Committee

The Government has decided to set up the Special Awards Committee recommended by the Spens Committee for selecting those specialists whose outstanding distinction merits higher financial rewards than the ordinary rates. The constitution of the committee has been settled after consulting the Royal Colleges and the Scottish Royal Corporations. Invitations to the individual members will be issued shortly.

## King Edward VII Hospital for Officers

Her Majesty Queen Mary opened the King Edward VII Hospital for Officers on Oct 15. The hospital was founded by Sister Agnes in 1899 in her own house at 17, Grosvenor Crescent, and in 1945, after having been closed as the result of bombing in 1941, was moved to its present site Beaumont House, Beaumont Street, London, W1. There are two wards of five beds and two of two beds where nursing and maintenance are free, and seventeen single rooms for which low fees are charged. Patients make their own arrangements with their medical attendants. Regular and retired officers of the Royal Navy, the Army, and the R.A.F. are eligible for admission, as well as temporary officers of the three Services who fought in the two world wars provided they become subscribers. The annual subscription is £1. Particulars may be obtained from the house governor of the hospital.

## Society of Anaesthetists

A meeting of seventy anaesthetists was held at Westminster Hospital on Saturday, Oct 2, and the Society of Anaesthetists of the South West Metropolitan Region was inaugurated. An invitation is extended to all anaesthetists in the region to join the society. Full particulars may be obtained from Dr W. Alexander Low, St Thomas's Hospital, SE 1.

## Health Centres in London

The Minister of Health has approved the London County Council proposal for a comprehensive health centre on the Council's Woodberry Down estate, Stoke Newington, and for the acquisition of sites for other centres. The Minister points out that the Council will be responsible for providing, in the case of medical practitioners working at health centres all drugs and appliances required immediately or administered by the practitioner in person and all materials used in dental treatment and dentures. No objection is taken to the proposal to have a foot clinic at the Woodberry Down centre, but formal approval awaits the submission of a detailed scheme. It is the Council's intention to provide a health centre in each of the nine divisions of the county, this will be carried out by converting existing buildings, and detailed proposals in respect of each building will have to be submitted to the Minister and agreement obtained with the executive council. The Minister's approval in principle is given to the establishment of an unspecified number of group practices, but it will be necessary in each case to obtain the consent of a group of general practitioners to work in a group practice and for the executive council to agree to the establishment of such a group practice before full details of the scheme are submitted to the Minister for his approval.

## Nuffield Foundation

Among the grants made by the Nuffield Foundation and described in its recently issued third report is one of £20 000 to the London University Institute of Psychiatry (Professor Aubrey Lewis) for a ten-year investigation into the value of psychological tests of intelligence and personality. The tests will be applied to applicants for admission to certain universities successful and unsuccessful applicants will be followed up. One method of entry into the middle class is by university education, and this study of the selection of university students may throw some light on a problem to be the subject of another investigation—namely, the middle classes. The London School of Economics has been granted £20,000 to study this 'complicated caste system'. The Oxford University Medical School has been granted £50 000 to study the blood and the blood-forming organs. The sum of £4,000 has been granted for a survey (to be undertaken jointly by the Royal College of Obstetricians and Gynaecologists the Population Investigation Committee and the London University Institute of Child Health) of the health of all children born during one week in 1946. The trustees of the Fund record that they have received a gift of £450,000 from Captain Oliver Bird for the promotion of research into the prevention and cure of rheumatism.

## Wills

Dr Edward Alfred Dingley, of Wednesbury Staffs left £41,156, and Mr John Daniel Harmer late of the Northern Rhodesia Medical Service, £1,413.

## COMING EVENTS

## Chemical Works Safety Conference

The Association of British Chemical Manufacturers has invited the Royal Society for the Prevention of Accidents to organize on its behalf a Chemical Works Safety Conference, which will take place at the Grand Hotel, Harrogate, on Oct 29 to 31. The opening address will be given on Oct 29 by Sir Ewart Smith, of Imperial Chemical Industries, Ltd., and the programme will include the following lectures: 'Health Hazards—Present and Future,' by Dr J Gwynne Morgan of the Mond Nickel Co, Ltd., 'Safety in Chemical Plant Design,' by Mr J E Braham, BSc, of ICI, Ltd., 'Safety Organization,' by Mr H R Payne chairman, Works Safety Committee, A B C M, 'Safety Records,' by Mr H G Winbolt, B A, director, Industrial Safety Division Royal Society for the Prevention of Accidents, 'Clearance Certificates,' by Mr A G Palmer, BSc, of the Gas Light and Coke Co.

## Prosser White Annual Oration

The St John's Hospital Dermatological Society announces that the Prosser White Annual Oration will be delivered by Dr J M H MacLeod at the Royal Society of Medicine (1, Wimpole Street, London, W) on Thursday, Oct 28, at 4.30 p.m. His subject is 'Milestones on a Dermatological Journey'. A dinner will be held the same evening, the tickets for which are £1 1s each, obtainable from the honorary secretary of the society, Dr J E Schneider Green, at 5, Lisle Street, Leicester Square, London, WC2.

## St John Ambulance Brigade Surgeons' Annual Dinner and Conference

Arrangements have been made for this year's dinner and conference of the St John Ambulance Brigade Surgeons to be held at the Royal Hotel, Woburn Place, London, WC, on Saturday and Sunday Oct 30 and 31. Mr Dickson Wright, Sir Ernest Rock Carling, and Dr Frank C Eve will be among the speakers, with Lord Webb Johnson as the principal guest at the dinner.

## Anti vitamins in Food

The Nutrition Society has arranged a whole day conference to be held at the Royal Society of Arts, John Adam Street, London WC, on Saturday, Oct 23, beginning at 10.30 a.m., when the subject for discussion will be "Anti vitamins in Food".

## Courses in Psychiatry

The University of London Institute of Psychiatry will hold courses for first year and second year students on psychology and psychiatry this autumn. The fee for one term's lectures is 15 guineas. Particulars may be obtained from the Dean, Institute of Psychiatry, Maudsley Hospital, Denmark Hill, London, SE5 (Telephone Rodney 2634).

## Planning Forum

The following meetings of the Planning Forum, which is sponsored jointly by the Association for Planning and Regional Construction, the British Social Hygiene Council, the Institute of Public Administration, Political and Economic Planning (P.E.P.), and the Town and Country Planning Association, are announced: Wednesday, Oct 27, 6.15 p.m. discussion on the Kinsey Report on "Sexual Behaviour in the Human Male," to be opened by Dr David Mace, Ph.D., Dr Fred Grundy, and Dr E H Larkin, Thursday, Nov 11, 6.15 p.m., discussion on 'Population and Emigration,' to be opened by Professor Brinley Thomas, Ph.D., and Mr R J Goodman, Wednesday, Nov 24, 6.15 p.m., discussion on 'Work and Health' to be opened by Dr R S F Schilling, Mr Brian Bunch, and Dr John Burton, Thursday, Dec 9, 6.15 p.m., discussion on 'Manpower' to be opened by Mr A E U Maud and Mr G D N Worswick. The meetings will be held at the Planning Centre Hall, 28, King Street, Covent Garden, London, WC. Admission to each is 1s.

## Medical Society of London

The first half of the 1948-9 session of the Medical Society of London opened at 11, Chandos Street, Cavendish Square, W, on Oct 11 with the annual general meeting and Dr T Jenner Hoskins' presidential address on thyrotoxicosis. Other meetings have been arranged as follows: Monday, Oct 25, 8.30 p.m., discussion on 'Streptomycin' to be introduced by Dr Jack Rubie and Dr Geoffrey Marshall; Monday, Nov 8, 8 p.m., pathological meeting; Monday, Nov 22, 8.30 p.m., discussion on 'Gastroscopy,' to be introduced by Dr Avery Jones and Mr Hermon Taylor; Monday, Dec 13, 8.30 p.m., discussion on 'Therapeutic Application of Anti coagulants' to be introduced by Dr Paul H Wood and Mr A Dickson Wright. The Lloyd Roberts Lecture, "Victorian Doctor" will be delivered by Mr J Johnston Abraham on Thursday, Nov 18, at 5 p.m. the Lettsomian Lectures by Dr Horace Evans on Mondays Feb 21 and 28 and March 7, 1949, at 9 p.m., and the Annual Oration by Mr A C Palmer on 'Temperament' on Monday May 9, 1949, at 8.30 p.m.

## SOCIETIES AND LECTURES

## Saturday

ST STEPHEN'S HOSPITAL RHEUMATISM UNIT, 369 Fulham Road, London, S.W.—Oct 23, 10 a.m. *General Medicine in Relation to the Rheumatic Diseases* by Sir Adolphe Abrahams, 11 a.m. *Modern Conception of the Aetiology and Classification of the Chronic Rheumatic Diseases* by Dr Philip Ellman, 12 noon. *Organization of a Rheumatism Unit with Special Reference to the Management of Rheumatoid Arthritis* by Dr Francis Bach, 2 p.m., ward round and demonstration of methods of physio-treatment, injection, and plaster technique by Dr Bach, 3 p.m. *Social Welfare, Dietetics, Occupational Therapy and Vocation* by Dr Bach and members of the staff of the unit, 4.15 p.m., *Clinical Pathology in the Rheumatic Diseases* by Dr A G Signy, 5.15 p.m., *The Radiological Diagnosis of Arthritis* by Dr Grace Batten.

## Sunday

ST STEPHEN'S HOSPITAL RHEUMATISM UNIT, 369 Fulham Road, London, S.W.—Oct 24, 10 a.m. ward round, with demonstration of cases by Dr Philip Ellman, 11.15 a.m., (1) *Problems in Differential Diagnosis* and (2) *Drug Treatment in the Rheumatic Diseases* by Dr Ellman, 2 p.m., *Orthopaedic Aspects of Rheumatic Disease and the Prevention and Treatment of Deformities* by Mr A G Timbrell Fisher, 3.30 p.m., *Radiotherapy in the Treatment of the Rheumatic Diseases* by Professor B W Windeyer, 4.45 p.m., *Psychiatric Factors in the Chronic Rheumatic Diseases* by Dr David Shaw.

## Monday

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—Oct 25, 8.30 p.m. *Streptomycin*. Discussion to be introduced by Dr Jack Rubie and Dr Geoffrey Marshall. SOCIETY OF APOTHECARIES OF LONDON—In the Hall, Black Friars Lane, Queen Victoria Street, E.C. Oct 25, 5 p.m. *Rheumatic Heart Disease and its Treatment* by Dr T F Cotton. UNIVERSITY COLLEGE, Gower Street, W.C.—Oct 25, 4.45 p.m. "The Electron Microscope and its Biological Applications" by Dr E M Crook, M.Sc., Ph.D.

## Tuesday

EUGENICS SOCIETY—At the Rooms of the Royal Society, Burlington House, Piccadilly, London, W, Oct 26, 5.30 p.m. *Legal and Social Implications of Artificial Insemination* by Mr Cecil Binney. All interested are invited to attend. INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Oct 26, 5 p.m. *Liver Function in Certain Diseases of the Skin* by Dr A D Porter. INSTITUTE OF LARYNGOLOGY AND OTOLGY, 330 2 Gray's Inn Road, London, W.C.—Oct 26, 11.30 a.m. *The Physical Principles of Audiometry and Hearing Aids (I)* by Dr T S Luttrell, 4.30 p.m. *The Surgical Treatment of Deafness* by Mr Terence Cawthorne. INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street, London, W.C., Oct 26, 11 a.m., 'Pathology and Immunology of Syphilis' by Dr Cuthbert Dukes, at St Peter's Hospital, Henrietta Street, London, W.C., Oct 26, 5 p.m., 'New Growths of the Kidney and Ureter' by Mr Harland Rees. UNIVERSITY COLLEGE, Gower Street, London, W.C.—Oct 26, 1.15 p.m. *Visible Speech* by Dr D B Fry, Ph.D.

## Wednesday

GLASGOW UNIVERSITY DEPARTMENT OF OPHTHALMOLOGY—Oct 27, 8 p.m. *Histopathology of the Drainage Angle*, by Professor Loewenstein. INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street, London, W.C., Oct 27, 11 a.m., 'Diagnosis of Primary Syphilis' by Dr W N Mascall, at St Peter's Hospital, Henrietta Street, London, W.C., Oct 27, 5 p.m. *Disturbances of Micturition due to Nervous Disease and Injury* by Mr A W Badenoch. PLANNING FORUM—At Planning Centre Hall, 28 King Street, Covent Garden, London, W.C., Oct 27, 6.15 p.m. *Sexual Behaviour in the Human Male*, discussion on the Kinsey Report to be opened by Dr David Mace, Ph.D., Dr Fred Grundy, and Dr E H Larkin. ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28 Portland Place, London, W.—Oct 27, 3.30 p.m. *Problem Families* by Dr C F Brockington. SOCIETY OF APOTHECARIES OF LONDON—In the Hall, Black Friars Lane, Queen Victoria Street, E.C., Oct 27, 5 p.m. *Therapy as a Diagnostic Measure* by Professor H Cohen.

## Thursday

CHADWICK TRUST—At University College, University Park, Nottingham, Oct 28, 4 p.m. *Advances in Preventive Medicine during the War of 1939-45* by Sir Arthur MacNalty. DEWSBURY STAINCLIFFE GENERAL HOSPITAL—Oct 28, 5 p.m. *Some Recent Advances in Dermatology* by Dr F F Heller. EDINBURGH ROYAL INFIRMARY—Oct 28, 5 p.m. 'Psychogenic Pain' Honyman Gillespie Lecture by Dr R G Gordon. INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street, London, W.C., Oct 28, 11 a.m. *The Primary Syphilitic Chancere and Differential Diagnosis* by Dr A H Harkness, 5 p.m. *Infertility in the Male* by Mr A R C Higham.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel Street, WC—Oct 28, 5.15 p.m. *Micromethods in Biology* by Professor K. Linderstrom Lang (Copenhagen)

MEDICO LEGAL SOCIETY—At 26 Portland Place, W, Oct 28, 8.15 p.m. *Criminal Justice* by His Honour Judge W. G. Earengy, K.C.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London WC—Oct 28, 7.30 p.m. *The British Pharmacopoeia 1948* by Dr C. H. Hampshire

GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—Oct 28, 4.30 p.m. *Neurology and Psychiatry* Lecture demonstration by Dr Desmond Curran

SOCIETY OF APOTHECARIES OF LONDON—In the Hall, Black Friars Lane, Queen Victoria Street, E.C., Oct 28, 5 p.m. *The Management of Inoperable Malignant Disease* by Sir Stanford Cade

#### Friday

CENT AND CANTERBURY HOSPITAL Canterbury—Oct 29, 5 p.m. Clinical meeting

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel Street, WC—Oct 29, 5.15 p.m. *Enzymatic Break-down of Proteins (I)* by Professor K. Linderstrom-Lang (Copenhagen)

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES 11, Chandos Street, London, W—Oct 29, 8 p.m. *The V.D. Factor in Infertility and Sterility and its Treatment* by Mr Reynold H. Boyd

ROYAL INSTITUTE OF PHILOSOPHY—At University Hall 14 Gordon Square, London WC Oct 29, 5.15 p.m. *Morality and Science* by Professor C. H. Waddington

ROYAL MEDICAL SOCIETY 7 Melbourne Place Edinburgh—Oct 29, 8 p.m. *Cancer of the Large Bowel* by Mr R. Edmond

#### Saturday

BIOCHEMICAL SOCIETY—At London School of Hygiene and Tropical Medicine, Keppel Street, WC, Oct 30, 11 a.m. *Partition Chromatography and its Application to Biochemical Problems* Symposium

## BIRTHS, MARRIAGES, AND DEATHS

### BIRTHS

Laidlaw—On Oct 10 1948 to Mary wife of Dr W. Y. Laidlaw Gramsdyke Avenue BoNESS a daughter

Morgan—On Oct 14 1948 at Blighmont Nursing Home Southampton to Dr Dorothy Morgan wife of Dr T. Keith Morgan a son

### MARRIAGES

Latta-Hewison—On Sept 11 1948 at St Andrews Tilmanstone near Sandwich Kent Flight Lieutenant Hugh Adrianus Llywelwyn Oswine Latta M.B. B.S. to Margaret Scott Hewison S.R.N.

Nabarro Cockrell—On Oct 2 1948 at Rettendon Essex J. D. N. Nabarro M.D. Lond. M.R.C.P. son of David Nabarro M.D. F.R.C.P. to J. M. Cockrell M.B. B.Ch.

### DEATHS

Boyd Roberts—On Oct 7 1948 at Cunningham House 103 Sutherland Avenue London W.9 Alexander Boyd Roberts M.D.

Bryson—Recently after a short illness Michael Joseph Bryson M.D. of 88 Malahide Road Dublin

Croll—On May 4 1948 Colonel David Gifford Croll C.B.E. A.A.M.C. Dingle—On Oct 2 1948 Frederick Robert Dingle M.R.C.S. L.R.C.P. of 3 Walker Terrace Gateshead-on Tyne Co. Durham

Hemsted—On Oct 7 1948 at Notrees Kintbury near Newbury Berkshire Edmund Spencer Hemsted M.R.C.S. L.R.C.P. aged 79

Lacey—On Oct 3 1948 Charles Edward Lacey M.B. Ch.B. D.P.M. of 7 Windmere Lytton Grove Putney London S.W.15 at the National Hospital Queen Square London WC after a brief illness aged 29

Lewis—On Sept 24 1948 at Oswestry and District Cottage Hospital William Henry Lewis M.B. C.M.E. J.P. High Sheriff of Montgomeryshire 1935-6 aged 82

McCarthy—On Oct 3 1948 John McDonald McCarthy Colonel late R.A.M.C. retired at The Torbay Hotel Sidmouth

Malcolm—On Oct 6 1948 at Kenwood 322 Gilmerton Road Liberton Edinburgh John Wright Malcolm O.B.E. M.C. M.B. Ch.B. Ed. Lieutenant-Colonel R.A.M.C.

Morrison—On Oct 7 1948 Frederick Alexander Morrison M.B. Ch.B. of Peel Isle of Man late Boston Street Hulme Manchester

Moyers—On Oct 2 1948 at Standen Brundall near Norwich William Francis Alexander Patrick Moyers M.D.

Porter—On Oct 4 1948 suddenly at 124a Redland Road Bristol 6 Charles Porter M.A. Oxon. M.R.C.S. Eng. L.R.C.P. Lond. aged 56

Potts—On Sept 25 1948 at Lauriston Wyke Hill Woking Surrey Edmund Thurlow Potts C.M.G. D.S.O. M.D. Ed. Lieutenant-Colonel R.A.M.C. retired

Protheroe Smith—On Sept. 20 1948 at Crediton Devon Eva the wife of Edward Protheroe Smith M.R.C.S. L.R.C.P. (late of Redditch)

Sass—On Sept 30 1948 at Deal Frederick J. Wilfrid Sass M.R.C.S. L.R.C.P. D.P.H.

Shubik—On Sept. 20 1948 at Oxford Dr Nancy Shubik (née Rogers) M.R.C.S. L.R.C.P. wife of Dr Philippe Shubik

Square—On Sept. 23 1948 James Elliot Square F.R.C.S. of Plymouth and 89

Stewart—On Sept. 16 1948 at Sleights William Stewart M.B. Ch.B. Ed. Lib. of Southampton

Symonds—On Sept. 24 1948 Jeffrey Isser Symonds M.B. Ch.B. of 1 Redditch, aged 33

Western—On Oct 4 1948 suddenly at his house The Cordemans Chalford H. Street Gloucestershire George Trench Western M.D.

## Any Questions?

*Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.*

### Recurrent Parotitis

**Q**—What is the aetiology and have there been any recent advances in the treatment of recurrent non-infective parotitis?

**A**—Recurrent parotitis is an uncommon disorder which, although non-infectious, cannot be called non-infective. It appears to be due to repeated exacerbations of an ascending infection of Stensen's duct. In some the predisposing cause is a calculus or a fibrous stricture of the duct, but in many oral sepsis has been held responsible. Sialography will often show a dilatation of the smaller ducts with a skiagram reminiscent of bronchiectasis. The fundamentals of treatment are to exclude stone and stricture or, if present, to treat by removal of the former and dilatation of the latter, to treat infective foci in the mouth, and to encourage drainage from the gland. This last may be done by massaging and expressing secretion, and by increasing the flow of saliva by means of acid drinks, such as lemonade, and the regular use of chewing-gum.

### Galactorrhoea

**Q**—What treatment should be given to a patient aged 32 whose breasts have been loaded with milk since the birth of her only child over two years ago? She has been having stilboestrol and hexoestrol 1 mg t.d.s. together with magnesium sulphate and a restricted fluid intake with little effect. The secretion is of a thick cheesy consistency at times at other times it flows rather freely.

**A**—Two counter-questions arise in this case: (1) How long was breast-feeding maintained? (2) Is the galactorrhoea accompanied by amenorrhoea? A rare but well-known syndrome associated with the names of Chiari and Frommel is characterized by prolonged lactation and amenorrhoea with superinvolution of the uterus. Its cause is unknown, but it is reasonable to suppose it to be the result of a disturbance of the pituitary whereby its lactogenic activity is maintained at the expense of its gonadotrophic function. Other causes of galactorrhoea are diseases of the hypothalamus and pituitary (acromegaly, for example), and it has also been described in association with lutein cysts of the ovary and even failure of ovarian function. The above possibilities should be excluded, but a more simple explanation should be kept in mind. Lactation can be maintained for long periods, if not indefinitely, by local stimulation of the breasts, and, if this patient is continually attempting to express the discharge to confirm its presence that might be enough to account for its persistence. Moreover, the dose of stilboestrol which has been given is scarcely enough to suppress lactation, it might even have a stimulating effect.

If a cause cannot be found it may be difficult to treat the condition successfully. The breasts should be well supported and all forms of manipulation avoided. The dose of stilboestrol should be increased up to 10 or 15 mg daily (in divided doses), and continued for seven to ten days then gradually decreased during the following week. If that fails, testosterone propionate in large doses might be tried. A suitable dose would be 25 mg intramuscularly three times weekly for two weeks. It should not be continued for longer than this lest it produce virilism.

### Gentian Violet for Skin Infections

**Q**—Is gentian violet 1 or 2% solution still a recognized treatment for Gram-positive skin infections or ulcers?

**A**—Gentian violet remains a most valuable application for skin infections. If there is much exudate or discharge gentian violet may give trouble by obstructing its flow if used as the lotion, but by using it in ointment form with an emulsifying base this difficulty can be avoided.



**Adrenaline, Procaine, and Pulmonary Oedema**

**Q**—Can acute pulmonary oedema occur as the result of a local injection of procaine? I saw a man aged 45 who had tender nodules in the fascia of the back of the neck at the level of the fourth cervical vertebra. I injected 2 ml of 2% procaine with adrenaline taking care not to enter a vein. Two minutes later the patient turned pale and felt faint, pulse 130. After another minute he experienced a tight sensation in the chest and coughed up about 2 oz (57 ml) of frothy heavily blood-stained sputum. Morphine gr  $\frac{1}{4}$  (16 mg) with atropine gr 1/150 (0.375 mg) was administered. Though the chest was full of rales during the attack, four hours afterwards there were only some fine crepitations at the left base. The heart was normal and the blood pressure remained at 80/30 mm throughout. It seems highly probable that the procaine caused the pulmonary oedema. Intravenous injection can almost certainly be excluded since the site was relatively avascular, the usual precautions were taken and no signs of accidental intravenous injection were noted.

**A**—It is always dangerous to say that something can never happen and therefore it is dangerous to say that procaine can never cause acute pulmonary oedema. Such an occurrence has not been recorded before. On the other hand, adrenaline can cause acute pulmonary oedema, so that it seems more likely that the adrenaline injected was responsible for the symptoms. The patient must have been unusually sensitive to the drug for this to happen. The theory of the production of acute pulmonary oedema by adrenaline is that this drug releases histamine in the body, as it has been shown to do, and the histamine then causes the oedema. In support of this theory is the fact that the acute pulmonary oedema can be arrested by the injection of antihistamine compounds.

**Paper-eating Infant**

**Q**—Can you advise me how to treat a child of 2 years who is continually eating paper? He weighed 6 lb 2 oz (2.8 kg) at birth and did well up to the age of 8 months, when he stopped gaining. He then started to eat paper and would eat very little of his ordinary food. He eats any paper that is left about and it passes through him undigested. He is pale and has a protruding abdomen but otherwise appears normal. He walked at the age of 13 months and is now talking well.

**A**—Between the ages of 2 and 3 years food fads are at their peak. These are not uncommonly associated with anxiety arising out of habit training in the course of which the small child goes through a phase of over-emphasized disgust at his own excreta. Since food can also be messy, he may experience a revulsion against this. The eating of paper, which symbolizes cleanliness through its toilet use, is likely in the logic of infancy to represent 'inner cleanliness'. In this case practical measures would include making 'potting' as easy and informal as possible, the avoidance in diet of food that may arouse disgust (such as sausages or anything brown and of 'messy' consistency) and the provision of play material with which the child may experiment and work out his fantasies. Sand and water, plasticine, and clay are all useful in the latter respect. It may be advisable to keep paper out of reach so far as possible though not openly to deny it when asked for. If these measures do not prove effective, the child should be taken to see a psychiatrist.

**Lactating Baby**

**Q**—Can you suggest treatment to stop a flow of milk from the right breast of a male baby aged 10 days? The right breast is slightly larger than the left which is normal and dry.

**A**—Transient enlargement of the breasts in newborn babies is not unusual and is supposed to be due to the high concentration of maternal oestrogens. Another theoretical factor is hyperplasia of the baby's adrenal cortex, with resulting secretion of oestrogens. An actual secretion of milk is rare in itself and especially one that persists. It is probable that an injection of 10 mg of testosterone, repeated daily if necessary, would stop the secretion. Apparently the left breast is unresponsive to the supposed hormone stimuli, and this lack of response is met with in other types of endocrinological reaction.

**Income Tax****Refund of Superannuation Deductions**

J has in the past suffered deductions from his salary under a superannuation scheme. His post has been abolished and the amounts deducted refunded with interest. Is the refund to be reckoned as 'income'?

\*\*\* The element in the total payment which represents interest will rank as income, but probably taxed at source. The remainder of the total refund represents postponed payment of small amounts of salary for past years which hitherto have not borne tax. It may be, however, that the tax to be accounted for on that basis has been allowed for in calculating the net amount of the refund. We suggest that inquiry be made of the town clerk as to the details of the calculations of the net refund, when the position as regards tax will probably be clear.

**NOTES AND COMMENTS**

**Profuse Sweating in Acute Rheumatism**—Dr A. D. McDwyer (Dublin) writes: This sign ('Any Questions?' April 3, p. 672) sets a problem in diagnosis I have already discussed (*B.M.J.* 1947, 1, 310). Increased perspiration, especially profuse at night, may precede all local manifestations of rheumatic fever, it is constant even apart from salicylates, and the last of all clinical signs and symptoms of active infection to disappear. In the chronic infective disease all degrees of sweating, perhaps varying with the toxæmia, are seen, from a persistent profuseness throughout the twenty-four hours, or between noon and 4 a.m., or 9 p.m. and 2 a.m., to an individual "night sweat". Experience generally verifies the observation.<sup>1</sup> Thus fatigue, a chill, an adventitious infection, a slight injury, a touch of indigestion, a mental upset or increased bodily activity may cause the rheumatic to relapse from the quiescent into an acute febrile state. More sensitive still is the chronic active rheumatic, hence the sweating—so long as it continues and unless cared for correctly—and the resultant damp clothes may cause a vicious circle of reactivation or exacerbation. The usual hospital practice and nursing routine are inadequate for such cases, as the need for well-aired clothes is paramount over and above the degree needed for non-rheumatic patients, freshly laundered clothes and bed linen returning from a laundry need a minimum of twenty-four hours at not less than 130° F (54° C), personal garments need the same temperature for varying periods but not less than six hours (such clothes should not be stored in unheated presses).

Resulting from this special care, these patients sleep better, are free from the myalgia and other aches—now their common lot—sweat less, and the tachycardia lessens. Further precautions are freedom from draughts, room temperature not above 64° F (17.7° C) (hot weather invariably causes an exacerbation), avoidance of general bed baths, local ones restricted and given with care, those in attendance free from nasopharyngitis, bed rest, of course, and the frequent change of damp clothes even during sleep, for then they may dry on the patient and cause a chill. (Most of this applies generally to cases of idiopathic rheumatoid arthritis with active infection.) On such a regime chronic active rheumatism shows remarkable improvement, for it helps to keep the toxæmia at a minimum and in the acute primary attack lessens the danger of chronicity.

**REFERENCE**

<sup>1</sup> Lichtwitz L, 1944 *Pathology and Therapy of Rheumatic Fever* Heinemann

**Delay in Receiving B.M.J.**—In recent weeks special arrangements have been made with the Post Office to try to ensure that copies of the *British Medical Journal* reach most of our readers in Great Britain on the Saturday morning. It would help us to assess the effect of this scheme if those who still receive the *Journal* late would be good enough to forward to the Publishing Manager at B.M.A. House wrappers of copies which are delayed, with a note of the time of their arrival.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: Allotopay, Westcott London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7 Drumshugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 23 1948

## LETTER TO ALL MEDICAL PRACTITIONERS

*The following letter has been sent by the Secretary of the British Medical Association to every medical practitioner in England and Wales and Scotland*

The purpose of this letter is to explain the present position in relation to the remuneration of doctors under the new Service. In some ways the picture is yet incomplete. But it will, I think, be useful to describe the position as it stands to-day. More space is devoted to general practitioner remuneration simply because more is known about it at the moment.

### General Practitioners

Before the war the total professional incomes of general practitioners in England, Wales, and Scotland added together amounted to rather more than £28 million. The total remuneration provided under the N.H.S. Acts for general practitioners is approximately £45 million.

It would not be enough to remunerate general practitioners only for those persons who are on their lists, for there is always a risk that they may be called upon to treat people not on anyone's list. In fact, they are at risk for other persons without knowing it. A guess has therefore been made as to the proportion of the community which will use the general practitioner part of the service. For the first two years, and subject to review at the end of that period, the guess has been made as 95% of the community. Figures which have been published for the proportion of the population which has signed on doctors' lists should be treated with the utmost reserve. In fact, the figures are inflated because E.C.I.'s have been filled up in respect of a large number of persons insured under the old N.H.I. scheme despite the fact that such persons were transferred *en bloc* to the new Service. In one area the number of persons alleged to have signed on is 111% of the total population of the area. Local executive councils are working to eliminate this inflation, and until the job is complete it will not be known what proportion of the population has in fact joined the doctors' lists. It is likely to be below 95%. Anyway, general practitioners in the Service will be paid for 95% of the population during the first two years of the Service.

Taking the population at 47½ million, 95% amounts to 45 million. Multiply 45 million by 18s and the result, some £40 million, is the sum of money which belongs to general practitioners and which will be distributed in full to general practitioners in each year. 7d of the 18s—some £13 million in all—is set aside as the Mileage Fund. The 17s 5d is the amount paid into the central pool for each one of the 45 million persons.

Bearing in mind that the quarterly payments are provisional payments on account, what will the annual capitation be? If 95% of the population sign on all inflation dealt with, and ignoring the basic salary, the annual payment per person on the list will amount to 17s 5d. To the extent to which less than 95% of the population sign on, the average payment per person on the list will be more than 17s 5d. This is an annual payment based on annual calculation.

### Distribution of the Central Pool

Now for the distribution of the central pool. First it is divided into two pools, one for England and Wales and one for Scotland. The distribution of each national pool is controlled by a committee on which general practitioners are represented. Distribution is made on lines almost identical with those under N.H.I. In pre-war days under N.H.I. there went into the pool for medical treatment 9s in respect of every insured person. Under the N.H.S. there goes into the pool 17s 5d in respect of 95% of the population. 5% is kept back from the quarterly

provisional payments in a central reserve pending the final distribution for the year, when it is paid out. Nothing can be left in the kitty at the end of the year. The 5% reserve is necessary because of the inflation of doctors' lists and to provide for temporary residents.

Now for the first quarter's payment. 5% is retained at the centre and approximately one-fourth of the remainder was distributed among local executive councils for the provisional on-account payment on Oct 1. (It was not quite one-fourth in the first quarter because N.H.I. covered the first four days of the quarter and payment at the old rate is made for those four days.)

This share-out between local executive councils could have been on the basis of population but that would not have been fair because in one area the proportion of people using the Service is higher than in another. It could have been on the basis of the number of persons who signed on doctors' lists in the various areas, but that would not have been fair because the doctors in an area with, say, 80% people signing on are under a risk that 20% may subsequently sign on, while the doctors in an area where 99% of the population sign on are only under a risk that 1% may subsequently sign on. Therefore it was provisionally decided that the pay-out to local executive councils should be on the basis of the number who have signed on doctors' lists plus one-third of those in the area who have not. This method of distribution may have to be reviewed. The point to remember is that the final share-out is complete and the formula is used merely to divide as equitably as possible a certain sum of money between a number of local executive councils.

### Distribution of the Local Pool

We now reach the stage that the local executive council has got its provisional share of the central fund. This money has to be paid out to doctors in the proportion of the number of persons who have signed on their lists. In the old days of N.H.I. this is in fact what happened. But under the new order there are certain other factors. Practitioners who prove to the satisfaction of the local executive council after consultation with the local medical committee that they need basic salaries—and only those who make application and so prove are entitled to them—will be paid £300 a year with a reduction of one-seventh in their capitation payments. In the case of practitioners with lists under 2,350 the basic salary means to them a higher payment per patient. These basic salaries come from the local pool, and therefore any additional payment per patient the recipients receive comes from the remuneration of their colleagues. But the point is that many local executive councils have kept back a certain amount of money pending the consideration of applications for basic salary. The amount retained may well prove to be an over-estimate. Secondly, the superannuation scheme requires the deduction of 6% from the net remuneration, 35% being regarded as practice expenses. (In the case of mileage payments, one-half is regarded as expenses.) Practice has varied, but a number of local executive councils have kept back the 6% for the doctor's contribution.

There is a further factor which tends to bring down the quarterly rate though not the annual payment. Lists are still inflated with some insured persons appearing twice on the list. This means that at least in the first quarter payment is being made in respect of a larger number of persons than really exist on doctors' lists. All this will be caught up in the final pay-out.

The deductions made, the rest is paid out in proportion to the number on doctors' lists, the calculation being made on a count taken some time in August. To take London as an example, the local pool received 4s 6d for every person estimated to be on doctors' lists, the deductions amounted to 9d,

and 3s 9d was paid out to London general practitioners. In subsequent quarters it will be possible to estimate more accurately the amount if any, needed for basic salaries. In addition, the work of cleaning the lists to remove inflation will go on. Even so it is the annual payment, which will take the form of a final adjustment for the year, which brings the remuneration up to at least 17s 5d per person on doctors lists (and more to the extent to which less than 95% of the population sign on).

There is other money. The Mileage Fund, which consisted in pre-war days of £250,000 and before the appointed day of about £600,000 now stands at £1,300,000. Mileage payments are made twice a year. The first payment is a purely provisional and conservative one of  $1\frac{1}{2}$  times the old half-yearly mileage cheque under the N.H.I. system. A new model mileage scheme now under consideration will be submitted for the consideration of mileage areas, and the final payment for the year, with the full disbursement of the £1,300,000, will be made on the basis of the new mileage scheme.

Over and above the ordinary pool there is an additional fund called the Inducement Fund, amounting to some £400,000 a year, which is to be used to attract doctors to areas which would not otherwise provide a sufficient living or to keep doctors in such areas. Clearly, the bulk of this money will go to rural and semi-rural areas. The procedure is for individual practitioners to apply to the local executive councils and for those councils, after consultation with local medical committees to recommend an award to the Medical Practices Committee. Practitioners desiring to claim from this fund should make application to their local executive councils. No payments have yet been made. Maternity fees are additional, as are payments for immunization and vaccination, the rates for which have yet to be negotiated. There will be in certain cases special grants for training assistants, payments for drugs, and sessional fees from local health authorities.

*So far I have referred only to the method of distribution and not to the over all sufficiency of the remuneration. The Insurance Acts Committee (General Medical Services Committee) has begun to prepare the case for a revision of the remuneration arrangements generally. It will examine the current position in the light of the information available at the end of the first quarter and give special attention to the question of the permitted maximum on doctors lists and to the position of those who by the nature of their areas of practice cannot achieve the bigger lists. We are aware of the difficulties and will do our best to resolve them.*

#### Consultants and Specialists

In this field the next stage is the negotiation of a national framework of remuneration based on the Specialist Spens Report. The Ministry has promised shortly to produce, as a basis of negotiation, its translation of the recommendations of the Spens Committee into draft scales of remuneration. It is anticipated that such scales, once agreed with the profession, will come into operation on or before March 31, 1949 but will be retrospective to July 5 1948. The provisional interim scales, which were not the subject of prior negotiation with the profession, are no more than a basis for "on account" payments, and the profession is in no way committed either to the method, the amounts or the limitations embodied in those scales. In the meantime the Central Consultants and Specialists Committee in consultation with its regional committees, is scrutinizing the Specialist Spens Report and formulating its views on the more important features of the Report.

#### Public Health Service

Negotiations are about to begin on the revision of the public health service remuneration in the light of the two Spens Reports. The one set of negotiations will cover both the medical officers of local health authorities and the medical officers of other local authorities. Already we have notified the Ministry and through them, the associations of local authorities of our proposals.

#### Other Branches

Practitioners in other fields of medicine will naturally be wanting to know what is being done to secure an upward revision of their remuneration. In general, the answer is that

the Association will seek the application in the most appropriate way of the standards of the Spens Reports to other groups of the profession, including the armed Forces, the Colonial Medical Service, the university professors and teachers, and others. For the first time we have ranges of remuneration accepted by the Government as appropriate to large sections of the profession and we shall seek their proper application to groups not specifically covered by the two Spens Reports.

#### Superannuation

It may be convenient to add a few brief points on the subject of superannuation of general practitioners and consultants.

The Government contribution is 8%, the employee's contribution is 6% applied to the net remuneration.

The net remuneration is the full remuneration in the case of consultants and 65% in the case of general practitioners, the remaining 35% being regarded as practice expenses (50% for mileage). A practitioner in partnership practice will pay contributions—and so receive superannuation—on the basis of his share of the partnership (instead of on the payments received by him from the executive council) provided particulars of the partnership deed are disclosed to the executive council.

For those who serve for 10 years or more the benefits on retirement are a pension and a cash payment.

To calculate the pension of general practitioners and part time specialists, add up the net remuneration for the years of superannuable service, calculate  $1\frac{1}{2}\%$  of this aggregate sum, and the result is the annual pension payable at or after age 60.

The single cash payment amounts to  $4\frac{1}{2}\%$  of this aggregate sum in the case of single men and 12% in the case of married men, whose wives will be eligible for widow's pension.

For whole time consultants and specialists and others in salaried employment the pension is based on the average annual remuneration during the last 3 years' service.

To calculate the pension take  $1/80$ th of this amount and multiply it by the number of years of contributing service. The same calculation will give the cash payment in the case of married men, whose wives will be eligible for widow's pension. In the case of single men the cash payment will be three times as much.

Those who do not serve for 10 years normally receive no pension but after 5 years' service will be eligible for the cash payment on retirement at age 60 or more, or for a short service gratuity if permanent incapacity supervenes, or for a death gratuity, or, if none of these benefits is payable, will receive back their contributions with 2½% compound interest.

There is one further point—immediately on entering the Service a practitioner is eligible for an injury pension in the event of permanent incapacity through accident or injury sustained while on duty and attributable to the nature of his work.

#### General

This is a bird's-eye view of the remuneration position as it stands to day. As developments occur, the profession will be kept in touch with the changing position through the columns of the *British Medical Journal*. A great deal of work has been done and is being done on behalf of the profession by those whose heavy responsibility it is to represent them. I recognize the need to keep the profession more fully informed of what is going on, and this letter is intended to be a step in that direction.

CHARLES HILL  
Secretary

#### CLAIMS FOR COMPENSATION

Practitioners are reminded that except where delay is unavoidable the form of application for compensation must be completed by the applicant and delivered or sent by post to the Minister on or before Oct 31, 1948.

#### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar  
*Non County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton le Spring, Huyton-with Roby, Redditch (restricted to new appointments) Tyldesley

## Correspondence

### Relation with Executive Councils

SIR—In the *Supplement* of Oct 9 (p 134) there appeared letters by Drs Hugh M Tucker and D Gwyn Jones respectively which seem to suggest that the Crown or the local executive council can be regarded as the employers of practitioners engaged in the provision of general medical services for the insured population. The statement issued by the Ministry of National Insurance to the effect that doctors in private practice or on the lists of executive councils were self-employed persons is challenged, and, what is equally important, the observation is made by one writer that practitioners in public practice are employed by the Crown and are responsible to the Crown or the Ministers thereof for any mistakes they may make in the carrying out of their duties. This assertion is not strictly correct when one has regard to the legal relationship subsisting between a practitioner on the list of an executive council and the executive council concerned. Such practitioners should be regarded, as their counterparts were regarded under the National Health Insurance Acts, as contractors, they are not employed under a 'contract of service' but presumably under a 'contract for services' to those persons who choose to avail themselves of these services by following the administrative procedure laid down under the regulations.

There is a danger that some readers might assume from the observations of your correspondents that their medico-legal liabilities will be shouldered by the State, and that the interests of the State and of the practitioners in such matters will run on parallel lines. Nothing could be further from the truth, since it can be asserted without fear of contradiction that claimants can still and will look to practitioners for compensation for injuries sustained as a result of some act or omission arising in the course of the conduct of their professional duties. It is possible that on occasion the Crown may also be involved, but that will not of itself release the practitioners from their personal legal liabilities.

Furthermore, the Crown and its legal advisers may on occasion adopt a line of action in handling a claim by a patient or his relatives based on alleged negligence which will operate to the professional disadvantage of the practitioner concerned. It is therefore necessary more than ever that practitioners should continue to protect themselves against legal claims by remaining members, or applying for membership, of a reputable defence organization from which they can obtain independent medico-legal advice and protection. It is contemplated that in future practitioners will find it increasingly necessary to look to their defence organizations for legal advice, protection, and intervention on matters affecting their professional wellbeing—I am, etc

Medical Defence Union

ROBERT FORBES,  
Secretary

### Simple Issues

SIR—Before we acquire a new set of conditioned reflexes and learn to kowtow three times as each new regulation drops on our breakfast tables cannot we decide just where we stand over one or two simple issues? The campaign against private practice rests on the belief that all men are equal. Who are we to say that the appendicitis of a beer-sodden tramp is as important as that of an FRS? A decent society pays more money to its most valuable citizens precisely that when they are ill they can pay for privacy, medical priority, extra care, and comfort. If this is true, we should fight for the rights of the private patient, if untrue, let the busy politician, scientist, poet, or managing director wait his turn with the charlady. But do let us make our minds up about it.

Again is a doctor's duty to his patients or to the administrative machine? Are we to see that Bill Jones gets well or that he gets his cash pay? If we are to have our time free for doing the administration simply must cut its demands for form-filling to what we not Whitehall regard as a minimum. If the National Insurance Act is more important than the National Health Service Act let us be told so, so that we know where we are.

Lastly, health centres are an idea of co-operation as well as a blue-print of a building. Buildings may have to be deferred but co-operation could begin now. It would begin if each afternoon I could ring up the office for my district and say, "Please get Bill Smith into hospital for appendicitis, arrange a barium meal for Mrs Thomas, send someone to collect a specimen for the lab from my surgery, find out how Elsie Spinks is in the mental hospital, and get the district nurse to visit old Tom Jones," and know that all those things would be done without more bother on my part. It could be improved if school clinics and antenatal clinics sent me regular reports on such of my patients as they see. There are many ways in which a really keen administration could actively help doctors now in the health centre spirit without waiting for the bricks and mortar—I am, etc,

Ashtead Surrey

W EDWARDS

### Implementation of Spens Report

SIR—There is little doubt that all general practitioners, with the possible exception of those in congested industrial areas will suffer a diminished gross and net income as a result of the inadequate capitation fee. In addition to this it is common knowledge that work has increased. The increase arises from two sources: first, the increase in the number of items of service given to women and children, secondly the increased attendance by former insured persons for ophthalmic and other services. This second group is likely to diminish, but the first will increase still further as time goes on.

One hears with distress of cases where doctors are having seriously to consider taking their children away from public schools of having to cut out "extras," of not being able to send their second and third sons to the same school as their first on account of reduced incomes. This is not due to decreased popularity of the doctors, for they are working harder than ever. These doctors are the salt of the earth as far as general practice is concerned. At the same time it is generally known that it has been laid down by the Minister that staffs of insurance committees and hospitals absorbed into the new service should be no worse off in the new than the old regime.

That the Minister confidently anticipates that the work will increase is obvious from his statement that he expects the prescription rate to be in the region of 150,000,000 per annum. This in my view is a low estimate.

That the general practitioner, who after all is the mainstay of the Service without whose co-operation it cannot exist, is to be the worst hit financially is entirely unjust. The same principle should apply—namely that he shall at least be no worse off under the new Service than the old. This principle was the basis of the Spens Report. It should be implemented forthwith and not at a later date. This is an issue on which we can unite much more readily than on the seven principles. Let this year's conference of local medical committees make it quite clear that we went into this Service on the understanding that the Spens Report would be fully implemented and that we can come out of it if it is not—I am, etc,

Solihull Warwickshire

ARTHUR BEAUCHAMP

### Obstetric Committees

SIR—It has been for some years an accepted principle that the district midwife should be able when necessary to secure the services of a general practitioner with special knowledge of midwifery. The Midwives Act of 1936 made special provision for the setting up of panels of practitioners skilled in obstetrics, but for reasons no longer of interest no action was taken by the local health officers, and this section of the Act remained inoperative. Within recent years the necessity for a special panel of doctors to support the district midwife has been stressed by the Royal College of Obstetricians in their admirable pamphlet *A National Maternity Service*. It was therefore a relief to find that such a panel of obstetric practitioners was specially mentioned and provided for in recent legislation.

Obstetric committees, set up for the purpose of selecting practitioners skilled and experienced in midwifery, are evidently finding the task a most difficult one, but I submit, Sir, that the solution is not to be found by the admission *en bloc* of all practitioners in a given area. This procedure will defeat the entire purpose of this section of the Health Act and render it

I am persuaded, Sir, that steps can and must be taken to obviate this debacle which threatens the efficiency of the maternity services of the country at the very moment of their inception—I am, etc.,  
WILLIAM J. CLANCY,  
Sheffield  
Obstetric Officer and Deputy Medical Superintendent

### Prescribing in NHS

SIR—Dr M. Lichtenstein (*Supplement* Sept 11, p 121) complains of yet another pad of forms (EC 10A) to clutter up his desk. To be issued soon, it will enable practitioners in Scotland to prescribe for themselves, without restriction, any drugs or appliances which they may need to stock or restock their surgeries and bags. Although Dr Lichtenstein's point is clear it is a little ironical that he should pick on this particular form for his complaint, since it is one with which we weaker brethren south of the Border are not to be entrusted at all. Instead we are offered 2s 6d per 100 patients per annum, a sum which I calculate will barely cover the cost of roller bandages used in the surgery.

One presumes that this niggardly arrangement is intended to prevent the subsidizing of private practice by the State. But, Sir, has private practice been entirely eliminated in Scotland? If not, why this difference in the regulations? The insinuation against the practitioners of England and Wales is unpleasant—I am, etc.

Billinghurst Sussex

L. C. BOUSFIELD

### POINTS FROM LETTERS

#### Finding Employment

Dr MARTIN LUDLAM (Edinburgh) writes: We were told by our elders and betters that the Health Service was all but unworkable because of the lack of medical men. So far, however, the Service seems to manage fairly well and be economical in its requirements. The winter may tell a different story. Some of us can be excused for feeling that the B.M.A. and others were too much concerned with 'principles,' which often savoured of mere prejudice or propaganda and not enough with good honest self-interest. Time and time again we were warned of the power of the Minister, and on paper he has much, but in practice we may well find that it is the quality, efficiency, and attitude of the local committees that will mould the future of general medical practice. Power will be with them, particularly the medical committees. It is from them that the young medical is likely to meet opposition. The young medical writing to all the executive councils from Haddington to Humber, from Perth to Lancashire, is likely to receive neither hope nor counsel nor encouragement. A sympathetic reply is occasionally received from a clerk with some human feeling. Sometimes you get no reply at all. And for those with wife and family like myself there are other serious considerations. There comes a time when, apart from other considerations, family separation necessitated by a life of assistantships and locums becomes intolerable. Hope, faith, some capital, and permission to squint at the moment offer something. But I fear both hope and faith and capital will have much decreased before permission or otherwise comes through. We have so far only touched the problem and that in only very general terms. I would, however, suggest to the would-be squatter that, having found out the size of the population and the number of doctors practising in that area, he should be bold and resolute, and that he should use his common sense, that if good accommodation comes on the market he should not delay in obtaining it, that if local executive councils consider his application adversely he should not be unduly influenced, that medical practice committees and lay members of other committees are likely to be on his side, that local medical committees will be against him. He should also realize that when a doctor dies or retires his practice is not automatically advertised and that his panel list is likely to be quickly swallowed by others already in the locality.

#### Standard Size for Filing

Dr W. S. SYKES (Morley, Yorks) writes: Let us have a standardized pocket sized loose leaf system. A pocket binding case could contain a loose-leaf formulary (for easy correction and revision) and will also hold lists of hospital staffs and time-tables of out patients, addresses and telephone numbers of local hospitals, etc. Another file on the desk could contain the rest, not likely to be needed when visiting. Rigid standardization of size is necessary so that leaves from many different sources and areas may all fit.

#### Raise Capitation Fee

Dr WILLIAM H. SCOTT EASTON (Frinton-on-Sea) writes: Instead of appealing to patients to forgo their rights the B.M.A. should remove the cause of the threatened winter avalanche by negotiating the raising of the capitation fee to a level which would enable the doctors to make a living without taking excessive numbers on to their State lists.

## Association Notices

### SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award.

1 The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research and record in general practice, it includes a money award of the value of 50 guineas.

2 Any member of the Association who is engaged in general practice is eligible to compete for the prize.

3 The work submitted must include personal observations and experiences collected by the candidate in general practice and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.

4 Essays, or whatever form the candidate desires his work to take must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec 31, 1948. The prize will be awarded at the Annual General Meeting of the Association to be held in 1949.

5 No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize.

6 If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final.

7 Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

8 The writer of the essay to whom the prize is awarded may on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association.

9 Inquiries relative to the prize should be addressed to the Secretary.

### RECONSTITUTION OF ASSAM AND NORTHERN BENGAL BRANCH

The Assam and Northern Bengal Branch, together with the Assam Valley, Northern Bengal and Dooars, and Surma Valley and Chittagong Divisions, have now been reconstituted into two Branches with the following designations: Assam Branch and Northern Bengal and Dooars Branch.

The change comes into effect as from the date of publication of this notice.

CHARLES HILL,  
Secretary

### Diary of Central Meetings

OCTOBER

27 Wed Council, 10 a.m.

#### Branch and Division Meetings to be Held

EDINBURGH AND SOUTH EAST OF SCOTLAND BRANCH—Tuesday Oct 26 8.30 p.m. B.M.A. Lecture by Dr E. Arnold Carmichael: "Recurrent Lapses in Consciousness: Some Points in Diagnosis and Treatment."

MID HERTS DIVISION—At Cell Barnes Recreation Hall Friday Oct 22, 8.45 p.m. Annual general meeting. Election of officers for 1948-9 etc.

MONMOUTHSHIRE DIVISION—At Royal Gwent Hospital Newport, Mon, Thursday Oct 28.

SOUTH ESSEX DIVISION—At Tilbury Hospital Friday Oct 23 9 p.m. Mr A. M. A. Moore: "Surgical Anatomy in General Practice."

TUNBRIDGE WELLS DIVISION—Week-end refresher course Saturday Oct 23, and Sunday, Oct 24. Dinner at Beau Nash Club 7 p.m. Pantiles, Tunbridge Wells, at 7.45 for 8 p.m. Sir Herbert Easton, president of the General Medical Council, will speak at the dinner at 9 p.m. and not at the Kent and Sussex Hospital at 8.30 p.m. as previously announced.

# BRITISH MEDICAL JOURNAL

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## STREPTOMYCIN TREATMENT OF PULMONARY TUBERCULOSIS A MEDICAL RESEARCH COUNCIL INVESTIGATION

The following gives the short-term results of a controlled investigation into the effects of streptomycin on one type of pulmonary tuberculosis. The inquiry was planned and directed by the Streptomycin in Tuberculosis Trials Committee, composed of the following members: Dr Geoffrey Marshall (chairman), Professor J W S Blacklock, Professor C Cameron, Professor N B Capon, Dr R Cruickshank, Professor J H Gaddum, Dr F R G Heaf, Professor A Bradford Hill, Dr L E Houghton, Dr J Clifford Hovle, Professor H Raistrick, Dr J G Scadding, Professor W H Tytler, Professor G S Wilson, and Dr P D Arcy Hart (secretary). The centres at which the work was carried out and the specialists in charge of patients and pathological work were as follows:

*Brompton Hospital London*—Clinician Dr J W Crofton, Streptomycin Registrar (working under the direction of the honorary staff of Brompton Hospital) Pathologists Dr J W Clegg Dr D A Mitchison  
*Colindale Hospital (LCC) London*—Clinicians Dr J V Hurford Dr B J Douglas Smith Dr W E Snell Pathologists (Central Public Health Laboratory) Dr G B Forbes, Dr H D Holt  
*Harefield Hospital (MCC) Harefield Middlesex*—Clinicians Dr R H Brent, Dr L E Houghton, Pathologist Dr E Nassau

*Bangour Hospital Bangour West Lothian*—Clinician Dr I D Ross, Pathologist Dr Isabella Purdie  
*Killingbeck Hospital and Sanatorium Leeds*—Clinicians Dr W Santon Gilmour, Dr A M Rieve Pathologist Professor J W McLeod  
*Northern Hospital (LCC), Wychmore Hill London*—Clinicians Dr F A Nash Dr R Shoulman, Pathologists Dr J M Alston Dr A Mohun  
*Sully Hospital Sully Glam*—Clinicians Dr D M E Thomas Dr L R West Pathologist Professor W H Tytler

The clinicians of the centres met periodically as a working subcommittee under the chairmanship of Dr Geoffrey Marshall, so also did the pathologists under the chairmanship of Dr R Cruickshank. Dr Marc Daniels, of the Council's scientific staff, was responsible for the clinical co-ordination of the trials, and he also prepared the report for the Committee, with assistance from Dr D A Mitchison on the analysis of laboratory results. For the purpose of final analysis the radiological findings were assessed by a panel composed of Dr L G Blair, Dr Peter Kerley, and Dr Geoffrey S Todd.

### Introduction

When a special committee of the Medical Research Council undertook in September, 1946, to plan clinical trials of streptomycin in tuberculosis the main problem faced was that of investigating the effect of the drug in pulmonary tuberculosis. This antibiotic had been discovered two years previously by Waksman (Schatz, Bugie, and Waksman 1944), in the intervening period its power of inhibiting tubercle bacilli *in vitro*, and the results of treatment in experimental tuberculous infection in guinea-pigs, had been reported, these results were strikingly better than those with any previous chemotherapeutic agent in tuberculosis. Preliminary results of trials in clinical tuberculosis had been published (Hinshaw and Feldman, 1945, Hinshaw, Feldman, and Pfuete, 1946, Keefer *et al*, 1946), the clinical results in pulmonary tuberculosis were encouraging but inconclusive.

The natural course of pulmonary tuberculosis is in fact so variable and unpredictable that evidence of improvement or cure following the use of a new drug in a few cases cannot be accepted as proof of the effect of that drug. The history of chemotherapeutic trials in tuberculosis is filled with errors due to empirical evaluation of drugs (Hart, 1946), the exaggerated claims made for gold treatment, persisting over 15 years, provide a spectacular example. It had become obvious that, in future, conclusions regarding the clinical effect of a new chemotherapeutic agent in tuberculosis could be considered valid only

if based on adequately controlled clinical trials (Hinshaw and Feldman, 1944). The one controlled trial of gold treatment (and the only report of an adequately controlled trial in tuberculosis we have been able to find in the literature) reported negative therapeutic results (Amberson McMahon and Pinner, 1931). In 1946 no controlled trial of streptomycin in pulmonary tuberculosis had been undertaken in the USA. The Committee of the Medical Research Council decided then that a part of the small supply of streptomycin allocated to it for research purposes would be best employed in a rigorously planned investigation with concurrent controls.

The many difficulties of planning and conducting a trial of this nature are important enough to warrant a full description here of the methods of the investigation.

### Plan and Conduct of the Trial

#### Type of Case

A first prerequisite was that all patients in the trial should have a similar type of disease. To avoid having to make allowances for the effect of forms of therapy other than bed-rest, the type of disease was to be one not suitable for other forms of therapy. The estimated chances of spontaneous regression must be small. On the other hand the type of lesion should be such as to offer some prospect of action by an effective chemotherapeutic agent for this reason old-standing disease and disease with thick-walled



cavities should be excluded. Finally the age group must be reasonably limited, since the total number of patients in the trial could not be large.

Such closely defined features were considered indispensable, for it was realized that no two patients have an identical form of the disease, and it was desired to eliminate as many of the obvious variations as possible. For these several reasons the type of case to be investigated was defined as follows: acute progressive bilateral pulmonary tuberculosis of presumably recent origin, bacteriologically proved, unsuitable for collapse therapy, age group 15 to 25 (later extended to 30).

The selection of this type of disease constituted full justification for having a parallel series of patients treated only by bed-rest, since up to the present this would be considered the only suitable form of treatment for such cases. Additional justification lay in the fact that all the streptomycin available in the country was in any case being used, the rest of the supply being taken up for two rapidly fatal forms of the disease, *miliary and meningeal tuberculosis*.

#### Recruitment and Admission of Cases

Co-operation in the trial was obtained in the first place from Brompton Hospital (drawing on London County Council cases), Colindale Hospital (London County Council), and Harefield County Hospital (Middlesex County Council). The LCC and the MCC gave full co-operation, permitting recruitment of suitable cases from the areas served by them, covering a population of nearly six million persons. Accordingly letters were sent, through the tuberculosis departments of these authorities, to tuberculosis officers and to medical superintendents of general hospitals outlining the proposed trial and asking that particulars and x-ray films of possibly suitable patients be sent to the co-ordinator of the trials for consideration. Visits were paid to the tuberculosis clinics and hospitals to show by representative x-ray films the type of case sought and to explain in detail the nature of the controlled trial. When cases were submitted the clinical particulars and x-ray films were taken to the Committee's selection panel for consideration. When a patient had been accepted as suitable, request was made through the local authority for admission to one of the streptomycin centres, in spite of long waiting-lists these patients were given complete priority, and the majority were admitted within a week of approval.

The first patients to be accepted were admitted to the centres in January 1947. At first the impression was that cases of the type defined are seen often. In fact, such cases are not common. As it became evident after three months that enough cases could not be found in the London and Middlesex areas, other authorities were approached. The Welsh National Memorial Association, the Department of Health for Scotland, and the Leeds Tuberculosis Service made available centres at Sully, Bangour, and Killingbeck, and cases were recruited to those centres from the respective areas. In addition, another centre was opened in the London area, at the Northern Hospital (LCC).

By September, 1947, 109 patients had been accepted, and no more were admitted to this trial. Two patients had died within the preliminary observation week, these are excluded from the analysis. Of the remaining 107 patients 55 had been allocated to the streptomycin group and 52 to the control group.

#### The Control Scheme

Determination of whether a patient would be treated by streptomycin and bed-rest (S case) or by bed-rest alone (C case) was made by reference to a statistical series based on random sampling numbers drawn up for each sex at each centre by Professor Bradford Hill, the details of the

series were unknown to any of the investigators or to the co-ordinator and were contained in a set of sealed envelopes, each bearing on the outside only the name of the hospital and a number. After acceptance of a patient by the panel, and before admission to the streptomycin centre, the appropriate numbered envelope was opened at the central office, the card inside told if the patient was to be an S or a C case, and this information was then given to the medical officer of the centre. Patients were not told before admission that they were to get special treatment. C patients did not know throughout their stay in hospital that they were control patients in a special study, they were in fact treated as they would have been in the past, the sole difference being that they had been admitted to the centre more rapidly than was normal. Usually they were not in the same wards as S patients, but the same regime was maintained.

It was important for the success of the trial that the details of the control scheme should remain confidential. *It is a matter of great credit to the many doctors concerned that this information was not made public throughout the 15 months of the trial, and the Committee is much indebted to them for their co-operation.*

By definition, cases accepted for the trial were unsuitable for collapse therapy, clinicians were therefore asked to adopt collapse therapy only if the course of the disease so changed that some collapse measure became indispensable and urgent. In the S cases collapse therapy was in fact never applied during the four treatment months. It was given to five of the 52 C cases during that period.

#### Observation and Treatment Period

Each patient was to remain in bed at the centre for at least six months, and the results were to be assessed on the clinical status at the end of that period. In addition to the usual hospital records, clinical observations were entered on standard record forms designed particularly for this trial, these forms provided for details of history, criteria of acceptance, examination on admission, monthly routine re-examinations with assessment of progress since last examination, observation of toxic reactions, temperature and treatment records, and finally a pathological record form. Instructions on required frequency of examinations were given.

Clinicians and pathologists' meetings were held during the trials to discuss the work as it proceeded. The co-ordinator visited centres and was constantly in touch with the clinicians concerned to discuss the progress of the trial and the problems arising. The working subcommittee of pathologists established the technical laboratory procedures, discussed the findings at intervals, and arranged for independent checking of sensitivity tests of tubercle bacilli and streptomycin levels in the blood.

#### Analysis of Results

The general trend of results during the course of the trial was followed through the monthly reports from the centres. The analysis of results up to six months after the patient's admission is presented here, it is based on information from the standard record forms completed for each patient and on the x-ray films which have been made available by the hospitals concerned.

The films have been viewed by two radiologists and a clinician, each reading the films independently and not knowing if the films were of C or S cases. One of the radiologists had been attached to a centre taking part in the trial, the other two specialists had not been connected with the trial in any way. There was fair agreement among the three at a final session they met to review and discuss

films on which there had been a difference of interpretation, and agreement was reached without difficulty on all films. The results of radiological assessment presented in the main analyses are the agreed results, but the separate reports and their differences are discussed under the heading 'Changes in Radiological Picture'.

### Condition on Admission

Each patient was under observation at a centre for at least one week before streptomycin treatment or observation proper for the trial started. Data in Table I reflect the condition on admission.

TABLE I—Condition on Admission

General Condition	S Group		Max. Evening Temp. in First Week*	C Group		Sedimentation Rate	C Group	
	S	C		S	C		S	C
Good	9	8	98-98.9° F (36.7-37.15° C)	1	4	0-10	0	0
Fair	17	20	99-99.9° F (37.2-37.75° C)	13	12	11-20	3	2
Poor	30	24	100-100.9° F (37.8-38.25° C)	15	17	21-50	16	20
			101° F (38.3° C)	24	19	51-	16	29
Total	55	52		55	52		55	51†

\* Temperature by mouth in all but six cases. † Examination not done in one case.

Thirty patients (54%) in the S group and 24 (46%) in the C group were in poor general condition at the start of the trial, of these, 20 and 17 respectively were considered to be desperately ill. Twenty-four S patients (44%) and 19 C patients (36%) had during the preliminary observation week maximum evening temperatures of 101° F (38.3° C) or over. In 36 S patients (65%) and 29 C patients (56%) the sedimentation rate (Westergren 200 mm reading at one hour) was over 50.

These data reflect the fairly acute clinical condition of most of the patients, though obviously the clinical picture was far from uniform in the 107 patients admitted to the trial. The data show also that random distribution has equalized the groups, if anything, there are more severe cases in the S group. There were 22 men and 33 women in the S group, 21 men and 31 women in the C group.

### X-ray Classification

All cases conformed more or less to the type defined but within the possible limits of the definition there were wide variations. All films showed opacities representing extensive infiltration of apparently recent origin, where there was room for doubt the length of history was taken into consideration as evidence of the age of the lesions.

It was thought at first that gross cavitation should be excluded, but this view was abandoned, as many otherwise suitable cases had large cavities. Thirty-two of the 55 S cases and 30 of the 52 C cases showed large or multiple cavities in the film taken on admission (tomography was not used as a routine), it must be stressed, however, that from their radiological appearance these seemed to be of recent development and that the lesions predominating in the lungs were bronchopneumonic in type.

In 19 S cases and in 19 C cases there was radiological evidence of segmental atelectasis.

### Treatment

All S patients were given streptomycin\* by the intramuscular route. The dose was 2 g per day, given in four injections at six-hourly intervals. This dosage was adopted

\*The streptomycin used was in the form of the hydrochloride obtained from one American producer. For technical particulars of the product see article in *Lancet* 1948 1, 582.

following exchange of correspondence with Dr H C Hinshaw, of the Mayo Clinic, to whom the Committee is indebted for advice during the planning of the trial.

The original intention was to continue streptomycin treatment for six months. However, reports from observers in the U.S.A., and a growing impression in our own centres, indicated that the maximum effect of streptomycin was reached within the first three or four months, and it was therefore decided in July, 1947, to treat patients for four months only, but to continue observation to the end of six months from admission as for C patients. (One patient was treated with streptomycin for 6 months, 2 for 5½ months, 6 for 5 months, 5 for 4½ months, the remainder, 41 patients were treated for 4 months.)

Patients in both groups were on bed-rest during the period of the trial, and were allowed only up to toilet where the general condition allowed. As already indicated, although patients admitted were considered unsuitable for collapse therapy, it was agreed that when the course of disease had so changed that collapse therapy was strongly indicated such treatment should be given. In 11 C patients collapse measures (artificial pneumoperitoneum with phrenic paralysis in 10 cases, pneumothorax in one) were induced at some time during the six months—three in the third month of observation, two in the fourth month, two in the fifth and four in the last observation month. In seven of the 11 the course of the disease appears not to have been affected, in four there was deterioration before and improvement after induction of artificial pneumoperitoneum. Collapse therapy was induced in 11 S patients during the fifth or sixth month, in all but two the course of the disease was apparently unaltered.

### Results at End of Six Months

Four of the 55 S patients (7%) and 14 of the 52 C patients (27%) died before the end of six months. The difference between the two series is statistically significant; the probability of it occurring by chance is less than one in a hundred.

Assessment of condition at the end of the six-months period should be based on a judicious combination of changes in the radiological picture, changes in general condition, temperature, weight, sedimentation rate and bacillary content of the sputum. We have not attempted a numerical evaluation of the relative importance of each of these, and changes in them will be reported in turn. Appreciation of the clinical effects of the drug have not been lacking in the many reports published within the past two years. So far as possible, the analysis in this report will deal with the more readily measurable data only.

The following preliminary analysis is based on changes in the radiological picture alone, this being in our opinion the most important single factor to consider, it will be seen later that in the great majority of cases clinical and radiological changes followed similar trends.

TABLE II—Assessment of Radiological Appearance at Six Months as Compared with Appearance on Admission

Radiological Assessment	Streptomycin Group		Control Group	
Considerable improvement	28	51%	4	8%
Moderate or slight improvement	10	18%	13	25%
No material change	2	4%	3	6%
Moderate or slight deterioration	5	9%	12	23%
Considerable deterioration	6	11%	6	11%
Deaths	4	7%	14	27%
Total	55	100%	52	100%

The overall results given in Table II (extracted from Table IX) show differences between the two series that leave no room for doubt. The most outstanding difference

is in the numbers who showed "considerable improvement" in the radiological picture—i.e., those for whom at the end of the six-months period there was a reasonable prospect of recovery. Twenty-eight of the S patients (51%) and only four of the C patients (8%) were considerably improved (the probability of such a difference occurring by chance is less than one in a million).

Results in men and women were similar, and need not be tabulated here. There was a higher mortality among males in both S and C groups, two of 22 male S patients died and eight of 21 male C patients, compared with two of 33 female S patients and six of 31 female C patients, but the difference is not significant.

### Results Related to Condition on Admission

The next point to be considered is whether the prognosis was worse in those most acutely ill, and whether the difference between the S and C groups applies to the less or more acutely ill patients.

#### Temperature

TABLE III—Results at Six Months Related to Temperature on Admission

Max Evening Temp during First Observation Week		Radiological Assessment at 6 Months			Deaths	Total
		Improvement	No Change	Deterioration		
98-98.9° F (36.7-37.15° C)	{S C}	3 3	0 1	0 0	0 0	3 4
99-99.9° F (37.2-37.75° C)	{S C}	9 7	1 2	3 2	0 1	13 12
100-100.9° F (37.8-38.25° C)	{S C}	13 5	0 0	2 7	0 5	15 17
101° F (38.3° C) +	{S C}	13 2	1 0	6 9	4 8	24 19

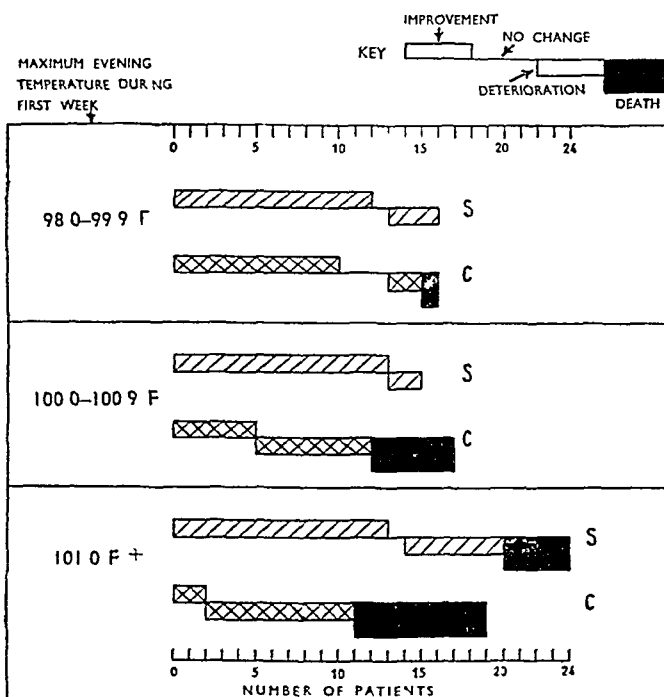


CHART I—Results at six months (radiological assessment) related to temperature on admission

The results in Table III, represented graphically in Chart I, show first what was to be expected—viz., in both groups the most grave prognosis was in the patients most febrile on admission. Indeed, in the S group the only deaths

were in patients who had on admission evening temperature of 101° F (38.3° C) or over. A second, more important point that emerges is that the superiority of results in the S group as a whole over the C group is almost entirely accounted for by the most febrile patients. Only seven (19%) of 36 C patients with a temperature of 100° F (37.8° C) or over were improved at the end of six months, compared with 26 (67%) of 39 S patients. Further analysis reveals that eight of the 24 S patients with a temperature of 101° or over showed considerable improvement, and none of the 19 C patients. In less febrile and in afebrile patients there is little difference in results between the two groups, though analysis shows that the number showing considerable improvement was greater in the S group.

### Sedimentation Rate (ESR)

Relation of results to the ESR on admission shows the same trends. Of patients with an ESR not higher than 50, 13 (68%) of 19 S patients were improved, compared with nine (41%) of 22 C patients. Eighteen (50%) of 36 S patients with ESR over 50 were improved, compared with seven (24%) of 29 C patients.

### Radiological Assessment on Admission

TABLE IV—Radiological Assessment at Six Months Related to Presence or Absence of Gross Cavitation on Admission

X Ray on Admission	Group	Total Cases	Radiological Assessment at 6 Months					Deaths
			Improvement		No Change	Deterioration		
			Con siderable	Slight or Moderate		Slight or Moderate	Con siderable	
Cases with large or multiple cavities	{ S C	32	11	7	2	4	4	4
		30	1	8	2	6	2	11
Other cases	{ S C	23	17	3	0	1	2	0
		22	3	5	1	6	4	3

The data in Table IV show that in both S and C groups the results were better where there was no gross cavitation on admission. In the S cases with no gross cavitation the results were outstandingly good with no deaths and 17 of 23 patients showing considerable improvement.

### Clinical Changes During Period of Trial

#### General Condition

Assessment of changes in general condition is based on a combination of clinical facts, clinician's general impression, and patient's feeling of well- or ill-being. As such it is mentioned only briefly here. At four months after admission the general condition had improved in 40 (73%) of the 55 S patients, compared with 26 (50%) of 52 C patients. Only seven (13%) S patients were worse, whereas 10 (19%) C patients had died and another 13 (25%) were worse than on admission. At six months after admission the difference between the two groups was less, in 33 (60%) S patients and in 24 (46%) C patients the general condition was better than on admission. 13 S patients (24%) were worse and four others (7%) had died, 12 C patients (23%) were worse and 14 others (27%) had died.

#### Temperature

Three S patients and four C patients were afebrile on admission to the trial. The three S patients remained afebrile throughout, with the exception of a short slight pyrexial episode in one case. Two of the four C patients remained afebrile throughout, the other two had occasional low pyrexia, and one was still pyrexial at the end of the six

MEDICAL RESEARCH COUNCIL STREPTOMYCIN TREATMENT OF PULMONARY TUBERCULOSIS  
CASES DEMONSTRATING "CONSIDERABLE IMPROVEMENT"



FIG 1—Case 69 (S) May 12, 1947

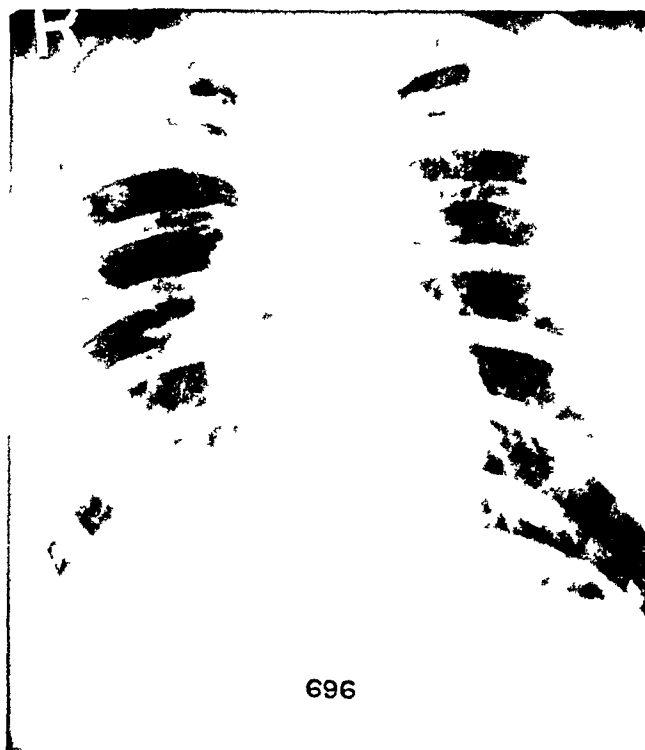


FIG 2—Case 69 (S) Nov 17 1947



FIG 3—Case 90 (S) April 26, 1947

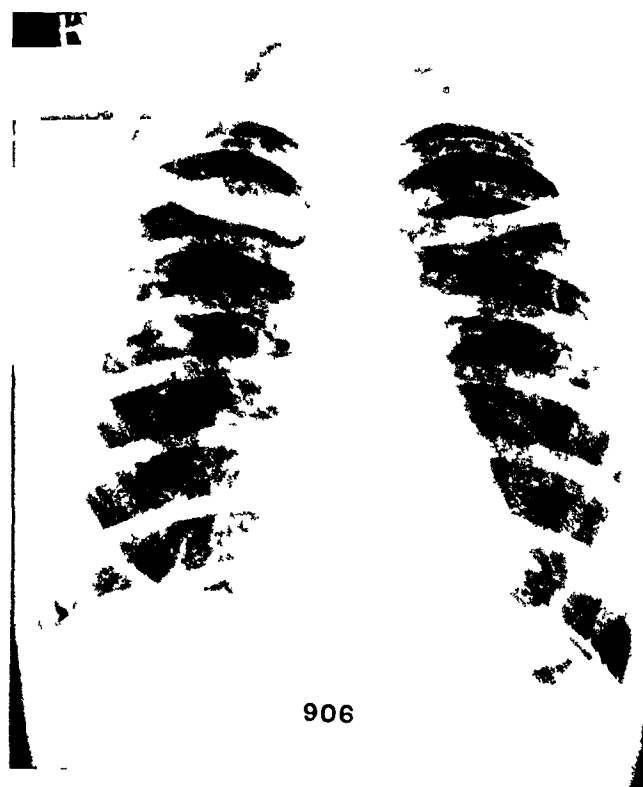


FIG 4—Case 90 (S) Nov 5 1947

MEDICAL RESEARCH COUNCIL STREPTOMYCIN TREATMENT OF PULMONARY TUBERCULOSIS  
CASES DEMONSTRATING "CONSIDERABLE IMPROVEMENT"



FIG 5—Case 39 (S) June 21, 1947

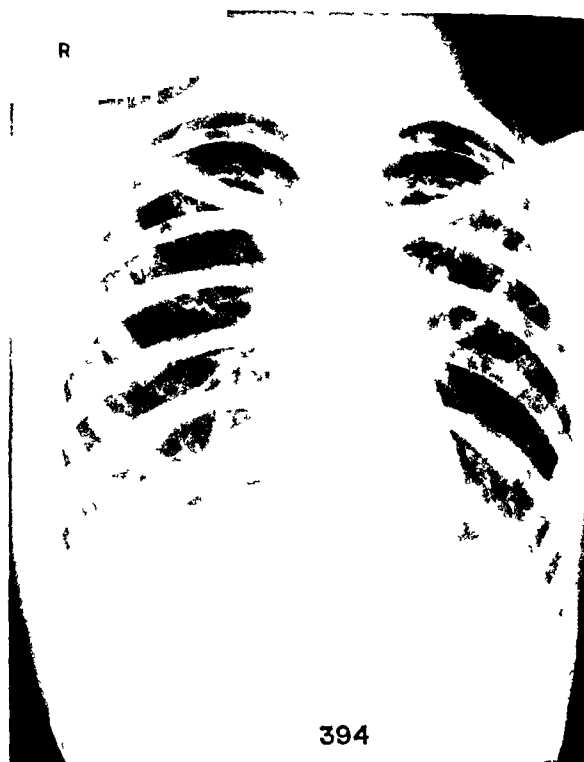


FIG 6—Case 39 (S) Oct 20 1947

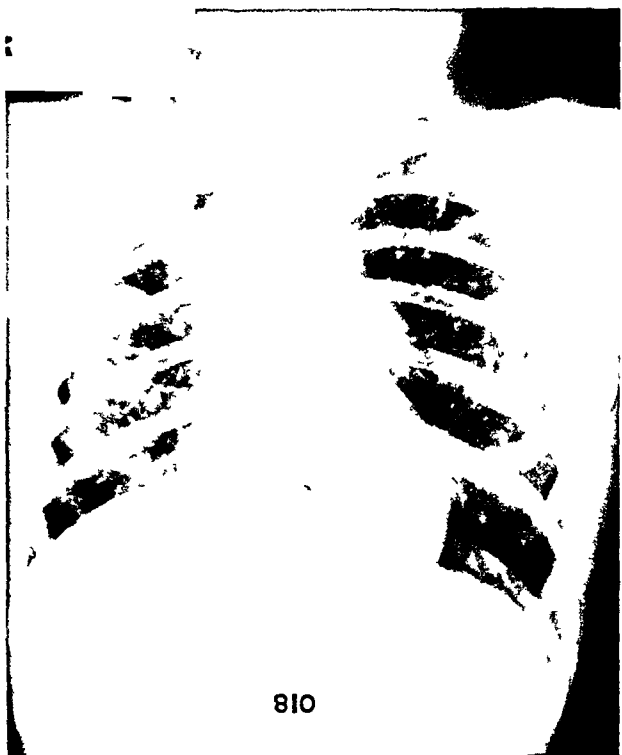


FIG 7—Case 81 (C) Feb 27, 1947

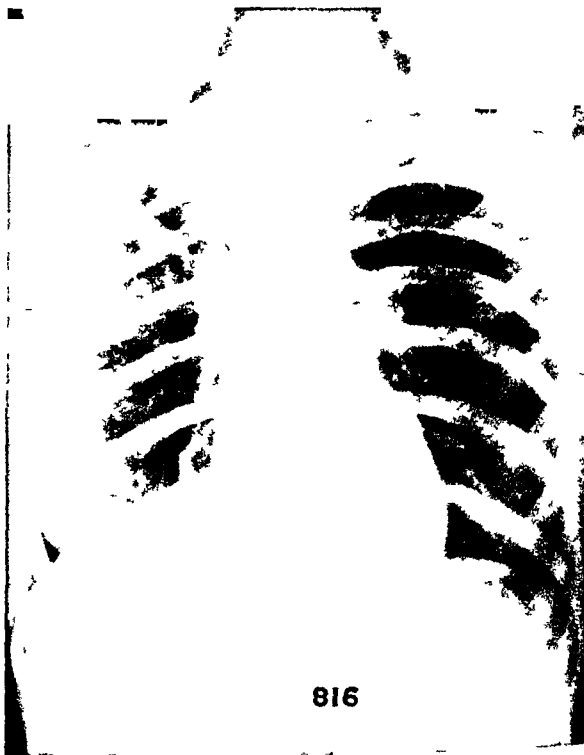


FIG 8—Case 81 (C) Aug 27 1947

MEDICAL RESEARCH COUNCIL STREPTOMYCIN TREATMENT OF PULMONARY TUBERCULOSIS  
CASES DEMONSTRATING "MODERATE IMPROVEMENT"

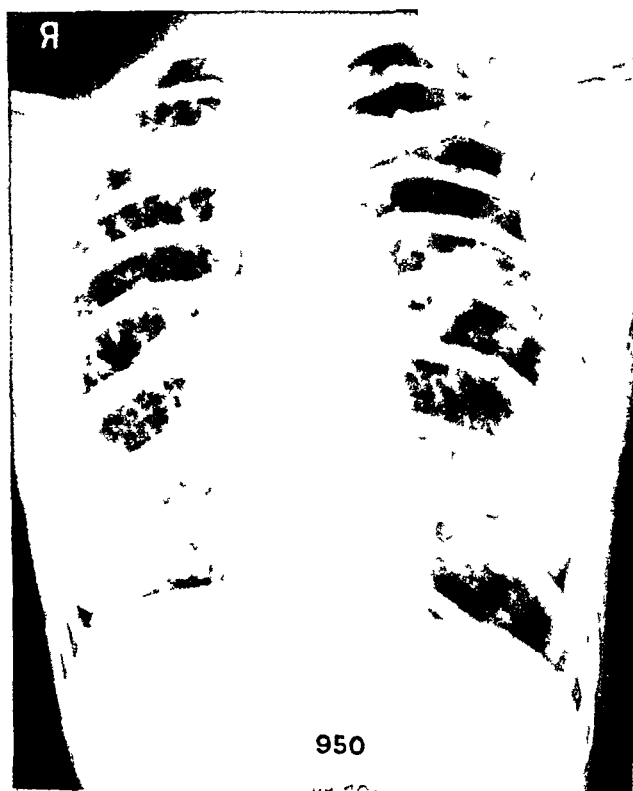


FIG 9—Case 95 (S) May 21 1947



FIG 10—Case 95 (S) Nov 21, 1947

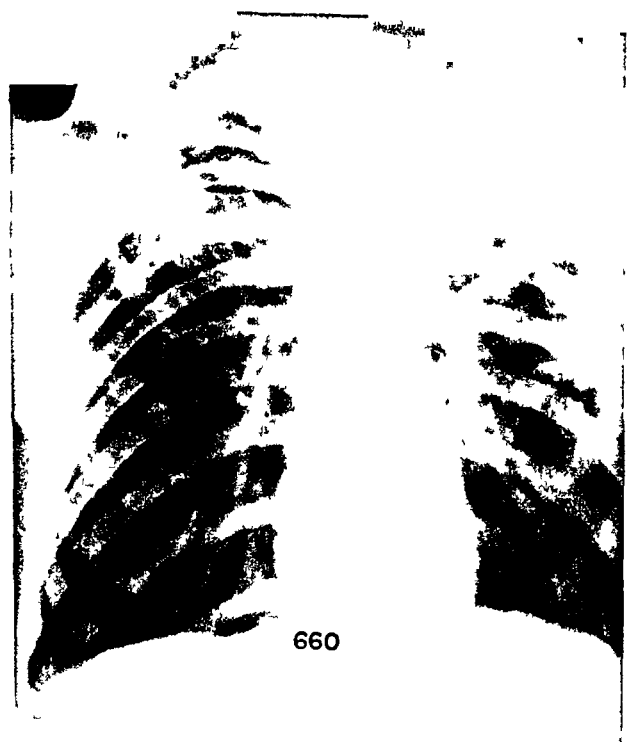


FIG 11—Case 66 (C) April 11, 1947



FIG 12—Case 66 (C) Oct 15, 1947



MEDICAL RESEARCH COUNCIL STREPTOMYCIN TREATMENT OF PULMONARY TUBERCULOSIS  
S CASES IMPROVEMENT AND SUBSEQUENT DETERIORATION



FIG 13—Case 46 Jan 30, 1947



FIG 14—Case 46 March 26 1947



FIG 15—Case 46 May 23 1947



FIG 16—Case 46 July 21 1947



FIG 17—Case 1 June 2 1947



FIG 18—Case 1 July 25 1947



FIG 19—Case 1 Sept 29 1947



FIG 20—Case 1 Nov 21 1947

months Temperature changes in the febrile patients at two months, four months, and six months after admission are shown in Table V

TABLE V—Temperature Changes in Patients Febrile on Admission

Highest Evening Temp During Week following Admission	Group	Total	No. of Patients whose Temperature was Normal at end of			No. of Patients Showing Temp Fall (including Fall to Normal) at end of		
			2 Mos	4 Mos	6 Mos	2 Mos	4 Mos	6 Mos
101° F (38.3° C) or over	{S C}	24 19	1 0	5 2	6 3	15 7	14 6	11 8
99–100.9° F (37.2–38.25° C)	{S C}	28 28	8 5	15 10	18 10	12 10	19 11	24 12

\* Temperature for one C case not available

The difference between S and C series at any one point of time is not statistically significant, but appears at every stage—i.e., at every stage more S patients than C patients show a temperature drop to normal or to a degree of pyrexia lower than that on admission. A common effect of streptomycin not obvious in the above simplified presentation of data is a rapid temperature drop in the first weeks of therapy, followed sometimes by a rise to a level usually lower than the level on admission. Among the less acutely febrile patients (temperature 99–100.9° F, 37.2–38.25° C) an increasing number of S cases show falling temperature, at six months 18 of the 28 were apyrexial and six others had temperatures lower than on admission, 10 of 28 similar C cases were apyrexial and two others had temperatures lower than on admission.

There is thus a consistent difference between S and C groups. It is important to note, however, that in 20 of 47 febrile patients treated by bed-rest without streptomycin the temperature was lower at the end of six months than on admission, in 13 of the 20 it was within normal limits. For the type of lesions selected, these results serve to emphasize both the value of prolonged bed-rest and the need of controls in an investigation of this type.

In seven of the 13 C patients with normal temperature at the end of six months an artificial pneumoperitoneum had been induced at some time during the trial, but in every case the temperature had come down to normal previous to the induction of artificial pneumoperitoneum. The temperature fall in the C patients can be attributed to the effect of bed-rest alone.

TABLE VI—Weight Changes

In the first four months 20 S patients had gained weight (5 lb—2.27 kg—or more), with a total weight gain between them of 253 lb (114.76 kg), mean 12.6 lb (5.71 kg). The weight gains in the C group are very similar. 20 patients gained weight, with a total gain of 255 lb (115.67 kg), mean 12.7 lb (5.76 kg). At the end of six months 24 S patients had gained weight, with a total gain of 451 lb (204.57 kg), mean 18.8 lb (8.53 kg). Eighteen C patients had gained weight, with a total gain of 313 lb (141.97 kg), mean 17.4 lb (7.89 kg).

TABLE VI—Weight Changes

Weight Changes	4 Months After Admission		6 Months After Admission	
	S	C	S	C
14 lb (6.35 kg) or more gain	8	6	19	12
5–13 lb (2.27–5.89 kg) gain	12	14	5	6
Less than 5 lb (2.27 kg) gain or loss	15	9	12	10
5 lb (2.27 kg) or more loss	13	7	11	5
Deaths	0	10	4	14
Total*	48	46	51	47

\* Information not available for all cases some patients too ill to be weighed

These facts reveal, first, that many patients with a severe form of tuberculosis gained weight on treatment by bed-rest alone, indeed, 12 at the end of six months had gained a stone (6.35 kg) or more in weight. Secondly, the weight gains in the S group in the first four months were no greater than in the C group, and therefore do not reflect the important improvement observed in other respects, on the other hand, there was more weight gain in the last two months—i.e., after treatment had stopped. It is certain that some patients failed to gain weight, or gained little weight, during the course of streptomycin treatment, and this may be at least partly ascribed to the gastric disturbances, which were severe in a few cases and in others were mild but sufficient to reduce appetite and retard weight gain.

#### Menstruation

In 10 of 32 female S patients and in 12 of 31 female C patients menstruation was normal on admission and remained normal. In nine S patients and 12 C patients amenorrhoea persisted throughout. In 11 S patients and seven C patients menstruation appeared at some time during observation and remained normal subsequently, in addition two S patients had a temporary return of menstruation.

#### Sedimentation Rate

TABLE VII—Sedimentation Rate

ESR	Group	On Admission	At 2 Months	At 4 Months	At 6 Months
0–10	{S C}	0 0	0 1	6 2	17 4
11–50	{S C}	19 22	31 10	23 15	17 18
51+	{S C}	36 29	24 37	26 23	15 14
Deaths	{S C}	— —	0 2	0 10	4 14
Total*	{S C}	55 51	55 50	55 50	53 50

\* Totals do not correspond in all columns as results were not available in all cases

The data in Table VII show two main differences between groups S and C. If one takes into account the patients who died, in the C group the number of patients with a very high sedimentation rate (over 50) was never reduced, in the S group the number fell from 36 to 19 (including four deaths). Secondly, at six months in only four C patients had the ESR fallen to within normal limits, in the S group the corresponding number was 17.

#### Changes in Radiological Picture During Period of Trial

After the close of the trial the chest radiographs of all patients were viewed, and changes assessed, by the three members of the radiological panel working separately. They were not told whether films were of patients from S or C series. Radiographs of each patient had been taken on admission and at monthly intervals subsequently. It was decided to make as simple an assessment as possible, reviewing progress at two-monthly intervals, each two-monthly film being compared with the film taken two months previously and with the initial film. Thus the comparisons on which report was requested were 0 with 2 (initial film with film two months after admission), 2 with 4, 0 with 4, 4 with 6, and 0 with 6. Assessments were required to fall under one of the five headings "considerable improvement," "moderate or slight improvement," "no change," "moderate or slight deterioration," "considerable deterioration." A report "no change" might signify no appreciable change in the radiological picture or improvement in one part of the lung offset by deterioration in another.

So simple a classification invited difficulties, and these were soon evident. How should atelectasis be classified? Some films showed considerable clearing of infiltration concurrently with enlargement of cavities—radiologically they were both better and worse. The analysis in Table VIII shows the separate results of readings by the three assessors. Two most important readings have been chosen for this analysis: 0 with 4 (comparison of initial film with film four months after admission) and 4 with 6.

TABLE VIII—Comparison of Radiological Assessments by Three Assessors

Interval	Group	Total Cases	Assessor	Radiological Assessment				
				Improvement		No Change	Deterioration	
				Con- siderable	Slight or Mod		Slight or Mod	Con- siderable
Admission to end of 4th month	S	55	X Y Z	18 27 27	24 17 15	4 3 1	5 4 6	4 4 6
	C	42	X Y Z	0 2 3	11 10 8	4 11 8	18 10 15	9 9 8
End of 4th month to end of 6th month	S	51	X Y Z	2 5 3	17 18 12	11 10 11	15 8 19	6 10 6
	C	38	X Y Z	0 2 1	11 9 10	18 19 11	7 5 14	2 3 2

It can be seen from Table VIII that there was some disagreement among the three members of the panel, but the outstanding differences between results in S and C groups remain unaffected.

Where reports were identical they were adopted as the final agreed report. Where the reports on a case by the three members fell in two adjoining columns of the classification (e.g., "considerable improvement" and "slight or moderate improvement") the majority of two was taken as the final agreed report. In all other cases there was held to be disagreement. Thus in the comparisons between radiograph on admission and radiograph at four months there was agreement in 76 cases and disagreement in 21. In the comparisons between radiographs at four months and at six months there was agreement in 75 cases and disagreement in 14.

At a final session the three members of the radiological panel met for discussion and review of films on which there had been disagreement. After a short discussion it was agreed that changes in the prognosis for the patient should be taken as the base-line of assessment. In a comparison of two radiographs of a patient the question should be, judging from these films alone, Has the outlook for the patient become better or worse? On this basis the films in question were reviewed, and agreement was reached on all of them. The analysis which follows is based on the agreed results. The overall results under the five different headings are given for each of the three assessments 0 with 0, 0 4, and 0 6 in Table IX and Chart II, and for each of the three assessments 0 2, 2 4, 4 6 in Table X and Charts III and IV.

It is evident that at every stage there is between the two groups a great difference in the course of the disease.

At two months 76% of S patients showed radiological improvement, and in 14% the improvement was considerable, only 6% of C patients were improved, and in none was the improvement considerable. Of C patients 4% had died and another 38% were worse than on admission, 11% of S patients were worse, and none had died.

From the end of the second month to the end of the fourth month the proportion of S patients who improved (65%) was slightly lower than in the first two months, the corresponding proportion of C patients (18%) was higher, but the difference between the two groups is marked. Considering the overall change in the first four months, 78% of S patients were improved and only 21% of C patients, in none of the latter and in 45% of S patients the improvement was considerable. Of C patients 19% had died and another 42% were worse than on admission, no S patients had died and only 14% had deteriorated.

The proportion of S patients who improved in the fifth and sixth months was again lower than before (34% compared with 65% in the third and fourth months and 76% in the first two months), this can be seen clearly in Charts III and IV. Of S patients 7% died in that period and another 31% deteriorated (the total 38% compares with 20% in the preceding two months and 11% in the first two months).

TABLE IX—Changes in the Radiological Picture

Interval	Group	Total	Radiological Assessment						Deaths
			Improvement		No Change	Deterioration			
			Considerable	Slight or Mod		Slight or Mod	Considerable		
Admission to end of 2nd month	{S C	55 100/ 52 100/	8 14/ 0	34 62/ 3 6%	7 13/ 27 52/	5 9/ 14 27/	1 2/ 6 11/	0 2 4	
Admission to end of 4th month	{S C	55 99/ 52 99/	25 45/ 0	18 33/ 11 21%	4 7/ 9 17/	4 7/ 14 27/	4 7/ 8 18/	0 10 18%	
Admission to end of 6th month	{S C	55 100/ 52 100%	28 51/ 4 8/	10 18/ 13 25/	2 4/ 3 6%	5 9/ 12 23/	6 11/ 6 11%	4 7/ 14 27%	

TABLE X—Changes in the Radiological Picture

Interval	Group	Total	Radiological Assessment						Deaths
			Improvement		No Change	Deterioration			
			Considerable	Slight or Mod		Slight or Mod	Considerable		
Admission to end of 2nd month	{S C	55 100/ 52 100/	8 14/ 0	34 62/ 3 6/	7 13/ 27 52/	5 9/ 14 27/	1 2/ 6 11/	0 2	
End of 2nd month to end of 4th month	{S C	55 100/ 50 100/	6 11/ 0	30 55/ 9 18/	8 15/ 13 26/	8 15/ 16 32/	3 5/ 4 8/	0 8	
End of 4th month to end of 6th month	{S C	55 99/ 42 100%	3 5/ 1 2/	16 29/ 9 21/	15 27/ 17 41/	10 18/ 9 21/	7 13/ 2 5/	4 4	

months), 10% of C patients surviving at four months died and another 26% deteriorated. Despite the setback in S patients in later months, the result at six months compared with the condition on admission shows, as we saw in the preliminary analysis, a remarkable difference between the two groups.

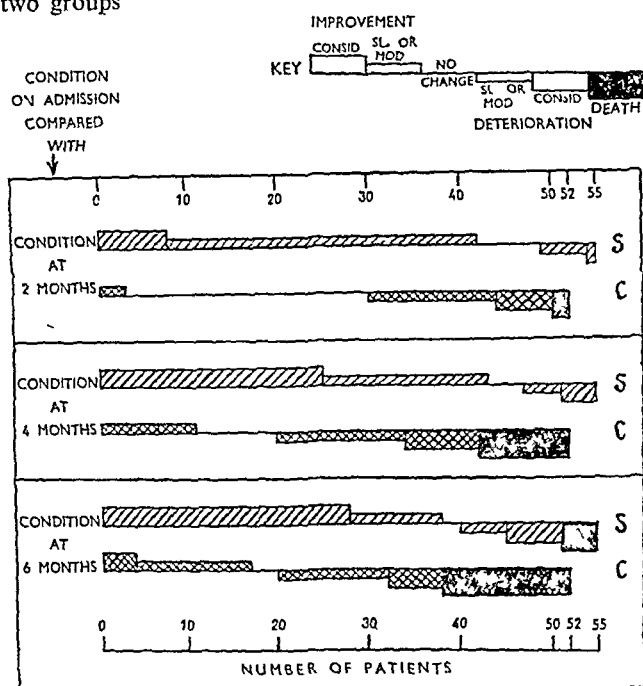


CHART II—Condition on admission compared with condition at two, four, and six months (radiological assessment)

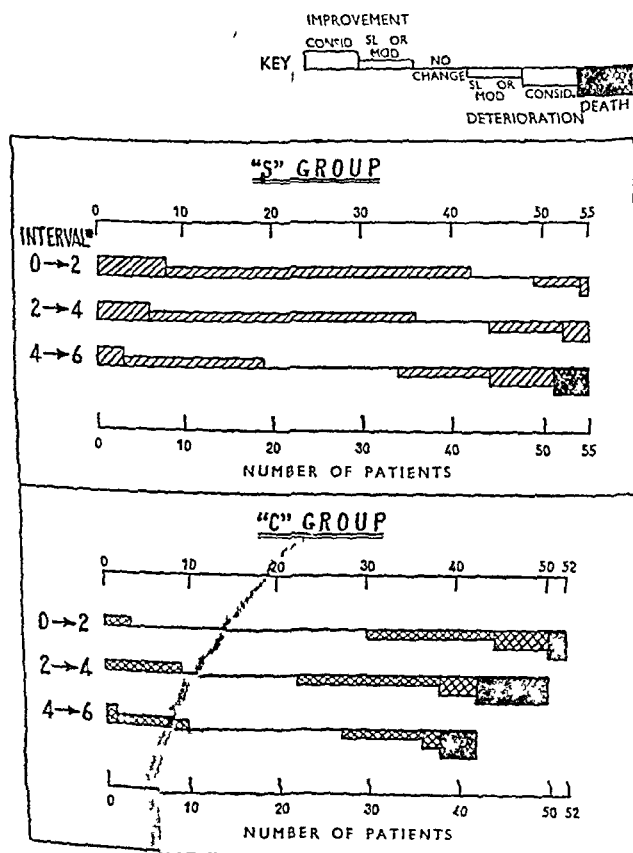


CHART III—Changes in the radiological picture in succeeding two monthly periods: 0→2, admission to end of second month; 2→4, end of second month to end of fourth month; 4→6, end of fourth month to end of sixth month.

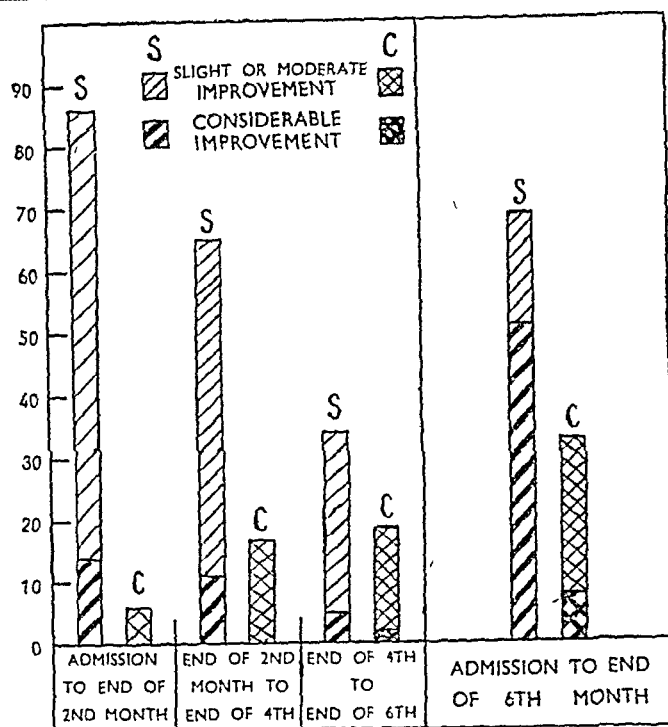


CHART IV—Percentage of total patients admitted (not of survivors at beginning of each period) showing improvement in radiological picture in succeeding two monthly periods and in six months.

It is of interest to analyse in greater detail the changes that occurred from period to period. The analysis in Tables XI and XII relates results in succeeding two-monthly periods.

TABLE XI—Radiological Changes in Succeeding Periods (S Cases)

Admission to End of 2nd Month	Total	End of 2nd Month to End of 4th Month			
		Improvement	No Change	Deterioration	Deaths
Improvement	42	31	6	5	0
No change	7	4	1	2	0
Deterioration	6	1	1	4	0
Total	55	36	8	11	0
End of 2nd Month to end of 4th Month	Total	End of 4th Month to End of 6th Month			
		Improvement	No change	Deterioration	Deaths
Improvement	36	17	12	7*	0
No change	8	1	1	5†	1
Deterioration	11	1	2	5	3
Total	55	19	15	17	4

\* One case had begun to deteriorate in the fourth month though the overall assessment 2→4 was improvement.

† Two cases had begun to deteriorate in the fourth month though the overall assessment 2→4 was no change.

Thirty-one of 42 S patients who improved in the first two months continued to improve in the third and fourth months but less than half of those who improved in the third and fourth months made further good progress subsequently. Nearly all S patients who deteriorated in the first months continued to get worse subsequently, only one of the six in the first two months and one of the 11 in the third and fourth months improved subsequently, the improvement in the latter case began only after induction of pneumopertoneum.

Considering now the 17 S patients who deteriorated and four who died in the fifth and sixth months, eight had been getting worse during the preceding two months, six more had shown "no change," and seven had improved in the preceding two months. These cases are analysed in detail later.

Analysis of radiological changes in the C group (Table XII) shows that here patients who improved did so much more slowly. Only three patients improved in the first two

TABLE XII—Radiological Changes in Succeeding Periods (C Cases)

Admission to End of 2nd Month	Total	End of 2nd Month to End of 4th Month			
		Improvement	No Change	Deterioration	Deaths
Improvement	3	0	2	1	0
No change	27	9	9	8	1
Deterioration	20	0	2	11	7
Total	50	9	13	20	8
End of 2nd Month to end of 4th Month	Total	End of 4th Month to End of 6th Month			
		Improvement	No Change	Deterioration	Deaths
Improvement	9	2	7	0	0
No change	13	5	4	4	0
Deterioration	20	3	6	7	4
Total	42	10	17	11	4

months, and they did not continue to improve subsequently. Nine patients showed improvement in the third and fourth months. In all nine the condition had been stationary in the first two months, the improvement was attributable to bed-rest alone—only one of these patients had collapse therapy, three and a half months after admission. None of the nine deteriorated in the fifth and sixth months, contrary to what was seen in the S group. On the other hand, as in the S group, nearly all patients who deteriorated in the first two months continued to deteriorate subsequently—i.e., for those who showed no response to the first two months of bed-rest and streptomycin, or bed-rest alone, the outlook was poor.

Six of the 10 C patients who improved in the fifth and sixth months received collapse therapy, in four of them the improvement was considered due to these measures.

#### Clinical Observations on Cases Showing Improvement

In the preceding sections various clinical and radiological changes have been analysed separately, the analysis showing for each factor differences between S and C groups. Below are additional data and some representative case histories to give a more complete picture of patients' progress under treatment.

##### Considerable Improvement in S Cases

Of the 28 S patients who radiologically had improved considerably at the end of six months 11 had been regarded as desperately ill on admission. All 28 improved from the first month of treatment. In none could the improvement even in later months be ascribed to collapse therapy.

(a) Twenty-one of the 28 improved clinically in all respects—i.e., their general condition and symptoms improved, they gained weight, temperature and ESR fell, 18 were afebrile at the end of six months, and 16 had gained more than 14 lb (6.35 kg) in weight. In eight cases the sputum had become negative to all examinations for tubercle bacilli.

Case 69—A man aged 25 had been ill for four months and had been in hospital since shortly after the clinical onset. Artificial pneumothorax had been attempted, but failed on complete bed rest throughout the four months he continued to deteriorate. On admission to the centre he was exceedingly ill, wasted, with laryngitis, with swinging temperature 99.4–103.4° F (37.4–39.7° C), sedimentation rate 66, sputum—heavily positive. The chest radiograph showed confluent opacities of bronchopneumonic type throughout both upper and mid zones and scattered foci in the lower zones (Plate Fig 1). During the first two months there was slight clinical improvement, fever persisted though at a lower level, the sedimentation rate was unchanged, the sputum was negative on direct examination

and positive on culture. The chest radiograph showed little change. During the next months there was a striking turn for the better: symptoms regressed, the laryngitis improved, from the end of the fourth month he was afebrile, he gained 42 lb (19.05 kg) weight from the third to the sixth month (on admission he had been too ill to weigh). The sedimentation rate had fallen to 22. Sputum was still positive, though on culture only. Radiologically there was remarkable clearing of lesions (Fig 2).

Case 90—A woman aged 24 had been ill for two months, her condition had been aggravated by recent parturition and post-partum haemorrhage. She was in hospital for two weeks before admission to the streptomycin centre. She was desperately ill on admission, wasted, and had a pyrexia varying from 99 to 103.4° F (37.2–39.7° C), sedimentation rate 150. On the chest radiograph were dense confluent opacities throughout the left lung, with some cavitation and less extensive lesions in the right lung (Fig 3). She remained critically ill during the first week of treatment, after which there was marked improvement in her general condition and symptoms. The evening temperature fell to 100° F (37.8° C) at the end of the second month, and from the end of the fourth month she was afebrile. Weight gain was only 4 lb (1.8 kg). The sedimentation rate fell progressively to 20 at the end of six months. The sputum and material from gastric lavage were negative to all methods of examination for tubercle bacilli from the 59th day onwards. There was considerable radiological clearing of lesions (Fig 4). The result on discharge must be regarded as dramatic (report by clinical registrar).

(b) Seven of the 28 patients improved clinically in most respects but six were still pyrexial at six months, and the other, though afebrile, remained in poor general condition with no weight gain and a high ESR (Case 39, Figs 5 and 6).

##### Considerable Improvement in C Cases

Considerable improvement in the radiological picture was reported for only four C patients. None were acutely ill on admission. In none of them had the sputum become negative at the end of six months.

In Case 73 there was general clinical improvement beginning in the first month, but the marked radiological improvement dated only from the induction of artificial pneumoperitoneum three and a half months after admission. In Case 80 also there was improvement in all respects, but only after induction of pneumoperitoneum two and a half months after admission.

In the two others, Cases 81 and 96, the improvement was attributable to bed-rest alone. Both improved clinically but retained a low pyrexia.

Case 81—A woman aged 22 had a six-months history of illness, and had been in bed at home for six weeks. On admission she looked ill and wasted, and had a low pyrexia (97.4–99° F (36.3–37.2° C)) and a sedimentation rate of 110. Chest radiography showed scattered nodular shadows throughout both lungs, denser at the apices, with a large cavity in the upper zone (Fig 7). From the first weeks her general condition improved, and in the six months she gained 28 lb (12.7 kg). She retained, however, a low evening pyrexia, the sedimentation rate at the end of six months was 85, and the sputum was positive on culture. Radiologically there was considerable regression and shrinkage of lesions, and the cavity system in the upper zone was less obvious (Fig 8).

##### Slight or Moderate Improvement in S Cases

At the end of six months, of 10 S patients who showed radiologically slight or moderate improvement five were afebrile, four had sedimentation rates not above 10, and two had gained over 14 lb (6.35 kg) in weight. In none of the 10 cases was the sputum negative, though in two it had been negative at some time during treatment and improved again later.

Case 95—A woman aged 25 was extremely ill on admission. She had a history of symptoms for about

months, and had been in bed at home for four weeks. On admission she had a temperature swinging between 99 and 102.4° F (37.2 and 39.1° C), and was very weak and wasted. The sedimentation rate was 28, the sputum heavily positive. There was extensive infiltration in the lungs, particularly in the right lung where there were large cavities, a calcified primary complex was clearly definable on that side (Fig 9). Clinically she made excellent progress throughout the six months, with remarkable improvement in the first two months of treatment, and she gained 28 lb. The evening temperature had fallen to 99° F (37.2° C) at the end of two months, and shortly after became normal and remained normal. The sedimentation rate fell to 5. The sputum was negative at four months, but subsequently was occasionally positive. Radiologically there was little change in the first two months and improvement subsequently, with clearing at the right base and cavities much less obvious at the right apex (Fig 10).

#### Slight or Moderate Improvement in C Cases

Of 13 C patients who showed slight or moderate improvement radiologically at the end of six months, eight had improved clinically in all respects, three of the eight had been clinically very ill on admission. In two the sputum became negative (in one of the two after artificial pneumoperitoneum). Ten were afebrile at six months, and six had gained over 14 lb. In most of these cases the clinical improvement was much greater than that seen in the lung radiographs.

*Case 66*—A man aged 23, ill for about six weeks, had been admitted to a general hospital as a case of appendicitis one month before his admission to the centre. His general condition was fairly good, symptoms were slight, the temperature ranged from 97.6 to 100.2° F (36.4 to 37.9° C), the sedimentation rate was 70. There was shadowing throughout the upper and mid-zones of both lungs, particularly dense and with cavitation on the left side (Fig 11). During the six months of observation there was slow but progressive overall improvement, he put on 24 lb (10.88 kg) in weight, symptoms improved, he was afebrile after the third month, three consecutive sputum specimens at the end of the fifth and sixth months were negative. Radiologically there was moderate improvement, with some shrinkage of lesions particularly on the right (Fig 12).

#### Deterioration in S Cases

(a) In six patients there was radiological deterioration in the first two months. In two of these (Cases 87 and 99) there was no clinical response to treatment, and they continued to deteriorate until death in the fifth or sixth month. Two others (Cases 22 and 40) continued to deteriorate radiologically, clinically there was temporary improvement in the general condition, but temperature and ESR remained high, one (Case 22) died in the fifth month. One (Case 16) continued to deteriorate radiologically (deterioration confined to one lung), but the temperature fell to normal limits, the patient gained weight, and felt much better until after treatment stopped, ESR remained high, over 70. The sixth of these patients improved subsequently in the opinion of the radiologists' panel, but deteriorated clinically. Four of the six had gross cavitation on admission.

(b) In seven patients other than those just mentioned there was radiological deterioration through the third and fourth months. Five (Cases 46, 49, 60, 64, and 86) had improved radiologically in the first two months, and there had been temporary clinical improvement, in Case 60 there was marked clinical improvement until a spontaneous pneumothorax occurred three months after admission.

*Case 46*—A man aged 25 had been ill for six weeks with cough, dyspnoea, lassitude, loss of weight. He had been resting in bed at home for five weeks before admission to the streptomycin centre. On admission his condition was fair, his temperature ranged from 97.6 to 102° F (36.4 to 38.9° C), the

sedimentation rate was 40. Chest radiograph showed extensive scattered lesions in upper and mid-zones of both lungs and a large cavity in the left mid-zone. There was slight clinical improvement in the first two months of treatment, symptoms regressed, the temperature fell to a range of 97.8–99.4° F (36.55–37.4° C), the sedimentation rate was unchanged and weight was stationary. The clinical change was not of the same order as the change in the radiological picture, which showed considerable improvement (see Figs 13 and 14). During the third month the clinical condition was stationary except that the temperature began to rise again, and radiologically there was extension and more cavitation of the lesions in the left lung. He then began to lose weight (7 lb—3.18 kg—in the fourth month), to feel tired again, and radiographs showed further deterioration with extensive cavitation, a spontaneous pneumothorax occurred in the sixth month (Figs 15 and 16). The sputum had remained positive throughout, on the 65th day of treatment and subsequently strains of tubercle bacilli from the sputum were 8 000 times less sensitive to streptomycin than the strains isolated before treatment.

In the other two of the seven patients (Cases 54 and 105) the pulmonary condition was stationary radiologically in the first two months, one (Case 105) deteriorated clinically throughout the first months and until after induction of artificial pneumoperitoneum in the fifth month, after which there was radiological improvement also, the other was slightly better clinically in the first months of treatment, but the radiological worsening was rapidly followed by clinical deterioration, and she continued to go downhill. All seven of these cases which deteriorated radiologically for the first time in the third and fourth months had gross cavitation on admission, and five also had some atelectasis.

(c) Three other patients (Cases 11, 26, and 59) on whom the radiological report for the second two-month period was "no change" or "improvement" had begun to deteriorate radiologically in the fourth month—i.e., before treatment stopped. In Case 26 spontaneous pneumothorax was diagnosed in the fifth month. In Cases 26 and 59 clinical deterioration also began in the fourth month, in Case 11 only in the sixth month, after a haemoptysis. All three continued to get worse in the last months. Case 59 was the only one of these to have gross cavitation on admission.

(d) In nine cases radiological deterioration did not occur until the last two months. In three of these (Cases 28, 77, and 101) the radiological report for the third and fourth months was "no change", two of them had improved in the first two months, but at the end of the fourth month all three were still febrile and had a high ESR. In Case 28 the temperature fell to normal in the first two months and the patient gained 11 lb (4.98 kg) in weight, but the temperature rose in the third month, and there was subsequently continued clinical deterioration.

Finally, radiological deterioration in the fifth and sixth months was seen in six patients who had improved radiologically to the end of the fourth month. In two of these (Cases 7 and 24) there had been little or no clinical response to streptomycin treatment, at four months they were pyrexial, had lost over a stone in weight, and had a high ESR, both had gross cavitation on admission. The others (Cases 1, 4, 29, and 71) had improved clinically to the end of the fourth month, though at that date three were still pyrexial and none had an ESR below 40. Only one of these four had gross cavitation on admission.

*Case 1*—A woman aged 24, had been ill for about 10 weeks, and for six weeks before admission had been in bed at home. She was very ill when admitted, pale, wasted, with severe dyspnoea and lassitude, the temperature ranged from 100 to 104.2° F (37.8 to 40.1° C), the sedimentation rate was 98, the sputum was strongly positive. The chest radiograph showed



extensive shadowing of bronchopneumonic type throughout both lung fields, more dense in the left lung than in the right (Fig 17). In the first month the temperature dropped to a range of 99-101 F (37.2-38.3 C) and remained at this level during the rest of the four months of treatment. In the first month also there was definite improvement both in symptoms and in general appearance and she gained 7 lb (3.18 kg) in weight. At the end of two months the sputum was negative to direct examination and culture, and radiologically there was some clearing of the lesions, especially on the right. In the third and fourth months she began to lose her feeling of well being, appetite deteriorated and she lost 5 lb (2.27 kg) in weight, sputum became again heavily positive (strains were 250 times less sensitive to streptomycin than strains isolated before treatment). Radiographs, however, showed further considerable clearing of lesions (Figs 18 and 19). After treatment was stopped she felt better for a short time, but in the sixth month the condition deteriorated, symptoms were worse, the temperature rose to the same level as on admission, and radiographs at the end of the sixth month showed increased cavitation in the left lung and fresh lesions in the right (Fig 20).

This analysis has shown that though 21 S patients deteriorated radiologically in the fifth and sixth months—i.e., at a time when no streptomycin was being given in most cases—there is much evidence of commencing deterioration or arrested improvement before the end of the fourth month. Only six of the 21 had been improving radiologically throughout the preceding two months, two of the six had lost weight, and five had remained pyrexial since admission. Moreover, it is noteworthy that in patients who received streptomycin for more than four months results were similar to those for patients treated for four months only, deterioration in the fifth and sixth months was seen in five of 13 patients treated for more than four months, compared with 16 of 42 patients treated for four months only. However, in one patient treated for five months deterioration started in the sixth month. While there is suggestive evidence in a few cases that deterioration was related to cessation of treatment, it is very probable that some factor other than this is responsible in the majority of cases that deteriorated.

Gross cavitation may be a factor in determining relapse after first improvement. Of 16 patients who deteriorated at some time after first improvement, 11 (69%) had large or multiple cavities on admission, of 30 patients who improved throughout, 14 (47%) had large or multiple cavities. The difference is not statistically significant.

Spontaneous pneumothorax occurred in four S patients. In Case 60 it occurred at three months, the patient had been much improved until then, but subsequently went downhill rapidly and died. In two other cases deterioration had begun before the pneumothorax occurred. At first the impression was that this was a particular risk in the S group, but pneumothorax occurred spontaneously also in three C cases.

### Toxicity

Toxic effects of streptomycin therapy were observed in many patients, but in no single case did they necessitate cessation of treatment. For this reason and because toxic effects of this antibiotic have already been fully described by other investigators—e.g., Veterans' Administration (1947)—they will be mentioned here only briefly.

By far the most important toxic effect was the damage to the vestibular apparatus. Giddiness was a frequent first symptom, it was noticed by 36 of the 55 patients, and first appeared on sitting up in bed or turning the head suddenly. It appeared usually in the fourth or fifth week of therapy, and persisted for periods varying from one week to several months. Spontaneous nystagmus on lateral vision was another frequent sign of vestibular disturbance, blurring of

vision was less common. Tests for vestibular dysfunction were not carried out in all centres with sufficient regularity and uniformity to permit analysis of grouped results, but it is possible to say that absence or reduction of caloric response was not found with the frequency reported in many American investigations, and that in some patients loss of response was temporary only. No standard functional tests at the end of treatment were performed, many patients are reported as having unsteadiness of gait, which improved gradually with visual compensation but remained a handicap in the dark. Possibly many of these patients retain a disability revealed in a dangerous ataxia on such occasions as walking downstairs in the dark, crossing a congested street, or walking in a moving train. It is highly desirable that standard tests be adopted for assessment of vestibular dysfunction.

No loss of hearing was reported, except for two cases of high-tone deafness. Many patients suffered from nausea and vomiting, symptoms which were often relieved by antihistamine therapy. Albuminuria and casts in urine, raised blood urea, pruritus and urticarial rash, eosinophilia, "yellow vision" after injection, and circumoral numbness are among other transient effects reported. All subsided spontaneously—i.e., without stopping treatment.

### Bacteriology

#### (1) Bacterial Content of Sputum

Sputum was tested by direct-smear examination and by culture, where there was no sputum, material from laryngeal swab and/or gastric lavage was cultured. Examinations were done on admission and again at intervals of not more than one month.

In Table XIII the results in the third month and at the end of six months are related to the results on admission. Results of direct smear are recorded as "strongly positive" where one or more acid-fast bacillus per 1/12 in (0.2 cm) field was seen or where the result was recorded as +++ or ++, "weakly positive" includes results with less than one acid-fast bacillus per field or results recorded as +. For one hospital where only direct-smear examinations were done, and where degrees of positivity were not recorded, positive results in both groups have been tabulated in column 1, "strongly positive", one C case and one S case (Nos 3 and 107), positive on admission and negative to

TABLE XIII—Presence of Tubercle Bacilli

Results on Admission	Total	Deaths	Results in Third Month			
			Direct Smear		Smear Negative Culture Positive	Culture Negative
			Strongly Positive	Weakly Positive		
S Cases						
Smear strongly positive	40	0	16	12	10	2
Smear weakly positive	11	0	1	3	1	6
Smear negative culture positive	3	0	1	0	0	2
C Cases						
Smear strongly positive	29	5	19	3	1	1
Smear weakly positive	17	1	6	8	2	0
Smear negative culture positive	4	0	1	1	2	0
Results at End of 6 Months						
S Cases						
Smear strongly positive	40	4	24	1	7	4
Smear weakly positive	11	0	3	3	2	3
Smear negative culture positive	3	0	1	0	1	1
C Cases						
Smear strongly positive	29	11	15	2	0	1
Smear weakly positive	17	3	4	7	3	0
Smear negative culture positive	4	0	0	1	2	1

direct examination (no culture) at six months, have been excluded from the analysis, another (Case 62) has been excluded because no results were recorded for the third month

Considering the results in the third month, one C case and 10 S cases were negative to all examinations for tubercle bacillus. Apart from these cases of "sputum conversion," six C cases and 23 S cases were positive at a lower level than on admission. The differences between the two series are significant. There is no doubt here of the pronounced effect of streptomycin on the tubercle bacillus.

The results at the end of six months also show a difference, though less marked, between the two groups, two C cases and eight S cases had become negative to all examinations. These final results signifying "sputum conversion" are based on repeated examinations, in most cases of sputum, the case with least satisfactory evidence had negative results from one gastric lavage and two laryngeal swabs. Besides these cases five C cases and 10 S cases were at six months positive at a lower level than on admission. Taking together cases becoming negative or positive at a lower level, the difference between the two series is significant.

In the S group the results are best in cases without gross cavitation, six of 23 became negative, compared with two of 31 cases with large or multiple cavities.

If in order to get an overall evaluation of changes we give a numerical score to each category of results (4=negative, 3=smear negative, culture positive, 2=smear weakly positive, 1=smear strongly positive, 0=death) the total in each group is as follows:

	On Admission	During Third Month	At end of Six Months
S cases	71	124	98
C cases	75	69	62

In the S group these results confirm the impression already gained of maximum improvement in the first months and subsequent deterioration.

The following numerical scores on the same basis are obtained from data for 51 of the S group analysed in greater detail (examinations for the C group were not frequent enough to provide comparable data):

Months after Admission	0	1	2	3	4	5	6
Bact. score	66	111	115	127	105	104	94

This overall evaluation shows the marked improvement during the first three months, followed by a steep fall in "score" in the fourth month and further decline later.

## (2) Streptomycin Sensitivity

Strains from 42 cases were tested for streptomycin sensitivity on primary isolation and during the course of treatment. Details of the technique adopted will be given in a subsequent report by the Pathological Subcommittee.

### A Degree of Sensitivity

All strains isolated before streptomycin therapy was begun showed sensitivity to the drug equivalent to that of the standard strain H37Rv (obtained from the American Depot, Trudeau Sanatorium, Saranac Lake), this was usually at a level of 0.1 to 0.5  $\mu$ g per ml, using the Tween-albumin medium.

**Sensitivity after Start of Streptomycin Treatment**—(1) In one patient (Case 90) there was not full opportunity to detect streptomycin resistance as all cultures were negative after the 59th day. (2) In six cases resistance did not emerge at a level above

10 times that of H37Rv. (3) In five cases strains were isolated which showed streptomycin resistance from 32 (one case) to 64 times (four cases) that of H37Rv. (4) In 17 cases resistance between 100 and 256 times that of H37Rv was demonstrated. (5) In 13 cases the resistance demonstrated was more than 2,000 times that of H37Rv, in four of these it was over 8,000 times.

Summarizing, strains with resistance over 10 times that of H37Rv were found in 35 of the 41 cases.

### B Time of Emergence of Streptomycin Resistance

In the majority it was not possible to detect with any great precision the date at which resistant strains could be first isolated, as specimens were not taken at frequent enough intervals. The date is taken as that midway between the date of the last sensitive culture and the date of the first resistant culture. In a few cases this interval was only a few days, in one it was 5½ months. Where it was possible to isolate strains at frequent intervals, it was seen that resistance rose rapidly to a maximum level at which it persisted subsequently with only minor fluctuations.

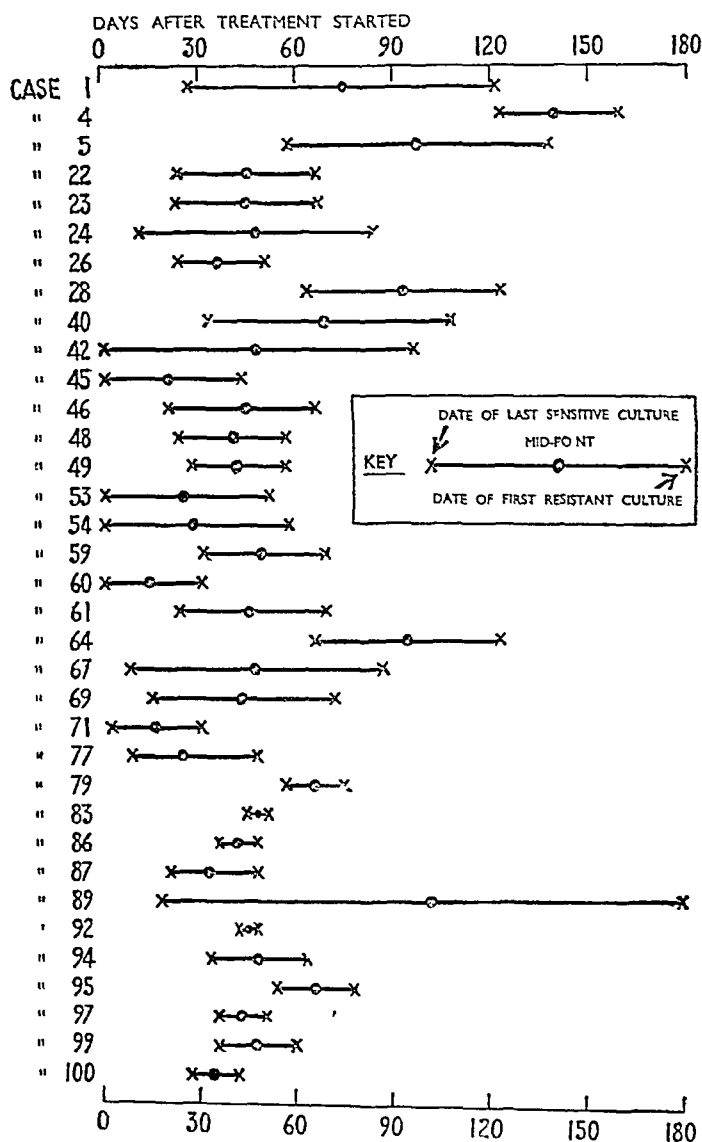


CHART V—Showing date of emergence of streptomycin resistance (over 10 times that of H37Rv)

The results are shown in Chart V. Of 35 cases showing resistance over 10 times H37, this resistance emerged in five cases in the first month, in 21 in the second month, four in the third, four in the fourth, and one as late as the fifth month. Taking all observations, the mean date of

emergence of resistance is the 53rd day after starting streptomycin therapy. The median is the 45th day.

#### Results Related to Resistance Development

The results given in Chart VI raise an important point: the radiological results at six months compared with condition on admission seem to be related to the degree of

if among the cases with high streptomycin resistance there is a higher proportion of initially severe cases than in the others, as if so this might account for the worse prognosis. Six of the 13 patients from whom were isolated strains over 1,000 times more resistant than H37Rv were very acutely ill on admission (had high pyrexia and large or multiple cavities), compared with nine of the 28 other patients. The difference is small. Moreover, there is both in the patients very ill on admission and in the others the trend to bad prognosis with increasing levels of streptomycin resistance. Thus in those very ill on admission the proportion deteriorating was 0/2 where resistance was not more than 10 times H37Rv, 3/7 where it was more than 10 and not more than 1,000 times (one of the three died), and 6/6 where it was above 1,000 times (three of the six died). In the other patients it was 0/5 where resistance was not more than 10 times H37Rv, 2/14 where it was more than 10 and not more than 1,000, and 2/7 where it was over 1,000 times. However, while the trend to bad prognosis with increasing levels of drug resistance is seen in both groups, the trend is greater in the patients very ill on admission than in the others; there is a possibility of relationship between severe clinical condition and development of high degrees of streptomycin resistance. In conclusion, one can say that the results were outstandingly good in cases in which little or no drug resistance was demonstrated, but for the others it remains difficult to assess the relative importance and the interdependence of the two factors—clinical condition at start of treatment and degree of drug resistance developed during treatment.

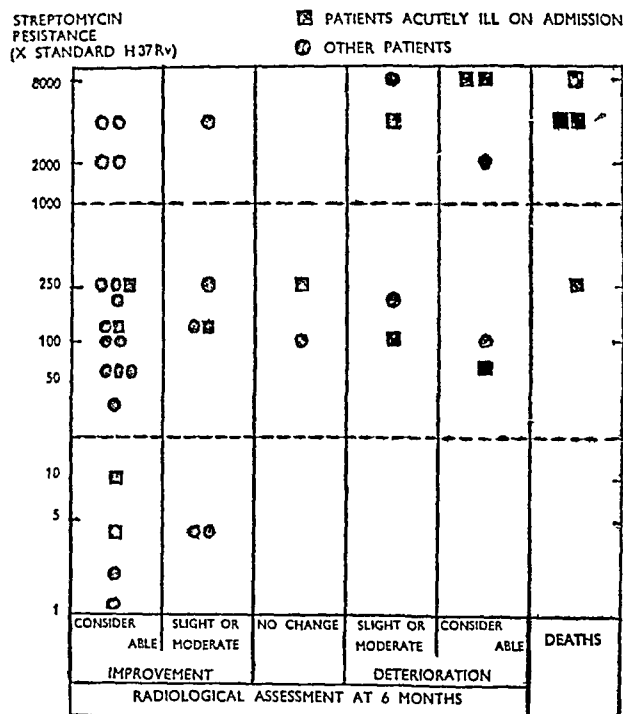


CHART VI—Radiological assessment at six months related to degree of streptomycin resistance

streptomycin resistance found during observation. Of six patients from whom strains isolated did not show resistance greater than 10 times that of the standard H37Rv, all had improved at six months. Twenty-two patients developed streptomycin resistance over 10 and less than 1,000 times H37Rv, five of them, or just under 1 in 4, had deteriorated at six months (one of the five had died). Of 13 patients in whom the drug-resistance developed was over 1,000 times H37Rv, eight or over one-half had deteriorated (three of the eight had died). The differences in results in the three groups are statistically significant.

If we consider not only the result at six months but deterioration at any time during the six months, it is interesting to note that the six patients who did not develop resistance over 10 times H37Rv improved throughout, without setback at any time in the six months.

Of the 22 cases with resistance 32 to 256 times H37Rv, deterioration occurred in six in the fifth and sixth months after continuous improvement in the first four months (but only two of these were worse at the end of six months than on admission), in two deterioration began after two months improvement, one began to deteriorate in the third month, the condition having been stationary in the first two months, one died after continuous deterioration throughout. The remainder, 12 patients, did not deteriorate at any time.

In the cases with resistance over 1,000 times H37Rv, deterioration began earlier: within the first two months in four cases, in the third and fourth months after initial improvement in three cases, and only in the final months in two cases.

Before accepting degree of streptomycin resistance as a major factor in prognosis it is important to determine

#### Discussion

This planned group investigation has demonstrated both the benefit and the limitations of streptomycin therapy in pulmonary tuberculosis. The trial—the first controlled investigation of its kind to be reported—was designed to give a negative or affirmative answer to the question, Is streptomycin of value in the treatment of pulmonary tuberculosis? It was not designed to determine in what types of pulmonary tuberculosis streptomycin could be effective, nor to determine optimal dosage or duration and rhythm of treatment.\*

Analysis of the results at the end of the first six-month period has shown that the course of bilateral acute progressive disease can be halted by streptomycin therapy, 51% of the streptomycin-treated patients showed considerable improvement radiologically when comparison was made with their chest radiographs taken on admission. That streptomycin was the agent responsible for this result is attested by the presence in this trial of the control group of patients, among whom considerable improvement was noted in only four (8%), and two of these four patients had improved only after collapse therapy. In other words streptomycin therapy was effecting what the patient's tissues alone could not do—checking the spread of the tubercle bacillus in one of its most favourable milieu.

Among the treated patients radiological improvement occurred most often in those who, though having extensive infection, did not have large or multiple cavitation. Nevertheless in one-third of those with gross cavitation considerable improvement also occurred, principally by resolution of recent infiltrative spread, some cases thus became suitable for collapse therapy. Streptomycin therapy alone did not lead to closure of large cavities.

The need of a control group in trials of a new drug for pulmonary tuberculosis is underlined by the finding that

\*Since this investigation was begun a number of notable publications on the effect of streptomycin in pulmonary tuberculosis have appeared. As, however, the prime objective of the Medical Research Council trial was a comparison of treated cases with controls, other investigations have not been referred to here.

impressive clinical improvement was seen in some of the patients treated by bed-rest alone 12 gained more than 14 lb (6.35 kg) in weight, and in 13 of 47 febrile patients the temperature was within normal limits at the end of six months. It was to be expected that in many of these patients with gross lesions who until recently had been at work the constitutional symptoms would be temporarily improved by bed-rest, although the lesions were so advanced that bed-rest alone could not be expected to effect corresponding improvement in the radiological picture. Nevertheless it should be noted that some radiological improvement was recorded in one-third of the C patients. The improvement in these patients was mainly among those least acutely ill on admission, and it is in this group that the treated series shows the least advantage over the control series. In such cases, with little or no pyrexia, relatively low sedimentation rate, and little cavitation, the patient's natural recuperative power added to bed-rest may in itself arrest the progress of the infection, and the advisability of using streptomycin in such cases may well be doubted. The major advantage is among the acutely ill patients. Although the only deaths that occurred in the S series were in this group, it is in these patients that the striking difference between the S and C series is most clearly demonstrated.

While stressing the good results in the streptomycin group, it is important to note, first, that no clinical "cures" were effected, and that only 15% were bacteriologically negative (to direct examination and culture) at the end of six months, and, secondly, that this trial presents at the time of writing only a short-term evaluation\*. The major improvement in patients treated with streptomycin was seen in the first two to three months, in the latter half of the six-month period numbers of them began to deteriorate. Thus 21 S patients deteriorated radiologically in the fifth and sixth months, and four of them died. Streptomycin therapy had been stopped at the end of four months, and it is natural to ask whether the deterioration is attributable to stoppage of treatment. This seems unlikely for the majority, most had begun to deteriorate radiologically before the end of four months, only six of the 21 had improved radiologically throughout the four months, and two of these six had deteriorated clinically.

Strains of tubercle bacilli resistant to high concentrations of streptomycin were isolated by the end of the second month of treatment from most patients whose sputum was still positive, this fact may account for at least a part of the deterioration witnessed in treated patients. Strains showing streptomycin resistance over 10 times that of the original strain or of the standard H37Rv were isolated from 35 of 41 patients for whom data are available, in 13 of the 35 cases the strains had a resistance over 2,000 times that of the control organism.

Therapeutic results appear to be related to the degree of drug resistance developed, thus the best results were seen in cases in which little or no drug resistance was demonstrated, and the worst results were in the group of 13 patients from whom were isolated strains of tubercle bacilli with a drug resistance over 2,000 times that of H37Rv. At the end of six months three of the 13 had died and five were radiologically worse than on admission. The relation between a bad prognosis and a high degree of streptomycin resistance applies particularly to patients most acutely ill at the start of treatment. The numbers involved are small, but the differences between the groups at different levels of resistance are suggestive. Probably both initial severity of clinical condition and development of drug resistance during treatment are factors responsible.

\*An addendum gives the results at one year after admission to the trial.

for deterioration, and the two factors may be interdependent. Even with the aid of a powerful chemotherapeutic agent healthy tissue reaction on the part of the host is necessary for complete destruction of the invading parasite. It is reasonable to suppose that, where a high degree of streptomycin resistance is demonstrable by the method used (which is qualitative and not quantitative), this may have occurred by rapid proliferation of resistant strains in tissues that have a poor natural defence against tuberculous infection.

On knowledge at present available, the development or emergence of streptomycin-resistant strains of tubercle bacilli is a fundamental factor to be taken into consideration when contemplating a course of streptomycin therapy. The technique of measuring sensitivity used in this investigation is so slow as to be of little immediate use in estimating, say at the end of one or two months of therapy, whether the course can be usefully continued or not. Organized investigations will be needed to determine whether emergence of streptomycin-resistant strains can be prevented by association of streptomycin with another drug or by a special rhythm of treatment. Until such time as this problem has been solved it seems fair to assume that after two to three months of streptomycin treatment in a patient with open pulmonary tuberculosis further treatment or a repeat course later is unlikely to be effective. Moreover, the possible dangers to the public health of dissemination of streptomycin-resistant strains, with the possible subsequent production of fresh cases (including cases of miliary or meningeal tuberculosis) which would not respond to streptomycin treatment, must be borne in mind.

One must add to this disadvantage of streptomycin therapy the information on the drug's toxic effects on the vestibular apparatus. These are frequent when the dose employed in this trial, 2 g a day, is given; recent American reports indicate reduced toxicity with a dosage of 1 g a day, but even then the effects are far from negligible.

These considerations must dictate a full measure of caution before prescribing streptomycin for any particular patient. They must be weighed in the balance against possible advantages of streptomycin therapy, particularly when contemplating its use for tuberculous lesions likely to improve by other known forms of treatment, and they render undesirable its administration for tuberculous lesions which, by reason of their age and pathological type, are unlikely to benefit by any form of chemotherapy.

The investigation reported here has demonstrated the value of streptomycin in one not very common form of tuberculosis. The type of result obtained indicates that the drug is probably of greatest value in cases of pulmonary tuberculosis in which the lesions requiring treatment are acute and of recent development. Its use may be recommended in acute contralateral spreads after artificial pneumothorax or after thoracoplasty. It probably has a place in the treatment of rapidly advancing pulmonary tuberculosis in which immediate collapse therapy would be dangerous or impracticable, in fact its most effective use may be in preparation of such lesions for collapse therapy. It has probably little place in the treatment of the more common chronic fibro-caseous forms of the disease. These conclusions are of necessity lacking in precision, much organized work is yet required to determine the precise indications of streptomycin and the best schemes of dosage in pulmonary tuberculosis.

#### Addendum

Before going to press it has been possible to collect data regarding the condition of each patient one year after admission to the trial. The data are based on a general

assessment by the clinicians concerned. Radiological evaluation by a panel was not possible, and therefore, although the data give a provisional impression of the course of the disease in these patients, the figures are not comparable with those based on independent radiological assessment, for example, in Table II.

TABLE XIV—Condition at 12 Months Related to Condition on Admission

Group	Total	Improvement	No Change	Deterioration	Death
S	55 100	31 56%	4 7%	8 15%	12 22%
C	52 100%	16 31%	5 10%	7 13%	24 46%

The difference in mortality between the two groups is statistically significant.

### Summary

One hundred and seven patients with acute progressive bilateral pulmonary tuberculosis, unsuitable for collapse therapy, were studied in a clinical trial of streptomycin.

The supply of streptomycin available during the investigation was limited. The type of disease selected was one considered hitherto unsuitable for any form of treatment other than bed rest. Bed rest accordingly was the treatment given to one group of 52 patients (C) while 55 patients were treated with bed rest plus streptomycin (S). Patients were assigned to one or the other group by random selection, and only after acceptance as suitable for the trial.

The period of observation for each patient, under conditions laid down for the trial was six months.

S patients received 2 g of streptomycin intramuscularly daily in four injections at six-hourly intervals. No toxic effects necessitated stopping treatment, but vestibular disturbance was common.

At the end of six months 7% of S patients and 27% of C patients had died. Considerable improvement radiologically was noted in 51% of S cases and 8% of C cases. Slight or moderate improvement was noted in 18% of S cases and 25% of C cases. Apart from those who died, deterioration was seen in 18% of S cases and 34% of C cases.

The main difference between S and C series is among the patients clinically acutely ill on admission, thus among patients having on admission evening temperatures of 101 F (38.3° C) or over, 13 of 24 S patients and two of 19 C patients showed improvement radiologically.

More S patients than C patients showed clinical improvement, but the difference between the two series is smaller than in respect of radiological changes.

Improvement in S cases was greatest in the first three months. After the end of this period many S cases began to deteriorate.

At the end of six months examinations for tubercle bacilli were negative in eight S cases and two C cases. The best results in S cases were seen in the first months of treatment.

Results of tests for streptomycin sensitivity of infecting strains are given for 41 cases. In 35 cases tests revealed *in-vitro* resistance from 32 to over 8,000 times that of the original strain or the standard H37Rv. In most cases streptomycin resistance emerged in the second month of treatment. It seems probable that streptomycin resistance is responsible for much of the deterioration seen in S cases after first improvement.

An addendum gives the results at one year after admission.

The work of this investigation fell particularly heavily on the nursing staff and laboratory technicians of the centres concerned, and grateful acknowledgment is due to them for their assistance throughout the trials.

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## SUDDEN DEATH DUE TO EPENDYMOMA OF CEREBELLO-PONTINE ANGLE

### REPORT OF TWO CASES

BY

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Sudden death has been described in many cases of sub-tentorial tumours, but such an occurrence is almost invariably preceded by symptoms of raised intracranial pressure severe enough to induce the patient to seek medical advice some months before death. In the first case described here the patient gave a history of mild illness for only two days, whilst in the second case the patient continued at work until the day before his death. The presence of an intracranial tumour was not suspected during life in either case.

Bailey, Buchanan, and Bucy (1939) point out that sudden death may occur in cases of ependymoma of the fourth ventricle, but they describe such an occurrence only after lumbar puncture or manipulations of the head. Neither of these procedures was carried out in the present cases.

### Case 1

A girl aged 2 was in good health until two days before her death when she appeared unwell and was constipated. She was taken to her doctor, who prescribed an aperient, next day she was better and able to take her food satisfactorily. On the following day, however, she suddenly had a fit, made a choking noise, and died in a few minutes.

At necropsy a firm, pale, lobulated tumour with a smooth surface and crenated edge and measuring 4.3 by 3.7 cm was found on the inferior surface of the left lobe of the cerebellum, being related laterally to the medial surface of the left petrous bone. Superiorly the tumour reached and compressed the lower border of the pons and inferiorly the medulla and the upper part of the cervical cord were partially encircled and thrust towards the right. The tumour reached a point 4 cm below the lower border of the pons and 1.2 cm to the right of the midline. The left cerebellar hemisphere was compressed.

The left eighth cranial nerve ran into the mass, whilst the left vertebral artery, which lay on its surface was partially embedded in its substance. The whole was covered by the arachnoid mater, which could be moved freely over it. There was evidence of raised intracranial pressure with flattening of the convolutions of the cerebrum and bulging and thinning of the infundibulum, but the lateral ventricles appeared to be normal in size. No other lesions were found post mortem.

Histologically, the tumour had the appearance of an epithelial type of ependymoma (Fig. 1). The cells composing it contained round or oval nuclei showing rather coarse chromatin granules. Many of these cells formed canals with empty lumina lined by a single layer of cuboidal or columnar epithelium with basal nuclei, whilst others were arranged in rosettes around coils of cell processes. There was a complete absence of a basement membrane separating the rosettes from the surrounding stroma. The blood vessels were thin walled and in some areas the tumour cells were arranged around them, their processes extending to the vascular endothelium. The stroma consisted of a fibrillary network.

### Case 2

A boy aged 16 had suffered from headaches and occasional vomiting for two months but remained at work until the day before his death. He then complained of very severe headache and went to bed where he was found dead the following day.

necropsy a firm lobulated swelling, similar to that seen in Case 1, and measuring 6.2 by 4 cm, was found lying in the right cerebello-pontine angle on the inferior surface of the right cerebellar hemisphere. Superiorly it compressed the pons

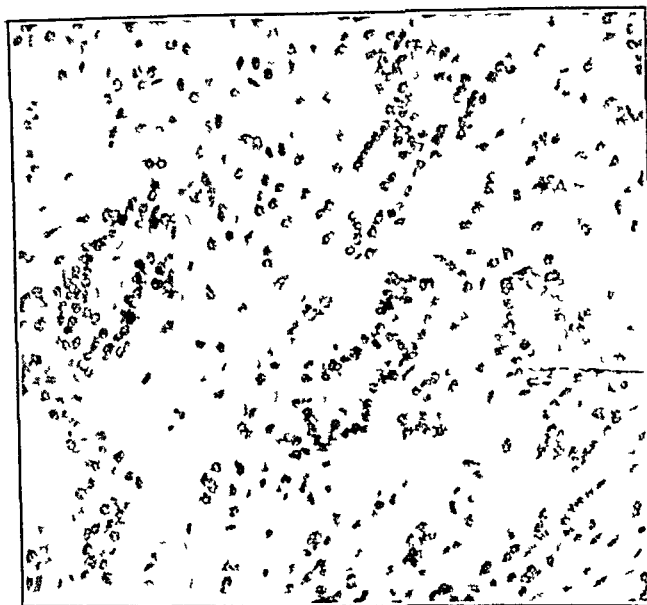


FIG 1—Section from tumour of Case 1 showing epithelium lined canals ( $\times 210$ )

and extended over the right middle cerebellar peduncle to a point 0.8 cm above the lower limit of the pons, whilst inferiorly it passed through the foramen magnum and partially encircled the cervical cord, reaching a point 0.7 cm to the left of the midline. The tumour pressed upon the medulla, displacing it to the left, and compressed the right cerebellar hemisphere. The right vertebral artery lay between the tumour and the overlying arachnoid mater, whilst the right eighth cranial nerve was embedded in the substance of the mass. No other lesions were found post mortem.

Histologically (Fig 2) the tumour was much more cellular than that described in Case 1. The cells resembled astroblasts



FIG 2—Section of tumour from Case 2, showing typical rosette formation ( $\times 150$ )

but the nuclei were round or oval, with a coarse chromatin network. In many areas they were arranged in rosettes around coils of fibrils, sometimes with a thin walled blood vessel in the centre. In no parts could epithelium-lined canals be found. This is the histological picture of a cellular type of ependymoma.

## Comment

These two cases showed ependymomas of similar macroscopic appearance, Case 1 being of the epithelial type and Case 2 of the cellular type (Kernohan and Fletcher-Kernohan, 1937). Each tumour occupied one cerebello-pontine angle and exerted pressure on the pons, medulla, and cerebellum.

Ependymomas most often arise in the fourth ventricle, and their tendency to extend into the cerebello-pontine angle has been pointed out by Courville (1945). Having reached the basal cistern they may spread widely over the inferior surface of the cerebellum and around the medulla and cervical cord until their size is such as to cause pressure and give rise to symptoms. In a small percentage of cases sudden death may occur. When such a catastrophe as haemorrhage into a tumour occurs the cause of death is obvious (Wedd, 1942), but in the majority of cases of subtentorial tumours it is obscure.

Craig (1933) has stated that sudden collapse in patients with cerebellar tumours is usually due to respiratory failure and both he and Werden (1939) describe the successful removal, under artificial respiration, of such tumours when acute respiratory failure had occurred. On account of the anatomical positions of the neoplasms described in this paper, showing definite pressure upon the medulla and upper cervical cord, the addition of a moderate rise of intracranial pressure could easily precipitate acute respiratory failure. There is, however, no evidence in these cases of a definite cause for sudden raising of the pressure.

Grant, Webster, and Weinberger (1941) point out that convulsions are often seen in addition to the usual signs of raised pressure, and Webster and Weinberger (1940) conclude that these are due to cerebral anaemia.

It is possible that a sudden strain may in some way cause an increase of intracranial pressure great enough to give rise to a convulsion. It is perhaps significant that the only symptom of ill-health in Case 1 was constipation and this may have predisposed to the convulsion which immediately preceded death.

Typical cerebellar fits, characterized by head retraction, extended arms and legs, irregular pulse, and pyrexia with clouded consciousness, are believed to be due to compression of the bulbar centres (Bailey, 1933). It seems possible that such a fit was the explanation in these cases although usually there is a history of similar convulsions which become longer in duration and more severe until one finally ends in death.

## Summary

Two cases of sudden death due to ependymomas in the cerebello-pontine angle are described.

Acute respiratory failure, cerebral anaemia with convulsions and cerebellar fits are discussed as possible causes of death.

I am indebted to Professor J. Gough for his criticism and permission to publish these cases and to Mr G. R. Armstrong and Mr J. P. Napper for their technical assistance.

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## SKIN TESTS FOR SENSITIVITY TO LIVER

BY

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It is well recognized that patients maintained on parenteral liver therapy may develop sensitivity to liver extract. Intradermal tests are usually employed as diagnostic aids in this condition, but there is a lack of uniformity in the interpretation of them. McSorley and Davidson (1944) recommend the use of 0.05 ml of undiluted liver extract and accept a weal of over 15 mm in diameter appearing in 15 to 30 minutes as a positive response, but they found that 16 out of 52 patients maintained on parenteral liver therapy were positive to a skin test although tolerating their injections without clinical reactions. Allin and Meyer (1940) observed weals in 13 out of 14 normal subjects given 0.05 ml of liver extract intradermally, and they suggest that only a weal with pseudopods should be accepted as a positive response. Other authors have observed that patients with clinical sensitivity to liver extract usually show a definite weal and flare after an intradermal injection of a 1 in 1,000 dilution of the extract (Feinberg *et al*, 1943, Bauer *et al*, 1947).

The present investigation was undertaken in order to try to assess the value of skin tests in the recognition of sensitivity to liver.

### Results

The cutaneous reactions of a group of patients undergoing maintenance treatment with liver injections were compared with those of a "control" group of patients suffering from a variety of diseases. The age and sex distribution of the two groups was strictly comparable, and the same highly purified extract of liver was used for therapy and for the intradermal tests.

All patients were given 0.05 ml of liver extract intradermally and the readings were taken after 10 to 15 minutes, since it was found in some cases that the weals tended to become less distinct after 15 minutes. It was impossible to record the results in quantitative terms, for the size of the flare was of little significance, the intensity and regularity of the weal seemed to be of greater importance than its actual diameter. The responses were therefore graded as follows: (1) a flare only, (2) a doubtful weal—i.e., a flare with raised central area which blanched when the skin was stretched, (3) a classical weal and flare, and (4) a weal with pseudopod formation. Definite weals were produced not only in 9 out of 11 patients receiving liver but also in 9 out of 11 controls, and the reactions were no more intense in those receiving liver (Table I).

TABLE I—Results of Tests with 0.05 ml of Liver Extract

	Intensity of Reaction			
	Grade 1	Grade 2	Grade 3	Grade 4
Control group	—	2	7	2
Patients receiving liver	—	2	8	1

Three separate groups of patients were then tested with serial dilutions of liver extract in normal saline. Each of these groups was subdivided into patients receiving liver injections and "normal" controls, but since there was no significant difference between these subgroups the results have been pooled in Table II. Definite weals were observed in 8 out of 14 subjects tested with a 1 in 10 dilution of liver extract, in 1 out of 26 tested with a 1 in 100 dilution, and in none of 17 tested with a 1 in 1,000 dilution.

TABLE II—Results of Tests with Dilutions of Live

Dilution	Intensity of Reaction			
	Grade 1	Grade 2	Grade 3	Grade 4
1 in 10	2	4	8	—
1 in 100	23	2	1	—
1 in 1000	16	1	—	—

While carrying out these experiments I have had the opportunity of doing skin tests on three patients with clinical manifestations of acquired sensitivity to liver. All three reacted with the formation of a definite weal when given 0.05 ml of a 1 in 100 dilution of liver extract, and in two of them weal formation was observed with a 1 in 1,000 dilution.

### Discussion

The diagnosis of acquired sensitivity to liver extract should be made mainly on clinical evidence. Skin tests are of secondary importance; they may show only approximate correlation with the severity of the symptoms (Bauer *et al*, 1947), and cases have been reported in which they were negative at the time of the first reaction and became positive later (Delikat, 1943, McSorley and Davidson, 1944). Positive reactions usually persist in patients who have been successfully desensitized (Feinberg *et al*, 1943), and this was observed in one of the cases recorded above.

There are patients, however, who describe vague and indefinite reactions after liver injections, and it is often difficult to know how much significance should be attached to their stories. In such cases the result of an intradermal injection of 0.05 ml of a 1 in 100 dilution of liver extract may be of considerable assistance in diagnosis.

**Conclusion**—Most normal people respond with a typical weal and flare to the intradermal injection of undiluted liver extract. It should not be concluded that a patient is sensitive to liver unless such a reaction is obtained with a dilution of purified extract of at least 1 in 100.

I am grateful to Professor L. J. Witts for his advice.

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The Ministry of National Insurance states that in the first three months of the National Insurance Scheme 293,000 claims for maternity benefit have been made and that they are coming in at the rate of about 18,000 a week, but some mothers are losing money because they make their claims too late. The Ministry recalls that there are three kinds of maternity benefit. First there is a grant of £4 to help towards the usual expenses of having a baby. The grant can be claimed seven weeks before the birth is expected and must be claimed not later than three months after the event. Then there is an attendance allowance of £1 a week for four weeks after confinement for the additional help needed in the home during that time. It must be claimed within ten days of the birth. If the mother is not well enough someone else can claim for her and if necessary sign the form. The grant and the attendance allowance can be claimed either on the mother's own insurance or on her husband's, but not on both. To those mothers who have been in work or registering at an employment exchange over the year ending six weeks before they expect their baby a maternity allowance may be paid instead of the attendance allowance. This allowance is 36s a week for the 13 weeks beginning six weeks before confinement, provided that the mother gives up her work for this period. It should be claimed seven weeks before the week in which the baby is expected. If the claim is not sent in six weeks before the expected date of confinement, part of the allowance may be lost. Fuller details of these benefits and the conditions on which they are paid are given in Leaflet NI 17, and every expectant mother should get a copy from her maternity clinic. The leaflet can also be had at any local National Insurance Office, and inquiries about maternity benefit should be sent there.

# HEREDITARY HAEMORRHAGIC TELANGIECTASIA

BY

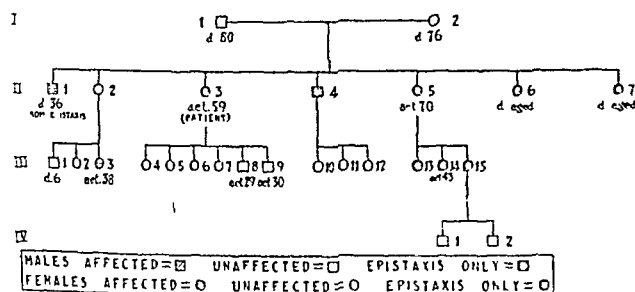
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Hereditary haemorrhagic telangiectasia, sometimes known as the Osler-Rendu disease (Rendu, 1896, Osler, 1901), is a well-recognized but somewhat rare condition whose essential features are defined by its name. The characteristic lesions are telangiectases, or aggregations of dilated small vessels, initially minute but gradually increasing in size, scattered over the skin of the face and arms and the mucosa of the nose, mouth, and pharynx. They are also recorded as occurring at less usual sites such as the bronchial tree and the bowel. These defects are not present at birth but develop later, often in middle life. Their constituent vessels are formed by a single layer of endothelium and tend to bleed, most commonly in the form of recurrent epistaxis, to such an extent as to produce a severe microcytic anaemia or even death. Usually haemorrhage or anaemia brings the patient to the doctor. The familial incidence is very pronounced and is considered to show inheritance of the trait as a Mendelian dominant. The following pedigree is an addition to the available data.

## Case History

The patient (II 3), a woman aged 59, came to hospital feeling "run down". She was very pale and gave a history of repeated severe bleeding from the nose. Examination of the blood showed haemoglobin, 30% (Haldane), red blood cells, 3,570,000 per cmm, colour index, 0.4. No other abnormality was at first obvious, but, when her colour had been a little restored by the administration of iron, telangiectases were clearly visible on the face and arms, in the conjunctiva of the right eye, and in the mucous membrane of the mouth and nose. She stated that she had only recently noticed these spots but questioning revealed that three of her sisters (II 5, 6, 7) had similar facial blemishes. Two of these had died in old age, and



the third, aged 70, could not come for inspection. Her two brothers (II 1, 4) had severe epistaxis, one of them dying from this cause at the age of 36, which marks him (II 1) as a probable sufferer. The remaining sibling is unaffected. The patient's own six children do not yet show the condition, but since the eldest is only 30 they have time to develop it. Among her nephews and nieces a family of three sisters are all affected (III 13, 14, 15). One (III 13) has emigrated to Canada, where she is shown at clinical meetings as a case of a rare disease with "spots" on the face, presumably of the family complaint. Another (III 14) came to see me by invitation and showed typical telangiectases on the face and arms, but has not yet suffered from bleeding. The third (III 15) has not been able to attend but is said to have identical lesions. The descendants of the patient's unaffected sibling are also of interest. One (III 3) has severe epistaxis at the age of 38, another (III 1) died suddenly at the age of 6, bringing to mind the recorded instances of intracranial haemorrhage in early life in these families which have led some writers (Goldstein, 1921, McKie, 1927) to postulate cerebral telangiectases.

## Discussion

Interest has been aroused in the haematology of this condition by Penfold and Lipscomb's (1943) report of a family in which hereditary haemorrhagic telangiectasia was associated with elliptocytosis of the red cells. Elliptocytosis is a feature of primitive marine vertebrates, and these authors put forward the interesting hypothesis that both abnormalities represent a harking back to an amphibian ancestor in which skin and oro-nasal mucosa have a respiratory function and are therefore highly vascular. I am indebted to Dr R H Trinick, of the South London Blood Supply Depot, for examining my patient's red cells for elliptocytosis, which he reports to be absent.

Another recent report (Singer and Wolfson, 1944) describes a family affected by hereditary haemorrhagic telangiectasia in which all three cases examined were unusual in having strongly positive tourniquet tests. This led the authors to regard the disease as one of a group of "capillary hereditary pathies," the other members being hereditary familial vascular purpura and pseudohaemophilia. In the present case the tourniquet test, as it is usually described, was negative.

A recent introduction in the therapeutic field—rutin—has been claimed as valuable in preventing bleeding from the telangiectases by virtue of its beneficial effect on capillary fragility. This substance is a flavone glucoside allied to hesperidin and derived from *Fagopyrum sagittatum*. It was tried in the present instance in doses of up to 40 mg three times a day for periods of a month at a time, but over a year there was no difference between the periods when rutin was taken and when it was not. Attempts at cautery of the nose have met with the usual rather disappointing results. Plugging has not yet been necessary, the use of oxidized cellulose gauze has been recommended in this connexion (Kennedy, 1947). In my patient an adequate blood count is being maintained (latest haemoglobin, 90%) by the administration of iron—one "fersolate" tablet thrice daily. She therefore represents the middle range of an abnormality the severity of which varies from complete harmlessness to a cause of early death.

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The Ministry of Health, after consultation with the National Pharmaceutical Union and the Association of Executive Councils, has prepared a model scheme for testing the quality and amount of drugs and appliances supplied by chemists. It is proposed that England and Wales will be divided into six divisions, in each of which an analyst will work under contract with the executive councils in the division. Appliances will be tested by the Testing House of the Manchester Chamber of Commerce. When a test is to be carried out the clerk of the executive council will arrange for an official prescription to be written in duplicate and signed by a medical practitioner on the council's list, the practitioner will not be told the name of the chemist to whom the prescription is to be presented for dispensing. An agent of the executive council will present the prescription, and when it is dispensed he will tell the chemist that it is required for testing. The certificate of analysis given by the analyst or by the Testing House will be considered by the chairman or deputy chairman of the Pharmaceutical Service Committee and a registered pharmacist member of the committee. If they agree that no further action is required, the chemist will be informed that he may forward the prescription to the pricing bureau for pricing. If they consider that further action is warranted, the matter will stand referred to the Pharmaceutical Service Committee, which will investigate it as if a complaint had been made against the chemist in respect of an alleged failure to comply with his terms of service under Para. 2 of Regulation 4 of the National Health Service (Service Committees and Tribunal) Regulations, 1948.

# INTUSSUSCEPTION IN ADULTS DUE TO CARCINOMA OF THE COLON

BY

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Intussusception in adults from any cause is rare, and cases due to carcinoma of the colon seem to be extremely rare. A search of the literature of the past 10 years reveals only two cases associated with a carcinoma of the colon. Rose (1945) described a case of intussusception of the descending colon due to a polypus with a near-by, but apparently unrelated, carcinoma of the colon. Jason (1945) described a case of intussusception of the transverse colon due to a carcinoma. Two further surveys dealing with this subject may be quoted to illustrate the rarity of the condition. Eliot and Corscaden (1911) collected up to that time 300 cases of intussusception in adults, only 20 being definitely due to carcinoma. Christopher (1936) could find only 10 cases of intussusception due to carcinoma since Eliot and Corscaden's paper. In view of this, and because they show other unusual features, the following two cases are recorded.

## Case 1

A woman aged 72 was admitted with a history of colicky abdominal pain, diarrhoea, and the passage of blood per rectum for the past two weeks.

On examination she was seen to be a thin frail old lady with evidence of recent loss of weight. There was no abnormality detected on abdominal examination. Rectal examination revealed a typical sausage-shaped intussusception which had almost reached the anal orifice, and hence a diagnosis of chronic intussusception of the large bowel was made.

**Operation**—Spinal analgesia was used. The abdomen was opened by a lower midline incision. An intussusception of the pelvic colon into the rectum was found. Reduction was, from the first, difficult, but was partially achieved with the aid of an assistant exerting pressure on the apex through the anal orifice. An impasse was then reached, as no further reduction seemed possible. On increasing the reducing force, signs of splitting of the bowel appeared and as no other means was possible the split was enlarged and complete reduction was achieved. It was now found that at the apex of the intussusception, in the middle portion of the pelvic colon, there was a small annular carcinoma. The split in the bowel was below this in the upper part of the rectum. The condition was further dealt with by excising the portion of the bowel containing the carcinoma and the split. Continuity could not be re-established and so the proximal end was brought out of the left inguinal region to form a permanent colostomy and the lower end was closed with two layers of sutures as in Hartmann's (1923) operation for removal of a carcinoma in the recto-sigmoid region. The rest of the abdomen was not explored because of the danger of disseminating septic material. The wound was closed without drainage.

Recovery was uneventful, and the patient was discharged on the 42nd post operative day. The delay in her discharge was due to difficulty in obtaining a colostomy belt. The growth was reported as being a mucoid carcinoma. When last seen almost exactly two years after operation, she was in good health and without any evidence of recurrence of the growth.

## Case 2

A man aged 68 was admitted with a history of two weeks constipation, colicky abdominal pain, and the passage of blood per rectum.

On examination he was seen to be a well built man in fairly good general condition. Abdominal examination revealed considerable generalized distension and an increase in peristaltic sounds on auscultation. On rectal examination a typical intussusception with a papilliferous carcinomatous mass at the apex was found. It had reached as far as the lower part of

the rectum. A diagnosis of chronic intussusception of the large bowel due to a papilliferous carcinoma was made.

**Operation**—Spinal analgesia was used. The abdomen was opened through a right lower paramedian incision. It was found that almost complete reduction of the intussusception had occurred. The cause of this is discussed below. A small knuckle of bowel was still invaginated and reduction was completed easily. It was now found that the intussusception was of the pelvic colon, which was very mobile, and the papilliferous carcinoma could be palpated in its middle portion. There was no evidence of secondary deposits in the liver or peritoneum. The condition was dealt with by resection of the colon containing the carcinoma, together with about 2½ in (6.25 cm) of normal colon on either side by Paul's method. The double barrelled bowel ends were brought out of a separate incision in the left inguinal region and Paul's tubes were inserted into the open ends.

Examination of the removed specimen showed a papilliferous carcinoma arising from an area about 1½ in (3.75 cm) in diameter in the middle of the loop of removed bowel. Microscopically it proved to be an adenocarcinoma.

Recovery was uneventful. The spur of the colostomy was crushed after an interval of three weeks, and the colostomy was finally closed at a second operation 10 weeks after the first. The patient was discharged 12 weeks after the original operation.

An interval of only seven months has elapsed since operation, but when last seen he was very well, with no evidence of recurrence. He had a slight tendency to constipation, but usually had a daily motion with the help of mild laxatives.

## Discussion

**Diagnosis**—This presented no difficulty in either case as the intussusception was easily palpable on rectal examination, in fact, in both cases it had nearly reached the anus. The presence of a carcinoma in Case 1 was not suspected until the abdomen had been opened and reduction of the intussusception had been completed. The carcinoma in Case 2 was readily palpable, and hence was diagnosed as the cause of the intussusception before operation.

**Methods of Operation**—As this condition is of necessity associated with a long and mobile pelvic colon, Paul's method of resection of the growth would appear to be satisfactory—as in Case 2—and is particularly useful in the old patient who would not stand a more extensive removal. It has the advantage of resection of the colon combined with a colostomy in one procedure, and continuity of the colon can be re-established later without any further major operation. This method could not be used in Case 1 because of the splitting in the region of the pelvic rectal junction, otherwise it would probably have been the method of choice.

**Results**—The unexpected good result in Case 1 was both surprising and gratifying. In spite of the inevitable peritoneal contamination convalescence was uneventful. It is unfortunate, however, that continuity of the colon could not be re-established. The partial reduction of the intussusception which occurred in Case 2 was an unexpected find at operation. The cause could not be determined with certainty, but was probably due to a series of enemata which the patient received before operation. If this is so it is interesting in view of the fact that this method of treatment of any intussusception has been advocated. It seems, however, that it could succeed only in intussusceptions of the distal colon.

I wish to thank Dr H. H. MacWilliam, medical superintendent of Walton Hospital, Liverpool, for permission to publish these cases.

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## Medical Memoranda

### Two Unusual Cases of Abdominal Extrauterine Pregnancy

Two cases of abdominal extrauterine pregnancy are reported which were admitted to Mengo Hospital, Kampala, Uganda, within four months and present features worthy of record

#### CASE 1

The patient, a Muganda woman in the early twenties, had had a previous normal pregnancy. During antenatal observation the pregnancy appeared normal, the foetal position was left occipito anterior, the head above the brim of the pelvis, but a small hard mass low down on the right side of what was thought to be the enlarging uterus was noted and presumed to be a fibroid.

On April 15, 1946, when apparently at term, the patient was admitted to hospital, having taken a native drug popularly believed to induce labour. This drug, we have observed, usually causes abdominal distension and tonic contractions of the uterus. She appeared to be very ill and in severe pain, with a rapid pulse rate. The abdomen was distended and the uterus felt very hard and was tender. The foetal position was anterior and the foetal heart rate 120 a minute. The head was above the brim and the cervix was not taken up. She was treated expectantly with morphine. The pain decreased, and on April 29 the head was found to have entered the pelvis and was well below the mass felt on the right side. After 1 month, during which time she complained persistently of pain, the physical signs were unaltered. A medical induction on June 1 was unsuccessful. At her own request, and as her condition was deteriorating, laparotomy was performed.

At operation on June 5 the foetus was found lying free in an amniotic sac in the abdominal cavity. The presentation was cephalic in a completely occipito anterior position. Some exertion was needed to disimpact the head from the pelvis. The child, slightly post mature and weighing 8 lb 2 oz (3.66 kg), was delivered alive. The uterus was enlarged to the size of a 10 weeks pregnancy. Immediately after delivery there was a profuse haemorrhage from some detachment of the placenta, which was implanted on and received the majority of its blood supply from the ovarian pedicle and left Fallopian tube and was also adherent to the omentum and meso colon. The haemorrhage was temporarily controlled by a piece of rubber tubing used as a tourniquet round the base of the placental attachment. As much of the placenta was removed as possible but the membranes were left *in situ*. The abdomen was drained for 24 hours. The condition of mother and child was good next day, and they were discharged from hospital well some three weeks later.

It is clear that the initial error of diagnosis was caused by mistaking the fundus of the uterus for a fibroid. The position of the foetus being anterior, no limbs were palpable and the firm back felt like a uterus in tonic contraction. The pains must have been due to the 'false' labour described in these cases. The descent of the head into the pelvis was at the time unmistakable and supported the view that pregnancy was proceeding normally.

#### CASE 2

The patient was a Muganda woman aged about 20 on whom a caesarean section had been performed by one of us (W.R.B.) for disproportion. Following this she was febrile for the first few days of the puerperium and the wound in the parietes healed by second intention. The present pregnancy, her second, began about January, 1946, and was uneventful in the early months except for one week of peri umbilical pain in June.

On Aug 1 there was a sudden onset of pain in the morning and the patient was admitted to hospital the same afternoon. On examination a foetus was felt lying transversely. Pelvic measurements were small and the pains did not appear to be true labour pains. The patient was observed until Aug 10, when a membrane puncture with a Drew-Smythe catheter was attempted but only blood was obtained.

On Aug 14 a laparotomy was performed, as an extrauterine pregnancy was considered likely. On opening the abdomen a blood-filled bag of membranes presented, and on opening this a macerated foetus was extracted. A second bag was seen and a second foetus removed. The placentas and membranes were adherent to the under surface of the liver. The uterus had a rent on its anterior surface and was filled with blood clot and a subtotal hysterectomy was performed. The two umbilical cords were tied and cut short. The placentas were left *in situ*. One placenta was noted to be partially separated, and it was thought that the blood clot in and around the uterus was caused by blood draining by gravity from this placenta.

Penicillin was given and the patient made a good recovery. On Aug 30 a soft mass dull on percussion was noted on the left of the umbilicus. This gradually increased in size until on Sept 23 it almost filled the abdomen. It was freely movable and was not tender. There was no fever or leucocytosis. The patient left hospital on Sept 26, and when seen 1 month later the abdominal mass was unaltered and her condition good. She refused to undergo a further operation and has not yet been seen again. It was thought that the swelling was caused by autolysis of the placentas rather than infection.

Dr J. N. P. Davies, of the Medical Laboratory, Kampala, kindly reported upon the foetuses and the uterus, and stated that the male twin was smaller and lighter than the female. The male twin weighed 5½ lb (2.5 kg) and was 15 in (38 cm) in length. It appeared to have no abnormality, but examination was not complete before the twins were claimed by the father. The female twin was 17 in (43 cm) long and weighed 6½ lb (2.8 kg). The uterus measured 4 in (10 cm) from the cervix to the fundus and there was a tear down the anterior surface. The specimen was shown to Dr Gerald Holmes of Mulaga Hospital, and it was agreed that the tear in the uterus was of long standing and that it was the old caesarean operation incision which had failed to close. In between the pregnancies it would have been sealed over by the peritoneum, and the most probable sequence of events was that the developing ova were initially intrauterine and, either because of direct attack on the peritoneal covering or more probably because of rising pressure, broke through into the peritoneal cavity and became implanted upon the liver and spleen. Pregnancy then proceeded uneventfully until a partial separation of one placenta caused bleeding and abdominal pain on the date that the patient was admitted to hospital.

Our thanks are due to Dr J. N. P. Davies and Dr G. Holmes, of the Colonial Medical Service, for their advice and comments.

W. R. BILLINGTON M.D.

R. T. S. GOODCHILD, F.R.C.S. Ed., D.T.M. & H.

### Intravenous Procaine in Transfusion

The veins are innervated and their calibre is regulated in the same way as the arterioles, they constrict during pressor reflexes and dilate during depressor reflexes (Wright, 1945). Humble and Belyavin (1944) found that venous spasm occurring in shocked patients could interfere seriously with attempts at transfusion.

In cases of shock developing during operation the rate of flow of the intravenous drip transfusion may often be observed to become very slow, or it may even cease as a result of constriction of the recipient vein. On numerous occasions in such cases the administration of a solution of procaine hydrochloride by injection into the tubing of the transfusion apparatus near the needle has led to a great increase in the rate of flow, although neither the pressure of the transfusion nor the adjustment of the stopcock has been altered. This result is presumably due to a local action of the procaine in relaxing the constriction of the vein, for a prior control injection of a similar volume of normal saline does not produce the effect.

The amount of procaine hydrochloride usually employed is 5-10 ml. of 1% solution, that such an amount may be safely administered intravenously has recently been shown by many workers (Lundy, 1942; Gordon, 1943; Allen, 1945). This injection may need to be repeated, as the duration of the effect varies from 10 minutes to an hour or more. Several examples are quoted in the Table.

Operation	B.P.	Rate of Drip Before Procaine	Rate of Drip 1 Min After Procaine
Laparotomy	95/60	36 per min	200 per min
For coarctation of aorta	110/60	100	270
Fractured skull	120/70	48	135
Combined excision of rectum	100/70	30	150
Repair of ventral hernia	100/60	40	250 +
Hemicolectomy	60/40	10	200

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## Reviews

### HUMAN EVOLUTION

*A New Theory of Human Evolution* By Sir Arthur Keith  
(Pp 451 21s) London Watts and Co 1948

This book is a series of 41 essays, each more or less self-sufficient but grouped round the central notion that until the last 8 000 years or so the human species has consisted of small highly isolated groups, and that the instincts or mental biases making for such isolation have been a major factor in human evolution. This theory is not strictly new, and unfortunately Sir Arthur has not taken full cognizance of the extensive practical and theoretical work of Wright and his associates in America on the very different course which evolution takes in a wide ranging species as compared with one broken up into small groups. Nor does he refer to the researches of Dahlberg or the extent to which small groups are still reproductively isolated in rural Sweden. It is possible that he exaggerates the extent of the isolation between such communities. If the various tribes of Australia were fully isolated sexually the contour lines of blood group frequencies found in that country by Wilson Graydon Simmons, and Bryce would be quite unintelligible. Above all he may well be at fault in supposing that the competition between such units was primarily by war. One can wipe out a primitive tribe as effectively with infectious diseases as with machine guns. If I had to frame a theory of human evolution (which heaven forbid) I should lay very great stress on disease as a selective factor. Keith cites Vallois for the statement that 40% of Neanderthal skeletons are of individuals under 11 years old. Man could not live in dense communities till he had become able to resist crowd diseases to a great extent and immunological progress may have been important as moral and intellectual in rendering civilization possible.

Sir Arthur thinks that a 'dual code' of behaviour—amity to one's own group, enmity to outsiders—is part of a man's nature, and that hence wars cannot be avoided. 'To the ethically minded,' he states 'the dual code is anathema.' Now, I practise a dual code of sexual behaviour, one type being reserved for my wife the other for the remaining females of our species. My tomcat Puma has a unitary code, but if I imitated him I should be anathema to the ethically minded. Amity for one's own group need not imply hostility to others, and in fact many primitive tribes are hospitable to strangers while practising a fairly rigid endogamy. Nor do I murder or rob women to whom I am not married.

I agree with Sir Arthur that primitive communities may be regarded as evolutionary units, and completely disagree with his view that modern nations can be so regarded. A small tribe without any natural selection progresses half-way to complete homozygosis—i.e., loses half its heterozygosis—in a number of generations about equal to the number of breeding members in it. Thus a small tribe can become genetically homogeneous in a few thousand years, a nation could not in a hundred million. Moreover, most nations are extremely labile. We have only to consider the changes in the frontiers of Europe in the last 80 years to see that nations are not biological units and that it is most unlikely that they will last long enough to give rise to races, as Sir Arthur believes.

Unfortunately the essay on 'The Machinery of Evolution' is one of the weakest in the book. For example, the hypothetical population described on p 127 has no mortality between the ages of 15 and 35. For an appreciation of recent work on this question the reader will do better to study such a book as Huxley's *Evolution*. On the other hand, in Essays 20 to 30 in which Sir Arthur discusses the actual history of human evolution he writes from very extensive knowledge. Whether or not the view put forward that man originated from *Australopithecus* or some related form and spread out from Africa be ultimately accepted it must be very seriously considered. Whether the major human races have evolved in parallel for as long as Sir Arthur believes may be doubtful but his arguments for his thesis are strong.

Nevertheless, I believe that one of the central theses of the book—namely, that "altruism signifies a complete abandonment of the evolutionary outlook" (p 72)—is not only immoral but false. It may have been true in palaeolithic times, it is not true now. Those who practise altruism in our own society accumulate less money than the egoists. But the poor breed quicker than the rich. It is, as a matter of hard fact, the meek who inherit the earth. The same is true of nations. The Germans were persuaded by Hitler that a respect for other human beings was biologically unsound. They lost a great deal of population and territory as a consequence of this belief. So I hope and trust, will other nations which may imitate them in the future. The physician is bound to be somewhat of an altruist, and should realize that, by and large, altruism is not only ethically but biologically sound.

In spite of all these criticisms I can only close by stating that I shall congratulate myself if I can write as interesting and provocative a book as this at the age of 82. Even those who disagree most with it will find in it a wealth of information, particularly on the older literature of the subject and on recent human palaeontology, which will hardly be discovered elsewhere.

J B S HALDANE

### GASTRITIS

*Gastritis* By Rudolf Schindler, M.D., F.A.C.P. (Pp 462 96 figures £2 10s) London William Heinemann (Medical Books) Ltd 1947

This is a companion volume to the author's handbook on gastroscopy. It is written as a result of his experience since 1920 and is based on studies of more than 2,500 cases which were considered to be examples of uncomplicated gastritis. No one has done more than Schindler to paint a complete picture of gastritis, and his views will be studied closely in Britain where opinions which differ from his are widely held.

Schindler is aware of his critics and because of them he writes "Gastroscopy is a subjective method, the results obtained will and should be read with wholesome criticism, and only physicians who look through the gastroscope, not only occasionally, but often and routinely, will feel obliged finally to correct their laudable conservative attitude. Too few have time to do that. For that reason I have built this book around histopathologic pictures. Their study may convince the sceptic of the reality of the disease entity, chronic gastritis."

The pathological material was obtained at necropsy, from gastrectomy specimens, and in 15 cases from biopsies of the stomach wall during laparotomy for some other purpose. He discusses the results at length and illustrates them in nearly 100 photographs and photomicrographs. These undoubtedly show different appearances, but whether these are to be regarded as pathological variations or whether they come within the wide range of normality of the gastric mucosa is still subject for argument. In addition to the illustrations this important book contains a mass of evidence, argument and counter argument. The style is not always easy to follow but it must be studied carefully by physicians and gastroscopists as well as by morbid anatomists.

CHRISTOPHER HARDWICK

### TAYLOR'S MEDICAL JURISPRUDENCE

*Taylor's Principles and Practice of Medical Jurisprudence* Tenth edition Volume I Edited by Sydney Smith, C.B.E., M.D., F.R.C.P. Ed. D.P.H. With a complete revision of the Legal Aspect by W. G. H. Cook, LL.D., M.Sc. (Econ.) and of the Chemical Aspect by C. P. Stewart, Ph.D., M.Sc. (Pp 723 48 illustrations £2 5s) London J and A Churchill 1948

Medical textbooks of to-day seldom attain the literary distinction which characterize the writings of the nineteenth century. The changing pace of life and more scientific method of study militate against it. It is the more remarkable therefore, that for some 85 years, through changing editorship, Taylor has retained its reputation as a work of forensic reference for its compass, authority, lucidity, and fine literary style.

Sydney Smith, who has guided its destiny for the last 26 years—longer than any previous editor—has moulded this new edition with great success. His remarkable experience in the subject and his ability in assessing the qualities of scientific

evidence have added appreciably to its value to the medico-legal specialist, and he has wisely retained so far as possible the pithy style and forthrightness of Taylor in the innumerable case histories which illuminate the text. Revision has been extensive *pari passu* with the advances in scientific knowledge and changes in statutory law, and it is unfortunate that the appearance of this first volume should take place at the moment when such a vast body of statute as the Workmen's Compensation Acts gives way to the improvements of the National Insurance (Industrial Injuries) Act, the legal editor, Cook, may find some remedy for this in the production of the second volume. Such a comprehensive and authoritative book of reference cannot afford to be without it.

It would be invidious for any reviewer to comb the text for what he might regard as omissions of detail, but Professor Smith's enthusiasm and vigour are capable of infinite effort, and we should like to see something of the encephalogram, of the psychiatrist's views on sadism and masochism in relation to both crime and accident, on the identity of race from the skull, on explosive blast, the assessment of healed wounds—the newer work on *contre coup*, the physics of electrocution—so many mere trivialities on which he could discourse to our advantage. There is of course no end to such demands. Taylor remains a remarkably comprehensive volume of reference, authoritative, lucid and in a literary style which maintains the best traditions of medicine.

KEITH SIMPSON

### MEDICAL PAPERS

*Anales de la Catedra de Clinica Medica* By Dr E S Mazzei  
Volume 1 (1946) (Pp 367, illustrated No price given)  
Buenos Aires 'El Ateneo' 1947

This volume is not easy to review, since it consists of a number of articles on unrelated subjects and a comprehensive survey would necessitate a dissection of each article in turn. Of the sixteen papers presented eight are about pulmonary embolism; they are written by Dr Mazzei in collaboration with two of his colleagues. They discuss the subject exhaustively, broadly classifying the cases into medical, surgical and obstetrical of which medical account for 25%, surgical 74%, and obstetrical only 1%. They consider treatment under three heads—prevention of venous thrombosis, prevention of emboli, and the measures to be taken once an embolus has occurred. Some of the prophylactic advice, such as abstinence from tobacco for ten days before operation, seems to be of doubtful value, some such as the condemnation of the classical Fowler position recalls recent controversy in Britain, most of it is thoroughly sound.

Among other papers in this volume there is a short but lucid one on the mechanics of obstructive emphysema and its relation to localized bronchial narrowing with consequent difficulty in expiration of air from the part of the lung distal to the partial block. Another paper distinguished by summaries in good Spanish, fair French and indifferent English is a review of modern concepts of functional renal insufficiency. The authors of the other papers each capably discuss a subject, although they may add nothing new; they maintain the general standard.

A MORTON GILL

The discoverer of streptomycin was the first in the field with a book on antibiotics written from a broad and philosophical rather than a clinical standpoint. The second edition of *Microbial Antagonisms and Antibiotic Substances* by Dr Selman A Waksman (London: Geoffrey Cumberlege 22s) is much expanded in scope and usefulness even though more still has happened since it went to press—chloromycetin for instance, one of the most promising of the latest discoveries, is not mentioned. As a soil microbiologist the author is at home in the greatest natural field of antibiotic activity and in an interesting chapter discusses the possibility of controlling plant diseases by introducing or encouraging micro-organisms as agonistic to plant pathogens in the soil. He presents in orderly form the mass of information which has been accumulated in the past few years about hundreds of antibiotic substances formed by various fungi and bacteria, the methods of detecting, extracting and studying them, and their chemical structure and biological activities. Few of these have attained the status of chemotherapeutic agents many never can owing to toxicity or other grave defects others have yet to be fully tested. To this remarkable new branch of science Dr Waksman's book is a comprehensive and useful guide.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Emergencies in Medical Practice* Edited by C A Birch, M.D., F.R.C.P. (Pp 468 25s) Edinburgh E and S Livingstone 1948

A manual of the treatment of medical emergencies

*Psychology and Mental Health* By C W Valentine M.A. D.Phil. (Pp 82 4s) London Methuen 1948

An exposition for the layman

*Everyday Problems of the School Child* By A H Bowley Ph.D. (Pp 142 7s 6d) Edinburgh E and S Livingstone 1948

A book for teachers and parents

*Andreas Vesalius Bruxellensis The Bloodletting Letter of 1539* By John B deC M Saunders F.R.C.S., and C D O Mallev (Pp 94 21s) London W Heinemann 1948

Translation of letter by Vesalius on phlebotomy, with annotations

*Minutes of the Dental Board of the United Kingdom* Vol 26 (Pp 99 No price) London Constable 1948

Also contains committee reports for 1947

*Tuberculosis in Childhood* By D S opford Price, M.D. and H F MacAuley, M.Ch., F.R.C.S.I. 2nd ed (Pp 219 25s) Bristol John Wright 1948

A general account of its epidemiology, symptomatology and treatment

*Infra Red Irradiation* By W Beaumont M.R.C.S., L.R.C.P. 3rd ed (Pp 161 8s 6d) London H K Lewis 1948

A manual of treatment with infra red rays

*Handbook of Medical Emergencies* By a group of Harvard medical students (Pp 106 14s) London Geoffrey Cumberlege 1947

Notes on the treatment of emergencies, intended particularly for students and house-men

*Problems of Fertility in General Practice* By M Hadley Jackson M.B. B.S., D.R.C.O.G. and others (Pp 255 17s 6d) London Hamish Hamilton 1948

The authors discuss sexual difficulties, the investigation and treatment of infertility, the prevention of repeated miscarriages and contraception

*Modern Methods of Infant Management* By W R F Collis M.A. M.D., F.R.C.P., F.R.C.P.I. D.P.H., and others (Pp 285 17s 6d) London Heinemann 1948

A practical manual on management of the newborn infant

*Adolescence* By C M Fleming, M.A., Ed B Ph.D., F.B.P.S. (Pp 261 16s) London Routledge and Kegan Paul 1948

An account of the mental development of adolescents

*First-Year Physiological Technique* By A Comfort M.B. D.Ch. (Pp 84 7s 6d) London Staples Press 1948

An introduction to technique in the physiology laboratory

*A Short History of Ophthalmology* By A Sorsby M.D. F.R.C.S. 2nd ed (Pp 103 8s 6d) London Staples Press 1948

A general history from earliest times

*Fever and the Regulation of Body Temperature* By E F DuBois M.D. (Pp 68 10s 6d) Oxford Blackwell Scientific Publications 1948

A monograph on the regulation of body temperature

*Disorders of Sex and Reproduction* By A P Pillay O.B.E. M.B., B.S. (Pp 299 18s) London H K Lewis 1948

The investigation and treatment of physiological and psychological disorders

*The Growth of a Profession* By J H Wickstead O.B.E., M.C.S.P. (Pp 212 6s) London Edward Arnold 1948

A history of the Chartered Society of Physiotherapists



## BRITISH MEDICAL JOURNAL

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STREPTOMYCIN IN PULMONARY  
TUBERCULOSIS

In few infections is it so difficult to assess the results of treatment as in pulmonary tuberculosis, with its varied clinical picture and unpredictable course. Remarkable recoveries can take place with no treatment except rest in bed. In the Medical Research Council's trial of streptomycin in pulmonary tuberculosis, the report on which is published in this issue, there was a satisfactory control series of patients, this made it possible for the first time to make a fair estimate of the effects of the drug in one form of the disease. The method of investigation is discussed in the next leading article. The trial was designed to do no more than answer the question, Is streptomycin of any value at all in pulmonary tuberculosis? Although no attempt was made to determine either the types of disease likely to respond most favourably or the most effective dosage of the drug, much valuable information beyond the limited scope of the inquiry has in fact emerged.

The type of disease chosen was "acute progressive bilateral pulmonary tuberculosis of presumably recent origin, bacteriologically proved, unsuitable for collapse therapy, age group 15 to 25 (later extended to 30)". The treated (S) cases received 2 g daily of streptomycin divided into four 6-hourly doses. Most patients were treated for four months, but some of the earlier ones for longer periods up to six months. The control (C) patients were treated by bed-rest alone in the same hospitals and with the same regime as the S cases apart from streptomycin administration. Although a few of the C patients became suitable for various forms of collapse therapy (artificial pneumoperitoneum with phrenic paralysis in all but one case) before the end of the observation period, these measures were not thought to have had an appreciable influence on the progress of most of them during the course of the trial. Both S and C cases were observed for a period of six months from the beginning of the investigation.

The results were analysed by changes in the radiographic appearances. These were assessed by a panel of three without knowledge of whether the films being viewed were those of S or C patients. The overall results leave no doubt of the beneficial effect of streptomycin. Of 55 S patients four (7%) and of 52 C patients 14 (27%) died within the six months. This difference is statistically significant. Of the S patients 27 (51%) and of the C patients four (8%) were judged radiologically to have improved considerably. Assessment of the changes in successive two-month periods showed that the improvement in S cases could often be seen during the earlier months, while the improvement in some of the C cases tended to occur later. Analysis of the results according to the degree of illness

of the patients on admission showed that the difference in response to treatment between the S and the C cases was very much greater in those patients who were more acutely ill with higher temperatures on admission to the trial. There was relatively little difference between the results in the S and the C patients whose maximum evening temperature during the first week did not exceed 99.9° F (37.75° C), the differences between the two groups as a whole being accounted for almost entirely by the more severely ill patients.

The extent of improvement in both S and C cases was greatest in those with no initial gross cavitation, of the 23 S patients without large cavities 17 improved considerably and none died. Streptomycin did not have a marked effect on the presence of tubercle bacilli in the sputum. Complete bacteriological information was available in 54 of the 55 S cases. Of these 54, four had died by the end of the trial, tubercle bacilli were found on direct examination of the sputum in 32 cases and by cultural methods in another 10. In only eight could bacilli not be found by any method, as compared with two of the C cases. There were no striking differences in the changes of weight between the two groups, in assessing the significance of this the gastric upset caused in many patients by the streptomycin must be taken into account. The condition of the patients in the two groups was reviewed by the clinicians in charge at the end of a year from the beginning of the trial. The differences between the two groups were then less evident than at six months. Twelve (22%) of the S cases and 24 (46%) of the C cases had died, while 31 (56%) of the S cases and 16 (31%) of the C cases had improved. The difference in mortality is statistically significant. The general impression derived from the study of the two groups is that the results from streptomycin treatment were best in those patients whose lesions were active at the beginning of treatment but had not yet formed cavities. Presumably these were the lesions which were truly of recent origin. When large cavities were present the results were not so good, and in less acutely ill patients the difference in progress between the S and the C cases was smaller.

The most important toxic effect was on the vestibular apparatus. Giddiness was noticed by 36 of the 55 patients, usually in the fourth or fifth week of treatment. Nausea and vomiting occurred often, but these symptoms were often relieved by "benadryl". In no case did treatment have to be stopped because of toxic effects.

Complete information was obtained about the streptomycin sensitivity of the organisms isolated from 42 of the 55 treated patients. The sensitivity of all the strains isolated before treatment approximated to that of the standard H37Rv. In 35 of the 42 cases strains showing resistance 32 or more times that of H37Rv were isolated after treatment, in 13 of these the resistance was more than 2,000 times that of H37Rv. The time at which these resistant strains were detected was estimated as the midpoint between the times of isolation of the last sensitive strain and of the first resistant strain. The mean figure on this basis was the 53rd day after starting treatment. When frequent cultures were obtained it was found that resistance rose rapidly to a maximum level which was subsequently maintained. Comparison of the date of

appearance and degree of streptomycin resistance with clinical results brought out the fact that on the whole those patients from whom highly resistant strains were isolated early did less well than those whose organisms showed lesser degrees of resistance later. Seven patients whose organisms did not develop resistance over 32 times that of H37Rv improved steadily. The figures are not large enough to correlate the clinical results, the degree of streptomycin resistance acquired by the organism, and the other relevant factors such as the type of lesion present at the beginning of treatment.

This investigation has achieved its limited object by proving that streptomycin is of value in the treatment of acute forms of pulmonary tuberculosis. Many further problems remain to be solved, however, before the indications for the use of this new remedy in pulmonary tuberculosis can be regarded as firmly established. There are already enough favourable reports to justify the use of streptomycin in the treatment of ulcerative lesions of the main bronchi at the pre-stenotic stage where these are affecting prognosis. Its value in ulcerative tuberculous lesions of the larynx, pharynx, and tongue is also well established. Patients with old and apparently stable lesions who develop, while under observation, acute spread of the disease in previously unaffected parts of the lung may be expected to respond well, since they can be treated when the lesions are at the very earliest stage. Whether or not streptomycin should be used as a routine prophylactic against extension of the disease after surgical treatment for pulmonary tuberculosis remains to be seen. It is certainly of great importance to determine, for instance, whether streptomycin should be given prophylactically to patients undergoing thoracoplasty or whether it is better reserved for the treatment of the smaller number in whom the disease actually extends after operation. The answer to this question cannot be deduced *a priori*, even if patients treated prophylactically showed better immediate results, in the long run they might be worse off, since those among them who later had a recrudescence of disease suitable for streptomycin treatment might prove to be harbouring resistant organisms and to be no longer responsive to the drug. The question of the proper use of streptomycin as an adjunct to collapse therapy, both medical and surgical, must be settled.

Streptomycin resistance is perhaps the most important problem of all. From the point of view of the individual patient the probability that the organisms will develop resistance after a relatively short period of treatment means that a course of streptomycin may be effectual only once during possibly a long and chequered illness. From the point of view of the community there is the risk that patients with unsuitable lesions ineffectively treated may disseminate streptomycin-resistant organisms, so that an increasing number of new cases of all forms of tuberculosis may in future be found to be unresponsive to streptomycin. It therefore seems in the best interests both of the individual patient and of the community that streptomycin should be used for the treatment of pulmonary tuberculosis with a proper understanding of the difficulties and dangers and only when the indications for its use are clear. Streptomycin may, of course, be outmoded in the treatment of

tuberculosis by new and more potent antibiotics. Even so the enormous amount of work done upon it will not have been wasted. Laboratory and clinical techniques which have been evolved can no doubt be applied to the problems of other antibiotics, and the Medical Research Council's controlled trial will serve as a model for future investigations of substances introduced for the treatment of pulmonary tuberculosis.

### THE CONTROLLED THERAPEUTIC TRIAL

The clinical trial of a remedy is as old as medicine itself. The idea of controlled investigation and statistical analysis is recent enough to call new. With the older hit-or-miss method the patient was treated, and subsequent observation showed with what result. If the patient—or patients—died or at least failed to get well, the results that flowed from the remedy were unequivocal. It is when the patients, or anyway some of them, recover that we are faced with the *post hoc propter hoc* dilemma. Is the result due to the remedy or to the *vis medicatrix naturae*? Until quite recent years that difficulty was principally met—when it was met at all—by comparing patients submitted to the new treatment with the patients the clinician had observed in past years. The problems of such a comparison were many. It was often not certain that the patients selected for the trial were comparable with those previously seen. Those earlier patients were often not equally well documented, so that records were lacking and the comparisons necessarily crude, the numbers involved were frequently far too few to merit the confidence placed in them, and mortality from the same disease at different periods of time is affected by factors such as breeding out of highly susceptible stock, economic and social conditions, and variations in the infecting organism. With a new discovery that produces dramatic results there would rarely be any doubt about the answer, but such discoveries are rare. It is the smaller, yet often important, advances that it is difficult to substantiate—or disprove—by such rough-and-ready means. The meteoric rise and regrettably slower fall of many a form of treatment bear eloquent witness to the lack of the controlled trial in medicine. The application of such trials was gaining ground before the war and their value becoming more and more appreciated by the clinician—subject always, it must be stressed, to the fundamental ethical problem inherent in using human beings as the subject of experiment.

In developing the trial of streptomycin in the treatment of pulmonary tuberculosis, reported on page 769, the Medical Research Council's Committee was clearly relieved of this particular moral responsibility. It had allocated much of the limited streptomycin at its disposal to treating and observing two fatal forms of tuberculosis—the miliary and meningeal. It had, needless to say, a quite insufficient supply to treat all possible cases of pulmonary tuberculosis and in this situation rightly set about planning a rigorously controlled investigation. The plan adopted is worthy of careful study in itself, quite apart from the results to which it led, for it may well serve as a model in this field.

To begin with, the Committee was clearly of a mind not to dissipate its energies—and its small supply of the drug

in attempting to cover too wide or too ill-defined a field it selected one type of case and defined it as rigidly as possible—acute progressive bilateral pulmonary tuberculosis of presumably recent origin, bacteriologically proved, unsuitable for collapse therapy, ages 15 to 30. In such trials it is often tempting to add little groups of patients of differing types here, there, and everywhere with the object of learning rather more. Though with a statistical design it will certainly sometimes pay to do so, very often the rather more becomes the rather less. Such a trial gives doubtful answers to the many points but no decisive answer to any. This temptation the Committee, and the clinicians co-operating with it, resisted.

Having defined the type of case it proposed to observe, the Committee next obtained the co-operation of various hospitals in carrying out the controlled trial and sought for suitable patients to place in their care. The important point here is that without some such central organization to direct the work, and without the collaboration of a number of hospitals in carrying it out, a sufficient number of patients of the same type will rarely be available. Small groups here and there will give conflicting answers. Then to ensure that the patient did conform to the features laid down the Committee set up a selection panel. This panel conceivably might have been influenced in selecting or rejecting a patient if it had known beforehand whether the patient was to be allocated to the streptomycin or to the controlled group—e.g., if alternate patients had been taken. It was relieved of any such worries by an ingenious system of sealed envelopes. Once a patient had been accepted an appropriate numbered envelope was opened, and not till then was the patient's group revealed. The allocation to "S" or "C" in this form had been made at random by the statistician. It is instructive also to see how close an equality of group characteristics this statistical method produced. For instance, 54% in the "S" group and 46% in the "C" group were in poor general condition at the start of the trial, 20 and 17 were desperately ill, 65% of "S" patients and 56% of "C" had a sedimentation rate over 50, 32 "S" and 30 "C" cases showed large or multiple cavities, in 19 of each group there was radiological evidence of segmental atelectasis. The random allocation has not only removed personal responsibility from the clinician and possible bias in his process of choosing patients, but has on the whole effectively equated the groups—fundamental, of course, to the general comparisons (the "S" group, as it happens was slightly the poorer).

The hospitals to which these patients passed were provided beforehand with standard record forms designed specially for the trial, and examinations of the patient were required at fixed intervals. Thus uniform records were assured and any loss of essential particulars guarded against. Treatment was likewise standardized, though the clinicians in charge of the patients were naturally given freedom of action in urgent cases. To overcome any difficulties that might arise—indeed, were certain to arise in a trial of this nature—frequent meetings were held both of the clinicians and pathologists concerned, while the co-ordinator at the centre constantly visited the periphery. Clearly in this way much trouble was taken to ensure

smooth running and to develop a co-ordination of methodology in every respect throughout the hospitals. Finally the monthly reports from the hospitals were assessed centrally, and thus again uniformly. In this assessment it may be noted that one of the fundamental criteria of the effect of the drug was bound to lie in the change in the radiological picture. To remove all possibility of bias the Committee had the films assessed independently by two radiologists and a clinician, each of whom had no knowledge whatever whether the film they saw related to a streptomycin or to a control case. Such a method vastly increases confidence in the results, and it is important to realize that it in no way questions the intellectual honesty of the investigator who is thus asked to work "blind." It guards not only against unconscious bias but, equally important, against any honest attempt in the assessor to allow for a possible bias.

It was by these careful means that the Committee reached its objectives—a rigorously controlled investigation, an impartial assessment of its results.

## SOCIAL WELFARE AND VOLUNTARY ACTION

In his report on Social Insurance and Allied Services Sir William (now Lord) Beveridge told the Government of the day how the State could cure poverty by a comprehensive scheme of compulsory insurance. His new contribution to sociology<sup>1</sup> contains an account of the methods which have been used to alleviate misfortune. In effect he asks, Can the State, using all the means at its disposal, cure unhappiness? The answer is obviously No, even if we knew how to define happiness. A "good" society cannot be made without voluntary action for social advance even in what Lord Beveridge calls a Social Service State. He divides voluntary action into two categories, mutual aid and philanthropy. The best example of mutual aid is the friendly societies, which were established in order that men known to each other could pay money regularly into a common fund and draw on that fund when they were in need. But to the bulk of their 8,000,000 members in 1947 the friendly societies represented not good fellowship but a means of insurance by contract. In the first Beveridge report it was suggested that the friendly societies should be used as the agents of the Government for the distribution of State benefits to their members. Instead the marriage of 1911 between the State and the voluntary agencies has been followed by a divorce, and the State is now constructing a complete and exclusive administrative machine of its own.

Lord Beveridge gives some other examples of mutual aid societies, including the hospital contributory schemes, the growth of which he considers to have been one of the greatest successes of mutual aid in modern times. The need to provide for special expenses at death has been as widely felt as the need for security in sickness. From this grew the remarkable form of modern business known as industrial assurance. The Royal Commission which inquired into the work of friendly societies in 1871-4 did

<sup>1</sup> *Voluntary Action—A Report on Methods of Social Advance* 1948 Allen and Unwin Ltd. London. Price 16s.  
<sup>2</sup> Report (1947) of the Committee on the Care and Treatment of the Elderly and Infirm. *British Medical Journal Supplement*, 1947 1 133.

not welcome this development, and it produced statistics to show that the insurance of young children's lives had led to increased mortality among the children insured. It therefore recommended that the insurance of the lives of children under 3 years of age should be prohibited altogether. When the national insurance scheme comes fully into operation it will be illegal to take out policies under which payments are made on the deaths of children under 10 years of age.

The philanthropic motive is defined as the desire by one's personal action to make life happier for others. The unobtrusive doing of good works is no longer a common occupation for the private individual. Certainly the basket of chicken broth and calves' foot jelly which, according to the Victorian novelists, the lady of the manor or the parson's wife took to the invalids in the village is a thing of the past. But, Lord Beveridge says, "democracy to-day has to show that in discarding the inequalities it can learn the virtues of aristocracy." There are fewer people than formerly with much leisure, but there are many more with a little leisure who might be willing to take part in some form of voluntary action. Among the more modern philanthropic organizations are the Nuffield Foundation and the King Edward Hospital Fund for London. How far organizations such as these have travelled from private charity can be judged by the fact that the income of the former for the year 1946-7 amounted to nearly £400,000.

The most difficult and perhaps the most rewarding of the problems which can be tackled by voluntary action is that of old age. It provides the best illustration of the needs which cannot be satisfied merely by providing a subsistence income. Old people should live in houses suitably planned for their needs, some require homes with service, and others, who are disabled by the diseases of old age, could enjoy life again if the "geriatric departments" suggested by the B M A committee<sup>2</sup> were set up in selected hospitals. Determined efforts must also be made to prevent sickness among the old.

The unhappy child is a pathetic and appealing figure, and for many years there have been charities concerned with the care of orphans and deserted children. Readers of this book will probably learn with surprise that the NSPCC had a hard struggle for recognition in its early days. The report of the Curtis Committee in 1946 showed that in spite of the efforts of charitable organizations and public assistance authorities the care of deprived children still left much to be desired. The field for voluntary action is wide, since deprived children include not only those without a home but also children who do not have a "normal" life at home because of the failings of their parents. Pity for the blind is widely felt, and there are at present 100 voluntary agencies looking after their welfare, they spend about £1,500,000 from private sources each year. The blind register kept by local welfare authorities, which shows where every blind person is who needs assistance, is the envy of blind-welfare organizations in other countries. There is no similar register of any other handicapped class in the community. The deaf do not receive the same statutory help as the blind, and Lord Beveridge describes the Government issue of free hearing-aids under the National Health Service Act as putting an end to the commercial

exploitation of the widespread demand for devices to improve hearing.

Much help is now given to disabled persons in the way of training and sheltered employment, but the Disabled Persons (Employment) Act does not meet all their needs. The register which the Ministry of Labour maintains is incomplete—it is a register only of disabled persons who seek employment. Those who wrongly judge themselves incapable of any work will probably not register. Other classes of the community who can be helped by voluntary action are unmarried mothers and children, discharged prisoners, and last but not least the tired housewife. Lord Beveridge praises the Lancashire Council of Social Service for its pioneer work in establishing the Brentwood recuperative centre for mothers and children.

In discussing how the needs of the physically and mentally disabled can be met by voluntary action Lord Beveridge does not refer to the powers now given to local health authorities by Section 28 of the National Health Service Act (Prevention of Illness, Care, and After-care). These powers are very wide, and important developments in public health practice will certainly be made when the authorities learn how to use them. Already after-care committees are asking what sort of local help can and should be given to the physically and mentally disabled. The highly trained professional social worker such as the health visitor and the local resident who is prepared to give a little of his or her spare time should between them be able to remove some of the unhappiness which is felt by the old, the disabled, and the lonely.

One of the most significant conclusions drawn from a study of the problems brought to citizens' advice bureaux was that "the material cause of unhappiness, quarrelling, and perplexity in Britain, outweighing all others in importance, was lack of enough buildings in which to live, meet, teach, learn, and do all else that is meant by civilized life." A result of shorter working hours has been that the businesses of football pools, dog tracks, and other entertainments are all now exploiting in different ways the increased spare time of people not taught how to use leisure. Lord Beveridge believes that these are matters which can be put right by voluntary action, the ultimate aim of which should be to persuade the mass of the people that human society can be a friendly society.

#### "AS MAY BE REQUIRED BY HIM"

The local medical committee of the London Executive Council is to be congratulated on drawing attention to the slipshod wording of a paragraph of the model allocation scheme put forward by the Ministry of Health to executive councils for consideration. The ambiguity is explained in a letter printed in the *Supplement* at page 152. As Dr Robinson says, the scheme provides that attendance at the patient's home shall be the duty of the practitioner "as may be required by him"—the patient. Clearly the duty to attend should depend on the patient's needs, not on his demands. No doubt an honest, if stupid, mistake has been made, but if local executive councils do not correct the phrasing in their allocation schemes, as London has already done, medical practitioners may be subjected to many unjustifiable summonses to patients' homes. Some executive councils outside London may have already altered

the wording of their schemes. If there are any that have not done so but have adopted the model scheme verbatim so far as this part of it is concerned, we would urge their medical members to take up the point in the interest not only of the profession but of the patients as well. The need for protecting practitioners from an abuse of their time is clear enough, but it is equally to the advantage of the sick that their medical attendants should be protected from the unnecessary demands of every crank and *malade imaginaire* who insists on the right to a visit in his home whenever he chooses to "require" it. The strain of medical practice is great enough without this added burden.

### WHITE BILE AGAIN

The modern conception that infective hepatitis is a disease of the liver cells is based on apparently incontrovertible pathological evidence. Aspiration biopsies demonstrate the lesion for all to see, and serial examinations show the processes of healing or the progression to either atrophy of the liver or nodular cirrhosis. So complete and so satisfying is this picture that earlier theories are completely discarded. Nothing is heard nowadays about plugs of mucus blocking the biliary passages.

But just as contemporary opinion accepts the demonstrations of central lobular necrosis it should not be forgotten that earlier pathologists were equally satisfied by Virchow's mucus plug. Probably most practitioners can recall demonstrations of this which were convincing enough to them as students, though some may have become less enthusiastic when in their turn they were expected to demonstrate it. It is now realized that such plugs were not the cause of the jaundice but were the result of it, but in accepting this explanation there has perhaps been a tendency to disregard their presence and to forget the possibility that such plugs may sometimes cause symptoms.

Bergenfelt<sup>1</sup> has recently published a paper which re-directs attention to these matters. During an epidemic of infective hepatitis in Sweden he was asked to operate upon a patient who had been jaundiced for seven months and who was suspected of having a biliary obstruction. A nodular cirrhosis was found, and the bile ducts were apparently normal. During the operation cholangiography was performed, the contrast medium being injected directly into the common duct, a normal picture was obtained, there being free passage of the dye into the duodenum. To everyone's surprise this operation was followed by rapid clearing of the jaundice, and at operation for a ventral hernia two years later the liver was found to be macroscopically normal. Subsequently Bergenfelt operated upon six other cases of hepatitis, irrigating the biliary tract with saline as well as performing cholangiography. If none of these cases was as sensational as the first—some had been jaundiced for only two weeks—each was followed by an equally prompt clearing of the jaundice and clinical recovery.

In order to explain these satisfactory results the author revives the conception that the biliary passages become blocked by desquamated cells and mucus. To support this theory he presents some post-mortem evidence and recalls the old method of treatment of prolonged jaundice by means of duodenal lavage with magnesium sulphate. This was a method which had a great popularity in France between the wars and was used by some in this country with occasional dramatic success. Cases of infective hepatitis in which the jaundice persists and deepens and in which considerable damage is done to the liver are distressing problems to the physician. Bergenfelt's work

gives hope that operative treatment may provide a means of affording relief. No less valuable, however, is his demonstration that apparently well-established cirrhosis can occasionally regress and complete recovery occur.

### THYROID ENLARGEMENT AND DRINKING-WATER

The Medical Research Council's War Memoranda provided a useful series of pamphlets summarizing available knowledge for practical purposes and reporting the results of specific investigations. They are sensibly going to be continued in peacetime, and the eighteenth (the first to omit "War" from the series title) has recently been issued.<sup>1</sup> The report is of an investigation of the relation between thyroid enlargement and the iodine and mineral contents of local drinking-water. The findings mainly concern school-children, of whom about 6,000 were examined, but some adults were also studied. The thyroid glands of the subjects were graded by eye as (1) invisible, (2) visible but soft, smooth, and symmetrical, (3) conspicuously enlarged without firmness, asymmetry, or nodular change, and (4) as pathological if enlargement was accompanied by the latter characteristics. This simple method enabled 80-100 children to be classified by two observers in an hour. Two observers are recommended "in order to provide a check in cases of doubt or difficulty." However, no data are given in the report regarding individual variation in grading, so that it is impossible to assess the reliability of the method.

The results broadly confirm the fact that the incidence of thyroid enlargement is inversely related to the iodine content of the drinking-water, but there are many discrepancies in detail. These are probably related to the hardness or softness of the water where the water is very hard the incidence of enlarged glands is likely to be higher than in another area with water of the same iodine content but which is softer. That these suggestions are correct is borne out by selection from the large amount of data provided in the report, but it is odd in these days to find that not even the simplest statistical analyses have been applied to the figures to assess the significance of the conclusions.

Where a study was made of the state of the thyroid in all the inhabitants of a village in the goitrous region in North Oxfordshire the non-pathological enlargement was very differently distributed from the goitrous enlargement. The former was found in 35 and the latter in 114 of the 575 people examined. Of the enlarged glands 70% were present in the 16-26 age group, while the goitres were much more evenly distributed, most (23%) being in the 36-46 group. This may be taken to support the view that the enlargement is physiological in the sense that it reflects a greater need for thyroxine (and so for iodine) during puberty, and that it may not necessarily lead to goitre later. At the same time there is no doubt that this enlargement is a sign of iodine deficiency and calls for remedial action. Without entering into the question of what part the drinking-water bears in the total iodine intake, the widespread occurrence of thyroid enlargement found among the children warrants the practical recommendation of the investigators that the general use of iodized salt is desirable in Great Britain.

Mr L. E. C. Norbury will deliver the Bradshaw Lecture before the Royal College of Surgeons of England (Lincoln's Inn Fields, London, W.C.) on Thursday, Nov. 11, at 5 p.m. His subject is "Proctology Throughout the Ages."

<sup>1</sup> Murray M. M., Ryle J. A., Simpson B. W. and Wilson D. C. "Thyroid Enlargement and Other Changes Related to the Mineral Content of Drinking Water (with a Note on Goitre Prophylaxis)." *Medical Research Council Memorandum No. 18* 1948. London: H.M.S.O. Price 9d.

## SOUTH AFRICAN MEDICAL CONGRESS MEETING AT PRETORIA OVERSHADOWED BY TRANSSVAAL DISPUTE

The 36th South African Congress was held this year at Pretoria. A very successful meeting on its scientific and social side, it took place in the midst of the struggle over the Public Hospitals Ordinance in the Transvaal, which was due to come into operation within a week of the opening of the Congress and which has aroused the almost unanimous opposition of the medical profession in the Province. The annual general meeting of the Federal Council of the Medical Association of South Africa which preceded the Congress was largely occupied with this controversy.

At the official opening of the Congress in the City Hall Dr C G L van Dyk was formally inducted into the presidential chair by Dr A W S Sichel, president of the Federal Council. In his address Dr van Dyk quoted the favourable health statistics of Pretoria, and went on to discuss the question of pain and its manifestations among the different races of South Africa. Field Marshal Smuts addressed the assembly on communal health and nutrition and spoke of the importance of research in this field and the need for financing health measures by the modern State. On behalf of the Royal Society of Medicine in London its emissary, Mr L R Broster, presented the Field Marshal with the role of honorary fellowship of that Society, together with a specially bound edition of the reports which the Society has published of the Inter-Allied Medical Conferences held under its auspices during the war.

The first plenary session of the Congress was devoted to the subject of malignant disease. Dr F J Murray discussed the question of carcinogens in the production of neoplasms and the physical and biochemical changes found in cells. Professor M Coe Rous outlined a comprehensive scheme for tackling cancer by educating the public, training the general practitioner, co-operation between surgeons and other specialists and better facilities for detection and research. Dr M Weinbren spoke of the types of carcinoma to be treated by surgery and radiotherapy, and suggested that expectations about radioactive isotopes had not been fulfilled. Dr M Suzman reviewed the part played by the endocrines in the production and treatment of cancer.

At another plenary session the subject of discussion was arthritis, and was introduced by Professor G A Elliott, who thought that the advance of medical treatment had been hindered by an uncritical approach. Other speakers dealt with clinical types, the plethora of treatments, and the role of physical medicine in the management of the condition. The economic and social aspect was also considered. Many sectional meetings were held. One combined meeting of certain sections was addressed by Mr Broster on the adrenal cortex and the effect of adrenalectomy on steroid metabolism. Other sectional subjects were bone syphilis in the African native, peptic ulcer, contact dermatitis in certain trades, health education, and social medicine.

### The Hospital Plan in the Transvaal

The Transvaal Administration Ordinance enacts free hospital treatment for all members of the community (including the 30% or so of Europeans, who have hitherto paid their hospital charges and doctors' fees) and the setting up of medical centres. A plebiscite of the profession in the Transvaal showed a majority of well over 90% against the ordinance. The effect of the provision and the grounds of the medical opposition were described in the *Supplement* of Sept 18 (p 123).

The Administrator has refused to consider a means test which is not indeed provided for in the ordinance itself. A motion from the Southern Transvaal Branch, afterwards adopted by the Federal Council with one exception, was that members of the Association should be advised not to enter the Provincial Health Service. While the Congress was proceeding at the end of July an arrangement was agreed to whereby pending a review of the situation by the Transvaal Provincial Council, members of the profession would continue their services in the hospitals after the appointed day (Aug 1) on a voluntary basis.

Unfortunately, in these resumed negotiations, no solution has been found and in an attempt to break the deadlock the Provincial Administration by-passed the Medical Association

and made a personal approach to every doctor on the honorary staffs of provincial hospitals, asking him whether he was willing to carry on and what remuneration he would require. The first of four questions addressed to members of the staff of the Johannesburg General Hospital was as follows:

'Are you prepared to continue in attendance on the patients in hospital under your care as at Sept 30 until they are discharged by you? If so, do you wish to continue such attendance on an honorary basis, or on a basis of receiving payment by the Administration, if the latter, what would you consider reasonable remuneration?'

The Medical Association thereupon advised its members to refuse to negotiate directly with the Administration, and stated that if they complied with the request concerning remuneration they would render themselves liable to disciplinary action on the ground of 'tendering'. The response to the Association's advice is given in the words of Mr H F Prentz chairman of the Hospitals Advisory Committee and one of the advocates of the Administration's scheme: 'With few exceptions, the instructions of the Association have been obeyed. This is a very creditable display of loyalty and solidarity—on the face of it.' But he added that it was reported that what amounted to threats of victimization had been used to prevent members from accepting posts under the new ordinance. These allegations have been indignantly denied. A spokesman of the Federal Council described them as 'despicable'. He said that the doctors were actuated only by a desire to prevent interference with their livelihood, there was no wish to wreck the ordinance, and the medical profession would see to it that medical teaching continued and that the sick poor and emergency cases in hospitals were treated despite the impasse.

The latest advices are that the South African Medical and Dental Council, which controls and directs the profession in the Union under powers given by the Medical Act, is taking up the question directly with the Union Government, considering that the breakdown of clinical medical education constitutes a national emergency because the doctors who refuse to fill the posts offered by the Province would automatically be the teachers under the scheme. Moreover, it would be impossible for the hospitals in the Transvaal to carry on their medical services, because the full-time staffs are inadequate in the big hospitals and non-existent in the smaller.

## BRITISH ASSOCIATION OF PLASTIC SURGEONS CLINICAL CONGRESS

The British Association of Plastic Surgeons, which was formed in November, 1946, held its Summer Congress on Sept 16, 17, and 18 at Oxford and Stoke Mandeville under the presidency of Professor T P Kilner. The meeting was attended by 90 delegates including members and visitors from America, Belgium, Denmark, Ireland, Norway, Sweden, and South America.

Dr Sumner L Koch (Chicago), the guest of honour, addressed the Association on the surgery of the hand. He had found that healing had been more certain since the application of antiseptics had been abandoned. Ordinary soft white soap was used to prepare the operative field the afternoon before the operation and again, by an assistant, on the operating table. He used an inflatable arm cuff, and was prepared to leave this on for as long as three and a half hours as a tourniquet during the operation. No sign of paralysis has yet been seen using this technique. The cuff was deflated at the end of the operation to allow the ligation of any large vessels and was then reinflated until the final bandage had been applied.

Dr Koch said he would not suture tendons divided within the digital sheath, since the blood supply was so poor, but preferred to use a tendon from the dorsum of the foot as a graft passing this around the base of the distal phalanx. All suturing was carried out with fine silk in preference to any form of wire he had had no personal experience of wire, but had not been impressed with the results where it had been employed. Tendon grafts to fingers were never undertaken until all the joints were mobile. For uniting divided nerves he advised the finest cataract silk on eyeless needles in the form



of simple interrupted sutures. The hand and fingers were splinted in full flexion for three weeks, and this was followed by splinting to prevent full extension. The results of nerve suture were very poor if it was carried out more than two years after injury. Finally Dr Koch demonstrated a simple ball and gutter type splint which was used to maintain the hand in the position of function and could be applied to either hand.

The second day of the Congress was spent at Stoke Mandeville where papers were presented during the morning by members of the Plastic Surgery Unit. Mr R J V Battle, discussing the treatment of decubitus ulcers in paraplegic patients, emphasized that free grafts were of no value. Carefully planned local flaps were the solution to this problem, but operations should not be undertaken unless the patient was in good condition, for, at best, healing tended to be delayed.

Mr R P Osborne, discussing facial paralysis, said that these cases should be sent to the plastic surgeon very much earlier than was the custom. Many of the poor results following recovery of nerve function, or after a nerve-grafting procedure, were due to stretching of the paralysed muscles in the intervening period.

Professor T P Kilner projected a number of slides illustrating the commoner secondary cleft-lip and palate deformities and the results of their treatment. Other papers were on haemangiomas by Mr J P Reidy, oro-antral fistulae, by Mr E W Peet, mandibular asymmetry, by Mr D Greer Walker, and the use of prefabricated cartilage inlays for pinna support, by Mr H E Blake. During the afternoon a ward was set aside for the demonstration and discussion of selected cases. The lecture hall was transformed into a projection-room for a continuous show of films from the Stoke Mandeville Plastic Unit library and the dental department arranged a demonstration of the extensive work they have done in association with the Plastic Unit. Dinner was held in the Hall of St John's College, and the evening concluded with interesting and informal talks by W C Costin and H W Thompson.

The morning of the last day was occupied by the presentation of papers by visitors from America. Dr Gustave Aufricht (New York) on mammoplasty. Dr Milton Adams (Memphis) on an operation for bilateral hypertrophy of the masseter muscle. and Dr Neal Owens (New Orleans) on osteoporosis following burns. During the discussion on mammoplasty both Professor Kilner and Sir Harold Gillies emphasized that reliance should not be placed entirely on the skin to provide the shape of the breast.

### MEDICAL MICROFILM UNIT

The microfilm unit of the Royal Society of Medicine has been installed in reconstructed (formerly bomb damaged) premises in Dering Yard New Bond Street close to the Society's headquarters, and was formally opened on Oct 18. Hitherto the unit has worked in cramped quarters at the Society's house, but now it occupies three floors of one building and has printing, developing and drying facilities so that it is possible to turn out 25 000 pages of microfilm a day. The unit was opened by the Chief of the Scientific Mission at the U.S. Embassy, Dr Earl A Evans who at the last moment took the place of the American Ambassador and representatives were present from the Foreign Office, the Ministry of Health, the Ministry of Works, the Medical Research Council, the British Council, Unesco and the Centre National de la Recherche Scientifique of Paris.

Sir Henry Dale, President of the Royal Society of Medicine, in calling upon Dr Evans to unveil a tablet commemorating the occasion, stated that the creation of this unit for the production and distribution of microfilm copies of medical publications covering many countries had been made possible by the munificence of the Rockefeller Foundation. For many years the Royal Society of Medicine had been developing the service of its medical library not only by lending its books to its members but by preparing bibliographies for them and making photostat copies of articles or extracts on request. Such a service became increasingly difficult to maintain when war broke out and the medical men who needed these facilities were scattered all over the world but the invention of the microfilm made it possible to continue the supply of material,

a camera in the Society's house being used for the purpose and the films, with the necessary projectors for reading them being conveyed to their destinations from the Rhine to the Jumna by the R.A.F. As the war progressed, however, it was realized that there was here an opportunity for a larger service owing to the appalling devastation of libraries whereby much of Europe and even of Asia was becoming largely bereft of these sources of medical and scientific knowledge.

Much encouragement was given by the Minister of Health who helped the Society to secure the necessary licences for rebuilding and equipping the premises and ensured the good will of his colleagues in the Foreign Office and Board of Trade. Sir Henry Dale said that if Mr Bevan was not already surfeited with expressions of gratitude from medical quarters they would like to convey to him an expression of their thanks for the support he had given to this enterprise. A well-equipped unit was now available with an efficient staff. The first objective was to restore the war-damaged libraries of Europe and beyond by means of microfilm copies of medical journals which they had lost and which were out of print or otherwise irreplaceable. The majority of medical libraries, to the total number of 173, were associated with the scheme, which ranged from Reykjavik to Singapore, and 3,500 volumes otherwise unobtainable had already been supplied, and there were orders for at least 10,000 more.

Dr Earl Evans, in performing the opening ceremony, spoke of America and Great Britain as sharing a common medical tradition, and said with what gratification the United States in the shape of the Rockefeller Foundation, found itself associated with this project. Scientific progress was only possible where research was unhampered, as it was in their respective countries, and where free interchange took place.

### MEDICAL FILMS

In connexion with the second International Congress of the Scientific Film Association, recently held in London, a 'Film Festival' was arranged during which the applications of the film to education, medicine, and industry were demonstrated. Some two dozen films were shown, varying in length from three to thirty minutes. Most of the films were intended for medical education and research, but a few were designed for health propaganda to the cinema-going public. Some of the films had been produced in medical schools. One of them, summarizing the first clinical lecture to medical students on the subject of acute inflammation, was the work of the department of medical photography at Westminster Hospital Medical School, and another, illustrating a case of chorea, the work of the department of child health at Guy's Hospital. Others were the production of individual workers—for example Mr Gwynne Evans's ingenious 20 minute reel showing the behaviour of the oro-facial musculature during breathing and swallowing, Dr Bryan Stanford's short films on how to evert the upper eyelid and how to apply the Aschheim-Zondek test for pregnancy, and Dr David Morris's excellent clinical case record of hereditary ataxia. Other films came from the great commercial film houses or the laboratories of food and drug manufacturers and yet others from American and Continental universities, the State Film Centre at Copenhagen and the National Film Board of Canada.

This heterogeneous collection was unequal in value, and the more elaborate films were not necessarily the best. For example one film from Denmark which showed the systematic examination of a patient for signs of syphilis while it indicated the technique for examining skin, mucous membranes, and lymph glands was criticized on the ground that it gave no indication of the lesions which were discovered. A film from New York University which was described as an integrated study of the interaction of the child with his environment showed the behaviour of small children and their parents at a psychiatric interview but no allowance appeared to have been made for the probability that the presence of the camera had a disturbing effect on the parents in handling the children, even if the children themselves were too young to be influenced by its presence. On the other hand some of the short films were admirable for teaching purposes and clinical records—for example the work of the Wellcome Film Unit in illustrating

cases of rheumatic chorea and myasthenia gravis, or of the Research Unit at Columbia University illustrating the toxic effects of streptomycin, particularly on the eighth nerve

The medical film is no longer a novelty and those attending the demonstrations were reminded of what has been achieved in the course of a quarter of a century. In connexion with the recent centenary of the American Medical Association a film was prepared showing the evolution of the medical film itself. A copy was kindly sent to the British Medical Association which allowed a private preview on this occasion. "The Medical Film" is a 16 mm reel running for 25 minutes. It is in colour and is accompanied by a sound commentary. It reviews the development of the medical film since the early 'twenties—the introduction of the animated cartoon, the combination of the film with radiography and with photomicrography, and the progress in colour. It is put together with the usual American talent for production. A sight of the early films of operations made one wonder how anyone could have learned anything from those confused moving masses of black and white. A British film of the operation of subtotal hysterectomy for multiple fibromyomata followed. It was recorded for post-graduate teaching and exemplified the high level of cinematic technique now attained.

Subcommittees have been set up to study the following problems: (1) The establishment of an international data card for compiling a master index of scientific films available throughout the world and the formulation of methods of appraisal of these films. (2) The joint production by a number of countries of films of common interest. (3) The exchange and distribution on the widest scale of scientific films and the customs regulations affecting such exchange. (4) The setting up of a scientific-film reference library. (5) The exchange of information between nations by means of a regular journal."

### SCOTTISH SOCIETY OF THE HISTORY OF MEDICINE

The third meeting of the Society was held in the Hall of the Royal Faculty of Physicians and Surgeons, Glasgow, on Oct 20 with Dr Douglas Guthrie in the chair. Professor J D Mackie of the chair of Scottish history and literature, University of Glasgow, described how the early history of Glasgow was dominated by that of the bishopric of the city. The University founded in 1451, was at first modelled on French lines, but after the Reformation it was reorganized by Andrew Melville, and since then it had taken its place as one of the great seats of learning in the world.

Mr A L Goodall, honorary librarian, said that the Faculty was unique among medical corporations in this country in that both physicians and surgeons were united in one body. The Faculty founded in 1599 by Maister Peter Lowe, received its charter from James VI the same year. Among its many duties were the examination and licensing of all surgeons in the West of Scotland, supervision of their conduct, and ensurance that any drugs supplied were of the highest quality. A service of free medical aid to the poor of the city was a noteworthy feature of the Faculty's activities. Many famous men in medicine and surgery like Cullen, Lister, and Macewen had associations with the Faculty which will celebrate next year its 350th anniversary.

The Ministry of Health states that full time nursing and midwifery staffs in hospitals in England and Wales now part of the National Health Service have risen by 2 000 within 12 months. In June last the total including those trained and in training, was 117 741 compared with 115 529 a year earlier. Part-time nursing and midwifery hospital staffs over the same period rose by nearly 7 000—from 10 700 to 17 380. On the domestic side full time staff went up from about 96 500 in June, 1947, to 99,700 in June, 1948, and part-time from 18 000 to 21,575. This general increase in hospital staffing has not only made it possible to shorten the nurses' hours in many hospitals and to institute a 96-hour fortnight but to reopen beds closed through lack of staff. In mid-1947 there were about 63 000 beds out of action for this reason but by June this year nearly 6 000 of them were again available for patients. Every addition to the hospital nursing and midwifery staffs now means either the opening of more beds or the improvement of working hours and conditions and sometimes both.

## Correspondence

### Neonatal Asphyxia

SIR,—While all must admire the way in which Dr F C Eve (Sept 18, p 554) insists on the mechanics of resuscitation, it does seem sad that he and nearly everyone else should ignore the brilliant researches of the late Sir Joseph Barcroft into the physiology of neonatal respiration. He showed quite conclusively how minute was the amount of oxygen in the foetal circulation at birth and how the agent in starting respiration is not oxygen lack or carbon-dioxide stimulation but sensory stimuli either from the skin or from muscles or other organs. The foetus that does not breathe may be suffering from a type of shock but it is fundamentally a different type from surgical shock. What it awaits is some stimulus which will penetrate to the brain and cause the reflex respiratory efforts which nature has provided for.

I have drawn attention in previous letters to the way in which Barcroft's researches entirely explain the dramatic way in which an injection of "cardiazol"-ephedrine starts an asphyxiated foetus into full respiration in a matter of seconds, but this fact is consistently ignored in all the textbooks of midwifery that I was able to see at the B M A exhibition at Cambridge this year. The latest one a pre-publication copy I saw last week in London, even speaks of 'sadistic attacks' on asphyxiated babies as if Freudian jargon could replace or displace exact scientific knowledge. If the author had listened to the late Sir Joseph he would have learned that the nose of the foetal sheep is the area which first shows any response to stimulation and it is on this area that the lamb normally falls when it is dropped thus providing the maximum stimulus on the most sensitive area in order to ensure the immediate commencement of respiration. One might think that the spirit that refused to listen to Semmelweis still stalks in our maternity wards for asphyxia which directly or indirectly causes 75% of neonatal deaths as well as many more still-births is still treated as if one of our greatest experimental physiologists had never shown a better way. And not only do babies die but homes are plunged in grief (as I know for my first child was still-born) because doctors will not apply the very simple and effective remedies that science has provided to make use of the knowledge that has been gained.

Dr Eve rightly touches on the question of the final result of these long-asphyxiated babes. The first baby I saw that was so long asphyxiated that I ventured to give it cardiazol-ephedrine intracardially now nearly 9 years old has never needed any medical attention and is very bright mentally, and all the others are normal. I quoted my last case recently in the *Practitioner* and though one swallow does not make a summer this one case does mean that we must radically alter some of our conceptions of neonatal asphyxia. It was a child born with a fairly easy forceps delivery that breathed promptly and well. In 15 minutes or so the breathing began to get weaker and gradually ceased entirely the child becoming blue and finally white. Before he reached this stage I had given him first 0.5 ml of cardiazol-ephedrine intramuscularly and then a second dose, without any appreciable effect. When he seemed quite dead I gave him yet a third dose into the left ventricle and this to my amazement was followed by an almost instantaneous resumption of respiration and crying. I was no less surprised when the babe was living next day and now he is a bonny babe of 7½ months, already beginning to say "Baba, Dada," etc.

I think that practically every doctor would have said without hesitation that this was a case of fatal intracranial injury yet it was apparently merely a case in which for some reason the brain did not sufficiently well change over from its initial response to sensory stimuli to regulation by oxygen and CO<sub>2</sub> in the blood. If this is true it is of the utmost importance that we should recognize that such a failure can occur for looking back I can now recall several cases in which this may well have been the cause of neonatal death and the case I have quoted suggests that appropriate treatment might have

prevented it. There is little doubt that such treatment would also avoid the later complications of feeble initial respiration—i.e., pneumonia, etc.

I may perhaps also recall a case I reported in 1940 a boy drowned from long immersion who recovered rapidly after treatment based on the assumption that this basic pattern of respiratory response to cutaneous stimuli persists, as at birth, after the response to carbon dioxide has been lost through poisoning of the respiratory centre. The bearing of this supposition on the treatment of anaesthetic as well as drowning casualties is obvious. These are all problems of applied physiology, and I suggest that it is not to the credit of British medicine that in this country, where the key was found, they have been so long and so disastrously ignored by those whose work the discovery would most benefit—I am, etc.,

Winsford, Cheshire

W N LEAK

### Ruptured Uterus

SIR—I am in agreement with Mr C Scott Russell (Oct 16 p 722) in his condemnation of classical caesarean section. It is an operation practised all too commonly in this country. I would go further and suggest that in abdominal hysterotomy with or without sterilization, it is possible to perform a lower-segment operation but in miniature. The uterus can be incised transversely above the internal os and the peritoneum of the utero-vesical pouch used to cover the incision.

Recently I saw a case of rupture of the uterus at term which followed an abdominal hysterotomy for placenta praevia at the 24th week of a first pregnancy. The rupture of the uterus extended from fundus to cervix as in Mr Keith Vartan's case (Sept 25, p 602). It was possible to conserve the uterus, and the woman has since menstruated normally. The transverse fundal incision for abdominal hysterotomy carries with it not only the danger of rupture but also intestinal obstruction—I am, etc.,

London WC1

W C. W. NIXON

### Classical Caesarean Section

SIR—Mr C Scott Russell (Oct 16, p 722) surely uses rather harsh words when he condemns as an "abomination" an operation (classical caesarean section) which has saved countless foetal and maternal lives. Though the classical caesarean section is admittedly not an edifying spectacle and has certain disadvantages including occasional rupture of the scar subsequently, one can recall so many classical operations in the past that have had a happy outcome both at the time and in subsequent pregnancies. Lest one be carried away by a youthful enthusiasm for the lower segment operation to the exclusion of any other it might be well to remember that there are still certain cases in which the classical operation is probably safer.

The type of case I have in mind is that in which on opening the abdomen one sees an enormously rich venous plexus overlying the lower segment, sometimes associated with placenta praevia. I have often in such cases retracted or enlarged the abdominal incision upwards and performed the "abominable" operation with a sigh of relief. It is better, I think, provided it is a "clean" case to accept the relatively slight and more remote risk of subsequent rupture of the scar than the immediate one of severe bleeding. Surely this is an example of where one must adapt the operation to the patient, not the patient to the operation—I am, etc.,

Exeter

P M G RUSSELL

SIR—Mr Keith Vartan's medical memorandum on 'Ruptured Uterus' (Sept 25, p 602) has reopened the caesarean controversy, and I am interested to see the fervour with which Mr C Scott Russell (Oct 16, p 722) condemns the classical operation. He follows the fashion of the moment which condemns the older operation out of hand. Other operations have suffered the same unthinking treatment and have subsequently been received back into favour by a later generation which has found out advantages which their fathers were too blind to see.

The lower segment operation has such obvious advantages in most circumstances for reasons which are too well known to repeat here that it is rightly used in the great majority of cases. But there will always remain a small number of young

women in whom an elective section is necessary and in whom there is good reason to expect a normal delivery in a future pregnancy. It is very necessary that the form of operation performed in such patients should not prejudice this possibility, and I have the idea, backed by a reasonable amount of personal experience, that the transverse scar of the lower segment operation interferes by its interruption of the neuromuscular pathways both with the proper relaxation of the cervix and with the reflex from pressure on the latter which helps to maintain the pains of labour. I have often been disappointed in the progress of labour in women who have had a previous lower segment operation, even to the point of having to perform a further section for no other reason than mere lack of progress after many hours of poor pains in the absence of any other complicating factor. On the other hand, it is the usual experience that in similar circumstances the woman who has a classical scar has a quick and easy labour. Some will counter this by saying that the incision in the lower segment should be longitudinal, but if a woman is only in the early stages or not in labour at all an up-and-down incision becomes a lowly placed classical one—and this is the right position for a classical scar anyhow.

I seldom perform the classical operation myself but I am sure that this complete condemnation of it is illogical. From the physiological aspect the transverse incision is wrong, but we accept it in most cases because there are other more important reasons for doing so. But there is no reason to persist when none of these reasons is present and there is a strong desire to preserve a fully physiological organ. I do not believe that a lowly placed classical scar—that is, one which follows an incision which is started as low as possible in what there may be of a lower segment at the time and is continued upwards only as far as may be necessary—is more likely to rupture than one wholly in the lower segment in whatever direction it may run.

Until more is known about it I shall continue to avoid cutting across the uterus for this reason and shall be content to make my incision in the up-and-down direction in the few suitable cases, even if this means that I must occasionally trespass into the forbidden upper segment. My lower segment operating record will be sullied but I shall have, I believe, done the lesser evil and perhaps I shall be doing fewer repeat performances—I am, etc.,

Swindon

GUY ROWORTH

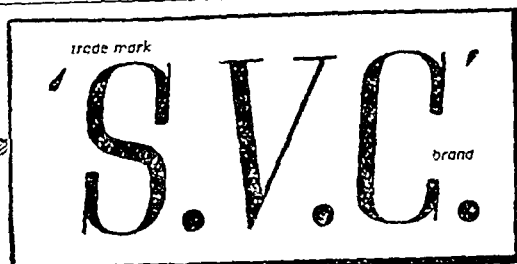
### Post-gastrectomy Syndrome

SIR,—In the annotation on the post gastrectomy syndrome\* (Sept 11, p 524) the following statement is made: "This conception is of particular interest in view of the similar syndrome which is known to follow vagotomy for duodenal ulcer, and careful observation of these cases is indicated."

I feel that this statement may arise from a misunderstanding for I have not observed a single example of such a syndrome during the follow up of seventy cases of vagal section, nor have I seen a single reference in the literature to it (as an abstracter I have access to most of the literature on the subject). Reference to the text of the article by Dr W T Irvine (Sept 11, p 514) on which your annotation was based lends support to this view, for your meaning could be read into one sentence taken out of context. 'Moore *et al* (1947) also observed such post prandial symptoms following vagotomy'.

In its context the meaning of that sentence is that most gastric sensations as for example a feeling of distension, could still be appreciated after vagotomy. The observation was made to support the thesis that sensation is not carried in the vagal nerves. In Moore's article the relevant passage is 'Nausea, vomiting and epigastric sensations of fullness may still be experienced'. But this does not indicate that they are experienced as a syndrome, as can be seen from the sense of the rest of that sentence: "and there is no change in the sensory threshold to balloon distension of the oesophagus, stomach, duodenum, jejunum, and ileum."

I would be grateful if you would clarify the point by publishing the reference to the work in which the report of a 'post gastrectomy-like' syndrome in vagotomy cases was made. If it is a fact that it has occurred then as you state it is important enough to warrant careful observation of



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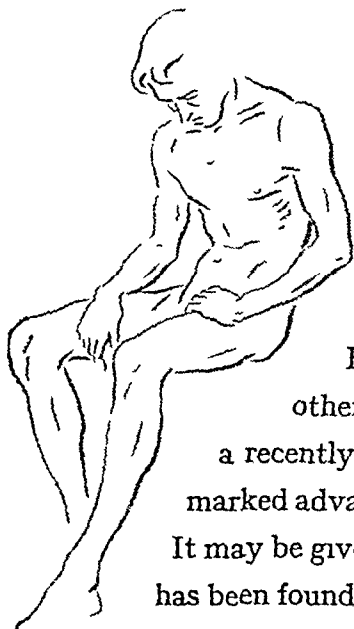
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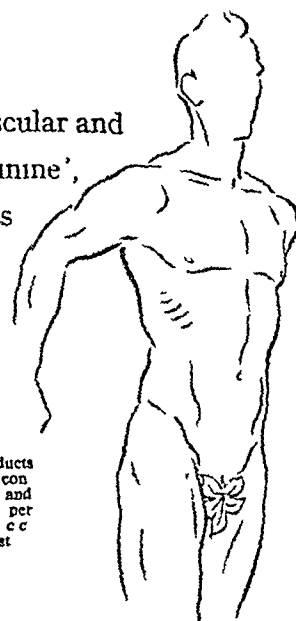
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vagotomy cases, for in those cases the autonomic balance has been upset in favour of the sympathetic. Unfortunately no good evidence has been provided in the post-gastrectomy cases that adrenaline secretion can be blamed for the symptoms, it would have been of some assistance if blood pressure recordings had been made.

Finally, it would be interesting to know what proportion of Dr Irvine's series of gastrectomies these 24 cases provide—I am, etc.,

Birmingham

B N BROOKE

#### REFERENCE

*1 J Amer med Ass* 1947 133 741

\* H D Johnson (*Proc R Soc Med*, 1948, 41, 649) reported that about one-third of his patients had attacks of weakness, sweating and faintness after vagotomy and that two patients investigated had hypoglycaemia during an attack—ED B M J

### Diabetic Coma

SIR,—Professor E P Joslin (Oct 2, p 657) makes a request for constructive criticism. Impressed by his series of 62 consecutive patients with diabetic coma without a death, at the beginning of 1944 we issued to medical staff, ward sisters, and students at the Radcliffe Infirmary a summary of the treatment suggested in the paper by Joslin, Root, White, and Marble in the *Journal of the American Medical Association* (1942, 119, 1160). The death rate from diabetic coma since this change has been reduced to about a third of its previous level.

My first patient treated on the Joslin regime was a young woman in deep coma with previously undiagnosed and untreated diabetes. She made what we thought was a good recovery. On the following day she asked the nurse for a drink and on being sat up to receive it fell back dead. The post mortem examination revealed no gross organic disease. We therefore added to our summary of treatment a paragraph as follows:

"Aftercare. It is important to realize that a patient who has come round from diabetic coma has recently been in a condition of profound circulatory failure and is still ill. The patient should not be allowed to sit up in bed, and should be nursed as a cardiac case for at least a week."—I am, etc.,

Oxford

ALEXANDER COOKE

### The Walking-calliper

SIR,—Dr H L Rogerson (Oct 16 p 724) writes that he does not know of an organization concerned with research in this particular instrument (the calliper). In 1945 the British Orthopaedic Association appointed a Surgical Appliances Subcommittee to investigate the design, materials, and manufacture of surgical appliances and the calliper in particular. The personnel of this Committee includes an anatomist, a physiologist, an engineer, the director of a large appliance factory attached to an orthopaedic hospital, as well as orthopaedic surgeons. The Nuffield Provincial Hospitals Trust has generously supported the research so that it was possible to appoint an engineer as a Research Fellow.

The problem of the calliper has taken precedence in the investigations which are not yet completed. The important matter of standardization of small parts and screws, so that repairs can be carried out without delay is one item of policy stressed by the committee—I am, etc.,

ST J D BUXTON  
Chairman Surgical Appliances  
Subcommittee B O A

London WC2

### Bronchial Carcinoma

SIR—Mr R C Brock in his paper on bronchial carcinoma (Oct 23 p 737) remarks that though there remains much room for improvement in the surgeon's technique in dealing with this condition the greater responsibility rests with those who have the task of making the diagnosis or thinking of the diagnosis. With this dictum I am in general agreement, but I would suggest that there is at present an even more disheartening obstacle to the efficient application of surgical measures than diagnostic delay. This is the difficulty and delay experienced in the admission of patients to hospital.

Even when the diagnosis has been established and the case is regarded by the surgeon as suitable for an attempt at radical treatment it is often a matter of the greatest difficulty to find a bed in a thoracic surgical centre.

I do not wish to discuss controversial aspects of this problem such as the present deplorable necessity to assess priorities to be given to various categories of patients—for instance, to young patients with relatively curable conditions such as unilobar bronchiectasis or pulmonary tuberculosis requiring surgical treatment relatively to older patients with malignant disease whose prognosis even with surgical treatment is on the whole unfavourable. My object is to stress that, as long as there is delay in securing admission of a patient with possibly operable bronchial carcinoma to a suitable centre for surgical treatment responsibility for failure to make generally available the benefits of advances in surgical technique rests with those responsible for the organization and administration of our hospital services even more than with the clinicians responsible for making the diagnosis—I am, etc.,

London S W 3

J G SCADDING

### Reactions to Intravenous Sclerotics

SIR,—Though most would agree with Dr R E Sidebotham (Oct 2, p 661) that sodium morrhuate is an obsolete drug—the Council of Pharmacy and Chemistry of the A M A in 1942 recommended the withdrawal of the 10% solution—I think it would be unfortunate if the impression were produced that monoethanolamine oleate is entirely free from risk.

In the course of the past year, during which I gave about 1,000 injections of 'ethamolin', two serious reactions were encountered. A severe urticaria developed ten days after one injection but the other case was more alarming. Like Dr C E Taylor's case (Sept 18 p 573), the patient had left the hospital, when she became faint. She was brought back by a passer-by and, when I saw her some twenty minutes after the injection, appeared moribund. Rapid deterioration was followed by a slight convulsion and apparent death. Fifteen minims (0.9 ml) of 1 in 1,000 adrenaline was given intramuscularly, and almost simultaneously the colour improved and she began to breathe. Consciousness gradually returned, but about ten minutes later severe asthma developed. This responded to 7 minims (0.42 ml) of adrenaline but was followed by two further attacks at ten-minute intervals also responding to 7 minims of adrenaline.

The patient remains well since, she has never had any other attacks of asthma or evidence of allergy. The injection which produced the attack was the sixth given into residual varicosities after a ligation and injection operation. The previous injections had produced no unusual effects. As a result of this alarming experience I would stress that whatever agent be used patients should be asked to wait a short while after their injection, and, of course, adrenaline should always be available—I am, etc.,

Shrewsbury

J A RUSSELL JOHNSON

### Maxillary and Mandibular Neuralgia

SIR—In his reference to Costen's syndrome as a cause of facial neuralgia Dr J H Young (Oct 2, p 660) mentions pain which may be unilateral or bilateral, local, or referred to jaws, eye, ear, or mastoid, but he does not mention the grating, clicking and locking of the joint with the restriction of movement which are very common features of traumatic temporomandibular arthritis. If the condition is unilateral there will be a swing of the jaw to the affected side on opening the mouth. A burning sensation in the tongue, glossodynia, and even tinnitus and deafness are also described as part of the syndrome though they are not so common as the pain, grating, and limitation of movement which are usually the prominent features in traumatic arthritis.

I am writing particularly however, to point out that this condition is in my experience not confined to edentulous patients but is even more common in patients who have still got many of their natural teeth but who suffer from "close bite" either acquired through extraction of the back teeth or appearing as a result of developmental irregularity in the arrangement of the teeth. These patients have in the first case lost their molar support and in any case have no free



lateral movement of the mandible owing to the interlocking bite. Both of these conditions throw an extra strain on the articulation, setting up the arthritis, which the patient often aggravates by constantly fidgeting and moving the joint when it should be at rest.

It is rare to see any radiographic change in the joint, and such patients may be much relieved by wearing a shield affair over the biting surface of the upper teeth and palate which opens the bite and gives freedom to lateral excursions of the mandible. They may, however, be unwilling to give up wearing the shield even when cured, and if they are pressed to do so may get a recurrence of the neuralgia—I am, etc.,

London W1

E WILFRED FISH

### A Sign of Pregnancy

SIR,—I have recently encountered for the third time in the past five years a clinical sign which I have failed to find described in the text books of obstetrics. This is a modification of the well known Hegar's sign of pregnancy—namely, softening and compressibility of the lower uterine segment which is characteristically present about the 8th to the 10th week.

This same softening and compressibility of the lower segment is probably responsible for an undue lateral mobility of the body of the uterus, so that on bimanual examination one finds a swelling apparently located in one or other uterine appendage which as in the commoner Hegar's sign, appears to be quite separate from the cervix. The body of the uterus cannot of course be felt separate from this swelling, but it may well give rise to confusion and suggest the possibility either of an ovarian cyst associated with pregnancy, as in a case referred to me last week, or possibly of a tubal pregnancy, especially in a nervous primigravida whose abdominal musculature is poorly relaxed on examination. Under anaesthesia examination will reveal the true state of affairs, and by gentle manipulation the swelling can be made to occupy the corresponding position in the opposite side of the pelvis, but it should often be possible to recognize the condition even without anaesthesia.

I am prompted to write this letter for the purpose of placing this sign on record since I feel that it is of some importance. I have been unable to find it described in any of the textbooks available to me, and I should be glad to know whether it has in fact been previously described and also whether other obstetricians have observed it with any frequency—I am, etc.,

Inverness

J A CHALMERS

### Shipping the Sick

SIR,—As a ship surgeon of over twenty years' experience I was very sorry and distressed to read Dr B M Newey's letter (Sept 18, p 574). Shipping companies and their agents in the East must be very different from what they are elsewhere in the world. During the above long experience I have looked after the seriously sick, the insane, the suicidal, and even the criminal on board ship, and I cannot recollect ever refusing a case. I have even accepted the urgently ill from other ships on the high seas.

Indeed, I would say to Dr Newey, *Audi alteram partem*. About a year ago from the R N Hospital of a British dependency which shall be nameless I received a brief note that a case of carbuncles and cirrhosis of the liver was coming on board. I was not given a chance of even seeing, let alone declining the case. This was in the afternoon. The patient with his wife arrived at the ship's side at 9 p.m. within a few hours of sailing having sold up hearth and home. I could not have refused him even had he been on the point of death. Examination in the surgery showed five large active carbuncles, two of them over four inches in diameter. He showed the typical signs of hepatic cirrhosis: hard enlarged liver, jaundice, oedema, sallow complexion. His wife who was present was quite shocked. It appeared that she had insisted on taking him out of hospital, but she stated that had his condition been revealed to her (which apparently it had not been) she would not have done so. I am inclined to think that his removal from hospital was not unacceptable to those in charge.

Fortunately I had an ample supply of penicillin on board and under large doses of this the carbuncles healed in a remarkable way. A few days later, however, his cirrhosis advanced, jaundice deepened, oedema increased, and he died within a few days of reaching the U.K.

Experiences of this kind (fortunately very rare) do not promote "friendliness, delight at receiving case notes, and willingness to accept responsibility"—I am, etc.,

Bridge of Weir, Renfrewshire

JOHN S MEIGHAN

## POINTS FROM LETTERS

### Shortage of Nurses

Mr W S BRINDLE (Hyde, Cheshire) writes: Mr L H Hornsby, director of public relations to the Ministry of Labour and National Service, writes (Sept 25, p 622), "In his letter Dr N Strang states that the numbers of nurses in employment in this country are dwindling. Nothing could be further from the truth. Could it not? What about, 'The numbers of nurses in employment in this country have dwindled to none'? Presumably Mr Hornsby meant, 'This is wrong.' This saves four words and twenty-two letters. Perhaps *Plain Words* by Sir Ernest Gowers, has not yet found its way to the Ministry of Labour and National Service."

### Traumatic Amputation

Dr G O M DICKENSON (Haslemere, Surrey) writes: When a "dresser" at the Royal Infirmary, Newcastle upon Tyne, in 1897 or 1898 I remember a man being admitted with evulsion of one arm at the shoulder. The traumatic amputation was completed by snipping through a strip of skin about an inch wide. There was very little bleeding. I expect the wound was dressed with perchloride or cyanide gauze, and to the resulting granulating surface skin grafts were applied—each dresser supplying a piece from his own arm. The patient, a burly Irishman, did not take amiss the remarks that he now possessed a bit of good English skin. His recovery was complete and uneventful.

### Oil Baths in India

Dr T N S RAGHAVACHARI (Madras, India) writes: May I supplement the observations of Dr Percy E Turner (April 17, p 758)? There is a popular old-vernacular proverb current in this land which says, "Instead of paying heavy fees to the doctor, pay a small sum regularly to the oil monger and keep fit." The idea underlying this is that systematic oil baths twice a week keep one free not only from skin affections but also from several ills to which flesh is heir. The oil intended for the anointing is often heated well in an iron pan, with the addition of bits of turmeric (the dried rhizome of which is bright yellow in colour and reputed to be rich in carotene and to possess healing properties), a few grains of black pepper, and half a spoonful of cumin seeds. Oil baths have been a great institution in South India and in Bengal too. Expert masseurs are employed by the rich to give them a real good massage with the oil, which is liberally anointed over their bodies. In Travancore, Cochin, and Malabar daily anointments with simple coconut oil in the case of normal individuals and variously medicated oils in the case of persons suffering from different ailments (particularly those involving the joints and muscles) have for long been and continue to be the most sought after and popular methods in regular use for keeping fit and for restoring tone to the entire system. Sir Robert McCarrison in his wonderful little popular treatise on food speaks very highly of oil baths taken in diffuse sunlight at regular short intervals, as these help considerably to provide vitamin D to the system most naturally and efficiently. An ancient custom of the Hindus is to keep gingelly and coconut oils in big mud pots immediately after the oils are expressed in a wooden mill and leave them exposed to direct sunlight in the open courtyard for a full day or two before storing them in their tinders.

### Vitamin K and Chilblains

Dr DAVID P WHEATLEY (Twickenham) writes: Further to my communication on this subject printed in the *Journal* of Nov 1, 1947 (p 689), I append some further experiences in this treatment which may be of interest to anyone wishing to try the method. Using a water soluble preparation (2 methyl-1,4 naphthohydroquinone disuccinate) I have not encountered any pain on intramuscular injection. However, I have found oral administration of 20 mg t.i.d. so effective that I no longer use the intramuscular route. There is a time lag of 4-5 days before any effect is noticeable, and it is only occasionally that the dose can be reduced below this level. Children should not be allowed to suck or chew the tablets as otherwise a moderate glossitis develops which, however, rapidly clears on cessation of the practice.

## Obituary

C M WENYON, CMG, CBE, FRS

By the death of Charles Morley Wenyon on Sunday, Oct 24, British medicine loses one of its foremost protozoologists and one of its most interesting characters. He was the eldest son of Charles Wenyon, M.D., a pioneer medical missionary in Southern China, and was born in Liverpool in 1878. Much of his early childhood was passed in China, in Fatsan, and in moments of stress he was apt to express his thoughts in what he said was Chinese. Wenyon came back to England in 1892 to Kingswood School, Bath, and began his professional studies at Leeds University, later transferring to University College and Guy's Hospital. He obtained a B.Sc. in 1901, and graduated M.B., Ch.B. in 1904. Almost at once he took up the subject of medical protozoology, and in 1905 was appointed protozoologist to the London School of Tropical Medicine, where, in the old Dock Hospital, Sir Patrick Manson was then at the height of his fame. In the following two years Wenyon visited the Sudan, studying trypanosomiasis and malaria; this was his first contact with Sir Andrew Balfour, with whom he was later intimately associated for so many years. Later he wandered over the Middle East from Bagdad to Malta, studying leishmaniasis, which remained for many years one of his major interests.

He returned to the London School of Tropical Medicine, and in 1914 joined the Wellcome Bureau of Scientific Research which had just been founded by Dr—later Sir Henry—Wellcome, with Dr Andrew Balfour as its first director. Within a few months of its foundation both Balfour and Wenyon were seconded for military service. Before the outbreak of war in 1914 the current teaching had been that almost all the dysentery in the Middle East was due to *Entamoeba histolytica* and very little to bacillary dysentery. As a result, in the Gallipoli theatre patients suffering from dysentery were being treated with large doses of emetine and the death rate was in consequence high. Wenyon's investigations in Egypt clearly demonstrated that the greater proportion of cases of dysentery were not due to amoebae, emetine thus ceased to be given as a routine to every patient and countless lives were saved. Wenyon summarized the results he had obtained in the Near East, which is now referred to as the Middle East, in a valuable work written in 1917 in collaboration with F. W. O'Connor, *Human Intestinal Protozoa in the Near East*. In addition he was responsible for the protozoological sections in the first edition of *Memoranda on Medical Diseases in Tropical and Subtropical Areas*, a compilation published by command of the Army Council which has been of inestimable benefit to medical officers in two world wars.

His next task was to investigate the malaria which was completely immobilizing the Allied Forces in Salonika. With the tools at hand it was obviously impossible to deal with malaria in the ways in which it was later overcome in the second world war, but Wenyon's reports had two important results: they served to discourage any further bellicose adventures by the British in the Balkans and they emphasized the total inadequacy of the measures then available for the treatment and prevention of malaria. Largely through his continued interest in malaria in the Balkans Wenyon prevailed on Sir Henry Wellcome to support in this area a small laboratory, which under Dr Henry Fox has carried out much important work on blackwater fever. After having acted as consultant in malaria both to the British Salonika Forces and after 1918 to the Army of the Black Sea, Wenyon returned to the Wellcome Bureau of Scientific Research in 1920. For his war services he was made CMG and CBE.

When Sir Andrew Balfour became the first director of the newly founded School of Hygiene and Tropical Medicine in 1923 Wenyon naturally succeeded him as director of the Wellcome Bureau of Scientific Research and when in its turn the Wellcome Research Institution arose in the Euston Road he became its first director-in-chief as well as director of research in the Wellcome Foundation. In 1926 Wenyon published his *Manual of Medical Protozoology*—a manual for medical men, bacteriologists and zoologists—which as was most justly due

was at once hailed as a standard work. The effort expended in compiling these two magnificent volumes seems largely to have exhausted his capacity for research, and thereafter he published little that was original. His time, however, was fully occupied. In addition to directing an important research institution he had become in 1920 an honorary secretary of the Royal Society of Tropical Medicine. It was largely as a result of his initiative and drive that Manson House was built and freed from debt, and his endeavours were also largely responsible for the present flourishing condition of the Royal Society of Tropical Medicine. In 1945 he was elected president of the Society, and in 1947 was awarded its Manson Medal. Since 1920 he had acted as a sectional editor of the *Tropical Diseases Bulletin*. It is thus hardly surprising that in the course of years he became a kind of final court of appeal on all matters protozoological. This entailed a constant stream of visitors to the Wellcome Bureau from the Commonwealth, the Continent, and the United States of America.

Wenyon received many honours in addition to those already mentioned. In 1927 he was elected a Fellow of the Royal Society. He was also an associate member of the Société de la Pathologie Exotique, and in 1933 became an officer of the Legion of Honour. In 1945 he was elected an honorary life member of the New York Academy of Sciences, and in 1946 the American Society of Tropical Medicine awarded him the Theobald Smith Gold Medal. Finally, in 1947, he was elected an honorary fellow of the Royal Society of Medicine.

Although Wenyon made no outstanding medical discovery—his most important were probably the differentiation of *Endolimax nana* from other intestinal protozoa and the discovery of two of the five intestinal flagellates of man—yet he will have an assured place in the history of medicine. He it was who, with his old friend Professor Brumpt, still happily with us, first established protozoology as an essential branch of medical parasitology. Under his aegis the Wellcome Bureau of Scientific Research became internationally known. As the director of a scientific institution he can have had few equals, for he possessed in no uncertain degree the by no means common knack of invariably keeping "a happy ship." Those who worked with him will recall his, 'Well! I don't know I'm sure. What?'

In 1944 Wenyon retired from the Wellcome Research Institution but continued to act as consultant in tropical medicine to the Wellcome Foundation. For many years he had been collecting notes and material for a second edition of his *magnum opus* but only a few days before his death he had reluctantly informed his publishers that to accomplish his task was beyond his strength. It is to be hoped that younger hands will be enabled to bring his work to its final fruition.—G. M. F.

PERCIVAL P. COLE, OBE, MB, FRCS

After a long and trying illness Percival Pasley Cole died in London on Oct 19.

Percival P. Cole was born at Weymouth on March 4, 1878 and educated at Weymouth College. He entered Guy's Hospital in 1897 as a dental student and qualified in 1899. He decided to become medically qualified, and obtained the Conjoint diploma in 1904. He held several house appointments at Guy's Hospital and took the FRCS in 1906. He then became lecturer in anatomy at Birmingham University and there he graduated M.B., Ch.B. in 1909. On his return to London Cole first worked as demonstrator of anatomy at the Middlesex Hospital, and then quickly obtained several hospital appointments, becoming surgeon to Queen Mary's Hospital for the East End in 1911, surgical registrar at the Cancer Hospital in the same year, and assistant surgeon to the Dreadnought Hospital the following year. He maintained his connexion with these three hospitals to the end, becoming senior surgeon to Queen Mary's Hospital in 1932 and consulting surgeon in 1938. At the Cancer Hospital he was appointed assistant surgeon in 1920, surgeon in 1922, and consulting surgeon in 1946. He became full surgeon at the Dreadnought Hospital in 1919, consulting surgeon in 1947, and vice-president in 1948.

Cole's early dental training may have accounted for his interest in plastic surgery, and throughout the 1914-18 war he was honorary surgeon to King George's Hospital, Waterloo.

and in charge of maxillo facial cases and he was also on the staff of the Brook War Hospital. At this time he published several articles on war injuries to the face and jaws, on other types of war wounds and injuries, and on reparative surgery.

Percival Cole was also greatly interested in the Seamen's Hospital Society and he was surgeon to the Dreadnought Hospital for thirty five years and surgeon to the Tilbury Hospital from 1930. He must have operated upon thousands of merchant seamen and as a result of his care many men who might otherwise have been lost to the Merchant Navy were restored to full duties. In recognition of his work in this connexion the National Union of Seamen in 1946 made him an honorary life member of the Seamen's Union. Cole was



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the first member of the medical profession ever to be accorded this honour. As recently as July of this year he was made a vice president of the Corporation of the Seamen's Hospital Society, which was the highest honour that Corporation could bestow. He recently took part in the preparation by the Board of Trade of the eighteenth edition of the *Ship Captain's Medical Guide* which originally dates from 1868.

From 1926 Cole was consulting surgeon to the Bethnal Green Hospital, and he served on the executive council of the Institute of Hygiene from 1931. He continued in that capacity in the present Royal Institute of

Public Health and Hygiene. He was Hunterian Professor of the Royal College of Surgeons in 1918 and a member of the Association of Plastic Surgeons. He was awarded the OBE in the New Year's Honours List of 1947.

Cole was specially interested in several branches of surgery. For many years he was the chief exponent in this country of the filigree operation for inguinal and other herniae. In fact he was one of the early pioneers in the use of non absorbable monofilament sutures. He advocated and used this type of suture when many others were still doubtful of its value. Before the days of radiotherapy he brought relief to many cases of cancer of the uterus by his patient application of the 'cold cautery'. His skill as a first-class cancer surgeon and his wide knowledge of plastic surgery benefited many cases of the most distressing types of cancer. He was a competent and pleasant teacher and devoted much time and thought to the organization of postgraduate courses for ship surgeons. Throughout the British Commonwealth hundreds of his residents and postgraduate students remember him with gratitude and pride. During and since the second world war he continued his indefatigable work till well over the age at which he could have retired and those who sought his counsel found knowledge and wisdom and a sure grasp of affairs remarkable in a man over 70 years of age.

Although his passage through life was sometimes turbulent, Cole was always fearless and single minded. His friends, colleagues and associates found him easy to approach and received from him a ready sympathy combined with a wide sense of justice and a tolerance for others which won for him a lasting admiration and affection. The sympathy of all his many friends will be extended to his son and daughter by his first wife and to his widow, Dr Pearl Greene of the Marie Curie Hospital.

Mr E T C Milligan writes: The passing of Percival P Cole removes from the surgical world a colourful figure and leaves a sad gap in a wide circle of friends. His sayings and writings were a delight, for he had the gift of the picturesque word, the polished phrase and deep feeling. It was perhaps easier for him to share his plans and ideas than his heart. He had strong views and rigid opinions and for these he fought in the face of opposition and at the risk of criticism. No one was better fitted to champion the new revolutionary treatment

of hernia by filigree. At the Dreadnought Hospital in the early part of this century he learnt the operation from Lawrie McGavin. He saw in it a method which alone in those days could deal successfully with a sailor's hernia and return him to sea. P P never wavered in his assessment and appreciation of this operation, and while new fashions followed one after another he maintained his confidence and enthusiasm for the filigree method. He practised it, taught it, and had it filmed—a film which should be preserved as a record of successful pioneering work, for now surgical opinion is no longer unkind to the filigree and buried metal.

Usually, as surgeons mature, wider visions for closer human and world relationships call them. The scientific world of surgery alone ceases to satisfy their heart's longings. Percival Cole, however, maintained his interest in surgery and surgical technique at white heat, so that the planning and execution of his jaw and face surgery, his filigree repair of the largest hernias, and his bold operations for cancer continued to be done with finished artistry and tenderest touch. His individual concern and care for sick merchant sailors of all nations through the Seamen's Hospital Society were an inspiration to his colleagues. He showed that through medicine it was possible to surmount the antipathies of class colour and nations. We will remember him as a man who knew what he fought for and loved what he knew. P P gave an inspiring lead and was a great fighter.

Dr Henry Robinson writes: Percival Cole was the junior and the last survivor of the surgical team which in the second and third decades of the century drew visitors from far and near to the clinics and the operating theatres at the Royal Cancer Hospital—the others of the sextet were Charles Ryll, Ernest Miles, Jocelyn Swan, Cecil Rowntree, and Cecil Joll. While all were first rate general surgeons several of them had special interests—Miles in proctology, Swan in genito urinary work, Joll in thyroid and gastric surgery. Cole's special line was plastic surgery in which he got ample opportunities of serving his generation in both the two great wars. No doubt his early training as a dental surgeon was of value in facial reconstructions, but apart from this he had a real flair for this specialty and had both the imaginative boldness in planning and the deftness in execution which plastic surgery requires. He was a consistent exponent of Arbuthnot Lane's "no touch" technique, which he practised as admirably as Lane himself. Cole was a good committee man and a born chairman, though he suffered fools not very gladly and could be rather tart if he thought nonsense was being talked, he knew how to keep a meeting to the point and not allow it to wander off into side issues. He was of athletic frame and had been good at several games, notably lawn tennis.

#### SIR BRUCE BRUCE-PORTER KBE CMG, MD DL

Sir Bruce Bruce-Porter died on Oct 15 at the age of 79 at the home of his son-in-law and his daughter in Somerset. Harry Edwin Bruce-Porter was the son of the late Capt J Porter RA and was born at Woolwich. He was educated privately and at the London Hospital where he won many prizes and scholarships. He qualified as LSA in 1892 and took the Conjoint diploma in the following year. He then joined the Army Medical Staff as it was called and won more distinctions at Netley. After rising to the rank of surgeon captain he resigned and began private practice in the West End of London. As Dr Bruce-Porter he was soon well known, and at one time had probably one of the largest and most lucrative general practices in London. He was one of the men who were quick to appreciate the value of the young science of clinical pathology. His opportunity for distinction came with the war of 1914-18 when he was recalled to service and promoted to command the Third London General Hospital where he found himself at the head of a team of the leading London consultants. Later he went out to Mesopotamia in command of No 40 British General Hospital was mentioned in dispatches and awarded the CMG in 1917. He had also done good work as physician to King Edward VII's Hospital for Officers.

Outside his strictly professional work Bruce Porter had many interests and made himself very useful. He was a Deputy-Lieutenant for London, a Fellow of the Institute of Public

Health, a member of the Council of the Imperial Service College Trust, a military member of the Council of the Territorial Force Association of London a past president of the Hunterian Society a vice president of the Shaftesbury Society and Ragged School Union an honorary member of the Smeatonian Society of Civil Engineers and a Knight of Grace of the Order of St John of Jerusalem. He served also on a Home Office committee charged with inquiry into legislation on the treatment of inebriates. He founded the Bruce Porter Home for children of Dr Barnardo's Homes needing orthopaedic treatment. In 1919 then a colonel in the Army Medical Service he was honoured for his services by the conferment of the K B E. In later years he joined forces with Sir Arbuthnot Lane in the latter's New Health Society.

Sir Bruce married in 1896 Essie daughter of the late Rev D Bruce D D, of Auckland New Zealand and widow of J H Honeyman, M D. They had twin daughters. Lady Bruce-Porter was a Lady of Grace of the Order of St John of Jerusalem and died in 1937. Bruce-Porter had been an early and keen devotee of motoring and was a founder-member of Brooklands.

Dr WILLIAM HENRY LEWIS, who died on Sept 24 at the age of 82 was born at Llansantffraid and lived and worked there all his life. A student at the University of Edinburgh, he graduated M B, C M in 1887, and was still only 21 when he returned to Llansantffraid and went into practice. In the course of forty two years in general practice Dr Lewis won the esteem and affection of thousands of patients. He retired from practice in 1929 and was then able to devote much of his time to local government. He had become a county councillor in 1919 and was for many years chairman of the public health committee and took a particular interest in the problems of mental deficiency tuberculosis and school medical services. He represented the county on the Court of the University of Wales and on the board of the Normal Training College, Bangor. He had been appointed a justice of the peace as early as 1904 and in recognition of his long service to the county he was appointed high sheriff of Montgomeryshire in 1935. Dr Lewis had two hobbies gardening and wood carving. He carved the reredos at Llansantffraid Church, and many notable examples of his carvings of furniture are still to be found in the district. Dr Lewis had been a member of the British Medical Association for almost sixty years and he served as president of the Shropshire and Mid Wales Branches in 1927-8. He was also vice president of the North Wales Society for the Blind.

Dr ARNOLD THOMAS DENSHAM the son of Henry Densham of Bristol died in London on Oct 13 at the age of 66. He was educated at Clifton College and St John's College Cambridge. After leaving Cambridge he entered Guy's Hospital and the Royal Ear Hospital, Soho. Densham entered the Indian Medical Service and remained abroad until invalided out in 1909. The disability which led to his resignation was deafness following diphtheria contracted while attending a patient. Densham did not feel justified in continuing medical work under such a disability, the difficulty in hearing heart and chest sounds was to his mind incompatible with medical practice although other work in the service had been suggested to him. Dentistry seemed to offer a branch of medical work which he could undertake and no doubt he was influenced in this choice by having a brother Ashley in the dental profession whom he subsequently joined in practice. This entailed his return to Guy's Hospital in 1909 in order to take a dental qualification which he accomplished in 1911. Subsequently he held for some years the appointment of chief assistant in the dental department of St Bartholomew's Hospital. Densham had a sound knowledge of medicine was a good classical scholar and a knowledgeable man in many other respects, always able to give a sound and well-considered opinion. He used short rather than long words if equally applicable and had the gift of expressing much in a few clear and concise phrases. In this respect he resembled his uncle George Ernest Herman whose book on difficult labour was often quoted as a model of clear and concise language. Densham's sense of fairness and his integrity of character were shown in many ways during his life quite apart from his characteristic refusal to continue in a service in which he considered he was unable to give the best. Densham was a lovable character modest in every way and courteous in manner. His disability made it difficult for him to enter much into society but his friends and acquaintances were very appreciative of his fine and generous qualities. He was a bachelor and the youngest but one in a family of eleven.

Dr FREDERICK ROBERT DINGLE who died with tragic suddenness on Oct 2 at the age of 46, was a student at Guy's Hospital and qualified M R C S, L R C P in 1925. He went to Gateshead a few years later and quickly built up a large practice. His popularity as a doctor in a densely populated industrial area meant that he had to work very hard. During the war years, despite the added burden of being entirely without assistance, he did his full share in the work of the protection of practices scheme, and his obligations to his absent colleagues were most faithfully fulfilled. Dr Dingle still found time for outside activities in the medical field. He was chairman of the Gateshead Division of the British Medical Association in 1940-1, but perhaps his greatest outside interest was in his work for the Medical Institute in the sister borough of Newcastle upon-Tyne. He was treasurer of this popular doctors' club from 1937 until his death, and over this ten-year period there was a remarkable development in every field of the Institute's activities largely as a result of Dr Dingle's work. His early death will be deeply regretted not only by his many patients but also by his fellow practitioners in the North-east.—J C A

Dr ERIC OLIVER BLAKE died at his home in University Square, Belfast, on Sept 24 after a few months' illness. Dr Blake, who was a native of Trinidad, came to Belfast in 1922 and graduated there in 1927. Soon afterwards he started in general practice in the Newtownards Road district.

D B E writes Dr Blake will long be remembered by his many patients and friends for his kindness particularly to the poor, and for his devotion to duty. He was a good physician and one of the best type of general practitioner. The sympathy of his colleagues in Belfast will be extended to his wife and to the rest of his family.

Dr ALEXANDER BOYD ROBERTS, who died on Oct 7 at the age of 74 was in practice in Hammersmith and Maida Vale for thirty years before ill health forced him to retire in July of this year. In his native Canada he was better known as one of the intrepid men who led the Klondike Gold Rush in 1896. With his brother James he was among the first to cross the Chilkoot Pass, and at Lake Bennett they built their own boat, *The Clyde* one of the steadiest craft to run the Whitehorse. Roberts learnt to the full the dangers and hardships of the North and came from the Klondike with a life already packed with experience. Soon afterwards he began his medical studies, and graduated M D at McGill University Montreal, in 1902. He practised in Saskatoon until the 1914-18 war when he served in the C A M C and later in the R A M C. During the recent war he was medical officer to a first-aid post in Paddington where he gave invaluable service. In his work his greatest interest always lay with his patients. He was an outstanding general practitioner of the best type, and his enforced retirement was felt by his patients as a great loss to them all. He married Dorothy Brand-Hardy, of Beckenham Kent in 1916, and she and a married daughter in France survive him. His last years were clouded by the loss of his only son and younger daughter.

Dr LYSTER COLE-BAKER died at his home in Waterlooville Hants on Oct 14 at the age of 83. Dr Cole-Baker was born in Victoria Australia, and studied medicine at Trinity College, Dublin in London, and in Vienna. He graduated at Dublin in 1890 and proceeded M D two years later. He spent a year in practice in Maidstone before settling in Portsmouth, where for many years he was honorary ophthalmic surgeon at the Eye Infirmary and honorary surgeon at the Royal Portsmouth Hospital. During the 1914-18 war he was in charge of the Military Families Hospital there. Dr Cole-Baker is said to have been responsible for introducing the principles of aseptic surgery at the Royal Hospital. He was a frequent contributor to the medical press and published short articles in the *Journal* as long ago as 1901. He was one of the first doctors in the city of Portsmouth to own a motor-car and he had been a councillor for many years retiring only when he was appointed school medical officer at Waterlooville. During the second world war he joined the Home Guard, and was A R P casualty officer for his district. For many years Dr Cole-Baker was actively concerned with the Portsmouth Conservative Association and a member of the Royal Albert Yacht Club.

Dr CHARLES DUDLEY BISHOP who died on Oct. 17 at the age of 73 was one of the older generation of doctors in Wandsworth. A native of Clapham he was a student at Charing Cross Hospital and qualified in 1899. He remained in general practice throughout his lifetime and was held in great respect and esteem by his colleagues and his patients alike. Before the war he acted as honorary anaesthetist at the Bolingbroke and

Charing Cross Hospitals and his many years of service in that capacity are recalled with gratitude. As a younger man he took a keen interest in local medical affairs. He was a loyal member of the British Medical Association, which he first joined in 1901. He represented his colleagues at the annual representative meetings in 1925, 1926, and 1927, and was chairman of the Wandsworth Division from 1930-2. Though he continued in practice until recently, failing health curtailed his activities. In spite of that he contrived to be a regular attendant at the divisional meetings during the controversial months preceding the introduction of the National Health Service. His wife who died three or four years ago, was a chronic and almost helpless invalid and the devotion and care which he bestowed upon her were most touching. He was a genial, kindly man, a general practitioner in the best traditions of the old school, and his familiar figure will be greatly missed.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

Sir Walter Hamilton Moberly, chairman of the University Grants Committee, will deliver the Rede Lecture in the Senate House on Thursday, Nov 18, at 5.30 p.m. His subject is 'Universities and the State'.

### UNIVERSITY OF LONDON

Dr H. R. Ing, D.Phil., will deliver a Special University Lecture on "The Pharmacology of Homologous Series" at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Friday, Dec 3, at 5.15 p.m. The lecture is addressed to students of the University and to others interested in the subject. Admission is free, without ticket.

The Semon Lecture for 1948 entitled 'Broncho oesophagology in Great Britain—the Decline of a Science. A Plea for Better Cooperation and Teaching' will be delivered by Mr G. Ewart Martin at the Royal Society of Medicine (1, Wimpole Street, London, W.) on Thursday, Nov 4, at 5 p.m. Special University Lectures on 'Rubella in Pregnancy as an Aetiological Factor in Congenital Malformations and Still Birth' by Dr Charles Swan (University of Adelaide) and "Social Factors in Obstetrics" by Professor D. Baird (University of Aberdeen) will be delivered at Westminster Medical School (Meyerstein Lecture Theatre) Horseferry Road, London, S.W.1, on Tuesday, Nov 16 at 5 p.m. and Friday, Nov 26, at 5.30 p.m. respectively. The lectures are addressed to students of the University and to others interested in the subjects. Admission is free, without ticket.

The following candidates have been approved at the examination indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY—J. C. Bulstrode, J. G. L. Cole, J. C. A. L. Colenbrander, J. B. Latta, D. O. Connell, J. H. O. Connell, B. Stoll, R. D. St. G. Tucker, A. H. N. Welikala.

### UNIVERSITY OF LIVERPOOL

At a graduation ceremony held on Oct 15 the degree of Master of Radiology was conferred on J. R. MacLeod and D. E. Paterson.

### UNIVERSITY OF LEEDS

Stanley Jack Hartfall, M.D., F.R.C.P., Professor of Therapeutics and Applied Pharmacology, has been appointed to the Chair of Clinical Medicine in the University, in succession to J. le Fleming C. Burrow, M.D., F.R.C.P., who has retired, and Louise Frances Winifred Eickhoff, M.D., D.P.M., has been appointed Senior Lecturer in Child Psychiatry.

### QUEEN'S UNIVERSITY, BELFAST

The first A. B. Mitchell Memorial Lecture was delivered at Queen's University, Belfast, by Professor G. Grey Turner, M.S., F.R.C.S., on Oct 19. His subject was 'Transplantation of the Ureters'.

### ROYAL COLLEGE OF PHYSICIANS OF LONDON

The Harverton Oration was delivered at the College on Oct 18 by Dr F. M. R. Walshe on 'The Structure of Medicine and its Place among the Sciences'. The Oration was printed in an abridged form in the *Journal* of Oct 23 (p. 753).

After the Oration the Weber-Parkes Medal and Prize were presented to Dr Stephen Roodhouse Glovne. The prize is awarded triennially for the best work done on the aetiology, prevention, pathology or treatment of tuberculosis.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Annual Meeting of Fellows and Members of the College will be held at the College (Lincoln's Inn Fields, London, W.C.) on Wednesday, Nov 10, at 5.30 p.m., when a report from the Council will be laid before the meeting.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct 9.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths and of Deaths recorded under each infectious disease are for: (1) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	31	2	13	1	1	45	3	23	4	4
Diphtheria Deaths	112	13	45	16	1	201	18	60	11	5
Dysentery Deaths	84	5	88	—	—	67	9	51	3	—
Encephalitis lethargica acute Deaths	1	—	—	—	—	2	1	—	—	—
Erysipelas Deaths	—	—	22	12	3	—	—	43	10	3
Infective enteritis or diarrhoea under 2 years Deaths	25	4	8	46	2	70	4	15	80	5
Measles* Deaths†	4 061	79	73	85	104	1 639	50	95	151	9
Ophthalmia neonatorum Deaths	63	7	13	—	—	71	6	15	—	—
Paratyphoid fever Deaths	13	31	(B)	3	(B)	12	—	1(A)	—	—
Pneumonia influenzal Deaths (from influenza)‡	421	27	4	2	—	403	19	3	1	2
Pneumonia primary Deaths	3	—	2	—	1	13	3	2	1	—
Pneumonia primary Deaths	140	22	170	17	5	7	23	164	15	3
Polio-encephalitis acute Deaths	7	—	—	—	—	26	3	—	—	—
Poliomyelitis acute Deaths§	79	9	2	—	1	338	31	76	6	10
Puerperal fever Deaths	—	—	8	—	—	—	—	8	—	—
Puerperal pyrexia   Deaths	111	11	4	—	—	106	6	11	—	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 273	75	248	174	38	1 316	84	300	60	44
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	18	1	—	12	—	8	1	—	18	2
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2 073	127	64	48	13	1 043	73	40	28	2
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	259	33	36	17	9	361	46	66	25	12
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4 051	638	539	157	106	4 240	676	556	147	85
Live births Annual rate per 1 000 persons living	8 020	1340	1024	406	252	9 031	1492	1096	430	276
Stillbirths Rate per 1 000 total births (including stillborn)	193	19	42	—	—	216	30	42	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales (London (administrative county) will no longer be published).

‡ Includes primary form for England and Wales (London (administrative county) and Northern Ireland).

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London (administrative county) are combined).

|| Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Discussion of Table

In England and Wales increases were recorded in the notifications of measles 515, scarlet fever 39, and dysentery 26. There were decreases in the incidence of whooping-cough 131 and typhoid fever 22.

The largest rises in the notifications of measles were Lancashire 207 and Gloucestershire 76, and the largest fall was Yorkshire West Riding 51. No large fluctuations were reported in the local incidence of diphtheria or scarlet fever. The only variation of any size in the local trends of whooping cough was a decrease of 50 in Essex.

The chief centres of dysentery were Lancashire 28 (Liverpool 20) and Surrey 15. The largest returns for poliomyelitis were Yorkshire West Riding 11, London 9, Middlesex 6, Surrey 5, and Lancashire 5.

In Scotland an increase of 29 in the notifications of dysentery and a decrease of 13 in cerebrospinal fever and of 10 in diphtheria were the chief features of the returns. The largest returns of dysentery were Glasgow 57 and Lanark county 17. The fall in the incidence of cerebrospinal fever and diphtheria was due to the experience of the western area.

In Eire increases were recorded in the notifications of scarlet fever 48, measles 40, and typhoid fever 10, a decrease of 11 was reported in the notifications of diarrhoea and enteritis. The rise in the incidence of scarlet fever was due to the experience of Dublin CB. A further 55 cases of measles were notified from the outbreak in Clare K'rush RD where 28 cases were notified in the preceding week. The 12 cases of typhoid fever were scattered through nine areas, the only multiple notification was 4 cases in Kerry, Dingle RD.

In Northern Ireland a decrease of 13 was recorded in the notifications of scarlet fever. In Belfast CB a rise of 33 occurred in the notifications of measles, while the incidence of whooping cough declined by 11.

## September Quarter, England and Wales

In the weekly return of the Registrar-General for England and Wales for Oct 16 provisional rates are given for the September quarter. The infant mortality was 28 per 1,000 live births, and was the lowest rate ever recorded for any quarter. The previous lowest was 31 in the June quarter of this year. The stillbirth rate at 22.6 per 1,000 total births was 0.1 below the preceding lowest level. The birth rate was 17.7 per 1,000, a fall of 1.3 compared with the rate of the preceding September quarter. The general death rate was 9.4 showing a rise of 0.5 on the rate for the September quarter of 1947.

## Week Ending October 16

The notifications of infectious diseases for England and Wales during the week included: scarlet fever 1,519, whooping cough 1,949, diphtheria 141, measles 4,536, acute pneumonia 479, cerebrospinal fever 36, acute poliomyelitis 81, dysentery 114, paratyphoid 9, and typhoid 12.

## Medical News

## Gastro-enteritis Flying Squad

The Hospital for Sick Children, Great Ormond Street, London has formed a flying squad of trained nurses with a medical man in charge to help in the treatment of cases of infantile gastro-enteritis in hospitals or institutions. The squad is available to visit any hospital that desires its help and it is fully equipped to augment existing nursing arrangements or to set up a special unit. The squad is available from Nov 1, and the squad can be obtained through the local medical officer of health or regional hospital board, or in emergency by telephoning the house governor of Great Ormond Street Hospital (Holborn 9200) who will give any further information required. The scheme is being partly financed by the King Edward's Hospital Fund and has the good will of the Ministry of Health.

## Dental Text

The Dental Text (August 1948) has now been issued in accordance with the N.H.S. (General Medical and Pharmaceutical Services) Regulations. It sets out the provisions relating to the calculation of fees for dental and appliances supplied to N.H.S. patients.

## Medical Women's Federation

The Medical Women's Federation is now Tiffinstock, 11, Tavock Square, London WC1 (Tel. Euston 1111).

## Metallic Contamination of Foods

The Ministry of Food states that the Food Standards Committee, whose appointment was announced by the Minister of Food in January, has set up a subcommittee to inquire into the metallic contamination of foods. The subcommittee is invited to consider (a) the available evidence of the effect of the ingestion of foods contaminated with metals or other injurious elements, (b) the possibility of prescribing limits of contamination, and (c) the technological problems which might arise from the prescription of such limits. The following have agreed to serve on the subcommittee: Mr G G Barnes (Chairman), Dr L E Campbell (Director, British Food Manufacturing Industries Research Association), Professor G R Cameron (University College Hospital Medical School), Professor S J Cowell (Medical Research Council), Dr J M Johnston (Department of Health for Scotland), Dr W P Kennedy (Ministry of Health), Dr G Roche Lynch (Senior Official Analyst, Home Office), Dr J R Nicholls (Department of the Government Chemist), Mr G Tylor (Public Analyst), Dr G W Monier-Williams (formerly in charge of Food Research Laboratory, Ministry of Health). The subcommittee is asking research associations, food processing firms, and medical and technical associations to co-operate in the inquiry. In particular the subcommittee wishes to know (i) the metals and the foods which have been the subject of investigation, (ii) the period covered by the investigation, (iii) the units of measure used to express the degree of contamination, (iv) the analytical method adopted. Persons or organizations who are able to supply such data and who have not already been approached are invited to write to Mr K R Allen, Secretary of the Food Standards Committee, at the offices of the Ministry of Food, Food Standards Division, Devonshire House, Mayfair Place, Piccadilly, London, W 1.

## Queen's University, Belfast

Latest published figures show that the amount raised for the Queen's University Centenary Endowment Fund is almost £300,000. The target figure was a quarter of a million. The Vice Chancellor, thanking the Nuffield Provincial Hospitals Trust for its donation of £30,000 to endow a Chair and Department of Child Health, said: "The creation of the new Chair will make possible the development and integration of teaching and research facilities which exist in the hospitals associated with the University. In addition the Belfast Corporation is to make available to the University facilities for study and teaching in the child-welfare clinics. This co-ordination should advance the development of 'positive health' and result in great gain to the undergraduate teaching and postgraduate research."

## Association of Certifying Factory Surgeons Dinner

At the annual dinner of the Association of Certifying Factory Surgeons, which was held at the Café Royal on Oct 20, several speakers mentioned the necessity for teamwork between management, labour, and industrial medical officers. Dr R Nightingale, the President, in proposing the toast to the Factory Department of the Ministry of Labour said that industry had never cried louder for help and guidance about health. There was a greater future for the certifying factory surgeon, now to be called, unfortunately in his opinion the appointed factory doctor. Replying to the toast Mr G A Isaacs, Minister of Labour and National Service, said that the fight of the trade unions to obtain improved health conditions in industry was won with the help of the doctors. The aim was now to build up a national industrial medical service properly integrated with the National Health Service. The toast of the Association was proposed by Mr G P Barnett, Chief Inspector of Factories, and in reply Dr H W Patterson said that he was glad that certifying factory surgeons were the legitimate children of the Ministry of Labour and the Home Office—but there was a wicked uncle in the background, the Ministry of Health. They did not want to be lost in the jungle of the various new health organizations which were being set up, and he was grateful for the help the Association had received from the B.M.A. The toast of the visitors was proposed by Dr C L Graham, and Professor R E Lane and Dr A J Amor replied.

## Union of St Luke

The Union of St Luke has issued its first "Periodical Letter" (price 1s). Particulars may be obtained from Dr R H Hardy, 5c, Park Hill Road, London, NW3. The Union was founded this year as an association of Anglican medical men and women.

## Mobile Clinics and Centres

A circular from the Ministry of Health to local authorities draws their attention to the use of mobile dental clinics and of mobile centres for maternity and child welfare. Various local authorities have been using suitably equipped vehicles for these purposes in the more remote areas where permanent centres cannot yet be provided, and information about their experience with them may be obtained from the Ministry.



**Medical Clerk of a City Company**

On completion of 21 years' service as Clerk of the Worshipful Company of Glaziers and Painters of Glass, Major General R J Blackham A M S (ret.), has been unanimously elected an Honorary Member of the Court of Assistants—the governing body of the Company—and presented with an antique clock and a cheque by the Court and Livery of the Glaziers Company, which is distinguished from other City Guilds by representing a branch of art and not a division of industry. So far as is known General Blackham is the only medical man who has ever been Clerk of a City Company with the exception of the late Group Captain Cooper, who was Clerk of the only medical Guild—the Society of Apothecaries.

**Mule Spinners' Cancer**

The Manchester Committee on Cancer has recently distributed to all practitioners in the neighbourhood of the Lancashire and Cheshire cotton mills a brief account of epithelioma of the skin as it affects mule spinners which has been prepared by Dr E M Brockbank. Copies are also being distributed at the request of employers and workers in some of the mills, the intention being to encourage spinners to report at the earliest stage any affections of the skin.

**Willis**

Dr James McIntosh, formerly professor of pathology in London University and director of the Bland Sutton Institute of Pathology at Middlesex Hospital left £19,978. Dr Alfred Walter Sikes formerly a divisional medical officer in the public health department of the London County Council and lecturer in physiology at King's College left £10,298.

**COMING EVENTS****Federation of Committees for the Moral Welfare of Children**

The Federation of Committees for the Moral Welfare of Children (13, Gray's Inn Square, London, W C 1) has arranged a conference to be held at Caxton Hall, Westminster, London, S W, to day (Friday, Oct 29), at 2.30 p.m., when Dr Lilius M B Jeffries will speak on 'Marriage in Our Time', preceded by an exposition of 'Our Work in Action' by committee members and a children's worker. There is a conference fee of 1s, payable on admission.

**Princess Alice Emergency Hostel for Mothers and Babies**

Princess Alice Countess of Athlone, will open officially the Princess Alice Emergency Hostel for Mothers and Babies at "Castlebar," 46 Sydenham Hill, London, S E, on Tuesday Nov 2 at 3.30 p.m.

**Edinburgh Lectures**

In connexion with the postgraduate courses in medicine and surgery the Edinburgh Postgraduate Board for Medicine has arranged a series of open lectures on subjects of wide biological interest which began in the West Medical Lecture Theatre of Edinburgh Royal Infirmary on Oct 12. Further lectures details of which will appear in the diary column of the *Journal*, will be given on Nov 2 and 23 and Dec 7 and 21. The lectures are open to all graduates and students.

**Royal Dental Hospital of London School of Dental Surgery**

The annual clinical "At Home" of the Royal Dental Hospital of London School of Dental Surgery will be held at the Royal Dental Hospital (32, Leicester Square, London, W C) on Saturday, Nov 27, at 3 p.m. The dinner of past and present students of the hospital will be held at the Savoy Hotel at 7 for 7.30 p.m. the same day.

**SOCIETIES AND LECTURES****Saturday**

KENT PAEDIATRIC SOCIETY—At Maidstone Town Hall Oct 30, 2.30 p.m. *The Insecure Child* by Miss L M Rendel. *Know Your Baby* film.

**Monday**

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY 330-2, Gray's Inn Road, London, W C—Nov 1, 2.30 p.m. *Facial Paralysis from the Otolological Standpoint* by Miss Dorothy J Collier.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE Keppel Street W C—Nov 1 5.15 p.m. *Enzymatic Break down of Proteins (II)* by Professor K Linderstrom Lang (Copenhagen).

SOCIETY OF APOTHECARIES OF LONDON—In the Hall Black Friars Lane Queen Victoria Street E C Nov 1, 5 p.m. *The Constitutional Factors in Psychological Medicine* by Dr Eliot Slater.

SOCIETY OF CHEMICAL INDUSTRY—Joint meeting of Food Group and London Section at Royal College of Science Huxley Building Exhibition Road South Kensington London S W Nov 1, 2.15 p.m. Symposium *Aspects of Packaging with particular reference to the Food Industry*.

**Tuesday**

CHADWICK TRUST—At Sir Edward Meyerstein Lecture Theatre Westminster Hospital Medical School, 17, Horseferry Road, Westminster, London, S W, Nov 2 2.30 p.m. *The Prevention of Tuberculosis with special reference to Environment* by Dr Wyndham E B Lloyd.

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Edinburgh Royal Infirmary (West Medical Lecture Theatre) Nov 2, 5 p.m. *Cirrhosis of the Liver* by Professor J W McNee.

INSTITUTE OF DERMATOLOGY, 5 Lisle Street, Leicester Square London, W C—Nov 2, 5 p.m., *Histopathology of the Skin* by Dr I Muende.

INSTITUTE OF UROLOGY—At St Paul's Hospital Endell Street London, W C, Nov 2 11 a.m., *Manifestations of Secondary Syphilis* by Dr W N Mascall, 5 p.m., at St Peter's Hospital Henrietta Street London, W C, *Fistula of the Bladder (Acquired)* by Mr F R Kilpatrick.

ROYAL STATISTICAL SOCIETY RESEARCH SECTION—At E L M A Lighting Service Bureau, 2, Savoy Hill, London, W C Nov 2 4.30 p.m. *Some Statistical Problems Arising in Genetics* by Professor J B S Haldane, F R S.

SOCIETY OF APOTHECARIES OF LONDON—In the Hall, Black Friars Lane, Queen Victoria Street, E C Nov 2 5 p.m. *Use of Sex Hormones in Therapeutics* by Dr Peter Bishop.

UNIVERSITY COLLEGE, Gower Street, London, W C—Nov 2 1.15 p.m. *Process of Learning in Octopus* by Professor J Z Young, F R S.

**Wednesday**

EDINBURGH CLINICAL CLUB—At Edinburgh Royal Infirmary (Ward 34), Nov 3, 4 p.m. *Leucorrhoea* by Dr E C Fahmy.

INSTITUTE OF UROLOGY—At St Paul's Hospital Endell Street London W C, Nov 3, 11 a.m., *Skin Eruptions of Secondary Syphilis* by Dr A H Harkness, 5 p.m., *New Growths of the Bladder (Benign)* by Mr C H Mills.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION—At B M A House, Tavistock Square, W C, Nov 3, 8.30 p.m. *Criminal Courts and the Doctor* by Mr Claude Mullins.

LONDON COUNTY MEDICAL SOCIETY—At Lambeth Hospital, Brook Drive, S E, Nov 3, 3 p.m. Clinical meeting.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE 28 Portland Place, London, W—Nov 3, 3.30 p.m. *The Planning of a Modern School in Relation to the Public Health* by Mr S Johnson-Marshall, B Arch, A R I B A.

**Thursday**

EDINBURGH ROYAL INFIRMARY—Nov 4 5 p.m. *Carcinoma of Rectum* Honyman Gillespie Lecture by Mr Robert Maier.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street Leicester Square, London W C—Nov 4, 5 p.m., *Complications in Eczema* by Dr G B Mitchell Heggs.

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY 330-2, Gray's Inn Road London, W C—Nov 4, 2.30 p.m. *Diseases of the Antrum of Dental Origin* by Mr J Angell James.

INSTITUTE OF UROLOGY—At St Paul's Hospital Endell Street, London, W C Nov 4 11 a.m. *Skin Diseases Simulating Secondary Syphilis* by Dr A H Harkness, 5 p.m., *New Growths of the Bladder (Malignant)* by Mr C H Mills.

LONDON JEWISH HOSPITAL MEDICAL SOCIETY—At London Jewish Hospital, Stepney Green E, Nov 4 3 p.m. *The Aesthetics of Vision* Presidential address by Mr Harold A Levy.

LONDON UNIVERSITY—At Royal Society of Medicine, 1, Wimpole Street, London, W, Nov 4, 5 p.m. *Broncho oesophagology in Great Britain—The Decline of a Science A Plea for Better Co-operation and Teaching* Semon Lecture by Mr G Ewart Mar in.

ST GEORGE'S HOSPITAL MEDICAL SCHOOL Hyde Park Corner London, S W—Nov 4 4.30 p.m. *Neurology and Psychiatry* Lecture demonstration by Dr Anthony Feiling.

**Friday**

LONDON CHEST HOSPITAL Victoria Park, E—Nov 5 5 p.m. *Surgery of the Oesophagus* by Mr V C Thompson.

LONDON UNIVERSITY—At University College (Anatomy Theatre) Gower Street, W C, Nov 5, 5 p.m. *Relations of Interdependence between Various Parts of the Nervous System in the Embryo and in the Adult* Special University Lecture (in French) by Professor G Levi (University of Turin).

ROYAL INSTITUTE OF PHILOSOPHY—At University Hall 14 Gordon Square London W C Nov 5, 5.15 p.m. *Morality and Art* by Professor T E Jessop.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh—Nov 5 8 p.m. Debate.

SOCIETY OF APOTHECARIES OF LONDON—In the Hall Black Friars Lane Queen Victoria Street, E C, Nov 5, 5 p.m. *Endocrinology and its Relation to Diagnosis and Therapeutics* by Professor E C Dodds.

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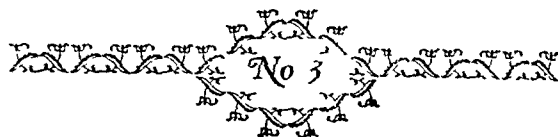
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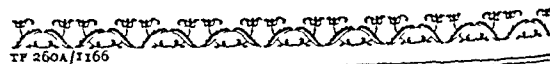
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## APPOINTMENTS

Norman Fraser Mackenzie, M B, Ch B, Dipl Psych, has been appointed Medical Superintendent of Newchurch Homes, Culcheth. He will also be responsible for the medical supervision of the smaller mental deficiency establishments in the Region and for advising on mental deficiency problems

ANDERSON H A L R C P and S Ed Medical Officer, Dingleton Hospital Melrose Roxburghshire

ANDERSON MARY J B M B Ch B Maternity and Child Welfare Officer for Greenock

DRUMMOND J S M B Ch B DPH Medical Officer Mansfield

GRANT C M B, Ch B DPH Senior Medical Officer of Health for Essex

GRANT E I M R C S L R C P Assistant M O H and Schools Medical Inspector for Wallasey Cheshire

LEITCH I D M B Ch B Assistant Medical Officer of Health for South Shields

LYCETT C D L M B B S DPH Deputy Medical Officer of Health for the Boroughs of Chelsea and Kensington

PORTER C M D, M R C P Temporary Medical Officer for Bethnal Green London E.

RAVEN R W O B E F R C S, Honorary Visiting Surgeon to the Star and Garter Home for Disabled Sailors, Soldiers and Airmen Richmond Surrey

ROBERTS G W M B B Ch DPH Deputy Medical Officer and Deputy School Medical Officer for Caernarvonshire

SEWELL E M M B Ch B Assistant Medical Officer of Health for Greenock

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

Angell—On Oct 13 1948 at Queen's Gate Clinic London SW to Enid wife of Dr C L Angell a daughter

Balstrode—On Oct 19 1948 at Hartfield House Hartfield Sussex to Jacqueline wife of Dr John C Bu'strode a daughter

Naidoo—On Oct 19 1948 in London to Sandhya Bose M A D Ed B wife of Dr D Naidoo M R C P Ed DCH a daughter—Thoruna Maya

## MARRIAGE

Hutton—Donald—On Oct 14 1948 at Glasgow Hugh Hutton L R C P & S Ed L R F P S Glas of Silloth Cumber and to Maie Dunlop Donald

## DEATHS

Bishop—On Oct 17 1948 at 60 North Side Clapham Common London SW Charles Dudley Bishop M R C S L R C P

Bruce—On Oct 22 1948 at Auchernack Forres Morayshire John Bruce M B C M Ed

Bruce-Porter—On Oct 15 1948 in Somerset Sir Harry Edwin Bruce Bruce Porter K B E C M G M D of 22 Cranmer Court London SW aged 79

Cole—On Oct 19 1948 in London Percival Pasley Cole O B E F R C S

Cole-Baker—On Oct 14 1948 at Yew Tree Cottage Waterlooville Hants

Lyster Cole Baker M D aged 83

Densham—On Oct 13 1948 Arno d Thomas Densham B Ch M R C S L R C P L D S aged 66

Ellis—On Oct 21 1948 at Bodorgan Anglesey Evan Lloyd Ellis M R C S L R C P aged 34

Govan—On Oct 17 1948 at Cockermouth Cumberland George Govan M B C M Ed aged 84

Innes—On Oct 16 1948 Edward John Innes M B B S Flight Lieutenant R A F of 39 Murray Road Northwood Middlesex aged 26

Lanckester—On Oct 13 1948 Cecil Pryor Lanckester M R C S L R C P of Woodhill Peaslake Surrey

Macfie—On Oct 11 1948 at St Leonard's John William Scott Macfie D Sc M B Ch B Ed D T M aged 69

McVittie—On Oct 14 1948 at Symnells Aldington Kent Arthur Craigie McVittie M B B Ch B A O

Oppenheim—On Oct 20 1948 at 28 Seymour Road Crumpsall Manchester Bernard Oppenheim L M S S A aged 33

Pallett—On Oct 16 1948 William Horner Pallett M B Ch B Ed of The Brow Wylam-on Tyne Northumberland aged 62

Pinch—On Oct 14 1948 at Bideford Hospital Albert Edwin Hayward Pinch M D F R C S Captain I M S retired aged 81

Richards—Recently at Langho near Blackburn Beresford Tom Richards M R C S L R C P

Roberts—On Oct 14 1948 Philip Meredith Roberts M B B S of Westcroft Barton Court Avenue Barton-on-Sea Hants aged 69

Shanks—While on holiday at Harrogate William Shanks M B Ch B Ed of Sussex Road Southport aged 62

Shennan—On Oct 21 1948 at Fonthill Terrace Aberdeen Theodore Shennan M D Ed Hon LL D Aberd Professor of Pathology Aberdeen University 1914-36

Shepard—On Oct 15 1948 after an operation Arthur Harold Shepard M D of Spindlerry Dogmersfield Hants formerly of Chelford

Stephens—On Oct 8 1948 at Hayne Newquay Cornwall William John Stephens M R C S L R C P aged 82

Strang—On Oct 7 1948 at Tighnamara Belhaven Dunbar Thomas Morton Strang M B Ch B DPH

Symes—On Oct 11 1948 at 37 Newstead Road Southbourne Bournemouth William Legge Symes M R C S aged 82

Tozer—On Oct 10 1948 Alfred Ernest Tozer M B late Major R A M C aged 67

Wenyon—On Oct 24 1948 Charles Mo ley Wenyon C M G C B E M B B S F R S

Winstanley—On Oct 12 1948 at his home Greenbank Orrell near Wigan Henry Winstanley L R C P & S Ed L R F P S Glas aged 83

Young—On Oct 11 1948 at Crowcombe House Crowcombe Taunton Bertram Mitchell Young M R C S L R C P

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest

## Para-aminosalicylic Acid

**Q**—In the Journal of July 17, 1948 p 148 the treatment of pulmonary tuberculosis by para aminosalicylic acid is discussed. Are there any contraindications to trying this drug on any case of tuberculosis? If so what are they?

**A**—Lehmann introduced para-aminosalicylic acid as a result of experiments in vitro which suggested that it inhibited the growth of the tubercle bacilli by interfering with its metabolism. Favourable results have been reported by some authors in the treatment of exudative types of the disease and in tuberculous empyema. So far clinical trials have not been sufficiently extensive to prove the value of this drug, but the Medical Research Council is shortly to institute a controlled trial of its value. Until the results of this trial are known, indiscriminate use of the drug should be discouraged.

## Chronic Tuberculous Cystitis

**Q**—What is the modern treatment of tuberculous cystitis? Should transplantation of the ureter into the rectum be considered in a patient who has had one kidney removed and in whom the cystitis remains obdurate?

**A**—The treatment of chronic tuberculous cystitis still remains a most difficult problem. Such a case as that mentioned should certainly have a course of tuberculin (T R). In some cases instillation of (not irrigations with) a 6% aqueous solution of carbolic acid will relieve symptoms, and, if cystoscopy should show these to be due to localized ulceration, much benefit often ensues from the use of high-frequency diathermy to the ulcer. In this case, as one kidney has already been removed and the infection still persists, grave suspicion attaches to the remaining kidney. Under these circumstances transplantation of the ureter would carry a high risk of superimposing secondary infection. In these cases, if transplantation is considered justifiable (and it often is) the skin is preferable to the bowel. Presumably it is frequency rather than pain that worries the patient. If pain were excessive pre-sacral neurectomy might be considered.

## Preventing Abortion

**Q**—A patient who married at 39 became pregnant but aborted at the fourth month. Now five months later she has again missed a period and is probably pregnant. Syphilis and uterine displacements have been ruled out as have the usual other well-defined organic causes. It is important that she should have a living child. (a) Are there any measures which should be adopted by the patient in addition to the usual precautions such as rest and avoidance of alcohol, excessive sexual intercourse, strain, etc? (b) Is treatment with progesterone justified and if so in what doses and for how long? (c) Does vitamin E help to improve her chance of completing a successful pregnancy?

**A**—The occurrence of one abortion previously is not very significant, but in view of the circumstances of the case it is undoubtedly wise to take all reasonable precautions. It is not enough to ban excessive sexual intercourse; coitus should be avoided completely. Vitamin E can do no harm, although its value in these cases is disputed. If given, a large dose—20 mg tds—of alpha-tocopherol is recommended. Thyroid, 1 gr (65 mg) daily, might also be given empirically. Progesterone therapy is probably best avoided unless there is some evidence of a deficiency of this hormone. Such evidence might be obtained by estimation of the output of pregnanediol. This test is carried out on a 24 hour or first morning specimen of urine (depending on the technique) but is undertaken by only a few laboratories in this country. If the pregnanediol excretion is low it would be wise to give 10 mg progesterone intramuscularly two or three times weekly, starting immediately and continuing until the 28th or 32nd week of pregnancy. For further

uls on pregnanediol tests and progesterone therapy in  
attended and habitual abortion reference should be made to  
article by S Bender which appeared recently in the *British  
Medical Journal* (1948 1 683) and to an annotation in the  
same issue (p 696)

### Inheritance of Deformities

**Q**—Is termination of pregnancy justified in a case where the  
only child now 11 years old has gross congenital deformities?  
In the case I have in mind the mother was normal until four  
weeks from term when she developed generalized oedema. At  
birth there was a breech presentation with extended arms and  
legs both fibulae were absent and there was valgus deformity  
of the feet. What is the likelihood of the mother giving birth  
again to a child with congenital abnormalities?

**A**—This type of congenital deformity seems to occur sporadi-  
cally at least in the great majority of instances, and there  
seems to be little evidence that heredity is a factor of impor-  
tance. It is true that there appears to be a general tendency  
for a woman who has had a deformed child to have a some-  
what increased chance of bearing another—not always with  
the same type of deformity. The increased risk is a small one,  
however, and the chance that the present pregnancy will result  
in a deformed child is probably not much greater than the  
1 in 40 or so for any random pregnancy. The mother can be  
reassured that the odds are heavily on the side of the child,  
and in the writer's opinion abortion could not be justified on  
genetic grounds.

### Use of Detergent Solutions

**Q**—What is the usual composition of proprietary liquid  
detergents? Can you tell me if there is any danger in or  
contraindication to their use for the following purposes  
(a) washing of dishes and other domestic utensils and  
(b) personal ablution?

**A**—It is not possible to discover the composition of a deter-  
gent which is a proprietary preparation. Many detergents,  
however, have similar properties, and it is a general rule that  
there is little danger from their use in washing dishes and  
utensils. For personal ablutions, however, they may give rise  
to dermatitis in sensitive subjects. Very severe dermatitis has  
followed the use of detergents as hair shampoos.

### Paronychia

**Q**—Can you suggest any effective treatment for a woman  
aged 42 with a chronic paronychia of 7½ months duration?  
There is a slight discharge of pus containing staphylococci every  
month or so and a kaolin poultice gives relief on these occa-  
sions which are of short duration. In the intervals the skin  
around the nail fold remains swollen and the nail has become  
wrinkled. Operation is not indicated.

**A**—If ringworm and monilia infection have been excluded  
as causes of the paronychia, treatment should aim at keeping  
the part dry, using radiant heat or short-wave diathermy locally  
or fractional doses of x rays and the following paint:

R Mercury perchloride	1%
Brilliant green	1%
Spirit	ad 100%

Make a paint

An impaired peripheral circulation may play a part in the  
aetiology in which case small doses of phenobarbitone and  
thyroid are helpful.

### Adolescent Obesity

**Q**—A girl of 18 has put on 1½ st (95 kg) in weight during  
the past twelve months. One sister (three years older) was  
obese when much younger. There is no other family tendency  
to obesity. There is little evidence of over-eating except per-  
haps that she is a little too fond of sweets. Do girls in the  
late teens often tend to put on weight for a year or two? What  
investigations are necessary and what is the most likely cause?

**A**—It is more usual for the weight to be put on in the early  
teens—that is at and after puberty—and for some of this to  
be lost in the later teens. The writer who believes that adiposity  
is due to hyperactivity of the pituitary and adrenal glands rather  
than to any endocrine deficiency considers that this increase in  
weight is associated with greater activity of the pituitary gland.

at this phase in people of certain endocrine constitution. In the  
absence of other endocrine stigmata it is unlikely that investi-  
gations would reveal any gross lesion in this patient. Apart  
from an endocrine constitution as indicated above, one can  
only speculate on other causes, and that to no great purpose.

### Hot Flashes

**Q**—Is there any treatment for repeated hot flashes and  
sweats? A woman aged 53 who has had four children, was well  
until 1943 when her uterus was removed for fibroids. In 1944  
she had acute rheumatism which left her with mitral stenosis.  
Her blood pressure has gradually increased until now it is about  
200/105 mm. The hot flashes and sweats average about thirty a  
day and leave her exhausted. No treatment has had any effect.

**A**—It would be helpful to know what treatment has been  
tried. If the flashes and sweats are menopausal, as seems  
likely, they should respond to oestrogens. If they do not, then  
either the diagnosis is incorrect or previous oestrogen therapy  
may have been badly planned so that the patient has become  
resistant to it. Unless previously tried without effect, oestrogen  
should be given according to the usual technique, starting with  
the smallest possible dose which is sufficient to control rather  
than eliminate the flashes, and then gradually reducing this  
dose over the course of two or three months. Alternatively  
empirical treatment with a tocopherol 60 to 100 mg daily  
or large doses of calcium, or small doses of thyroid, might be  
tried. The usual remedies for hypertension—rest and pheno-  
barbitone, etc—should be applied simultaneously. Symptoms  
of the kind described sometimes have a psychological basis.

## NOTES AND COMMENTS

**Unauthorized Quotation**—The solicitors to the Medical Defence  
Union have asked us to publish the following letter from Messrs  
H B Wedlake Saint and Co. "On behalf of our clients, Silten  
Limited, of Silten House, Hatfield, Herts, we refer to your letter of  
Sept 24. Our clients have noted that you have been consulted by  
Professor L S P Davidson and Dr J J R Duthe with regard to  
the use by our clients of your clients' names and the quotation from  
the section of the book on the treatment of rheumatic diseases  
written by your clients, in connexion with our clients' preparation  
Leucotropin. Our clients appreciate that it is considered grossly  
improper for a member of the medical profession to be associated  
with the sale of a proprietary remedy, and express their sincere  
regret that the pamphlet circulated by them gives the impression that  
your clients were advocating the use of our clients' preparation and  
are the authors of our clients' pamphlet. Our clients admit that the  
use of the names of your clients was unauthorized and fully  
apologize for the improper use of their names and the unauthorized  
quotation from the book written by your clients. Our clients under-  
take to withdraw the pamphlet from circulation forthwith and to  
destroy all pamphlets in their possession and to pay the costs incurred  
by your clients. Our clients have noted that your clients reserve  
to themselves the full right to publish this apology in the medical  
press or in such other manner as may be necessary to undo the  
harm which is likely to result to them from the improper use of  
their names."

**Guide to the B P**—British Drug Houses, Ltd. has recently pub-  
lished a new edition of its *B D H Guide to the B P 1948*. It is  
available free to members of the medical profession. The purpose  
of the *Guide* is "to direct the attention of physicians and pharmacists  
to the alterations which have been made in the new Pharmacopoeia"  
with particular reference to the articles and preparations which are  
different from the corresponding ones in the 1932 B P and to those  
which have become official for the first time.

**Correction**—In the letter from Dr M J Fenton in the *Journal* of  
Oct 16 (p 723) there was a misprint in the name of the substance  
used for the treatment of burns—the correct name of the substance  
is silver dinaphthylmethane disulphonate.

All communications with regard to editorial business should be addressed to THE  
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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 30 1948

## NATIONAL HEALTH SERVICE TRAINING GRANTS FOR ASSISTANTS

The Ministry of Health has published details of the arrangements under which grants will be available to general practitioners in the new Service for supervising the training of assistants. Practitioners who wish to apply for a training grant and who satisfy the conditions laid down should apply to the local executive council. Any practitioner on the medical list whose application is approved by the local medical committee, which is augmented by two members nominated by the university for the area of the regional hospital board, is entitled to one of these grants. The grant will amount to £150 a year plus a sum not exceeding £700 a year in respect of the assistant's salary, boarding expenses, and employer's contributions for superannuation and national insurance. If an additional car is necessary, a further allowance not exceeding £150 a year may be made. The conditions governing payment of the grant to approved applicants are

(a) The assistant employed must not have been previously in general practice in the British Isles (otherwise than for a short period as a locum tenent)

(b) The period of training will be one year, and accordingly the grant may not be paid for more than one year in respect of the same assistant. Where the arrangement between the principal and the assistant is terminated before the year is up, the circumstances should be reported to the local medical committee.

(c) The doctor will not be entitled to a grant in respect of more than one assistant during the same period. (He may, however, employ an assistant in the ordinary way at the same time as an assistant for whom a training grant is being paid.)

(d) The doctor must have not less than 2,000 patients on his list. He will not be entitled to increase his list of patients beyond the usual maximum (e.g., 4,000 for a single handed doctor) in respect of an assistant for whom a grant is paid.

(e) The grant will be payable from the date on which the assistant takes up the appointment, notification of which should be sent to the executive council by the principal, or the date on which approval of the training grant is notified (if the appointment has been made beforehand).

A principal whose application is approved will himself be responsible for appointing the trainee assistant and for satisfying the executive council that the assistant appointed has not previously been in practice in the British Isles.

### Employer's Share Criticized

The principal will be required to pay the employer's share of the contributions due in respect of the assistant under the National Insurance Scheme (4s 2d a week) and the Health Service Superannuation Scheme (8% of salary). The Ministry's contention is that the employer's share of these contributions will come out of the £700. This has been strongly criticized by the profession's representatives. The effect is to reduce the maximum of £700 to under £640 less the assistant's own share of national insurance (4s 11d a week) and superannuation contributions (6% of remuneration). For superannuation purposes the assistant's remuneration includes the money value of board and lodgings but does not include travelling expenses. It was represented to the Ministry that the principal would not be permitted to increase his list beyond the usual maximum, that the £700 he receives will be passed on to the assistant, possibly with an addition by himself, that in earlier announce-

ments no hint had been given that the grant would be subject to these deductions, and that a trainee should be regarded as a student rather than an employee.

The Ministry supports its contentions by pointing out that an experienced assistant gets £700 to £800 and that a trainee assistant should get less. The Ministry argument runs thus:

If the salary were £650 the cost to the principal would be £650 plus 8% plus £11 (N.I.), or £713. At £640 the cost would be £702 but the £63 or £62, as the case may be, would be practice expenses and rank for income-tax allowance.

An assistant getting £650 would have to pay £51 in superannuation and national insurance contributions, leaving roughly £600. In his case, too, the contributions would be allowed in assessing income tax.

### Information about Principals

Executive councils have been asked to confer with the local medical committees on the information which should be supplied in connexion with an application for the training grant—e.g., the name of any partner or other assistant, the number of patients on the practitioner's list or on that of any partner or assistant, the practitioner's qualifications, and the salary, etc., which it is proposed to pay to the trainee assistant.

Payment of the training grant will be made quarterly by executive councils. Special forms will be provided on which principals will claim the quarterly payment, the claim being countersigned by the trainee assistant.

## GRANTS FOR G.P. REFRESHER COURSES

The Ministry of Health has issued a memorandum describing the arrangements made in England and Wales for providing refresher courses for medical practitioners serving in the N.H.S. (under Section 48 of the N.H.S. Act 1946) and for medical men released from H.M. Forces who before recruitment were engaged in general practice. The Ministry's scheme is described below.

The courses for which financial assistance is available are those advertised by universities and medical schools as specially arranged for general medical practitioners and consisting of 11 or 22 half-day sessions, either intensive or spread over a number of weeks. In addition, a special concession is being continued for ex-Service doctors. Those who prefer to return to their medical schools and attend their teaching hospital selecting such undergraduate teaching and clinical practice as they most need, or who avail themselves of similar postgraduate facilities offered by their university may claim reimbursement of expenses within the scales laid down.

### Procedure for Claiming Grant

*National Health Service Doctors*—A general medical practitioner who is taking part in the National Health Service can claim a grant under these arrangements for attending either one course of 22 sessions or two of 11 sessions each if

(a) at least three years have elapsed since the date of his first registrable qualification,

(b) he has not less than 500 (or in the case of a rural practice 250) persons on his National Health Service list, or on his combined



lists if he is under contract with more than one executive council (in the early days of the National Health Service doctors with smaller lists of not less than 300 persons or in a rural area 150, may qualify).

(c) he has not within the previous year already received financial assistance under the Government scheme for doctors released from H M Forces or under the Government scheme for National Health Insurance doctors or National Health Service doctors (this condition may be waived in exceptional circumstances)

A National Health Service doctor who wishes to attend a course and to claim this grant should send a form of application for grant (Form G P R C 2) as long as possible before the course starts to the postgraduate dean or director of the university. The university will, if prepared to accept the applicant, transmit the application for grant to the Ministry of Health who will as soon as possible tell the doctor, the executive council(s) with whom he is in contract, and the university whether the application for grant is approved.

**Ex-Service Doctors**—A doctor who was before recruitment engaged in general practice can claim grant—also for attending either one course of 22 sessions or two of 11 sessions each—if

(a) he applies to attend a course or courses within twelve months of his demobilization,

(b) he has not within the previous year already received financial assistance under the Government scheme for doctors released from H M Forces or under the Government schemes for National Health Insurance doctors or National Health Service doctors (this condition may be waived in exceptional circumstances)

The Ministry of Health's prior approval is not needed in these cases. If a doctor satisfying the conditions is accepted by the university he automatically qualifies for grant.

#### Extent of Financial Assistance

**Course Fees**—A doctor who qualifies for grant is normally not concerned with the payment of the course fees. A contribution in respect of these is made direct by the Ministry to the university concerned. If, however, under the special arrangements mentioned in the first paragraph an ex-Service doctor is charged a fee he may claim reimbursement from the Ministry of Health (on Form G P R C 3) up to a maximum of 10 guineas for 22 sessions and *pro rata* for shorter courses. It is understood that normally the fees would be much below this and that sometimes no fee may be charged.

**Subsistence Allowances Travelling Expenses, and Locum Fees**—The following expenses may be reclaimed by a doctor who qualifies for grant, whether he is a National Health Service doctor or is applying as an ex-Service doctor.

(a) subsistence allowances up to £1 a day if attendance necessarily entails absence from home at night or otherwise actual expenses up to 5s a day,

(b) travelling expenses (e.g. at first class monthly return rates where the course necessarily entails absence from home at night)

(c) payment of a locum tenent where necessary up to a maximum of 14 guineas a week.

Details are set out in the form of claim (Form G P R C 3) which should be completed by the doctor as soon as possible after the end of the course and forwarded to the postgraduate dean or director (or other university official through whom the course was arranged) who would certify that the doctor had attended the course and transmit the claim to the Ministry of Health.

#### SMA AND HEALTH CENTRES

The following resolution was passed by the Council of the Socialist Medical Association on Sept 26.

The Council of the Socialist Medical Association welcomes the recognition by the Council of the British Medical Association of the need for health centres. The Socialist Medical Association supports the urgent demand put forward for an experimental trial of different types of health centre in varying areas, but is strongly opposed to the view that widespread development of health centres should not be commenced until after such experiments are completed. The further development of general practice depends on health centres and these in accordance with the Act must be set up and properly equipped by the local health authorities and not left to individual groups of practitioners, whose association would not be under democratic control."

## INSURANCE ACTS COMMITTEE

### BIRTH PANGS OF THE NEW SERVICE

A meeting of the Insurance Acts Committee was held on Oct 7 Dr E A Gregg presiding. A long report was placed before the Committee on matters which had been dealt with since July 5 by the General Practice Subcommittee of the Negotiating Committee. In dealing with the first matter, partnership agreements in relation to compensation, the chairman of the Negotiating Committee (Dr Dain) said that representatives of the Association had given evidence before the Legal Committee on Partnerships, and the witnesses had been recalled to answer further questions. The discussions had been most friendly and understanding. The report of the Legal Committee was expected very shortly.

Nominations for the chairman and six members of the Medical Practices Committee had been forwarded to the Ministry of Health, and the nominees had been appointed. Dr Dain mentioned that great difficulty had been experienced in finding persons willing to serve on this body.

#### Distribution of Practitioners' Funds

It was reported that two Distribution Committees had been set up, one to determine the apportionment of the Central Practitioners' Fund between England and Wales and Scotland and the other for England and Wales. Here again the nominations made had been accepted by the Ministry. Apparently it would be necessary to wait until the end of the year before the distribution could be rationalized. Several members of the IAC complained of the retention of too much money at the centre. The chairman said that the Distribution Committees had done their best in view of the many problems connected with this matter and the Ministry was going to press on executive councils the urgent necessity of completing this work.

A document was distributed to the Committee showing for each area the applications for basic salary, the number approved, also the amount per patient received by executive councils from the central pool, and the amount paid to general practitioners. The high proportion of applications for basic salary in some areas was a matter of comment, and it was urged that the Committee should issue to local medical committees a statement pointing out the reasons for requiring full information of an applicant's income, professional and private, before a decision could fairly be reached in each case.

In some discussion on basic salary it was suggested that the bulk of the profession still entertained the idea that basic salary was freely optional. A London member asked how basic salary could justifiably be given without some reference to the practitioner's total income. Was it to be given to the practitioner with the small list and the large private practice or to the semi-retired who needed only a small income? He read a letter on the subject which had been sent out by the London Local Medical Committee in which the following paragraph appeared:

'The basic salary is in effect a subsidy to one practitioner paid by his colleagues in the area. The onus of showing reasonable justification therefore falls upon the applicant.'

It was agreed that a similar letter be sent out from the Committee to the chairmen and secretaries of local medical committees.

#### Remuneration of General Practitioners

The Committee appointed a special subcommittee to prepare a case for an improvement in the remuneration of general practitioners in the National Health Service.

#### Remuneration for Special Services

Attention was next drawn to the fact that in the interim terms of service under regional hospital boards it is pointed out that a doctor's capitation fee covers general practitioner services given to a patient on his or his partner's list, whether the services are rendered in hospital or not, but that in order to furnish remuneration for hospital work for other patients a staff fund is to be created by a yearly payment of £25 for each occupied bed (other than pay beds), the fund to be shared among the general practitioner staff.

Members of the Committee said that in cottage hospitals, where general practitioners were doing work which in larger hospitals would be done by house-surgeons, though it could not be said to be specialist work, this £25 was completely inadequate to the time and energy expended. It was suggested that in the course of the next two years the cottage hospitals would cease to be staffed by general practitioners and would be used for special purposes. The opinion of the Committee that £25 was not sufficient for this purpose was recorded, and it was asked that the matter be reopened with the Ministry with a view to the amount being increased.

On the question of the Special Inducements Fund (a sum equal to 1% of the Central Practitioners' Fund to provide inducement payments to assist doctors to practise in peculiarly difficult areas), Dr Dain said that this was extra money, and he impressed on representatives from rural areas where this fund might properly be used that it was important that advantage should be taken of it.

On fees for specialist services by general practitioners Dr Dain pointed out that there was a difficulty here which the Ministry had not appreciated when drawing up the regulations, and the problem of the provision of payment to general practitioners for specialist work would receive further consideration.

### Rural Practice

It was announced that after consultation with the Rural Practitioners Subcommittee the Minister's offer of 6s 6d per annum as the dispensing capitation fee had been accepted without prejudice to revision after negotiations at a later date.

The report of the Rural Practitioners Subcommittee, presented by Dr J C Pearce, also recommended that, in order to implement the Spens Report in its reference to rural practitioners, county local medical committees should be asked to classify all practitioners entitled to mileage payments into three groups—namely, urban (meaning small towns), semi-rural, and rural—and that the ordinary portion of the mileage fee be distributed among these three categories in accordance with a progressive scale of units which was set out in the recommendation. This was approved.

The position of rural practitioners in relation to local obstetric lists was considered, and it was resolved to call the Ministry's attention to instances where a doctor had been admitted to the local obstetric list in one area but refused in another, and to press for payment of mileage in appropriate cases in connexion with maternity medical services.

### Medical Treatment of Overseas Visitors

Among several other matters relating to the new service which came under discussion was the question of overseas visitors and foreign seamen being allowed to take advantage, without payment of the National Health Service during their stay in Great Britain. It was stated that a protest had been lodged against a public announcement of this concession being made without previous consultation with the medical profession. It was also considered that the legality of this concession was dubious, for the Act in Section 1, says

It shall be the duty of the Minister of Health to promote the establishment in England and Wales of a comprehensive health service designed to secure improvement in the physical and mental health of the people of England and Wales.

Overseas visitors can hardly be regarded as 'the people of England and Wales,' and counsel's opinion on the subject is to be sought.

It was agreed that the report (which had occupied most of the day) covering the matters dealt with by the General Practice Subcommittee of the Negotiating Committee should be incorporated in the annual report of the IAC, published in the Supplement of Oct 16. The formidable agenda of the meeting, which occupied both morning and afternoon was not completed, and certain matters were held over until the next meeting of the Committee on Nov 11 also an all-day meeting.

While the meeting was proceeding the Minister of Health was addressing the executive councils in the adjoining hall, and certain points of his speech were retailed to the Committee. He stated that 18 165 general practitioners had entered the service together with 80% of the dentists and that 90% of the population had registered. He appealed to doctors to use discretion in prescribing.

## CENTRAL CONSULTANTS AND SPECIALISTS (INCLUDING HOSPITALS) COMMITTEE

The main discussion at a meeting of the Central Consultants and Specialists (including Hospitals) Committee held at B M A House on Sept 30 centred round the 'Specialist' Spens Report (*Journal* June 12, p 1146). The Committee, which is now almost fully constituted, consists of more than 60 members, and there was a full attendance. Mr A M A Moore was voted to the chair for the meeting the appointment of a permanent chairman being postponed till a later meeting.

In considering the Spens proposals for the remuneration of specialists attention was turned first to the question of the betterment factor. The Committee was reminded that general practitioners had been given a betterment factor of 20% and it was unlikely that a higher figure would be suggested by the Minister of Health for specialists. Another adjustment, in a different direction would have to be made in respect of the Government's contribution to superannuation, consultants having previously made their own provision for retirement. The net increase, after allowing for the betterment factor on the one hand and reducing by the superannuation factor on the other, seemed likely to be about one-ninth on the figures set out.

### The Starting Salary

The fear was expressed in one quarter of the Committee that the proposed starting salary of £1 500 for a specialist appointed to the staff of a hospital at the age of 32 was so low that an undue proportion of the best men would be attracted instead to general practice. A man entering general practice at the age of 23 or 24 might become a principal or a partner by the age of 27 or 28. It was pointed out that if such a general practitioner secured the maximum of public remuneration at the age of 28—an unlikely event—he would be receiving an income of £3 000, which would be subject to a deduction of from 35 to 40% for practice expenses. The Chairman of Council said that the average general practitioner would earn only about £2,000, and that it was necessary to correct the idea that the average general practitioner would be earning £3 000 at the age of 32.

Some discussion took place on the question of the starting age. One view was that a specialist could not be regarded as fully trained until he had reached the age of 32, and that it was not desirable as one member had suggested that a man at the age of 27 should be holding a responsible hospital post. As against this it was stated that a doctor could qualify at 23 and get his Fellowship four years later, at which time he should be entitled to rank for the full starting salary.

The Spens proposal that a specialist appointed to the staff of a hospital should receive a starting salary of £1,500 was agreed to, but it was also agreed that anyone found suitable for a similar post at an earlier age than 32 should be paid the full salary. It was considered that ex-Service specialists should receive specially augmented starting salaries. The increment proposal, that the salary should be augmented by an additional £125 after each year of service until a salary of £2,500 had been reached, was also accepted.

### Distinction Awards

The chief discussion of the afternoon centred around the proposal for merit awards, in three grades for selected specialists. Dr Cochrane Shanks, a member of the Spens Committee, explained that they were faced with the fact that there were variations in ability as between different specialists in the same hospital or region. Therefore it was suggested that there should be rewards of merit—in the first grade, of £2 500 a year in addition to the recommended salary, in the second grade, of £1,500, and in the third grade, of £500. 4% of all eligible specialists being awarded the first distinction 10% the second and 20% the third. Dr Shanks considered this to be the most imaginative feature of the whole report. He could not think of any better method of encouraging initiative and endeavour. The award of £500 to the 20% of consultants would apply, of course, whether they had reached the £2,500 level or not. As a rule such men would be at the top of that ladder, though not necessarily so. In the highest

class the figure of 4% was taken, as against the statistical evidence of 5% before the war, because the Spens Committee had in mind that after the age, say of about 55 there was a definite drop in the earnings of consultants whereas a merit award, once given would be maintained at the full figure throughout the recipient's active professional career. The crux of the matter was in the choice of the people for such awards and the machinery favoured was a national committee chosen by professional bodies to make the final decision on recommendations received from specialist associations, the Royal Colleges, regional hospital boards, and boards of governors of teaching hospitals. An analogy was afforded by the F.R.C.P., where the Council chose the Fellows but was not allowed to nominate. An alternative to this proposal for merit awards would be to establish suitable established posts, but that presented a number of difficulties and the worst alternative of all would be an automatic ladder from the lowest scale up to the top.

Much difference of opinion was expressed in the Committee on this proposal. One member described it as fantastic, and another suggested that sufficient awards not necessarily monetary, were already available for the able consultant. It was doubtful whether the permanence of such awards was desirable. Some suggested that a better method would be to tie certain salaries to certain posts obtainable by the ablest men in open competition. Others supported the idea with reservations about the machinery by which the awards would be made. Eventually a motion disapproving of the principle of the merit award as laid down in the Report was carried by 26 votes to 21, with 7 abstaining.

It was suggested that alternative methods should be considered. The Committee however, decided not to proceed further with the matter at that meeting but to ask the Regional Committees for their comments generally and suggestions for alternative methods.

### Whole-time Service and Domiciliary Work

A further question for discussion was whether the whole-time consultant in the Service should be allowed to undertake paid domiciliary work. Several members suggested that domiciliary work should be undertaken by part-time specialists who should be properly paid for it. On the other hand it was pointed out that a good many whole-time specialists were specialists in a certain narrow field and it was not right to deprive the community of their services so that the door should be kept open. Moreover in certain areas where it might be necessary to appoint whole-time officers there was no private practice of sufficient moment to attract part-time people to live in the district therefore some degree of domiciliary attendance must be provided. One view put forward was that a whole-time consultant was not employed in a hospital in the institutional sense of the word, but in a hospital service, which included domiciliary service.

It was agreed to refer this matter for consideration by the Regional Committees.

The Committee agreed to accept for the time being the mathematical formula set out in Para 7 of the summary of the Spens Report (relating to the computation of the basic remuneration of the part time specialist).

A special point arose on the question of income-tax deductions at source. It was stated that some young consultants had been embarrassed on receiving a cheque for little more than half the amount which they had expected. The point was strongly made that remuneration should be transmitted to the specialist without income-tax deduction. Consultants and specialists are not servants of the regional hospital board but are in contract with it, therefore like other outside contractors, they should be paid in full and include the payment subsequently in their private income-tax returns. It was agreed to make a representation to this effect to the appropriate authorities.

Finally, on the question of holidays the Spens recommendation was agreed to that specialists engaged in the Service should be entitled to definite holidays without financial liability for the provision of a deputy but there was a strong feeling that the specialist should have the right to appoint his own deputy.

Points deferred for consultation with the regions will come forward again at the next meeting of the Committee.

## Correspondence

### Needs or Demands

SIR—At a recent meeting of the London Executive Council (of the Health Act) a point of some importance was discussed in connexion with the adoption of the allocation scheme under the Act. The draft model scheme as drawn up by the Ministry for the consideration of executive councils provides that attendance at the patient's home shall be the duty of the practitioner "as may be required by him"—i.e. the patient. This ambiguous phrase can be construed to mean "according to his needs," or "if he so demands it." The London Executive Council felt that the former interpretation is the proper one and altered the wording to "as his condition may require," and this presumably is what the Ministry intended. Other executive councils may also have amended the scheme.

If any executive councils have adopted the model scheme without this correction it seems certain that before long trouble will arise with litigious patients, who will contend that they have only to "require" (i.e. demand) that the doctor shall visit them and that the latter is bound by his terms of service to comply.

It is very regrettable that the Ministry should have put out this phrase capable of two totally variant meanings and the representatives of the profession on executive councils all over the Kingdom would be well advised to take up the point with a view to amendment on the lines followed by London—I am etc,

Tunbridge Wells Kent

HENRY ROBINSON

### Regional Specialist Committees

SIR,—It is only six months to the end of March, 1949 and many Regions have not yet formed a representative Regional Specialist Committee which can be certain that its delegates to the Central Committee really speak for the Region as a whole. In the Liverpool Region we have two Associations the Hospital Staffs Association and the Regional Hospitals Medical Association that between them cover the majority of the specialists working in the Region. These two bodies have sponsored a suggestion that the Liverpool Regional Specialists Committee be reconstituted as follows.

Two representatives to be nominated by the Liverpool University Faculty of Medicine.

Eight by the Hospital Staffs Association for the Teaching Hospitals.

Eight by the Liverpool Regional Hospitals Medical Association for the Regional Board Hospitals.

Two by the North-Western Branch of the Medical Superintendents Society.

Two by the Registrars, one to be from the Teaching Hospital Group and one from the Regional Hospital Group.

One from the Isle of Man.

This will give a completely representative committee, and we believe that all sections will feel satisfied.

We hope that anyone above the rank of house officer who is not already a member of the Regional Hospitals Medical Association if employed in a Regional Board Hospital will join us. We are most anxious that the old difference between voluntary and municipal hospitals should not reappear in a different guise in those now set up and we welcome the co-operation that we have received from the Hospital Staffs Association—I am etc,

Liverpool Regional Hospitals  
Medical Association

V COTTON CORNWALL  
Hon Secretary

### Constitutional Position of B.M.A.

SIR—At the Annual Representative Meeting at Cambridge this year the future organization of the Association was discussed with the result that Council appointed a Special Committee to inquire into the general question of the constitutional position of the Association. The Executive Committee of this Division is impressed not only with the importance of the matters to be discussed but is anxious lest the urgency of the position is not fully appreciated. It is obvious that there is unrest in the profession in regard to the B.M.A., and for

re at work which apparently seek to undermine its standing. One of this unrest might be alleviated if it were known that the committee mentioned above is now actively at work. This would indicate that B.M.A. Headquarters is as alive to the issues at stake as are the rank and file of the profession—We are, etc.,

A. M. POLLOCK

Chairman

W. O. MOORE EDE,

Secretary

Tunbridge Wells, Kent

\* The Special Committee is due to meet on Nov 3—ED  
MJ

### Capitation Fee

SIR—In the *Journal* of Oct 2 (p 663), under 'Medical Notes in Parliament,' is published a reply of Mr Bevan's in which he stated that the total fund payable to general practitioners under the N.H.S. was 18s multiplied by 95% of the civil population. On the same page is another of his replies (as late as Sept 23) that only 90% of the total civil population were already on the lists of doctors in the N.H.S. If, therefore, a sum of money allotted for 95% of the population has to be distributed on behalf of only 90% of the population, the individual capitation fee should become  $8s \times \frac{95}{90}$  or 19s per head of those now on doctors' lists. How is it then that this quarter some of us have received an amount equivalent to a 16s capitation fee and others as little as 15s?

Is the B.M.A. going to accept this position without effective protest, or is it prepared to explain it away in the apologetic manner in which it has (?) explained away other controversial matters raised in the correspondence columns of the *B.M.J.* as if it were now nothing more than the propaganda department of the Ministry of Health? Alternatively if the B.M.A. is not prepared to protect our interests, is the general body of the medical profession so decrepit that it can do nothing but accept such 'pearls'?—I am, etc.,

Newport Mon

C. N. COHEN

\* The Secretary of the B.M.A. states: The capitation fee is calculated on an annual basis although payment to practitioners is made on a quarterly basis. It is true that if at the end of the year 90% of the population are on doctors' lists the remuneration per patient on doctors' lists would be proportionately higher than 18s for the year. Similarly, if 98% of the population were on doctors' lists the remuneration would be proportionately lower than 18s for the year. The quarterly payments are payments on account and subject to final adjustment at the end of the year.

SIR—The Spens Committee recommended that the capitation fee should be 15s odd in terms of 1939 values. It is generally agreed that the 1939 £1 is now worth 10s, thus the capitation fee should be 30s not 17s. The Government should be made to keep their promise—I am, etc.

Salisbury

PAUL HARRIS

### Delivery of Medicines

SIR—With reference to Dr W. D. Glynn Jones's letter (*Supplement* Sept 18 p 126) on the subject of the delivery of rural medicines under the National Health Service Act I think it may be helpful for me to report that having to deal with a similar difficulty in my own rural practice I referred this matter through my executive council to the Ministry and have secured permission to send medicines to patients living in remote districts by post at their expense.

The actual wording of the Ministry's statement is that, "If the patient requests the doctor to send the medicine by post, the Minister is advised that this should be regarded as a service outside the National Health Service, and a service for which the person supplied could properly be asked to pay. It is a great nuisance to have to pack numerous bottles of medicine and to get them to the post office but I do find my patients very ready to pay the 7d which an 8-oz bottle seems to cost for postage and to be very thankful indeed to be able to secure their medicines in this way. This does seem to afford one solution of a very considerable difficulty—I am, etc."

Oxford

A. G. CHAMBERLAIN

### Salaries of Opticians and G.P.s

SIR—As a corollary to Mr Stenhouse Stewart's letter (*Supplement* Sept 4, p 105) one can compare the remuneration of opticians and general practitioners. The optician is, I believe paid 15s for the examination of a patient. The £1 5s dispensing fee will cover his overhead expenses, rent, assistants' salaries, etc., so that on the basis of Mr Stenhouse Stewart's estimate of 12 patients in a six-hour working day he can working five days a week for 46 weeks, earn £2,070 a year. I need not stress the comparison with the recommended remuneration, responsibilities, and hours of work of a general practitioner—I am, etc.,

M. J. INGRAM

Launceston Somerset

### Tell the Public

SIR—Is it not time that the B.M.A. made use of the Press to inform the public of the terms of remuneration of doctors under the N.H.S., and the benefits to which the public are entitled whether State or private patients? When I inform my patients that I expect round about 15s per head per annum plus 2s 6d per hundred patients for the provision of small dressings, etc., and that I am obliged to pay all other practice expenses myself, I am flatly disbelieved. Yesterday I was told by a lawyer—whom one would expect to know better—that I was compelled to take on to my list anyone who applied—I am, etc.

H. K. V. SOLTAU

Clifton Bristol

### The Interim Payment

SIR—I wish to place on record what happened when I applied on Sept 1 for an interim payment, as the Minister of Health gave an assurance in the House that any practitioners finding themselves in financial difficulties before Oct 1 could do so.

First, I had to write a letter stating why I was in financial difficulties. I then heard that a payment of 2s per patient on the list could be made—in my case, just starting a practice, this would be £14 10s for my 145 patients. This would not even pay the rent of my surgery, but I have not had it yet. I was also informed at the same time that the "approximately 18s per patient and basic salary of £300" had been reduced to 15s 2d for six-sevenths of the patients on the list if one was granted the basic salary. They could not tell me if my application for the £300 would be granted or not. What chance has a young practitioner in a new practice to earn a living?—I am, etc.,

Bristol

K. M. A. MILLARD

### Superannuation and N.H.S.

SIR—Perhaps you could look over this. It is about superannuation and is worked out from the typical example No. IV (i), p 24, in the booklet issued by the Ministry of Health, *Superannuation Scheme for Those Engaged in the National Health Service—An Explanation*. You will find there the case of Dr M., who pays in from age 35 for 30 years, when he retires. During this period his total net remuneration amounts to £36,000. Supposing his income is equally divided throughout the 30 years, he will have paid 6% of this amount, which is £2,160. Add interest at 2½% compound, which is £1,001. The State will have added 8%, which is £2,880. Add interest at 2½% compound, which is £1,335. So that if you were to go to the Ministry of Health vaults and open the cash-box marked Dr M., Code No. M/42, you should find inside the sum of £7,376. Of course you wouldn't—I am told that this is purely a paper transaction and that there is really no money at all.

After two years of retirement Dr M. dies (not an unlikely happening after at least 30 years in a busy practice). He will have drawn retiring allowance of £540 and £540 for each of the two years since retiring—total £1,620. By this time in the otherwise empty cash-box you would find a bit of paper marked 'Still to come, £5,756 plus interest'.

His widow, of the same age, now begins to draw her pension at the rate of £180 per annum. This ageing lady does her best and struggles on to see the thing through, and finally she and the cash-box become completely exhausted at the age of 100 (is this a record?).

So much for the State-added factor of 8% which we were encouraged to look upon as deferred salary—I am, etc.,

Wallingford Berks

E. J. WARBURTON

### Revised Method of Payment

SIR,—At the end of the first quarter of the National Health Service it may be profitable to see how we stand. The doctors came in on July 5 on the terms which had been sent out to them and on condition that the Act was amended. Mr Bevan has not yet amended the Act and has thus broken his side of the agreement and the new regulations just received show certain changes adverse to the profession. The £300 grant is hedged round with conditions, is undependable as it may be withdrawn at any time, and is to be paid not out of State funds but as a first charge on the local practitioners' fund—that is, out of the doctors' pockets. Under such conditions many will rather go very short than apply. For the 4,000 and upwards panel the proposed scheme for assistants and special grants is not yet formulated and will be given only in special cases. Thus the inducements to enter the scheme are being withdrawn now that we are safely in. Payment for mileage and temporary residents is not yet settled, and the cheque (to account only) due on Oct 1 was not received until Oct 8.

The plight of those who depended mainly on private practice is apparently not appreciated by either colleagues or public. Payments by private patients have averaged about 45s per annum, and in many parts as many as 90% have joined the scheme in which the capitation fee is likely to be about 17s—a reduction of 28s per patient. Allowing for the few remaining private patients a loss of 50–60% of income has to be faced by the doctor—a very serious matter for those with families to feed and educate.

It is almost unbelievable that the B.M.A. would acquiesce in an arrangement that penalizes so heavily a large section of their members and I am certain that no other profession or trade would continue their work with a 50–60% cut in their pay. What is the B.M.A. going to do about it? The only adequate remedy is a sliding scale of capitation fee—30s for the first 1,000 patients, 25s for the second, and so on—paid automatically on the figures known to the executive council—I am, etc.

St Andrews Fife

M. K. DOROTHY DOUGLAS

\* \* An account of the scheme for trainee assistants is published in the *Supplement* this week at p. 149.—Ed. B.M.J.

### Piece-work or the Clock?

SIR—In the *Supplement* of Oct 9 (p. 134) Mr McFarland would like me to explain the relative disadvantage of the general practitioner to the consultant and specialist remuneration under the Spens Reports. May I therefore be allowed to explain that if the two Reports are compared it will be found that only 9% of general practitioners over 40 years of age will have a net income of over £2,000 p.a., whereas 33% of specialists can expect that income after this age? The specialist's advantage is so obvious that many of the most capable general practitioners are already considering how to switch over from general to specialist practice. This is precisely what the first Spens was afraid of—I am, etc.

Worthing Sussex

HAROLD LEESON

### Uneven Distribution of Patients

SIR—If 92% of the population have already registered with general practitioners there must be a very uneven distribution. It seems that the large panel practices of 2,500 before July 5 have a full list of 4,000 and the small practices are still small, and the newly established ex-Servicemen, trying to build or rebuild a practice have been left behind. The figures from the executive councils would be interesting. If my guess is correct, half the practitioners have far too many patients and the rest cannot find enough to pay expenses.

Another inevitable result of the present scheme is that children and old people are avoided to allow as large a proportion as possible of normally healthy young adults. Something must be done to rectify these defects and I suggest: (1) Lists to be limited to 1,500 composed only of men aged 15–65 and women 15–60. Capitation fee to be 25s for first 1,000 and 20s for subsequent 500. (2) Age groups 0–15 and over 60 and 65

for women and men respectively, to be treated on a fee for item-of-service basis as in private practice fee, 7s 6d. Accounts could be sent to patients quarterly certified correct by them and sent to the executive councils to the credit of the practitioner's account. These proposals would induce the practitioners with too many patients to take partners or release patients, and provide for much better attention for the very old and very young—I am, etc.

London W 8

CHRISTOPHER L. CARTER

### Basic Salary

SIR—The statement on basic salary (*Supplement* Oct 2 p. 131) illustrates only too clearly the lack of foresight in the Association's policy. Step by fellow-travelling step a course is set downhill to the detriment and shame of medicine. This statement is the latest, others leap to the pen.

(1) An agreement to a system of payment based solely on numbers can only lower the standard of service by one doctor to one patient. Is this B.M.A. policy?

(2) The failure to suggest any system of payment encouraging better service or skill. In fact, actual discouragement to render any service at all appears to be the main feature of the obstetric service.

(3) The promotion of friction between doctors forced by loss of income to apply for basic salary and those not so driven. Is the intention of the B.M.A. to unite or divide us?

(4) The complete failure to realize that there are two fixed pools—one numerical (patients), and the other financial.

There are many reasons of geography, health, age, to say nothing of conscience, which may debar a man from a large portion of the first pool, but an equivalent ratio of the second pool is a treachery to be 'justified'. This sermon on justification rings hollow in the ears of men prepared to work a decent service for a decent wage. It is no exaggeration to say that many doctors are confused and harassed by an immediate sense of frustration and a no less remote one of bankruptcy. We have been out-manoeuvred in broad policy and outwitted in tactics, while professions auxiliary to medicine are amazed at their own windfall. Who will deliver us from this morass?—I am, etc.

Suton Surrey

L. GRAEME WILLIAMS

### Compensation for Wartime Changes in Practices

SIR—In 1939 many general practitioners conceived it their duty to join the Territorials or Volunteer Reserve of the Royal Navy or the R.A.F. in readiness for an expected *blitzkrieg*. Those who were under 35 had their duty clearly indicated to them at B.M.A. meetings. During their service they lost very heavily financially. The pay of a lieutenant (or flying officer) was about £380 a year, of a captain (or flight-lieutenant) about £430 and of a major (or squadron-leader) about £640 plus small marriage allowances where applicable, many had heavy civilian and family commitments to meet. They returned in 1945 or 1946 to sadly depleted practices (unless they were fortunate enough to have partners to look after their interests while they were away). In many cases there has been only one full accounting year since their return, in no case can there have been more than two years. It would obviously be seriously wrong to assess the value of their practices for compensation on these difficult first years of the post-war restart. It is understood that such cases will be specially considered, but they are so numerous, and so obviously entitled to fair play as a right and not as a concession that some general principle should apply.

I submit that the only fair assessment is to take the pre-war value of the practice and to add to it a proportion equivalent to the average increase from 1939 to 1947 of the value of the practices of those who, for good or bad reasons, remained behind. This proportion could easily be got out by the tax authorities, but I estimate that it is about 70%. Only so can these men who have been penalized for their war service by loss of income escape being further penalized for that service by assessment of their life's savings at figures which bear no relation to what their position would have been had they ignored the call in 1939—I am, etc.

London.

"PRE WAR V.R.

## POINTS FROM LETTERS

## No Other Course

Dr FILMER COLEMAN (Glenfield, Leics) writes I have been in times past a severe critic of the B.M.A. In fact, I resigned my membership years ago and remained a non member for about 20 years, but I don't like to read all the—to my mind—unfair criticism now being hurled at it. You can't build a house without putting down the foundations first, and so with the new scheme. It's no use talking of terms of service before the principles—the foundations—have been fixed. Surely the vote on the second (February) plebiscite was clear evidence that the profession agreed with the B.M.A. action in putting principles as the first and most important things to be settled. I think it would be more to the point if some complaint were made about the members of the profession who altered their vote at the third (April) plebiscite. I say altered their vote, because I didn't think many of them altered their opinion. If they did actually alter their opinion, I would still respect their honesty, though I might have doubts about their intellect. The B.M.A. on that vote could do no other than it did—viz., advise us to accept. On the personal side, Dr Guy Dain has seemingly been the target for mud slinging. I am certain he did his best—and a very good best too—for the profession. The one speech of his that I was fortunate enough to hear was by far the best of any I heard, but what could he do against the adverse vote but state that as the doctors had joined he would do his best to make the scheme a success? I don't suppose that he (Dr Dain) altered his vote at the last plebiscite. If the complaints are from those who voted against the scheme, my sympathies are with them in their let-down.

## Free Drugs for Private Patients

Mr DAVID HARDIE (Bournemouth) writes Dr R. Risk's letter (Supplement, Sept. 18, p. 126) underlines a state of affairs which is bound to grow worse as people in general accept the really major attack on personal liberty embodied in the N.H.S. Hitler described the mechanism of this process in *Mein Kampf*. Dr Risk quite correctly points out that in this matter of free medicines an economic lever is being used to force a dissenting minority into the N.H.S., and those doctors who had the moral courage to stand up for their liberty against the loss of compensation threat are to be got at in this way. The real point is that the idea of compulsory social insurance is a totalitarian idea. Having swallowed the principles of the Devil, one can hardly be surprised if in action breach of professional confidence, and a further economic threat to protestants, are the immediate outcome, as seen in the power of the local bosses (embryo commissars) in the executive councils to inquire into the doctors' private incomes.

## Dispensing Fee in Scotland

Dr RUTH M. MONRO (Invergowrie, Nr Dundee) writes. Surely the agreement between the Ministry of Health and the Secretary of State for Scotland is still in force—that for payments in the Health Service the country shall be regarded as one and that there shall be no discrimination between England and Scotland. Yet in the first three months of the Health Service's existence this agreement has been broken. In England and Wales the capitation allowance for drugs to dispensing doctors has been raised to 6s. 6d., in Scotland it is to remain at 5s. In the Health Service dispensing doctors are almost entirely limited to rural areas engaged in agriculture where there is no chemist. My practice lies in such an area and comprises 12 villages and a far greater number of farms and smallholdings. After nearly 15 years' experience of a dispensing practice I am convinced that it is impossible to provide first-class medication on an allowance of 5s. per head. Without financial loss it can only be done by cutting down modern drugs to the barest minimum and using old-fashioned and less effective remedies or inferior quality of drugs. Patients will suffer and sickness will be prolonged. Every farmhand on the clock list affects the national larder adversely. The dispensing doctor gets no payment whatever for the actual work of dispensing and distributing medicine. At the present rate I estimate that I dispense about 5,000 prescriptions annually on an honorary basis. In addition there is the labour of keeping up stocks, preparing orders to manufacturing chemists unpacking crates of drugs and putting them away, repacking crates with empty containers and dispatching them. A chemist can do most of his stock-taking in working hours and does it after the day's visits and surgeries are done.

The Secretary of the Association writes. The Insurance Acts Committee on learning the position in Scotland, has expressed the view that there should be no differentiation in the dispensing fee and has requested its Scottish Subcommittee to reopen the matter with the Department of Health.

## Free Work or the Clock?

Dr H. J. PRATAP (Liverpool) writes. Mr John McFarland's letter (Supplement, Oct. 9, p. 134) says the tragedy of the remuneration with which general practitioners is that the more money they get the

less actual medicine they do. The only types of cases referred to hospitals by general practitioners are cases of skin disease, ENT cases, and surgical and medical cases where hospital treatment is required that includes special investigation offered by hospitals only. The number of cases sent to hospitals in the above classes is not as large as Mr McFarland seems to imagine. Most of the cases in general practice are treated by the general practitioner.

## B.M.A. LIBRARY

The following books have been added to the Library

- Akhilananda, S. *Hindu Psychology Its Meaning for the West* 1948  
 American Association for the Advancement of Science. *Approaches to Tumour Chemotherapy* 1947  
 Asher, P. *An Introduction to Medicine for Nurses* 1948  
 Beadnell, C. M. *Nature's Own Zoo* 1948  
 Bell, D. J. *Introduction to Carbohydrate Biochemistry* Second edition 1948  
 Bibus, B. *Die Beiderseitige Nierensteinkrankheit* 1948  
 Bourne, A. W., and Williams, L. H. *Recent Advances in Obstetrics and Gynaecology* Seventh edition 1948  
 Cade, Sir S. *Malignant Disease and its Treatment by Radium* Second edition Vol. I 1948  
 Chiray, M., Gu mann, R. A., and Seneque, J. *Confrontations Radio anatomico-cliniques Pt. II* 1947  
 Cohn, A. E. *No Retreat from Reason and other essays* 1948  
 Conference on Factors Regulating Blood Pressure. *Transactions, April 24-25, 1947* New York 1948  
 Davidson, M. *Practical Manual of Diseases of the Chest* Third edition 1948  
 Davies, M. *An Outline of the Development of Science* 1947  
 Deglaude, L., et al. *Les Dérivations Précardiales* 1947  
 De Haas, J. H., and Meulemans, O. *Melk in het Bijzonder als Zuigelingenvoedsel* Tweede Druk 1947  
 Evans, W. *Cardiography* 1948  
 Finnegan, R. H. *Occupational and Physiotherapy* 1948  
 Forbes, R. *Sixty Years of Medical Defence* 1948  
 Gaddum, J. H. *Pharmacology* Third edition 1948  
 Goyal, J. R. *Penicillin Therapy* Second edition 1947  
 Guilbert, C. *Technique d'Irradiation des Tumeurs Malignes* 1947  
 Gutmann, R. A. *Les Syndromes Dououreux de la Région Epigastrique* Quatrième édition Two volumes 1947  
 Guy, J., and Linklater, G. J. I. *Hygiene for Nurses* Seventh edition 1948  
 Hartwell, S. W. *Practical Psychiatry and Mental Hygiene* 1947  
 Hollitscher, W. *Sigmund Freud an introduction* 1947  
 J. A. R. *Memoirs of an Army Surgeon* 1948  
 Jersild, A. T. *Child Psychology* Third edition 1947  
 Lane Roberts, C., et al. *Sterility and Impaired Fertility* Second edition 1948  
 L'Eltore, G. *La Tuberculosis in Italia* 1947  
 Loeper, M., and Bory, I. *Journées Therapeutiques de Paris* 1946  
 Fer-voie pulmonaire thérapeutique 1948  
 Lowys, P. *Physiologie Infantile* 1947  
 Magrou, J. *Les Maladies des Végétaux* 1948  
 Malan, E., and Enria, G. *Terapia Endoarteriosa* 1947  
 van der Meersch, M. *Bodies and Souls* 1948  
 Naish, J. M., and Apley, J. *The Clinical Apprentice* 1948  
 Nobili, U. *Chirurgia Comune e di Urgenza* Quarta edizione 1947  
 Ott, V. R. *Die Sauna* 1948  
 Pavey, A. E. *Nutrition and Diet Therapy* 1948  
 Philosophy of Insanity 1947  
 Rylant, P. *Elements de Physiologie Psychologique* 1948  
 Riseman, J. E. F. *P-O-R-S-T a guide to electrocardiogram interpretation* Second edition 1947  
 Rout, E. *Restoration Exercises for Women* Ninth edition 1948  
 Ryle, J. A. *Changing Disciplines* 1948  
 Stafford, E. S., and Diller, D. *Textbook of Surgery for Nurses* 1947  
 Stone, J. E. *The Organization and Management of Hospital Stores* 1948  
 Sylla, A. *Erkennung und Unterscheidung akuter innerer und ansteckender Krankheiten* 1948  
 Taylor, S. *Summary of Surgery for Nurses* 1948  
 Tenney, H. K. (jun.) *Let's Talk About Your Baby* Third edition 1947  
 Tillier, H. *Anatomie Radiologique Normale* 1947  
 Vannier, L. *Les Tuberculoses et leur Traitement Homéopathique* 1947  
 Vincent, J. *Inside the Asylum* 1948  
 Waksman, S. A. *Microbial Antagonisms and Antibiotic Substances* Second edition 1947  
 Wrennbourg, H., and Graux, P. *Pathologie des Zones Pulmonaires* 1947  
 Weill Halle, B. *Eléments du Puericulture* 1947  
 Wheeler, L. R. *Harmony of Nature a study in co-operation for existence* 1947  
 Woodley, H. G. *Certified an autobiographical study* 1947

At the first annual meeting of the Society of Clerks of Executive Councils held at B.M.A. House on Oct. 6 Mr T. Crew, F.C.I.I., Clerk of the Leicestershire and Rutland Executive Council and Secretary of the Leicestershire and Rutland Local Medical Committee, was elected president for 1948-9.



**TRADE UNION MEMBERSHIP**

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar  
*Non County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton-le Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley

**BASIC SALARY IN SHEFFIELD**

The Sheffield Branch of the Socialist Medical Association has issued a statement protesting against the rejection of 29 out of 32 applicants for the basic salary of £300 in the Sheffield area. It says that 'one doctor who started in practice in May, 1948, and whose application for the basic salary was refused, already has 270 patients. At this rate of progress the doctor concerned will have considerably more than the minimum 500 on the list within two years. What can be the reason for rejecting that application? It can hardly be said that the doctor was not needed in that locality. No reasons for rejection are given in the letter sent to the doctors'. The statement continues that the local executive council may not have sufficiently inquired into the reasons which prompted the local medical committee to turn down so large a proportion of applicants. It points out that since the basic salary paid to doctors will reduce the sum available for the capitation fee to all doctors in the area it is perhaps unfair to expect doctors on the local medical committee to make these decisions. It is also unfair on the doctors applying for the basic salary that it should be possible for their colleagues to recommend rejection of their application and so make it more difficult for them to establish themselves in practice. The statement ends by asking the local executive council to reconsider the applications.

**H M Forces Appointments****ROYAL NAVY**

Surgeon Rear Admiral J. A. O. Flynn, C.B., has been placed on the Retired List.

Surgeon Commander V. G. Horan has been placed on the Retired List.

Acting Surgeon Lieutenant Commander J. A. N. Lock to be Surgeon Lieutenant Commander.

Acting Surgeon Lieutenant S. J. N. Cozens Hardy, O.P. Jordan and J. M. Alderton to be Surgeon Lieutenants.

**WOMEN'S FORCES****EMPLOYED WITH THE R.A.M.C.**

War Substantive Captain J. Harris has relinquished her commission and has been granted the honorary rank of Captain.

Lieutenants E. M. Knight, E. Power, R. Hamlyn, J. T. Smith, and C. E. Wildeboer to be Captains.

To be Lieutenants: Muriel T. McKenna, Doreen M. J. Stracey.

**INDIAN ARMY MEDICAL CORPS**

Captains R. T. M. Hayter, M.B.E., has retired and has been granted the honorary rank of Major.

**COLONIAL MEDICAL SERVICE**

The following appointments have been announced: J. E. Stobbs, M.B., S. O. Ekwuatu, M.B., and A. Zaira, M.D., Medical Officers, Nigeria; J. T. Burrows, B.M. M.R.C.O.G., Medical Officer (Specialist), Jamaica; W. S. Foster, M.R.C.S., Medical Officer (Health), Jamaica; R. B. S. Smith, M.B., D.T.M. & H. Assistant Director of Medical Services, Northern Rhodesia; L. G. W. Urich, M.R.C.S. D.T.M. & H. D.P.H., Deputy Director of Sanitary Services, Trinidad; K. K. Kapadia, M.B., Medical Officer, Seychelles; C. Cucha, M.D., Medical Officer, Kenya; H. T. Lavcock, M.B., Medical Officer (Surgical), British Somaliland; E. S. M. Douglas, L.R.C.P., Acting Medical Officer, Jamaica; R. J. A. Lavoipierre, M.D., D.T.M. & H. D.P.H., Deputy Director of Medical Services, Mauritius; J. P. O'Mahoney, M.B., B.A.O., Chief Medical Officer, Barbados; A. A. Peat, M.B., Director of Medical Services, Trinidad; E. V. Strivier, M.D., F.R.C.S., Medical Officer, Special Grade, Sierra Leone; C. E. E. Stevens, M.B., B.A.O., Superintendent, Cunningham Hospital, St. Christopher, Nevis; C. H. Tomlinson, M.B., Radiologist, Medical Department, Jamaica; H. G. Page, O.B.E., F.R.C.S., M.R.C.O.G., Surgeon Specialist, Grenada, Windward Islands.

**Association Notices****KATHERINE BISHOP HARMAN PRIZE**

The Council of the B.M.A. is prepared to consider an award of the Katherine Bishop Harman Prize of the value of £75 in 1949. The purpose of the prize, which was founded in 1926, is to encourage study and research directed to the diminution and avoidance of the risks to health and life that are apt to arise in pregnancy and child bearing. It will be awarded for the best essay submitted in open competition, competitors being left free to select the work they wish to present, provided this falls within the scope of the prize. Any medical practitioner registered in the British Empire is eligible to compete.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1949, but will be offered again in the year next following this decision and in this event the money value of the prize on the occasion in question will be such proportion of the accumulated income as the Council shall determine.

The decision of the Council will be final.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address. Essays must be forwarded so as to reach the Secretary, to whom all inquiries should be addressed at B.M.A. House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1948.

**MIDDLEMORE PRIZE**

The Middlemore Prize consists of a cheque for £50 and an illuminated certificate, and was founded in 1880 by the late Richard Middlemore, F.R.C.S., of Birmingham, to be awarded for the best essay or work on any subject which the Council of the British Medical Association may from time to time select in any department of ophthalmic medicine or surgery. The Council is prepared to consider the award of the prize in the year 1949 to the author of the best essay on "The Value of Orthoptics in the Treatment of Squint". Essays submitted in competition must reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, on or before Dec. 31, 1948. Each essay must be signed with a motto and accompanied by a sealed envelope marked on the outside with the motto and containing the name and address of the author. In the event of no essay being of sufficient merit the prize will not be awarded in 1949.

**Branch and Division Meetings to be Held**

**LEWISHAM DIVISION**—At Lewisham Hospital, 390 High Street, London, S.E., Friday, Nov. 5, 8.30 p.m. Dr. H. S. Banks, Fever Quiz.

**PORTSMOUTH DIVISION**—At Kimbells Corner House Restaurant, Commercial Road, Portsmouth, Tuesday, Nov. 2, 8 for 8.30 p.m. Dinner—meeting. Dr. E. M. Darmady, 'Modern Treatment of Uraemia'.

**RICHMOND DIVISION**—At Royal Hospital, Richmond, Tuesday, Nov. 2, 9 p.m. Mr. Richard J. V. Battle, 'Plastic Surgery'.

**WESTMINSTER AND HOLBORN DIVISION**—Joint meeting with Chelsea and Fulham and Kensington and Hammersmith Divisions at Postgraduate Medical School of the Royal Cancer Hospital, 24 Onslow Gardens, Fulham S.W., Wednesday, Nov. 3, 8.30 p.m. Mr. Ronald W. Raven, 'Cancer of the Pharynx and Oesophagus'. Open to all medical practitioners in the area of the Divisions.

**WOOLWICH DIVISION**—At St. Nicholas Hospital, 79 Tewson Road, Plumstead, London, S.E., Tuesday, Nov. 2, 7.30 to 9 p.m. Clinical cases followed by lecture by Dr. W. G. Tillman, 'Skin Diseases in General Practice'.

**Meetings of Branches and Divisions****GUILDFORD DIVISION**

At the meeting of the Guildford Division of the B.M.A. on Oct. 4, an address was given by Mr. Edward Jones, M.P.S., chairman of the South West Regional Health Committee and chairman of the Health Committee of the Corporation of Guildford on the 'National Health Service Act and the Practising Pharmacist'. He said that the Act had greatly increased dispensing, in Guildford during July the number of prescriptions increased by 129% and in August by 132%. Chemists' receipts had fallen at present but they might rise later owing to the increased number of prescriptions dispensed, although of course at a lower cost than previously. Speaking of the provision of appliances, Mr. Jones said that closer liaison between chemists and doctors would be of immense value as the chemist was in a position to tell the doctor what he could get and what not. He gave as an example a prescription for a motor-driven chair—which of course could not be complied with. Illegible prescriptions caused more difficulty than ever owing to new drugs having very similar names.

The suggestion that periodic meetings between doctors and chemists be arranged was put as a resolution and carried. Mr. Jones dealt with many questions very ably and was thanked by the chairman of the Division.

# BRITISH MEDICAL JOURNAL

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## ETHINYL OESTRADIOL

BY

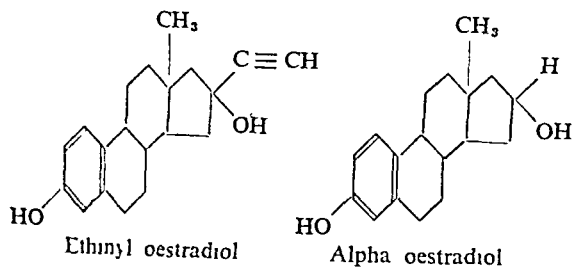
T N A JEFFCOATE, MD, FRCSEd, FRCOG

URSULA M. LISTER, MD, MRCOG

BETTY HARGREAVES, MB, ChB, MRCOG AND H ROBERTS, MB, ChB, D Obst RCOG

(From the Department of Obstetrics and Gynaecology University of Liverpool)

Ethinyl oestradiol is an orally active oestrogen first prepared by Inhoffen and Hohlweg (1938). It is a derivative of alpha oestradiol, the chemical structure of the two substances being very similar.



It has already received quite an extensive clinical trial, particularly in the USA, but has not been available in this country until this year. Reports on its biological actions and therapeutic value have been published by Clauberg and Ustun (1938), Salmon and others (1941), Groper and Biskind (1942), Soule (1942, 1943), Watson (1942), Lyon (1944), Allen (1944), Harding (1944), Bickers (1946), Wiesbader and Filler (1946), and Birnberg and others (1947). These deal with its effects in women, and indicate that ethinyl oestradiol behaves like other oestrogens in its effect on the female genital tract and breasts, including relief of climacteric symptoms and suppression of lactation. Other reports, such as those by Lawrence and Werthessen (1942), Kearns (1942), Huggins and McDonald (1945), and McCrea (1946) go to show that ethinyl oestradiol also has the expected effect on conditions in the male such as carcinoma of the prostate and haemospermia.

Ethinyl oestradiol has reached this country with an already established reputation for being an effective oestrogen and, moreover, one which even when administered orally is extremely potent. Estimates of its activity vary considerably, but all observers agree that it is the most potent oestrogen so far discovered. Inhoffen and Hohlweg (1938) reported it to be 15 to 20 times as powerful as alpha oestradiol when both are administered by mouth. Harding (1944) found it at least 15 to 30 times, and Soule (1942) 50 to 70 times, as active as alpha oestradiol. Allen (1944) estimated it to be 26 times as active as hexoestrol. Soule (1943) said it is 5 to 20 times as powerful as stilboestrol but Harding (1944), like Allen (1944), puts this figure at 5 or 6. Most of these estimates appear to be based on its capacity for relieving menopausal symptoms, but Bickers (1946) concluded that in the treatment of anovular uterine haemorrhage 0.3 mg of ethinyl oestradiol is equivalent to 5 mg of stilboestrol.

When advance supplies of ethinyl oestradiol were put at our disposal\* it was decided to undertake a clinical trial, partly to confirm its value as an oestrogenic agent but mainly to assess its potency. For this purpose inhibition or suppression of lactation was chosen as the test object as it seemed preferable to the relief of climacteric manifestations, where the interplay of psychogenic factors makes the assessment of results difficult. An attempt was made to compare the potency of ethinyl oestradiol and stilboestrol, both being administered orally, and to determine within practical limits the minimal dose of each which is required to inhibit lactation. This latter is extremely difficult, if not impossible, to do with any degree of accuracy, because it varies with the spacing of doses and the number of days over which it is administered and the susceptibility of individual patients. For the purpose of this investigation the usual procedure consisted in starting treatment within twenty-four hours of delivery and in giving gradually decreasing amounts of oestrogen over the course of seven days. In a few of the later cases the duration of treatment was reduced. With a few exceptions the patients were observed for ten to fourteen days only, so any very late relapse will not have been recorded unless it was specially reported by the patient. No other treatment such as saline aperients and restriction of fluid intake was given. The results are classified into

Excellent—No sign of breast activity at all

Good—Not more than slight secretion or slight fullness of the breasts for one or two days. No discomfort

Fair—Moderate secretion or fullness without gross engorgement and insufficient to cause the patient more than minimal discomfort

Poor—Varying degrees of engorgement or free secretion of milk, sometimes necessitating a further course of oestrogen therapy

This type of assessment is similar to but not identical with the one used by Birnberg and others (1947)

### Trials with Ethinyl Oestradiol

Ethinyl oestradiol is supplied in tablets, each containing 0.05 mg active substance, for oral administration. The schemes of dosage employed and the results are set out below. Treatment was started within twenty-four hours of delivery, except when otherwise stated.

*Scheme 1—Technique* 5 tablets b.d. first day, 4 b.d. second day, 3 b.d. third day, 2 b.d. fourth day, 1 b.d. on each of the fifth, sixth and seventh days of treatment, total 34 tablets

\*We are indebted to Dr. W. J. Tindall of Organon Laboratories for a liberal supply of ethinyl oestradiol.

(1.7 mg) *Results* Eleven patients treated, ten did not have any sign of breast activity, while the other one noticed slight secretion on the tenth day (10 excellent, 1 good)

*Scheme II—Technique* 4 tablets b d first day, 3 b d second day 2 b d third day, 1 b d on the fourth, fifth, sixth, and seventh days of treatment, total, 26 tablets (1.3 mg) *Results* Eleven patients treated, nine with excellent result, the tenth had a little fullness and minimal discomfort in the breasts on the fifth day, while the remaining one, a girl of 14, had no breast activity whilst in hospital but is reported to have developed severe pain in the breasts on the fourteenth day, the condition developing into a breast abscess which had to be drained. Not having seen the patient at the time, we are unable to say whether she suffered engorgement of the breasts or whether the condition was an acute mastitis from the time of onset of the symptoms. This case is recorded, however, as showing a poor result (9 excellent 1 good, 1 poor)

*Scheme III—Technique* 2 tablets b d first and second days, 1 tablet b d third and fourth days, 1 tablet daily on the fifth, sixth, and seventh days of treatment, total, 15 tablets (0.75 mg) *Results* (a) Eight cases, excellent result in all (b) A second group of seven patients whose babies died after birth were treated by this technique starting later than the first day after delivery, often when lactation was already established. The results in this series were as follows

Case	Treatment Started	Result
1	4th day of puerperium	Excellent
2	5th	
3	3rd	
4	2nd	
5	3rd	
6	3rd	Poor
7	3rd	Excellent

*Scheme IV—Technique* 1 tablet b d for first four days, and 1 tablet daily on the fifth, sixth, and seventh days of treatment, total, 11 tablets (0.55 mg) *Results* Nineteen patients treated. Excellent result in 14 cases (4 patients not observed personally after the fourth day), good result in 2 cases (1 patient not observed personally after the seventh day), fair result in 2 cases, poor result in 1 case

*Scheme V—Technique* 1 tablet b d for four days, total, 8 tablets (0.4 mg) *Results* Two patients treated, both with excellent result

*Scheme VI—Technique* 2 tablets b d on first and third days only, total, 8 tablets (0.4 mg) *Results* Two patients treated, one excellent and one fair result

*Scheme VII—Technique* 1 tablet daily for four days, total 4 tablets (0.2 mg) *Results* Three patients treated, two good and one fair result

*Scheme VIII—Technique* 1 tablet daily on first and third days only, total 4 tablets (0.2 mg) *Results* Three patients treated, one good and two poor results

From our observations on the treatment of the whole series of 66 patients it is clear that ethinyl oestradiol, as judged by its ability to inhibit or suppress lactation, is an extremely powerful oestrogen. If it is administered orally in divided doses, in gradually decreasing amounts, over the course of seven days, a total of 0.75 to 1.3 mg is sufficient to ensure good results in a high proportion of cases, if not all. A total of 1.7 mg produces consistently good results and is probably an unnecessarily high dose. The response was excellent or good in 29 out of 30 women who received 0.75 mg or more and when the treatment was begun within twenty-four hours of delivery. Nevertheless, judging by the general experience with other oestrogens, it is almost certain that if the number of patients had been larger there would have been included a few who were less susceptible and an occasional poor result would have been recorded. When the dose is reduced to 0.55 mg a critical level is reached and the treatment may fail or be only partially successful in preventing breast activity. Even so, in a few patients as little as 0.2 mg appeared to be effective. So far as we can find the only other workers who have

published detailed results on the ability of ethinyl oestradiol to suppress lactation are Birnberg and others (1947). They gave 1.5 mg over the course of nine days and noted 74% excellent or good results, 16% fair results, and 10% failures among 145 cases.

### Trials with Stilboestrol

It is probably true to say that during the last ten years and in this country, stilboestrol has been the oestrogen most widely used for suppression of lactation. Various techniques are said to give good results. There is no need to review the literature in full, for this was done by Barnes (1942) and Prescott and Basden (1944). Some writers (Diddle, 1941; Gavioli, 1944) claim good results with a single dose of 5 or 10 mg on the first day, others have been disappointed with the results of giving 35 mg. Some give as much as 45 mg daily. There seems to be a wide variation not only in the response of individual patients but in the interpretation of results by different observers. Barnes (1942) gave a seven-day course of decreasing amounts of stilboestrol to 81 patients, the total dose being 30 mg in most cases, but more than this (up to 50 mg) in 22 cases. The treatment was not completely successful in 32, although in several of these cases there were signs of only minor breast activity. A repeat course of treatment was necessary in 20 patients in all, but these included only one of the 22 who received a maximum dose. This rather suggests that 30 mg is barely sufficient to ensure the optimum results, for which 40 to 50 mg is necessary. This conclusion is probably in keeping with the general experience for most clinicians, despite minor variations in technique, seem to give about this amount over four to ten days and are satisfied with the result. It is also borne out by other writers. Diddle, Nagyfy, and Sells (1942) obtained uniformly satisfactory results using 40 to 50 mg, but noted 4.5% failures when the total dose was between 25 and 35 mg and 40% failures with 10 to 20 mg. Coulton (1947), while controlling a series of cases treated with "meprane," gave stilboestrol to 73 patients and noted 40% failures when the total dose was between 10 and 20 mg, 4.5% failures when he gave 25 to 35 mg, and no failures with 40 to 50 mg.

For several years now we have as a routine given 41 mg over the course of eight days, the daily dose being 10, 10, 6, 5, 4, 3, 2, 1 mg, and the results on the whole have been good, although, in common with most observers, we have met occasional failures for which a further course of treatment has been necessary, and even that has sometimes failed. As part of this inquiry it was decided to determine the effects of stilboestrol given in smaller doses. The clinical work of the department is carried out in two hospitals. Ethinyl oestradiol was used for all patients in whom it was indicated in one hospital, and stilboestrol in the other. Both groups of patients were unselected, but the observers were not always the same. This latter disadvantage was counteracted as much as possible by having the details of all the results analysed by an independent worker. The details for the stilboestrol therapy are set out below, treatment being started within twenty-four hours of delivery in all cases.

*Scheme IX—Technique* Consecutive daily doses of 5, 4, 3, 2, 1, 1 mg, total, 17 mg. *Results* Twenty-two patients treated. Excellent result in 2 cases, good result in 6 cases, fair result in 6 cases, poor result in 8 cases (supplementary course of treatment given in four).

*Scheme X—Technique* Consecutive daily doses of 10, 10, 5, 4, 3, 2, 1 mg., total, 35 mg. *Results* Twelve patients treated. Excellent result in 2 cases, good result in 6 cases, fair result in 2 cases (both had a supplementary course of treatment although it was not strictly necessary), poor result in 2 cases (supplementary course of treatment given in both).

The second group is very small and the significance of the results is doubtful. The findings in both groups are, however, in keeping with those of other writers, and go to show that a total of 35 mg or less of stilboestrol is hardly enough to ensure consistently good results, while considerably smaller doses are quite unreliable in their effects.

#### Relative Potency of Ethinyl Oestradiol and Stilboestrol

So far as the suppression of lactation is concerned, and when both substances are given orally in divided doses for seven days, our findings in admittedly small groups of patients lead us to conclude that 0.55 mg of ethinyl oestradiol is rather more effective than 35 mg of stilboestrol. A total of 0.75 mg to 1.3 mg gives as good if not better results than we have obtained using 41 mg of stilboestrol as a routine during several years. As judged by its ability to suppress breast activity in the puerperium, ethinyl oestradiol, weight for weight, seems to be not less than 50, and it may be 70, times as potent as stilboestrol. This estimate is higher than that of other workers who based their conclusions on the treatment of menopausal symptoms. It is of course impossible to be exact in these matters because so many factors, such as the rate of absorption, inactivation, and excretion, enter the picture and may act to the advantage of one preparation when one condition is under treatment and to its disadvantage when put to another use. Stilboestrol, for instance, is utilized and excreted quite rapidly. Its fleeting action may be a disadvantage in the suppression of lactation and may explain why late relapse (i.e., breasts filling and secreting on the ninth or tenth day) is relatively common. Our impression is that cases treated with ethinyl oestradiol are less likely to suffer these late relapses, although they do occur. In this respect the suggestion quoted by Lyon (1944) that ethinyl oestradiol is absorbed and utilized comparatively slowly may be significant. Nevertheless this idea is not supported in any strong degree by Lyon's observation to the effect that menopausal symptoms recurred within one to twelve days (average 5.5 days) of suspending treatment. It was the possibility of ethinyl oestradiol having a prolonged action which prompted the treatment of a few cases by Schemes V, VI, VII, and VIII. The results, however, are inconclusive, and further tests with a few doses widely spaced are being carried out.

It was pointed out earlier that several workers have compared the potency of ethinyl oestradiol with that of alpha oestradiol and have variously estimated it to be 15 to 70 times greater. We have no experience of alpha oestradiol, but Diddle and others (1942) reported that for the purpose of suppressing lactation stilboestrol by mouth and alpha oestradiol in propylene glycol administered sublingually are about equal in effectiveness provided the latter is given at regular and short intervals. If this is so then the comparisons made between ethinyl oestradiol and alpha oestradiol can perhaps be taken to give an approximate indication of the relative potencies of ethinyl oestradiol and stilboestrol.

#### Toxic Effects of Ethinyl Oestradiol

All writers note that ethinyl oestradiol like most oestrogens and particularly the synthetic ones, is apt to produce various symptoms in non-pregnant women. These include nausea, vomiting, headache and malaise, dizziness, and acne. Such symptoms are common and occur in about 10 to 15% of cases when the daily dose is 0.1 to 0.15 mg and in 20 to 25% when doses of the order of 0.2 mg daily are given (Harding 1944, Lyon, 1944, Birnberg 1947). Reduction of the dose results in disappearance of the toxic manifestations. It would appear that most non-pregnant women can take 0.05 mg a day without ill

effect, although even this small dose may cause nausea and vomiting in some (Birnberg, 1947). These observations are of interest because it has often been stated that it is the synthetic oestrogens which produce vomiting and that the natural ones do not. Ethinyl oestradiol is a derivative of the naturally occurring oestradiol, and yet is as liable as if not more liable than, synthetic oestrogens to cause nausea and vomiting. They rather favour the view which has long been taken by some workers, that the toxicity of any preparation, natural or synthetic, is dependent on its oestrogenic activity rather than its chemical structure. In our clinical trial no ill effects of any kind were noted\*. This is not surprising, because pregnant or recently pregnant women rarely show toxic reactions even when given massive doses of any form of oestrogen. Thus it is well known that as much as 1,000 to 2,000 mg of stilboestrol can be given within four to seven days without upsetting a puerperal woman. We have confirmed this to the extent of giving 700 mg in seven days to three patients.

Now that ethinyl oestradiol is becoming freely available in this country it is perhaps relevant to point out that, like other oestrogens, it may have other undesirable side-effects, and the likelihood of these again reflects its high potency. For instance, even in moderate doses it can cause endometrial proliferation to the state of hyperplasia (Wiesbader and Filler, 1946, Birnberg and others, 1947), with resulting heavy uterine losses and a disturbed menstrual cycle (Harding, 1944). Soule (1943) reported that as little as 0.85 mg given in divided doses can cause uterine haemorrhage in a post-menopausal woman, and Birnberg and others (1947) noted that 20% of women given 0.05 to 0.15 mg daily for climacteric symptoms developed post-menopausal haemorrhage. In women who are still menstruating 0.05 mg daily sometimes delays the onset of menstruation or makes the menstrual flow excessive (Lyon, 1944). Also, like other potent oestrogens, ethinyl oestradiol is liable to cause swollen and painful breasts and to lead to deep pigmentation of the nipple and areola. If, therefore, its use becomes widespread—and it is likely to, for the drug is cheap and efficient and can be given by the oral route—the fact that it is extremely potent should be recognized, otherwise it will almost certainly be the cause of many cases of post-menopausal haemorrhage in older women and menstrual disturbances in younger ones. Since 0.05 mg is equivalent to not less than 1 mg of stilboestrol and may well be equal to 2 or 3 mg, it is probably too powerful a preparation to use for the relief of climacteric symptoms. The introduction of tablets of weaker strength might obviate this difficulty.

#### Summary

An account is given of a clinical trial of ethinyl oestradiol—an oestrogen new to this country.

Its ability to suppress lactation in a series of 66 patients is assessed and compared with that of stilboestrol. The results go to show that ethinyl oestradiol is most efficient in preventing activity of the breasts.

A total dose of 0.75 to 1.3 mg spread over seven days gave good results in 21 out of 22 cases. When the total dose was reduced to 0.55 mg the results were less satisfactory but rather better than those obtained with 35 mg of stilboestrol. Since it takes 40 to 50 mg of stilboestrol to produce good results in a high proportion of cases it is reckoned that ethinyl oestradiol is at least fifty times more active than stilboestrol for the purpose of suppressing lactation.

There is evidence in the literature that it is equally potent in producing other oestrogenic effects, thus when it comes

\* Since completing this series of cases we have seen one puerperal woman develop an urticarial rash twenty-four hours after taking 0.55 mg of ethinyl oestradiol within the space of twelve hours. The rash may or may not have been caused by the drug.

into general use there will be need for caution over dosage, otherwise ill effects such as menstrual disturbances, endometrial hyperplasia, and post-menopausal bleeding, as well as toxic reactions such as nausea and vomiting will be commonly seen

We are grateful to the other members of the medical staff of the Liverpool Maternity Hospital and Mill Road Infirmary for allowing us to carry out this trial on their cases

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## MÉNIÈRE'S SYNDROME

## SUCCESSFUL TREATMENT BY SURGERY ON THE SYMPATHETIC

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Ménière first described his syndrome in 1861, but had inadequate knowledge of the underlying aetiology. He reported a case of a patient who died after an acute illness of five days, and described the necropsy findings, it would seem that acute haemorrhagic labyrinthitis was the cause of the syndrome

By definition Ménière's syndrome is a malady characterized by attacks of rotational vertigo accompanied by a tendency to fall, occurring at irregular intervals and associated with tinnitus and progressive nerve deafness. The attacks are sudden in onset and may occur without warning, and if severe the patient may fall to the ground with great violence. Commonly there is an associated vomiting, which may be of varying severity, sometimes lasting for hours to the point of exhaustion. Accompanying these vestibular disturbances are degrees of cochlear involvement the symptoms of which are tinnitus and nerve deafness. At first the nerve deafness is mild and occurs only with the attacks, but in the later stages of the syndrome it becomes progressively worse and is manifest permanently between the attacks, until finally it is complete on the side affected

In the earlier stages the patient is free from giddiness between the attacks, but with progression of the syndrome

there is a constant state of dizziness, which is considerably accentuated by any sudden movement of the head

The tinnitus is variable in type and severity, it may be a pulsating throbbing variety or a high-pitched constant note either singing or hissing in character. There is no known precipitating factor, and the absence of premonitory signs makes the attacks the more distressing, the patient developing a constant dread of the next occurrence, thus a not inconsiderable functional element quite often exists with the syndrome—a fact recorded by Levy, O'Leary, and Furstenberg—and great care has to be paid to detail in the examination in order to determine the degrees of organic and functional symptoms

## Aetiology

Much confusion exists about the exact aetiology of Ménière's syndrome, as evidenced by the considerable volume of literature on the subject and the extreme diversity of views expressed—some substantiated by necropsy findings and pathological investigations, some based purely on clinical observation and empirical therapy, and others founded very largely on assumption. Attributable factors in the literature cover such a wide field as poisoning from lead, mercury, arsenic in alcohol, drugs such as salicylates, circulatory disturbances of hypertension, arteriosclerosis, anaemia, the exanthemata, the chronic infections, syphilis and tuberculosis, virus infections, chronic diseases such as leukaemia, purpura, and pernicious anaemia, tumours of the cerebello-pontine angle, and trauma

Causative theories are equally diverse, ranging from disturbance of sodium metabolism in the local tissues (Furstenberg) to vascular disturbances. The latter Miles Atkinson describes as the "mechanics" of Ménière's syndrome, and the patients are divided into two groups determined by an intradermal histamine test—a vasoconstrictor group and a vasodilator group, in the ratio of five to one. He then treats them accordingly with nicotinic acid or histamine

Hallpike and Cairns noted at necropsy a distension of the endolymphatic system, with degenerative changes in the organ

## Anatomical Consideration

The blood supply of the inner ear is derived from two sources. The first, of major significance, is the internal auditory artery, which, as is common knowledge, is a branch of the anterior inferior cerebellar artery, or, less commonly, it may arise direct from the lower part of the basilar artery. This in turn is formed by the union of the vertebral arteries at the base of the skull

The subsequent course of the internal auditory artery is through the internal auditory meatus, accompanying the auditory and facial nerves to its distribution near the inner ear. This distribution would seem to take various forms according to Nabeya, ranging from an almost equal dichotomous division into cochlear and vestibular arteries to a predominant cochlear artery with smaller branches to the vestibule and vice versa, or a vestibular artery dividing to send branches to both cochlear and vestibule. Siebenmann describes the blood supply as a more or less equal division of the internal auditory artery to both cochlear and vestibular fields of distribution. It would seem that the variability of the distribution of the arteries indicated by Nabeya might well account for the variable degree of association of cochlear and vestibular signs in Ménière's syndrome-complex. This would reasonably fit in with the view held by us that the predominant aetiological factor is one of vasoconstriction, and that the smaller vascular distribution to a particular portion of the organ will imbue

that artery, by virtue of its size, with greater vasoconstrictor properties—hence a preponderance of symptomatology of the organ of distribution.

The second source of blood supply to the inner ear arises from vessels of the middle ear. This is said, however, to be a somewhat rare source, and need hardly be considered as presenting a possible fallacy in the rationale of treatment.

Bergglas found around such vessels as the iliac arteries large nerve strands at the union of the adventitial and muscular coats. He believed that this plexus extended throughout the muscular tree and was everywhere continuous.

H. H. Woollard states that vascular tone from the aorta to the periphery is maintained by vasomotor nerves in two ways. First, in the aorta large bundles from adjacent sympathetic ganglia composed almost entirely of non-medullated nerve fibres pass into the adventitia, some lying superficial and some deep near the media. The bundles continue to the periphery, forming a plexus of non-medullated fibres from which further fibres pass inwards and form an abundant mesh of the finest fibres within the muscle coat. Secondly, from the peripheral nerves these fibres are almost entirely medullated. The muscular coat is innervated by the fine network, the individual elements of which divide and fuse together to give absolute continuity complete throughout the vascular wall. Physiologically, Langley, Bayliss, and Gaskell have shown that bars of constrictor fibres are exclusively sympathetic ganglionic and that there is no other source of supply.

Hence destruction of the cell station in the stellate ganglion and blocking of the post-ganglionic pathways to the auditory vessels would presumably deal with the problem if the vasoconstriction is of central origin, for it is yet to be seen whether sensitization of sympathetic nerve endings to adrenaline or adrenaline-like bodies occurs in the terminal branches of the internal auditory artery after removal of the stellate ganglion. This destruction is undertaken by ganglionectomy and stripping and cutting the vertebral artery. It was felt that cutting the artery was necessary because of the possibility of impulses being conveyed through the intramural plexuses, a number of which exist, as shown by H. H. Woollard, at varying depths in the arterial wall. Also Leriche's periarterial sympathectomies never proved effective, the spasm returning to the vessels from days to weeks after the operation, hence indicating the probable existence of alternative pathways. Woollard showed that the nerve supply of arteries came from two sources—the one from periarterial fibres, and the other from neighbouring nerves. The fibres from neighbouring nerves were myelinated and probably not of vasoconstrictor function, so that the failure of Leriche's operation would seem to be due to the establishment of the pathway again probably through the arterial wall itself.

That after ganglionectomy and cutting of the artery there is the possibility of sympathetic impulses reaching the vessel from the opposite vertebral artery via the circle of Willis or alternatively from the component of Oort of the eighth nerve has not been overlooked but to the best of our knowledge no evidence in support of these sources is known. It is conceivable that primary nerve deafness may also be due to vasoconstriction since the deafness is part of the syndrome the possibility in these cases being that the effect of the spasm is felt by the artery of supply to the eighth nerve with subsequent permanent damage. It was with this in view that a few cases of early pure nerve deafness were selected for operation and research in this field is to be continued.

In the absence of definite pathological evidence it would seem that vasoconstriction plays a predominant part in the production of the syndrome. Siebermann points out that

the internal auditory artery which supplies the labyrinth may be readily influenced by excitation of the vasoconstrictors on account of the narrowness of the artery relative to the basilar artery. Its state of contraction depends upon the nerve plexus surrounding the vertebral artery and its branches coming from the thoracic part of the sympathetic cord and inferior cervical ganglion. It was with this in view that a means to prevent the flow of impulses through the plexus was attempted.

### The Operation

Under intratracheal gas-oxygen with positive pressure the anterior approach is favoured, with the patient in a supine position and the head extended and rotated to the opposite side. This serves to bring the transverse process of the seventh cervical vertebra into prominence. Through a 2-in (5-cm) slightly curved incision dissection of the subclavian triangle is carried out down to the deep fascia of the neck. The clavicular head of the sternocleidomastoid muscle is divided  $\frac{1}{2}$  in (1.25 cm) above its clavicular origin. The phrenic nerve is then isolated and retracted out of the way. The scalenus muscle is divided and the second part of the subclavian artery is then seen. Careful dissection brings into view the thyroid axis, and if the dissection is carried anteriorly the vertebral artery is exposed. It is sometimes a help to divide the inferior thyroid artery between ligatures. When this is done the vertebral artery becomes more accessible, and its adventitious coat may then be stripped from the origin of the artery until it enters the foramen in the transverse process of the sixth cervical vertebra. This artery is larger than one might expect, often being twice the diameter of the inferior thyroid artery. It arises from the upper and back portion of the subclavian artery, and its exposure may be facilitated by retracting the subclavian artery downwards and forwards. In the areolar tissues surrounding the artery may be found sympathetic branches from the stellate ganglion, which it crosses. The vertebral artery is freed and then divided between ligatures. Careful dissection is made through Sibson's fascia, and the parietal pleura is stripped downwards as far as the transverse process of the second thoracic vertebra. This brings into view the pre-ganglionic fibres of T1 and T2 as they ascend to blend with the inferior cervical ganglion to form the stellate ganglion, the variations and branches of which are notorious. This ganglion is freed from its surrounding loose fatty areolar tissue and excised after dividing the pre-ganglionic fibres of T1 and T2. Several small veins in this tissue may sometimes cause temporary and troublesome oozing if torn. The wound is then closed in layers. Only six days' stay in hospital is necessary.

### Immediate Result of the Operation

Horner's syndrome is of course apparent at once. The contracted pupil and ptosis of the upper eyelid rarely worry the patient after the first few days and tend to correct themselves during the first few months. However, should the ptosis persist a small plastic operation is all that is required to raise it. The dryness of the hand does not cause discomfort.

**Ear**—Patients state that the head feels clearer and that they no longer have the sense of uneasiness or feeling of pressure in and around the ear that Meniere's syndrome produces and the ear loses its stuffed-up feeling. The effect on the tinnitus is varied. In Cases 4, 5, and 9 it was completely relieved, in six cases it was partly alleviated, while in the remaining three it was unaltered. The hearing shows immediate improvement, which has been maintained for the time those cases have been under observation.

It is well known that Meniere's syndrome often affects one ear after the other. We have not yet had the



condition occur in the ear of the unoperated side, but, if it should, then there is no valid reason why the stellate ganglion of that side should not be removed, together with stripping and possible ligation of the vertebral artery, though the safety of this latter procedure should first be proved by animal experimentation. This mode of treatment has been so effective that it suggests the possibility of successfully alleviating an acute attack of Menière's disease by means of a "novocain" block of the stellate ganglion—a relatively simple procedure.

**Nose**—Some dryness of the mucosa is observed, but this is not maintained for more than a few weeks.

**Throat**—Nothing observed.

Taste and smell remain unaltered, and there is no appreciable effect on salivation.

**Complications**—The disturbance of circulation through the vertebral artery might conceivably give rise to thrombosis of the post-inferior cerebellar artery in arteriosclerosis. This would then result in degenerative changes in the dorso-lateral area of the medulla, probably involving the dorsal and ventral spinocerebellar tracts, the spinal tract and nucleus of V, the lateral spinothalamic tract and nucleus ambiguus, and even the vestibular nerve. However, since the original syndrome may be caused by the arteriosclerosis, operation is not undertaken in these cases, and therefore the complication is hardly likely to occur.

### Case Reports

Reports of twelve cases operated on during the last twelve months are given. The routine clinical examinations, including caloric tests and inflation of eustachian tubes, were carried out. Caloric tests showed normal variations that are encountered with labyrinthine dysfunction due to Menière's syndrome. In all cases the eustachian tubes were patent. Audiometric examination was made of all ears, and records of both air and bone conduction were taken, but for the sake of brevity only air-conduction records are published. Wherever the air conduction was improved there was a corresponding improvement in the bone conduction.

**Case 1**—A married woman aged 46 had had severe attacks of giddiness for seven months—she fell four times in one week. Attacks occurred every two or three days, starting with great roaring in the left ear and completely prostrating her for 24 to 48 hours. Severe deafness and tinnitus involved both ears. There was no great improvement on salt free diet and sedation for three months. There was a history of previous middle-ear disease (right ear) but this had now cleared up.

On July 1, 1947, left stiellectomy with division of pre-ganglionic fibres of T1 and T2 and division of fibres going to vertebral artery was carried out. There was immediate relief of vertigo and tinnitus (pulsating tinnitus completely relieved) though an occasional high-pitched note was present. Hearing was greatly improved for both air and bone conduction.

Cycles per Second		118	256	512	1 024	2 048	4 096
Loss in decibels	Pre-op June 1 1948	60 45	70 45	90 60	90 70	100 65	— 80

**Case 2**—A man aged 25 had a sudden onset of vertigo in December, 1946 accompanied by severe tinnitus in the right ear and vomiting and was confined to bed for three weeks. Further attacks from January to March, 1947 were accompanied by increasing deafness. He was then free until June, when attacks restarted. Tinnitus had persisted since the first attack and was of the continuous type. In June, 1947 he was given a salt-free diet with sedation, restricted fluids, and injection of calcium. No improvement resulted in either giddiness or tinnitus. He had also had migraine since boyhood.

Operation (July 1 1947) right stiellectomy and stripping of vertebral artery. Result—except for a slight attack of giddiness

on Sept 2, accompanied by tinnitus in the left ear, there has been no further attack, the hearing has very much improved and the tinnitus, while still present has greatly lessened, and he has had no further attack of migraine to date.

Cycles per Second		128	256	512	1 024	2 048	4 096
Loss in decibels	Pre-op June 7 1948	55 30	60 30	65 25	55 20	75 45	— 65

It is highly probable that the slight attack on Sept 2 was due to Menière's syndrome affecting the other ear.

**Case 3**—A woman aged 21 underwent a fenestration operation for clinical otosclerosis (by E.R.G.P.) on the left ear on Aug 20, 1946, with a satisfactory result. On June 16, 1947, she began to complain of an increase in the tinnitus of the right ear, accompanied by severe attacks of vertigo and vomiting. It was decided that the fenestrated ear was not responsible for the syndrome. Cocainization of the sphenopalatine ganglion on the right side completely relieved the tinnitus for several hours.

Right stiellectomy was performed on Aug 14, and next day the head was clear and the noises had ceased. Up to May 29 1948 no further attacks of giddiness had occurred, but slight tinnitus of a continuous character had returned. The tinnitus could be stopped by biting hard on a piece of cork between the right upper and lower molars. The hearing has decidedly improved.

Cycles per Second		128	256	512	1 024	2 048	4 096
Loss in decibels	Pre op June 8 1948	35 20	30 20	40 25	35 15	45 35	55 50

**Case 4**—A woman aged 32 had for 10 years had increasing deafness of nerve type, associated with severe tinnitus and bouts of vertigo, the latter symptom being present during the past three years and increasing in frequency and severity. Right stiellectomy was performed on Aug 15, 1947. Up to June 16, 1948 no further attack of vertigo had occurred and there was complete cessation of tinnitus and great improvement of hearing.

Cycles per Second		128	256	512	1 024	2 048	4 096
Loss in decibels	Pre op Post op	45 35	40 35	55 40	60 40	45 20	40 30

**Case 5**—A man aged 65 had his left ear first affected in 1946, he had severe giddiness, vomiting, tinnitus and increasing deafness with each attack. In 1947 the right ear started to be involved, with severe prostrating attacks. Tinnitus of continuous and pulsating types was present for 21 months. There had been no previous middle ear disease.

On Aug 29, 1947, right stiellectomy with division of pre-ganglionic fibres of T1 and T2 and sympathetic nerves going to vertebral artery, was carried out. On Sept 1 there was no giddiness, no tinnitus in right ear and the head felt clear. On March 31, 1948, the giddiness and tinnitus had gone and the hearing was greatly improved for both air and bone conduction.

Cycles per Second		128	256	512	1 024	2 048	4 096
Loss in decibels	Pre-op June 14 1948	35 30	35 20	35 10	40 20	40 40	70 75

**Case 6**—A male fitter aged 48 had a history of 2½ years severe prostrating attacks of vertigo accompanied by vomiting, deafness and tinnitus in the left ear. Tinnitus was of a continuous roaring nature. On Jan 8, 1948, left sided stiellectomy was performed with stripping of the vertebral artery. On April 22 there was no giddiness, the tinnitus was unaltered but hearing had somewhat improved.

Cycles per Second		128	256	512	1 024	2 048	4 096
Loss in decibels	Pre-op June 12 1948	40 25	50 35	60 45	65 40	50 35	45 45

**Case 7**—Two years ago a man aged 71 began to have severe attacks of giddiness which, despite all conservative treatment

including nicotinic acid, continued until he was unwilling to leave the house. Hearing steadily deteriorated in the right ear, and was accompanied by a continuous high pitched tinnitus, which became worse before an attack. In childhood the patient had had a suppurative otitis media.

On Feb 2 1947, right-sided stiellectomy was carried out. By Jan 24 1948 the attacks had lessened, and he could walk even during an occasional mild feeling of unsteadiness. On Feb 9 the noises were unaltered but no attacks of giddiness now occurred. On May 3 he was playing golf for the first time since the onset of vertigo and now drives his car without any apprehension.

Cycles per Second	128	256	512	1024	2048	4096
Loss in decibels						
Pre-op	25	35	45	55	55	75
June 11 1948	35	45	50	55	55	75

This case shows gradual improvement of the high frequencies.

**Case 8**—A woman aged 53 had a history of shingles on the left side of the face accompanied by severe attacks of giddiness, which came on usually while she was sitting quietly and was aggravated by stooping. Nerve deafness was present in the left ear. There was tinnitus both pulsating and continuous.

On Feb 5, 1948, left stiellectomy was done, with stripping of the vertebral artery. On March 2 there was no further vertigo, the head felt clearer and the left side of the nose, which was always blocked especially at night was free. This nasal obstruction was not complained of before the operation, and unfortunately no particular note was made of the condition of the nasal mucosa on the left side though now it appears less congested than the right side. The tinnitus is unaltered.

Cycles per Second	128	256	512	1024	2048	4096
Loss in decibels						
Pre-op	20	25	35	35	45	60
May 22 1948	25	25	30	20	25	50

**Case 9**—Six years ago this patient a woman aged 41 had vertigo on and off for one year with increasing deafness of the left ear associated with a continuous low buzzing sound. Two years ago vertigo restarted with deafness and tinnitus in the right ear. Rest, salt free diet, and sedation brought about considerable improvement in the vertigo, deafness, and tinnitus, but symptoms recurred immediately this treatment was stopped. It was considered advisable to try to save the remaining hearing in the right ear so sympathectomy was decided upon.

On March 15 1948 right stiellectomy was performed with division of the pre ganglionic fibres of T1 and T2 and stripping and ligation of the vertebral artery. There was an immediate cessation of vertigo and a clearer feeling in the head. Tinnitus had ceased and a great improvement had occurred in air and bone conduction.

Sept 21 1948. This patient had a recurrence of her vertigo and unsteadiness accompanied by tinnitus and deafness. The attack was very mild compared with her former attacks but nevertheless was a definite one.

Cycles per Second	128	256	512	1024	2048	4096
Loss in decibels						
Pre-op	35	40	50	60	60	70
June 16 1948	10	20	10	15	15	25

**Case 10**—A woman aged 33 had an 18 months history of progressive nerve deafness and tinnitus in the right ear accompanied by bouts of severe vertigo with nausea and vomiting. The attack lessened the hearing worse than before. Right-sided stiellectomy and deep myoid pain of a shooting character. She had undergone conservative treatment for a period of five weeks with repeated eustachian inflation. The patient felt more comfortable and the hearing in the right ear had lessened.

Cycles per Second	128	256	512	1024	2048	4096
Loss in decibels						
Pre-op	25	35	45	55	55	75
June 16 1948	10	20	10	15	15	25

On April 31, 1948 right stiellectomy with division of the vertebral artery was performed. When examined on June 14 there was no further giddiness, and she said her head felt clearer than it had since deafness began. Hearing had improved but the tinnitus had only slightly lessened.

**Case 11**—This patient, a woman aged 63, gave a history of sudden onset of very severe attacks of vertigo accompanied by deafness and tinnitus during the past 16 months. The tinnitus was like faintly escaping steam, and the deafness had been much worse during the last four weeks. She was very apprehensive of further attacks. Sedation and calcium tried over a three-months period gave no relief.

Right stiellectomy and ligation of vertebral artery were carried out on May 17, 1948, and by June 14 there was no giddiness whatsoever. She then led a normal active life and did her household work. The head felt clearer but she complained of slight pain and weakness of the right forearm. This was rapidly lessening. Tinnitus was still present, but was decreasing. The hearing had not appreciably altered.

Cycles per Second	128	256	512	1024	2048	4096
Loss in decibels						
Pre-op	50	45	45	50	30	60
June 14 1948	50	45	50	50	25	45

**Case 12**—In 1934 this patient, aged 38 had her first attack of giddiness with tinnitus in the left ear. She was free of further attacks until 1946, but they had been present on and off ever since. When attacks were severe they were accompanied by vomiting and an increase in the tinnitus in the right ear. The hearing of the left ear had remained practically stationary since 1934, but that of the right ear steadily decreased with each subsequent attack. As she had a history of three miscarriages a Wassermann test was done and this proved negative. The tinnitus was worse at the beginning of an attack and faded off altogether for a few hours after the vomiting had ceased. The noises were relieved to a soft murmur by cocainization of the sphenopalatine ganglion of the right side.

On May 14 1948 right stiellectomy with division of vertebral artery was performed. On June 12 there was no giddiness, the tinnitus had lessened, but the deafness had not yet improved.

Pathological examination of the stellate ganglion was carried out in all cases, but no abnormality was discovered in any of them. This finding may be compared with that of J W Budd (quoted by Mogan and Baumgartner, 1945), who demonstrated definite pathological changes in the superior cervical ganglion in a case of Ménière's disease, as did J W Kernohan, of the Mayo Clinic. Details of the results are given in the accompanying table.

Details of Results

Case No.	Stellate Ganglion	Vertebral Artery	Vertigo	Tinnitus	Hearing
1	Excised	Stripped	Relieved	Lessened	Improved
2					
3					
4		Stripped		Relieved	Unaltered
5					
6					
7		Stripped and ligated		Relieved	Stationary
8					
9				Lessened	
10					
11					
12					

\* See report on Case 9

### Summary and Conclusions

A series of 12 cases of Ménière's syndrome which failed to respond to conservative treatment were subjected by one of us (E.R.G.P.) to stiellectomy and division of the pre ganglionic fibres of thoracic 1 and 2. In two cases the vertebral artery was stripped while in four cases it was either ligated or divided after the adventitious coat had been removed. The reason for the latter process is given in the context. In each case the vertigo attributable to that ear has been completely relieved except in Case 9.

Whether the recurrence of vertigo in this case was due to hypersensitivity to adrenaline or adrenaline like bodies following excision of the ganglion (for the patient was hard at work again and under considerable mental strain) or whether some sympathetic fibres to the ear may also originate on the opposite side to a greater or lesser extent in individual cases is not known but the fact that there has been a marked improvement on the administration of ergotamine would suggest that the former view is the more likely of the two, in which case division of the pre ganglionic fibres together with stripping and ligation or division of the vertebral artery would be the operation of choice. This has now been done in more recent cases with the same beneficial result on the vertigo, added to which it has the advantage of avoiding a Horner's syndrome.

The result upon the tinnitus is apparently unpredictable, though on the whole it was reduced—in three cases it was completely relieved. The relief seems to be more pronounced with the pulsating type of tinnitus than with the continuous variety. Each patient suffered from concomitant nerve deafness and in all except the last two most recent cases there has been improvement (in some ears very markedly) of hearing by both air and bone conduction. If the nerve deafness is very severe it is beyond relief.

It is felt that further work along these lines will greatly aid in elucidating the aetiology and pathology of this distressing complaint and its accompanying tinnitus and nerve deafness.

It is interesting to record that a further series of stiellectomies has been performed for tinnitus alone (to be published later), but we forbear to make further comment on the role of the sympathetic on tinnitus at this stage.

In the meantime a new surgical method of treating Ménière's syndrome, having tremendous advantages over the old surgical destruction of the internal ear is at our disposal.

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For the last two years 45 severely disabled men have been happily and gainfully employed at Haven Products, Ltd, a 'sheltered workshop' on Clydeside. They work a regular 8 hour day five days a week and are paid a basic wage of 2s 1½d an hour plus bonuses. The Nuffield Provincial Hospitals Trust has recently published an illustrated pamphlet describing the development of the workshop and the work done there. The men manufacture electro thermic quilts, and the machines are adapted to suit the needs of individual workers. Doors are made specially wide to allow invalid chairs to pass through. Lavatories have railings fitted so that men who must use their hands to get about may be helped, and transport is organized from the workers' homes. Four travel to the workshop in motor-chairs and fifteen require ambulance transport. A medical advisory committee, consisting of consultants from the three large voluntary hospitals in Glasgow, a senior medical officer of the Ministry of Pensions, three almoners, and an observer from the Ministry of Labour was set up to advise on the planning and equipment of the factory, to help in the selection of suitable disabled men, and to ensure that the men's disabilities were not aggravated by their work. The men are medically examined every year, but medical supervision is kept in the background so far as possible. The venture has been very successful both financially and as an experiment in the restoration of the men's self-confidence and contentment. Harmonious relationships prevail in the workshop, and the report emphasizes particularly the enthusiasm and the sense of corporate life enjoyed by the men. Copies may be obtained from the Nuffield Provincial Hospitals Trust 12 and 13 Mecklenburgh Square London W C 1 and 10 Duke Street Edinburgh.

## "RHEUMATOID DISEASE" WITH JOINT AND PULMONARY MANIFESTATIONS

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It will be generally accepted that rheumatoid arthritis, like pulmonary tuberculosis, is a systemic disease with local manifestations, the former in the joints, the latter in the lungs. Moreover, its systemic nature may be manifested, as recent studies have shown, by widespread pathological changes in various tissues and organs.

Our own studies, confirming those of other observers (see Hench *et al*, 1948), have shown that in certain cases the bones may exhibit atrophy and even widespread cystic changes, and the peripheral nerves may become involved, with resultant neuritic pains, paraesthesiae, and trophic changes. Biopsy studies of the muscles may reveal microscopic alterations in the form of perivascular lymphocytic infiltration and macrophages in the perimysium and endomysium akin to those sometimes seen in periarteritis nodosa and disseminated lupus. Cardiac lesions may also occur almost identical with those following rheumatic fever, while other accompanying lesions may be found in the spleen, liver, lymph glands, subcutaneous nodules, pleura, and even in the eye in the form of iritis and scleritis. In one recent case there was good reason for regarding a kidney lesion (Ellis type 2) as part of the rheumatoid process.

The purpose of this paper is to report three cases in which an accompanying pulmonary lesion appeared as an integral part of the "rheumatoid state". A careful search of the literature has not disclosed any earlier records.

## Case 1

A fitter's mate aged 47 was admitted under the care of one of us (P E) to the Rheumatism Unit and later to the Leatherhead Emergency Hospital, and when first seen on Dec 14, 1945 gave the following history. Two and a half years previously, while he was in a fair state of general health, pain and stiffness started in the right knee joint. During the next few months the fingers, wrists, elbows, and left knee became involved. Swelling of the affected joints was present while active and subsided with rest. Until the time of admission he had had several courses of physiotherapy at different hospitals. He had lost 2 st (12.7 kg) in weight since the onset of the illness. There was a previous history of pleurisy progressing to empyema at 11 years of age and malaria at 21 and 24 years. There was no significant family history.

On examination he was pale and toxic and wasting involved subcutaneous tissues and muscles. Examination of the locomotor system revealed evidence of swelling of the proximal interphalangeal joints, wrists, elbows and knees and fibrous nodules were present over both olecranon processes, sacrum and scalp. Examination of the lungs showed poor air entry, and breath sounds diminished at both bases where numerous crepitant rales could be heard. The heart, abdomen and central nervous system were normal. Blood pressure 130/90.

Pathological investigations showed ESR 56 mm at first hour (Westergren), red cells 3,670,000, Hb 66%, C.I. 0.83, white cells 8,000 (polymorphs 67%, lymphocytes 29%, monocytes 3%, eosinophils 1%), G.C.F.T. negative, serum uric acid 12 mg per 100 ml, Mantoux, weak positive. Repeated sputum examinations including concentration techniques were all negative for tubercle bacilli. General bacteriological examination of the sputum was not significant. Fluid aspirated from the left knee-joint was purulent and contained many polymorphs but was sterile on culture.

Radiological examination of the wrists, knees, and finger-joints showed osteoporosis, loss of joint space and erosions characteristic of the rheumatoid type of arthritis. There was evidence of a fine reticulation throughout both lung fields with a chronic bronchopneumonic lesion.

On March 26 1946, he began to complain of cough and produced small amounts of mucopurulent sputum. In April he developed a generalized purpura but the bleeding time was normal and platelets numbered 310 000 per cmm. His general condition gradually deteriorated and he became increasingly wasted until June 17 when he developed a pyrexia ranging about 99–100° F (37.2–37.8° C) became dyspnoeic and cyanosed, and coughed up much frothy sputum. These symptoms gradually increased in severity being unaffected by penicillin therapy until his death on June 23.

**Post mortem Examination** (performed by Dr D. N. Nabarro 18 hours after death)—The body was that of a middle-aged poorly nourished man with polyarthritis. The dura mater was somewhat adherent over the surface of the brain which was

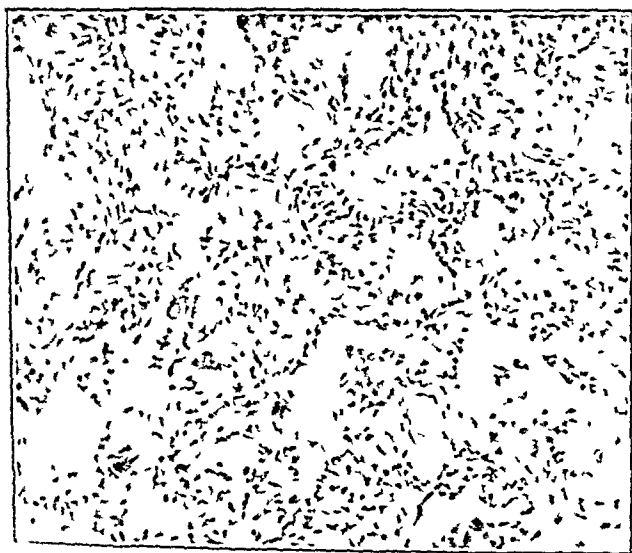


FIG. 1.—Case 1. Photomicrograph showing interstitial pneumonitis with well marked fibrosis between the lung alveoli (x 100).

slightly congested but was otherwise normal. **Respiratory system.** There were fairly dense pleural adhesions, more especially marked over the lower lobes; no free fluid was seen. The trachea and bronchi contained mucopus. The lungs were firm throughout with nodular areas suggestive of a bronchopneumonia. Both lungs were congested and oedematous, and on section showed many areas of recent bronchopneumonia. However, the lungs as a whole were firmer than normal and suggested a chronic fibrosing pneumonitis. There was no evidence of tubercle or sarcoidosis. The mediastinal lymph nodes were enlarged and showed evidence of chronic inflammation. **Cardiovascular system.** The pericardium contained a small amount of clear straw-coloured fluid. The heart was moderately enlarged and the myocardium was pale and fatty. The valves were all normal and showed no evidence of endocarditis. There was very little evidence of thrombosis in the blood vessels. **Gastro-intestinal tract.** The liver was somewhat enlarged, appearing firm with a mottled surface. There were no gall-stones. The stomach was considerably enlarged (weight 620 g) with a normal mucosa. The intestines were not abnormal. The spleen was all normal and none showed any evidence of chronic inflammation.

**Reproductive system.** Sections were cut of the lungs, heart, suprarenals, heart, kidney, spleen, liver, and stomach. The suprarenals and heart showed no abnormality. The lungs (Fig. 1)—The changes were those of an interstitial pneumonitis with a chronic fibrosing pneumonitis. The alveoli contained considerable amounts of eosinophilic albuminous fluid. The interstitial tissue was thickened and contained many small lymphocytes and some

lymphocytes. There was well marked fibrosis between the lung alveoli, and infiltration with mononuclears and some polymorphs was prominent. There were many alveolar phagocytes and some giant cells were also to be seen. Blood vessels were largely normal but a few could be seen, more especially near the small abscesses, in which the muscle coat showed some fibrinoid degeneration with endothelial proliferation. In these there was infiltration of the wall of the vessel by mononuclear inflammatory cells. There was no evidence of tubercle or sarcoidosis. The lymphatic glands showed chronic inflammatory changes only. The pancreas and suprarenals were normal. The heart muscle showed no abnormality but there were one or two small vessels in the fatty tissue immediately next to the muscle which showed changes from the normal. These consisted of mononuclear infiltration in the wall, of endothelial proliferation, and very slight necrosis of the muscle coat. No abnormality in the vessels in the heart muscle itself was found. The kidney showed slight tubular epithelial desquamation and a little lymphocytic infiltration in the interstitial tissue. A few blood vessels showed a change similar to that seen in the sections of the lung and heart. (The appearances were very similar to those depicted in Fig. 15 in the paper of E. F. McKeown, 1947). The spleen showed a reactive hyperplasia. The appearances in the liver were those of venous congestion. The knee joint showed a typical rheumatoid change with cell proliferation, even to the formation of giant cells in a few places.

### Case 2\*

A female cotton-mill worker aged 48 was admitted to hospital on Dec. 15 1946, complaining of cough, loss of weight, and arthritis. The onset of an acute polyarthritis characterized by pain, swelling and stiffness of the knee joints had occurred for the first time in April 1946, previous to which she had been quite well. During the four weeks following the onset the wrists, elbows and shoulders had been involved. In November 1946 she started to complain of lassitude, palpitations, and dyspnoea and since the onset of the illness she had lost 2 st (12.7 kg) in weight. She gave a previous medical history of recurrent attacks of bronchitis. There was no relevant family history.

On examination there was a morbilliform rash of the arms and trunk, the temperature was 100° F (37.8° C), and dullness and bronchial breathing were present at both lung bases. There was no evidence of abnormality in the heart, abdomen or central nervous system. The blood pressure was 105/60. **Pathological investigations** at this time showed Hb 70% and white cells 8900. **Radiological examination** of the chest revealed bilateral basal opacities indicative of consolidation and, above this, marked reticular shadows extending into the mid-zones. Pneumonia was diagnosed and a seven-day course of penicillin was given in spite of which a pyrexia ranging between 99° and 100° F (37.2° and 37.8° C) persisted. Except for occasional rises of temperature to 103° F (39.4° C) the patient remained in this condition until Jan. 16 1947. During this time repeated sputum cultures for tubercle bacilli were negative. The general bacteriological examination of the sputum revealed nothing abnormal and the radiological appearances of the chest remained unchanged on repeated examinations. At the beginning of February 1947 she developed a spiking temperature ranging between normal and 103° F. From this time her condition gradually deteriorated and she became more anaemic. Blood examination showed red cells 2 570 000, Hb 50%, serum albumin 2.2 mg per 100 ml, serum globulin 4.5 mg per 100 ml, serum sodium 320 mEq per 100 ml, chlorides, 533 mg per 100 ml, blood urea 26 mg per 100 ml, W.R. negative. Agglutination tests: *S. paratyphi A* 'H', *S. paratyphi B* 'H', *S. typhi* 'H' negative 1 in 20. Comp. *S. paratyphi B* 'O', *S. typhi* 'O', *Br. abortus* negative 1 in 20.

On March 24 oedema of the legs developed and on the 27th the patient died.

\*This case was kindly brought to our notice by Professor Robert Platt of Manchester who, having seen the observations of one of us (Ellman, 1947)—namely, the interpretation of the joint and pulmonary lesions as part of a rheumatoid disease—felt that the case which was in the wards of the Manchester Royal Infirmary under the care of Dr Fergus P. Ferguson was of an analogous nature. We are much indebted to him and to Dr Ferguson for kindly suggesting that we might include the case.

**Post mortem Examination** (performed by Dr J T A Lloyd 36-48 hours after death)—The body was that of a slightly pale middle aged woman. **Respiratory system**—There were a few fine pleural adhesions on both sides, with some 50 ml of straw-coloured fluid on each side. The lower lobes of each lung and the lower part of the upper lobe of the left lung were firm and hard to the touch. They were congested, and also showed small areas of consolidation together with minute abscesses containing a little pus. The appearances suggested a terminal bronchopneumonia with a fibrosing pneumonitis. The remainder of the lung tissue appeared normal. No evidence of tubercle or of sarcoid was seen in the lungs. The trachea was normal. The mediastinal glands draining the lungs were slightly enlarged, but showed no evidence of tubercle. **Cardiovascular system**—The pericardium contained about 50 ml of greenish-yellow clear fluid. The heart was slightly dilated but not enlarged. The myocardium was soft and somewhat pale. The mitral valve cusps were very slightly thickened along the free margins, but no evidence of any endocarditis was present in any valve. The blood vessels showed slight atheroma. **The intestinal tract**

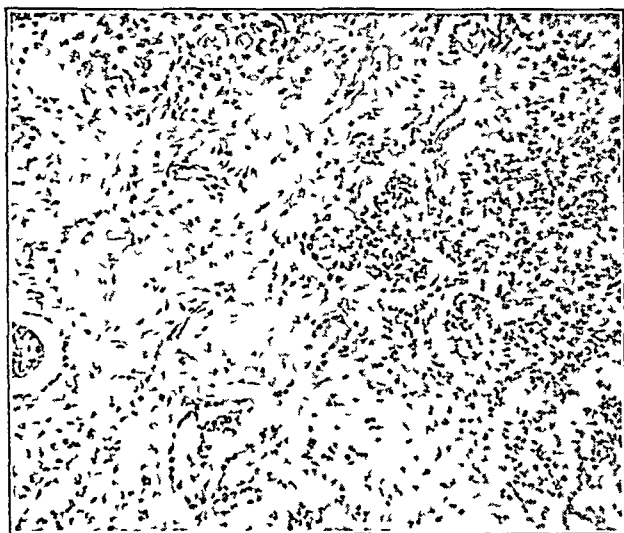


FIG 2—Case 2. Photomicrograph showing interstitial pneumonitis and secondary bronchopneumonia (x 90)

was normal throughout. The *liver* was not enlarged, but showed some degree of fatty change. The *spleen* was soft and slightly toxic as a result of the pulmonary infection. The *kidneys* showed no abnormality apart from some degree of pallor. There was a small cervical polypus, but the uterus and ovaries were normal. None of the organs revealed any evidence of tubercle or of sarcoidosis. The brain was not examined.

**Histological Report**—Sections were cut from the kidney, spleen, lung and lymphatic glands from blocks kindly supplied by Professor S L Baker. **Kidney**—There were relatively few changes. Those present consisted of collapsed empty glomerular tufts, some tubular epithelial desquamation, and a few tubular casts. The blood vessels showed some atheroma only. The *spleen* revealed some reticular-cell proliferation with relatively empty sinuses. The *lung* (Fig 2) showed considerable general disorganization. The main appearances were those of an interstitial pneumonitis with a terminal bronchopneumonia. The *alveoli* were of varying sizes, some being emphysematous but many showed infiltration with polymorphs together with some mononuclear cells and also some desquamated alveolar phagocytes. A few of the alveoli were lined with cuboidal epithelium. However, the most striking change was seen in marked interalveolar fibrosis, with fairly well developed fibrous tissue which was infiltrated with mononuclear cells, plasma cells, and a few polymorphs. The blood vessels showed no change from the normal except that in one large vessel there was a little atheroma. There was no evidence of tubercle or sarcoidosis. The mediastinal lymphatic glands showed some chronic inflammation only.

### Case 3

A housewife aged 55 was admitted into the rheumatism unit under the care of P E on Sept 26, 1946, when she complained of pain, swelling and stiffness of the hands, shoulders knees and feet of three months duration. There was no history of a precipitating factor in the form of an acute infection. Frequent attacks of tonsillitis had occurred during the past few years.

On examination she was thin and wasted, weight, 6 st 9 lb (42.2 kg). No clinical abnormality was present in the heart, lungs, abdomen, or central nervous system. Examination of the locomotor system showed fusiform interphalangeal joint swellings and a swollen flexed left knee-joint. There was no lymphadenopathy.

Radiological examination of the chest showed no gross abnormality (Fig 3). There were some calcified hilar foci, those of the hands and wrists showed osteoporosis and narrowing of the joint spaces.

Pathological investigations showed ESR, 60 mm in the first hour (Westergren), red cells, 5,920,000 per c mm, Hb, 102%, CI, 0.85, white cells, 22,200 per c mm (polymorphs 68%, lymphocytes 26%, monocytes 6%, eosinophils, 2%). Gastric residue before histamine free HCl, nil, total acidity, 18 ml N/10. Gastric residue after histamine free HCl 22 ml N/10, total acidity 44 ml N/10. Urinalysis NAD. Throat swab no Klebs Loeffler bacilli or haemolytic streptococci grown on Oct 4 1946. Copious growth of haemolytic streptococci on Nov 27, scanty growth of haemolytic streptococci on Dec 5, WR and Kahn negative, serum uric acid, 2.6 mg per 100 ml alkaline phosphatase, 7.5 units.

The patient's general condition remained the same until June 12 1947, when she complained of cough with sputum, sweating, and loss of weight of 7 lb (4.5 kg). There were now scattered rales throughout both lung fields, and the breath sounds were bronchovesicular in type. Serial skiagrams were unchanged until the one on June 16 which showed widespread heavy reticulation and apparent miliary mottling throughout the whole of both lung fields (Fig 4). A presumptive diagnosis of pulmonary tuberculosis, Boeck's sarcoidosis or polyarteritis nodosa was made. Repeated sputum examinations and Loewenstein's culture together with gastric lavage and concentration techniques failed to



FIG 3—Case 3, Oct 1 1946. Radio graph of chest showing no gross abnormality.



FIG 4—Case 3 June 16 1947. Radio graph showing widespread heavy reticulation and apparent miliary mottling throughout both lung fields.

reveal the presence of tubercle bacilli. General bacteriological examination of the sputum revealed no abnormality. On Aug 30 there was no significant change, and the radiological appearance of the lungs was regarded by several experts as being compatible with that of polyarteritis nodosa. A further radiograph on Jan 16, 1948, showed the lung fields to be cleared a little, but heavy reticulation was still present. The patient now weighs 6 st 2 lb (40 kg), but her general condition is fundamentally unchanged.

### Discussion

In a recent discussion on the aetiology of chronic rheumatism one of us (Ellman, 1947) suggested that the theory of bacterial allergy or that due to foreign protein or hormones provided an attractive and rational aetiological basis for this rheumatoid state and at the same time strengthened the unitary theory. Fundamentally the acute and chronic rheumatisms may be regarded as anaphylactic diseases with multiple lesions in the mesodermal system produced by continual antigen-antibody reactions in or on tissue cells. Visceral and other lesions may be explained as hypersensitivity manifestations in tissues elsewhere in the body. Some co-ordination is thereby provided for the rheumatoid group of diseases and suggests a relationship between the acute rheumatoid type of arthritis and rheumatic fever.

It is possible, too, as has been suggested by Parkes Weber (1946), that the syndromes of a recurrent and transitory nature included under the term "palindromic rheumatism" of Hench and Rosenberg (1944) can be extended to include the so called intermittent hydrarthrosis, serum joint disease, allergic arthritis, and allied syndromes. Again, the work of Rich and Gregory (1943, 1946) and their co-workers has indicated an even wider association on the basis of hypersensitivity between the rheumatoid type of arthritis and such hitherto obscure conditions as scleroderma, dermatomyositis, polyarteritis nodosa, and acute disseminated lupus erythematosus. Bohrod (1947) has described their essential lesions as "rheumatoid granulomata," and Cecil (1946) refers to "these rheumatoid diseases of the collagen matrix." In clinical practice we have been impressed on more than one occasion by the association of scleroderma with a rheumatoid type of arthritis (Ellman and Parkes Weber, 1948). While the experimental production in rheumatic fever of anaphylactic pulmonary lesions with a peculiar type of "pneumonitis" has received some attention (Rich and Gregory, 1943, 1946), pulmonary and other lesions are now known to occur also in such widespread systemic diseases as polyarteritis nodosa (Daley and Miller, 1946) and disseminated lupus (Rakov and Taylor, 1942, Klemperer, 1948).

So far as the lung lesions are concerned, Gouley (1938) and Neuburger *et al* (1944) found histologically in "rheumatic pneumonia" three successive stages of change in the interalveolar septa: (1) fibrinoid necrosis in collagen, (2) infiltration with round cells, plasma, and giant cells, (3) fibroblastic proliferation and fibrosis. All these are essentially changes in the collagen matrix.

In support of the anaphylactic or hypersensitivity theory in the mechanism of production of these lesions Rich and Gregory were able to carry out necropsy studies on patients with serum sickness. They found changes in the endocardium, myocardium, and pericardium, all of which were histologically indistinguishable from those in rheumatic fever. Further experiments have been carried out on animals rendered anaphylactic with horse serum or egg albumen. Similar changes were again produced in the heart, and more recently pulmonary lesions characterized by interstitial fibrinoid necrosis.

From those observations, and in view of the widespread systemic nature of some of the cases, it will be understood

how the term "rheumatoid arthritis" is really misleading. "Rheumatoid disease" may be open to criticism, but it is preferable as the parent term, with joint lesions seen as the principal clinical manifestation, in the same way that the term "gout" describes the parent lesions of a metabolic dysfunction whose principal clinical manifestation is the joint involvement.

The three cases we have described exhibit common features in what appears to have been the development of lung lesions during the early active phase of the joint process. In Case 3 the onset of the lung disease is known from the serial radiographs to have occurred nine months after the onset of the polyarthritis, and attention was drawn to it by the symptomatology of cough, dyspnoea, and weight loss initially ascribed to possible pulmonary tuberculosis. All investigations disproved this diagnosis, likewise the possibility of Boeck's sarcoidosis. A consensus of expert opinion on the radiological appearances of the lung reticulation has favoured the diagnosis of polyarteritis nodosa, and the relationship of this condition with the "rheumatoid granulomata" is of considerable interest. It would be fair to postulate a hypersensitivity phenomenon involving equally the joint and lung tissues. In Case 2 symptoms referable to the pulmonary disease occurred six months after the onset of the polyarthritis. The radiological lung changes were those of a basal reticulation. Unfortunately no radiograph of the chest before this time is available.

In all three cases the clinical course is similar, the joint lesions preceding the pulmonary lesions, and one might not unreasonably assume, without wishing to appear to be in any way dogmatic, that the joint and lung lesions are manifestations of one and the same pathological process.

Studies of the two cases that came to necropsy present certain features in common, also suggestive on histological investigation and predominantly evident in the lungs, where fibroblastic thickening of the alveolar walls (chronic fibrosing pneumonitis), plus infiltration by mononuclear, plasma, and occasional polymorph cells, was present, the kidney in Case 1 revealed fibrinoid necrosis in a few blood vessels. This case also showed similar changes in blood vessels at another site—namely, in the fatty tissue immediately next to the heart muscle. In both cases the section of the lung has shown a chronic fibrosing type of "pneumonitis." It was certainly not sarcoid, and at the same time was rather different from the "rheumatic pneumonia" of acute rheumatic fever. Our own opinion was that the lung changes could not be dissociated from Gouley's Stage 3, already described, where interalveolar fibroblastic proliferation predominated on histological examination. However, it cannot be held that this histological change is specific by itself, but its being coupled with the necrosis found in the muscular wall of the artery in other parts of the body suggests that an acute arteritis had been present in the past as part of a fibrinoid necrosis. These arterial changes were found only after careful and thorough search, and, taken together with the lung lesions, would appear to suggest a widespread disseminated lesion. Further than that we are not prepared to go from the pathological studies alone. However, on clinical grounds the similarity of the lung lesions is undoubted, and many features of one are mirrored in the other.

It is of interest to note that Klemperer has recently reported a case of disseminated lupus erythematosus with lung lesions where the histology was of a fibrinoid necrosis in the interalveolar septa. A similar pathological process has been observed in the allied group of so-called granulomata already noted.



### Summary

The widespread systemic nature of certain cases of rheumatoid arthritis has been noted

It is suggested that 'rheumatoid disease' is a preferable term whose principal clinical manifestation is arthritis

Three cases of joint and lung lesions are recorded and it is suggested that they are among the clinical manifestations of 'rheumatoid disease'

We are greatly indebted to Dr J N Cumings for help on the pathological side, for the photomicrographs, and for his close study of the histology of Cases 1 and 2 to Dr A Signy for much helpful criticism, to Professor Robert Platt for kindly allowing us to include Case 2, and to Dr G Batten for help on the radiological side

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## CORD COMPLICATIONS DURING PREGNANCY AND LABOUR

BY

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Considering the length and slenderness of the umbilical cord, it is surprising that cord complications do not occur more frequently. Prolapsed cord, which is the commonest of these complications, occurred in only 50 cases out of a total of 10,000 deliveries—i.e., 0.5%. Munro Kerr (1937) gives an incidence of 0.25% and DeLee (1943) an incidence of 0.8%.

The 42 cases treated in this hospital are listed in Table I. Eight patients were admitted with dead babies and therefore received no special treatment. A summary of the 50 cases is given in Table II.

Three of these cases are given in further detail because of their special interest.

**Mrs A** aged 35 2-gravida, married 12 years. Admitted with severe pre-eclamptic toxæmia, not improved by rest. Surgical induction performed at 28 weeks with a Drew Smythe catheter. At half dilatation, hand and cord prolapsed beside head. Attempt at reposition unsuccessful. Forceps then applied to foetal head but though small, the head was too large to be delivered through the thick half dilated cervix. Two incisions made in cervix and infant, weighing 2 lb 8 oz (1.13 kg) delivered alive. Cervix sutured. Mother made uneventful recovery. Infant lusty at birth and remained healthy. It is now 2 years old.

This delivery may appear to be rather heroic treatment but is justified by results.

**Mrs B** aged 28 2-gravida admitted at term as a transverse lie. External version to vertex performed, and patient sent to x-ray department for pelvimetry. Membranes ruptured and cord prolapsed while patient was on the x-ray table. Patient was returned to the ward in the knee-chest position and the cord replaced through a quarter-dilated cervix. Pulsation in

the cord returned after reposition and caesarean section was performed. At operation the cord was found to be stretched tightly across the head, and the child was still born.

**Mrs C** aged 26, primigravida term. Breech presentation at term. Fairly easy external version to vertex, but foetal heart became irregular and slow. A few minutes afterwards the heart returned to normal and the foetus was left as a vertex with the head above the brim. Membranes ruptured early in labour, and the foetal heart became irregular. The head was still high but when it was pushed down into the pelvis with a hand above the symphysis the foetal heart stopped altogether returning as soon as the pressure was released. It was decided that this was the so-called 'occult type' of prolapsed cord—i.e. the cord was probably nipped between the foetal head and the pelvic brim. Caesarean section was therefore performed and a healthy infant obtained. The cord was twisted loosely round the child's body, but the actual prolapsed loop was not seen, as it would be dislodged as the head was delivered.

Apart from prolapse of the cord, the following cord complications can occur.

### Cord Round Neck or Body

With an active foetus, or with repeated antenatal versions, the umbilical cord may be wound round the neck or body once, twice, or three times. Only once have I seen the cord four times round the neck of the foetus. Strangulation *in utero* or during birth may result. This condition of the cord is usually recognized only during labour or at delivery, but in a few cases it can be diagnosed during pregnancy. The following three cases illustrate the point.

**Mrs D** aged 35, primigravida, breech presentation at term. Easy antenatal version, but directly after version the foetal heart dropped to 80. The heart rate gradually returned after a few minutes and the foetus was left in the vertex position. Labour started spontaneously a few days later. Delivery was normal, after a rapid labour, but the infant was stillborn, with the cord tightly round the neck twice.

**Mrs E** aged 35, primigravida. Breech presentation at 36 weeks. Easy antenatal version, but foetal heart stopped. Foetus was turned back to a breech, and the heart restarted as soon as the foetus reached the transverse position. This manoeuvre was repeated the following week with exactly the same result. It was therefore concluded that the foetus had a short cord or the cord was round the neck and that this would cause delay in delivery and probably stillbirth. It was decided to deliver by caesarean section at term. At operation it was found that the cord was twice round the infant's neck and that there was an area of haemorrhage at the root of the cord where it had been pulled upon during the antenatal version. The infant was healthy, weighing 6 lb 15 oz (3.15 kg) and the mother made an uninterrupted recovery.

**Mrs F** aged 34, primigravida term. Breech presentation. Easy version, but foetal heart dropped to 100 and became muffled and irregular. The foetus was turned back to a breech. A second attempt a few minutes later produced the same result so that the foetus was left as a breech. In this case also caesarean section was performed at term, and the cord was found to be wrapped round the neck and body. The infant was healthy, and the mother made a satisfactory recovery.

Over-activity of the foetus with self-strangulation is illustrated by the next case.

**Mrs G** aged 29, 2-gravida. At 38 weeks the head was high and the foetal heart was heard. The patient was healthy with a blood pressure of 120/68, no albuminuria, and a negative Wassermann. Three days before term the foetus became increasingly active and then all movements suddenly stopped. Labour began spontaneously, and when the membranes ruptured the liquor was deeply stained with meconium. The infant was stillborn and macerated, and the cord was wound tightly round the neck three times, with tension at the umbilicus.

Cord round the neck, apart from causing foetal distress, may prevent engagement of the head and so increase the duration of labour.

TABLE I—Summary of Cases

Gravid	Maturity (Weeks)	Presentation	Dilatation	Method of Delivery	Infant
2	28	Head hand and cord	Half	Dilatation of cervix forceps delivery	2½ lb (1.13 kg) Healthy lived
1	28	Vertex	2 fingers	Internal version after reposition of cord	3 lb 9½ oz (1.63 kg) S.B.
1	38 (twins)	Breech (1st twin)	Full	Normal delivery	4 lb (1.8 kg) S.B.
3	28	Transverse		Internal version to breech normal delivery	2½ lb (1.13 kg) S.B.
2	28	Vertex acute hydramnios		Normal	2 lb (0.9 kg) S.B.
1	34	Vertex			4 lb 4 oz (1.9 kg) Healthy
4	36				4 lb 13 oz (2.18 kg) Healthy
1	SI with Drew Smythe catheter for toxæmia				
1	31				
1	Acute pyelitis		1 finger	Caesarean	3 lb 15 oz (1.78 kg) Alive, but died during 1st week
1	36				4 lb 10 oz (2.1 kg) Healthy
2	Induction with DSC for toxæmia Term	Transverse	Three-quarters	Internal version to breech manual delivery	7 lb 6 oz (3.35 kg) Healthy
1		Vertex	Half	Dilatation of cervix and forceps delivery	7 lb 1 oz (3.2 kg) Healthy
2	40		Three quarters	Forceps	7 lb 10 oz (3.46 kg) S.B.
3	40		Prolapse during surgical induction	Internal version to breech normal delivery	9 lb 9 oz (4.34 kg) S.B.
2	40		Full	Caesarean not contemplated because of patient's general condition	
1	40			Forceps	6 lb 12 oz (3.06 kg) Healthy
1	40		One-quarter	Caesarean	6 lb 2 oz (2.78 kg) Healthy
1	40	Breech	Full	Forceps	7 lb (3.17 kg) Healthy
2	40	Vertex	One-quarter	Caesarean	6 lb 9 oz (2.98 kg) Healthy
2	40	Breech	Full	Forceps	7 lb 7 oz (3.37 kg) Healthy
1	40	Vertex			7 lb 8 oz (3.402 kg) Healthy
1	40				5 lb 10 oz (2.55 kg) Healthy
4	36		One-quarter	Caesarean	7 lb 5 oz (3.32 kg) Healthy
2	SI for toxæmia	Transverse	Full	Internal version to vertex forceps	7 lb 3 oz (3.26 kg) Healthy
5	40		Three-quarters	Internal version to breech manual delivery	11 lb 3 oz (5.07 kg) S.B.
2	36			Forceps	7 lb (3.17 kg) S.B.
2	40	Vertex		Caesarean	6 lb 12 oz (3.06 kg) S.B.
2	40		One quarter	Caesarean	5 lb 11 oz (2.58 kg) Healthy
1	34 (twins)	Breech (1st twin)	Full	Manual delivery with forceps to after coming head	Healthy
1	40	Vertex	Onset of labour	Caesarean	6 lb (2.72 kg) S.B.
1	40		Half	Forceps on full dilatation	6 lb 4 oz (2.83 kg) Healthy
2	40		Full	Forceps	7 lb (3.17 kg) S.B.
2	40	Transverse	Onset of labour	Caesarean	7 lb (3.17 kg) Healthy
2	40 (twins)	(2nd twin)	Full	Internal version to vertex forceps	8 lb 4 oz (3.74 kg) Healthy
1	40		Half	Manual dilatation of cervix internal version to breech manual delivery	
1	40 (twins)	Breech (2nd twin)	Full	Manual	5 lb 8 oz (2.5 kg) Healthy
1	40	Vertex		Forceps	7 lb 9 oz (3.43 kg) Healthy
5	40				7 lb (3.17 kg) S.B.
2	36		One third	Manual dilatation of cervix and forceps	4 lb 12 oz (2.15 kg) Alive
2	SI for toxæmia and Rh neg blood				Died of cerebral haemorrhage
2	40		Three-quarters	Manual dilatation of cervix forceps	7 lb 8 oz (3.4 kg) Healthy
2	38 (twins)	Hand foot and cord (2nd twin)	Full	Internal version to breech manual delivery	6 lb 11 oz (3.03 kg) Healthy
2	36 (twins)	Transverse		Internal version to breech manual	3 lb (1.36 kg) Alive Died of cerebral haemorrhage
2	SI for toxæmia	Vertex		Normal	4 lb 4 oz (1.9 kg) Alive Died of cerebral haemorrhage
2	37 (twins)				6 lb 8 oz (2.95 kg) Healthy
3	SI for toxæmia		During induction of labour	Caesarean	

TABLE II—Prolapsed Cord

Method of Delivery	Alive	Stillbirth	Neonatal Death	Total
Natural forces	4	9 (8 dead on admission)	1	13
Forceps	13	5	1	18
Caesarean	6	2	—	8
Internal version and manual delivery	5	6	1	11
	28	22	3	50

Living 56% S.B. 44% NND 3% Foetal salvage 50%

Mrs H, aged 24, primigravida, had a labour lasting 48 hours. There was delay in descent of the head, and foetal distress developed early in the second stage. Forceps were applied and a healthy infant delivered weighing 6 lb 11 oz (3.03 kg). The cord was short and was round the neck preventing descent of the head and causing foetal distress.

Mrs I aged 38, primigravida, term. Head high throughout pregnancy and during labour. Pains fairly strong after rupture of membranes but no descent of the head. Foetal distress appeared and caesarean section was performed. At operation the cord was found to be wrapped four times round the neck, preventing descent of the head and causing foetal distress. The infant was shocked at birth, but recovered. The mother made an uninterrupted recovery.

Foetal distress was the only sign in the following three cases.

Mrs J aged 32 primigravida 36 weeks. Foetal distress at full dilatation. Foetal heart rate 80 with passage of thick meconium. Forceps delivery performed. No disproportion

but cord round the neck and both arms, and pulsating feebly. Pulsation restarted strongly when cord was unwound. The infant was healthy and weighed 4 lb 7 oz (2 kg).

Miss K aged 23, primigravida. Severe pre-eclamptic toxæmia at 36 weeks, with spontaneous onset of labour. Labour progressed normally until the end of the second stage, when the foetal heart suddenly stopped. The infant was still-born, with the cord very tightly round the neck.

Mrs L aged 34, primigravida. Labour started spontaneously, but foetal distress occurred at the beginning of the second stage. Forceps were applied, and a healthy infant weighing 5 lb 15 oz (2.7 kg) was delivered. There was no disproportion, but the cord was wound tightly round the neck causing foetal distress.

These last few cases show the importance of frequent auscultation of the foetal heart throughout the second stage of labour and the need to have everything ready for a rapid forceps delivery in such an emergency.

A short cord may cause delay in descent of the head and foetal distress, but I have not had a case of this sort requiring operative intervention in my series.

**True Knot in the Cord**—A true knot in the cord is often seen after delivery, but in most cases it is formed during delivery, when a loop of cord is slipped over the infant's head or shoulders. True knots can occur *in utero*, especially after antenatal version or with a very active foetus. I have myself seen only one case of a true knot which might have been the cause of stillbirth, but this occurred in a patient with severe pre-eclamptic toxæmia. There was a tight knot in the macerated cord, but death

might have been due to maternal toxæmia. A case of true knot in the cord causing foetal distress during labour was described recently by Price (1947).

### Incidence of Cord Complications

Cord complications are rare, but the foetal death rate due to them is very high. DeLee gives the foetal death rate in treated cases as 40-50% and in untreated cases as 80%. In this series the foetal death rate in treated cases was 40.5%. Because of this rarity it is difficult for any one person to get sufficient experience in the treatment of cord complications, and this is one reason why the foetal death rate will always remain high. Early diagnosis and adequate treatment are essential, and two necessities for treatment are an intelligent and well-trained nursing staff and a resident obstetrician.

### Diagnosis and Treatment

The diagnosis of prolapsed cord may be made first by seeing the cord presenting at the vulva. More commonly the first indication is slowing of the foetal heart, the cord being found on routine vaginal examination. In a few cases the cord is nipped at the pelvic brim and cannot be felt with the examining finger.

The treatment of prolapsed cord depends on the presence or absence of foetal heart sounds and on the degree of dilatation of the cervix. In all cases except where the cord is macerated the patient is placed in the knee-chest or the high Trendelenburg position while preparations for further treatment are being made. Pressure on the cord can further be relieved by the operator inserting two fingers into the vagina and holding up the presenting part above the brim. Even when pulsation has ceased, relief of pressure on the cord sometimes restores the circulation, but the foetus cannot stand total obstruction of the cord for more than a very few minutes. The knee-chest or Trendelenburg position, though useful in an emergency, can be maintained for only about 10 to 15 minutes without great discomfort to the mother. When operative intervention is to be used the patient can be anaesthetized in the Trendelenburg position, and should be moved only when the operator is ready to begin. If the cervix is as much as three-quarters dilated, then immediate delivery is performed—by forceps in a vertex presentation or by manual delivery of a breech or transverse lie. In such circumstances there is no need to waste time trying to replace the cord. When the cervix is less than three quarters dilated the difficulties are increased.

Reposition of the cord can be attempted, but this, easy in theory, is very difficult in practice, and the actual reposition may cause further foetal distress by pressure and kinking. If this method is tried the hand is the best repositor, but the cord is an awkward and slippery organ with a will of its own. The foetal heart must be counted at least every five minutes after reposition in case of further pressure as labour progresses. In one case it seemed to me to be a good idea to give an injection of nikethamide into the cord before reposition, and this was tried. The foetal heart improved in tone and frequency, but the cord continued to bleed at the site of injection.

Internal version to a breech presentation is not satisfactory. The idea is that the breech fits less closely into the brim and so leaves more room for the prolapsed cord. In practice this does not work very well, because the cord may become entangled round one leg or the child may sit down on it at the level of the brim.

Caesarean section is the method of choice when the cord is pulsating strongly, the cervix is less than three-quarters dilated, the operating theatre is available and the operation

is quick. It is no good subjecting a mother to caesarean section for prolapsed cord if the infant is going to be still born. She can have her stillborn infant without the added discomfort of an abdominal incision.

There were no maternal deaths in this series. Though the foetal results are poor, they can be improved by constant watchfulness on the part of the midwife and by quick and accurate diagnosis by the obstetrician, with minimum delay in treatment.

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## HODGKIN'S DISEASE CONFINED TO THE JEJUNUM

BY

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The subvariety of Hodgkin's disease affecting the alimentary tract, though by no means excessively rare, is better described in journals than in textbooks. A clear outline of its features, with references to date, is given by Havden and Apfelbach (1927), who selected 26 previously reported cases for their study, adding three of their own. Spleen and liver are not enlarged and nodules within them are uncommon, mesenteric but not other groups of lymph nodes are involved, lesions in the gut tend to be multiple and small, starting in the mucosa or submucosa, forming an ulcer with an enclosing "wall," and quickly penetrating muscular and serous coats; histologically, lymphocytes and endothelial cells predominate, while Sternberg-Reed cells are scanty, symptoms are intestinal and not of long duration, death often follows perforation or haemorrhage, or is cachectic.

The case here presented conforms to the above description and is very similar to that published (without necropsy) by Badia (1943) of a woman aged 29, with a six-months history, who died seven weeks after a loop of small intestine had been resected and diagnosed histologically as Hodgkin's sarcoma of the jejunum.

### Case Report

A ship's chief wireless operator, aged 51, was admitted to the Dreadnought Seamen's Hospital on June 20, 1947, with a three months history of burning epigastric pain two hours after meals, loss of 1 st 7 lb (9.5 kg) in weight, loss of appetite, and weakness of the legs when climbing ships' ladders. Vomiting had not occurred and the bowels were regular. Except for pneumonia eleven months before (Long Island College Hospital), his health had been good. His mother had died at 84 (heart) and father at 79 (cancer of stomach), two brothers and a sister were alive and well. Physical examination revealed wasting, very bad teeth, and no palpable glands. Weight was 6 st 12 lb (43.5 kg), blood pressure 110/70 mm Hg, pulse 100 (and higher there after), temperature 96.2° F (35.7° C), but between 99 and 102° F (37.2 and 38.9° C) thereafter.

The following investigations were carried out. Radiograph of chest chronic bronchitic changes. Barium meal stomach and duodenum appear normal. Barium enema there is a filling defect in the sigmoid. Urine no chemical or microscopical abnormality. Wassermann and Kahn negative. Alcohol histamine meal no abnormality. Blood count haemoglobin 53% (Haden), RBC 3.2 millions and WBC 6,200 per cmm, colour index 0.83. Sedimentation rate (Westergren) 24 mm at one hour, 49 mm at two hours. Blood urea 30 mg per 100 ml. Plasma protein 5.25% (albumin 3%, globulin 2.25%).

= 13) Occult blood strongly positive benzidine test, negative amidopyrine test Sputum four times negative for tubercle

Carcinoma of the colon was diagnosed and laparotomy was performed (July 8) after transfusion had raised the haemoglobin level from 47 to 61% (Haden) An adhesion between sigmoid and small intestine was freed and the resulting hole in the colon closed An abscess cavity was found in the mesentery to which small intestine was bound The loop and mesentery



Photomicrograph showing the disease process in the mesentery adjacent to the surgically excised loop of jejunum ( $\times 190$ )

were resected, and from them a histological diagnosis of Hodgkin's disease was made (see Fig) The patient died on the fifteenth post operative day

The specimen removed at operation consisted of a piece of jejunum 24 cm long with attached mesentery up to 5.6 cm wide, incised about midway, where the gut was thickened, haemorrhagic, and bunched by fibrosis, to show a brawny bile stained excavation, defined by scar tissue, extending 3 cm from the incised gut into the mesentery A ragged gaping hole, occupying most of the free aspect of the thickened jejunum opposite this excavation, was caused by surgical dissection There was thus evidence of a swollen, fibrosing, penetrative lesion encircling the middle 5 cm of the loop of gut resected and rather abruptly demarcated from the remaining gut, which was of normal appearance The lymph nodes in the attached mesentery were enlarged up to 1.3 by 0.8 by 0.7 cm and showed uniform yellow glistening cut surfaces

The necropsy showed general purulent peritonitis, with a number of tough fibrous adhesions in addition to the fibrin binding loops of the small gut These adhesions were found to occur on the serosal aspect of ulcers in the upper jejunum where roughening slight puckering, and fibrous tags but no tubercles were seen There was no gross abnormality of stomach or duodenum The uppermost lesion was a shallow ulcer, 1 by 0.6 cm, situated a few centimetres beyond the duodeno jejunal flexure with its axis transverse to that of the gut with its floor short of the muscularis, and with its edges sheer This was the only ulcer without accompanying fibrous adhesions on the serosa The next lesion, 80 cm below the flexure, was the anastomosis representing the site of the surgically excised loop, with considerable sepsis in the adjacent mesentery Below this, at a point 140 cm (pre-operatively 164 cm) from the flexure, came a group of four small ulcers (largest 0.8 cm diameter) of punched-out appearance, with sloughing floors piercing the muscularis An area, about 2.5 cm in diameter, of faint white stippling could be seen infiltrating the mucosa throughout this ulcer-bearing zone when it was brightly illuminated, there were also a few slit-like erosions about 1 mm long Below this group 170 (pre-operatively 194) cm from the flexure was a single girdle-type ulcer measuring 2 by 0.8 cm with its floor penetrating the muscularis and with its edge raised swollen and mainly rounded, smooth, and tense looking though eroded in places Another similar

though slightly smaller ulcer occurred 200 (pre-operatively 224) cm below the flexure Next below this, 230 (pre-operatively 254) cm from the flexure, came the largest of the lesions, which consisted of an ulcer, 6.2 by 2.2 cm, encircling the gut for about two thirds of its circumference In contrast with the other lesions the ulcer floor was in this case hypertrophied, so that it stood up as a plateau 0.3 cm above the mucous membrane, it was coarsely nodular, fissured, and stained slate-colour by altered blood A smooth, tubular, and slightly undermined edge, itself ulcerated in places, surrounded it like a rail Two more adjacent punched-out ulcers (the larger measuring 1 cm in its longer axis, transverse to the gut) were found beyond this at a distance of 240 (pre-operatively 264) cm below the flexure, and here the lesions ceased A short Meckel's diverticulum was present The colon was distended by pale sprue-like faeces Mesenteric lymph nodes were moderately enlarged up to 1.8 by 1.5 by 1.2 cm and showed uniform yellow cut surfaces There was no enlargement of other groups The spleen was firm and below normal size

### Comment

The histology of Hodgkin's disease is present only in sections of the gut lesions, the affected piece of mesentery (where the picture is most typical), and the larger of the mesenteric lymph nodes In most sites the changes appear to be early and rather atypical In some nodes large Hodgkin-like cells are scattered diffusely and the cells of the sinuses are proliferating without destruction of normal architecture Fibrosis in the nodes is only beginning, and typical giant cells have to be searched for Sections of the ulcers show necrosis of the base with replacement of all coats by granulation tissue containing a variety of chronic inflammatory cells together with small hyperchromatic giant cells, and affected by pyogenic infection to varying degrees In one cut, at the periphery of an ulcer, the muscularis mucosae is seen breaking up beneath a mucous membrane which is still intact In all regions there is a prominence of cells of reticulo-endothelial type, as noted by Hayden and Apfelbach (1927) and also mentioned in the report of a case of gastric Hodgkin's disease by Jungmann (1943) These cells, tending to be diffusely scattered, to show distinctly eosinophil cytoplasm and rather well-defined outlines, sometimes look at first glance like the expected infiltration of eosinophil polymorphs, which is not a noticeable feature in these sections Intravascular plugs of granulation tissue, sometimes mixed with thrombus, are common and often contain small hyperchromatic giant cells It seems possible that this invasiveness for blood vessels may by infarction play a part in the production of the ulcers Vascular penetration has been photomicrographed both by Donati and Bragaglia (1942) in an intestinal case and by Bini and Parvis (1940) in a gastric case Histological malignancy is stressed in both these cases In the present case the short history, the small hyperchromatic giant cells, and the cellular rather than fibrotic reaction are held to indicate simply an early and acute form of Hodgkin's disease

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The Third Annual Report of the Liverpool Cancer Control Organization has some interesting figures relating to cases of cancer referred for treatment during 1944 Among 2,668 cases the disease was so advanced as to render treatment impracticable in 993 Of the 1,675 cases in which treatment could be undertaken there were only 971 in which the condition was at a sufficiently early stage to warrant radical curative treatment being attempted Of the 971 cases so treated 72 subsequently died of intercurrent disease or were lost sight of There remained for review 899 patients, of whom 617 were alive three years after the start of treatment

## Medical Memoranda

### Traumatic Rupture of Bowel in Inguinal Hernial Sac

Factors predisposing to this injury are irreducibility of the hernia, distension of the bowel, and nipping of the bowel against the unyielding surface of the pubic bone. A truss may therefore be a source of danger if it does not completely control the hernia and if the patient sustains an injury which presses the truss and, in turn, the bowel back against the pubis.

The following case shows that rupture of the bowel may occur in these circumstances and may lead to a fatal result.

#### CASE HISTORY

A man aged 76 had worn a truss over a right oblique inguinal hernia for 30 years. On April 4, 1947, he tripped and fell forward on his face. Immediately after the fall he felt a dull constant pain in the hernia, which had come down. He therefore reduced the hernia without difficulty, although a small lump remained. Severe epigastric pain soon began, at first this was made worse by movement and relieved by lying down, but within half an hour of the accident it appeared to assume a colicky nature, causing the patient to roll in agony. He vomited twice and went to bed. During the night the pain gradually subsided, but vomiting was repeated three or four times. The next day he experienced stabbing pains on movement, and when he coughed there was pain in the hernia. Vomiting continued and his doctor attempted, without success, to reduce the lump in the right inguinal region.

On admission to hospital 30 hours after his fall the patient complained of generalized abdominal pain, which was constant and was made worse by movement. His bowels had not functioned since the accident.

On examination he was very short of breath and had a constant cough with white mucous expectoration. The tongue was dry and furred, temperature  $97.6^{\circ}\text{F}$  ( $36.4^{\circ}\text{C}$ ), pulse 106, respirations 45. *Cardiovascular* Blood pressure 135/85, no oedema, slight cyanosis, cardiac enlargement to left (apex beat  $4\frac{1}{2}$  in (11.25 cm) from midline). *Lungs* Normal percussion note, breath sounds vesicular, basal rales, scattered rhonchi, both inspiratory and expiratory. *Abdomen* Did not move on respiration, slight distension, no visible peristalsis, generalized tenderness and rigidity, most pronounced on right side, marked hyperaesthesia in right iliac fossa. *Per rectum* Tenderness in pouch of Douglas, no mass palpable. Over the external inguinal ring there lay a slightly tender lump,  $1\frac{1}{2}$  in (3.75 cm) in diameter. A diagnosis of peritonitis due to perforated gut was made.

*Operation*—Laparotomy was undertaken under spinal anaesthesia (Dr Henry Williams). A right lower paramedian incision was made and the tissues at the lower end were stripped down so as to expose the inguinal lump. This consisted of bruised and oedematous sac and appeared to be empty. On incising the peritoneum a large quantity of thin purulent fluid escaped. Coils of small intestine were found lightly adherent and bathed in pus in the right iliac fossa. Generalized peritonitis was present. A perforation  $\frac{1}{2}$  in (1.25 cm) in diameter a few feet above the ileocecal junction was closed with two layers of sutures. As the patient's condition at this stage was very poor the neck of the empty hernial sac was rapidly closed with cotton sutures applied from the abdominal aspect and the abdomen was closed with drainage of pelvis and wound. On return to the ward he was in poor condition—blood pressure was 60, pulse 120, with frequent dropped beats.

On April 6 the blood pressure was 130/78, pulse 110, apex rate 120. Auricular fibrillation occurred and 'digoxin,' 0.5 mg intra-venously was given, being repeated eight hours later. Next day the patient was irrational. Pulse was regular at 120. At 10.30 a.m. he suddenly became dyspnoeic and cyanosed, and died. Permission for necropsy was refused.

#### COMMENT

There is no direct proof that the ruptured loop of ileum occupied the hernial sac at the time of injury. On the other hand the initial pain was felt in the hernia and abdominal symptoms did not supervene until after its reduction. These facts together with the bruised condition of the sac as seen at operation make it highly probable that rupture took place in the sac. It is suggested that the bowel was nipped between the head of the truss and the pubic bone.

I am indebted to Dr J. Thomson, medical superintendent of Dunedin Hospital and to Professor Gordon Bell for permission to publish these notes.

DOUGLAS R. K. REID, M.D., F.R.C.S.Ed.,  
Late Resident Surgical Officer and Tutor  
Dunedin Hospital, New Zealand

### Sternal Swelling as a Presenting Sign of Hodgkin's Disease

Goldman and Victor (1945), in reviewing the silent features of Hodgkin's disease, stress the importance of involvement of sternal nodes in that they accept it as a pathognomonic sign. All glandular areas may be enlarged in Hodgkin's disease, but involvement of sternal nodes might easily be overlooked and it is my impression that the frequency of its occurrence is not appreciated enough. Experience has taught me to look for enlargement of the sternal nodes along the course of the internal mammary artery in each case suspected of this disease. If these glands are involved there may be a firm swelling at the level of the second and third intercostal spaces fixed to the underlying chest wall.

In treating several hundred cases of Hodgkin's disease with deep x-ray therapy I can say that roughly 15% of my patients at some stage showed an involvement of these lymph nodes, but in one case I found it to be a presenting sign. The following is the history of this case.

#### CASE REPORT

On Nov. 20, 1946, a girl aged 15 attended the out-patient department of the Coventry and Warwickshire Hospital complaining of general weakness, slight loss of weight, unproductive cough, and a painless "swelling on the chest" which had appeared two weeks previously.

On examination a firm swelling lateral to the sternum was found at the level of the second intercostal space. Clinical examination of chest, heart, etc., revealed nothing abnormal. Radiography of chest and ribs revealed an azygos lobe and normal pulmonary fields, no enlargement of hilar glands, and a destructive lesion in the anterior end of the second right rib. A blood count showed 12,800 white cells, otherwise there was no abnormality. The E.S.R. was 23 mm in the first hour. The Wassermann reaction was negative.

The patient was admitted to hospital, and exploration of the swelling revealed caseous yellowish tissue and destruction of the medial end of the second right rib. Suspicion of a tuberculous lesion was raised. The histological report was as follows: "No evidence of tuberculosis, but the picture is obscured by very pyogenic inflammatory changes. Examination of her sputum showed no tubercle bacilli."

On Feb. 12, 1947, she developed pain in the right chest and the external swelling became larger without fluctuation. She was again admitted, and a further radiological examination revealed destruction of the anterior end of the second rib and of the sternum and also general loss of translucency of the right lung without mediastinal shift, the left lung was normal. Bacteriological investigations of the aspirated pleural fluid, which was greenish yellow, showed only scanty mononuclear cells, and the culture was sterile. There was a leucocytosis of 29,600 with 91% polymorphs. A diagnosis of acute osteomyelitis was considered. A biopsy of the rib was taken, and the pathologist reported: "Section shows very severe pyogenic inflammatory changes, there is no evidence of tuberculosis or of a neoplasm in the material submitted." There was no response to a course of penicillin treatment.

The patient was then referred to me for an opinion about the advisability of x-ray treatment. Reviewing the case with the pathologist, he reported further on the slide, as follows: "At first sight the histological appearances suggest a subacute pyogenic inflammatory lesion, with an unusual predominance of eosinophils, but closer inspection reveals large numbers of reticulum cells often multinucleate of Dorothy Reed type. The appearances are those of Hodgkin's disease partly obscured by gross superimposed pyogenic infection. At the end of March, 1947, an enlargement of a gland in the left axilla was noticed, and its biopsy section showed all the classical features of Hodgkin's disease at an active and relatively early stage of development. Later, enlargement of other glandular areas of discrete nature developed, giving the characteristic appearances clinically."

This case illustrates the value of enlargement of sternal nodes in the diagnosis of Hodgkin's disease. The striking feature in this particular case is the early appearance of this sign, indeed it was the only abnormal physical sign at the time of the first examination.

I wish to thank Mr H. Morton Anderson and Dr W. C. MacCWilson for their co-operation in this case.

K. SICHER, M.D., D.M.R.  
Radiotherapist, Coventry and Warwickshire Hospital

#### REFERENCE

Goldman, L. G. and Victor, A. W. (1945) *N.Y. St. J. Med.* 45: 171

## Reviews

### ENDOCRINOLOGY

*Textbook of Endocrinology* By Hans Selye, M.D., Ph.D., D.Sc., F.R.S. (Canada) With a preface by Professor B. A. Houssay (Pp 914 illustrated \$10.24) Montreal Acta Endocrinologica, Université de Montréal

In a tribute prefacing this important book Professor Houssay writes "This book represents a critical and concise, orderly presentation of what is most important in the immense collection of facts of modern endocrinology, a science so vast that there are specialists in numerous branch problems and few who know this entire field of study", and "the limitations of space [actually 868 pages] oblige him to be somewhat dogmatic in his exposition". Selye, in his introduction, writes that his book represents a miniature of an 'encyclopaedia of endocrinology' that is being prepared for publication and for the basis of which some 250,000 articles and books have been collected.

The first chapter, on the steroids, is a fascinating physico-chemical introduction to the science of endocrinology made relatively intelligible to the uninitiated by symbolic figures and diagrams. The theme is an appropriate bridge into the next chapter on the adrenals with their multiple secretion of vital steroids by the cortex. The author discusses fully the glycogen corticoids (corticosterone group) and enumerates four tests for gluco-corticoid activity. His account of the pituitary adrenocorticotrophic hormone is perhaps inadequate in view of many interesting papers that were presented at the 1947 meeting at Atlantic City of the Association for the Study of Internal Secretions. Of acute Addison's disease he writes that "death may occur with epileptiform or angina-pectoris-like symptoms"—a rather uncharacteristic description, as might be said of what he calls the chronic nervous or solar type of chronic Addison's disease in which melancholia or spells of acute delirium with maniacal excitement occur. These statements are not untrue but an urge for classification and sub-classification somewhat obscures the clinical background and phase upon which such features may be superimposed. In his account of the physiology of the posterior pituitary he might have said more about the important work of Verney and colleagues on the effect of water (or deprivation of it) and salt and of emotion on the secretion of the antidiuretic hormone. A very interesting section—on a topic often neglected—is the one on the effect of extirpating various endocrine glands on the structure of the hypophysis. The remark that Simmonds's disease is about four times more frequent in the female sex is an understatement and does not take into account Sheehan's fundamental work in Glasgow, to which, surprisingly I could find no reference. The inclusion of Simmonds's disease together with pituitary dwarfism and Frohlich's syndrome in omnibus descriptions of the symptomatology, etc., of anterior-lobe hypofunction has obvious disadvantages. The statement that 'Cushing's disease may be difficult to differentiate from Cushing's syndrome' leaves the reader rather puzzled.

The account (including historical aspects) of the morphology, pharmacology and physiology of the ovaries is refreshingly stimulating and clear. He mentions ovarian agenesis and its description both by Turner and by Albright. There is an imposing classification of ovarian tumours, and he describes some associated clinical pictures. He does not discuss the fundamental work of Scowen on the nature and treatment of metropathia haemorrhagica. The experimental and clinical chapters on the pancreas and parathyroids are well done and among the best in the book but the chapter on hypothyroidism is not adequately illustrated. He briefly mentions the important influence of tracer studies with radioactive iodine on the physiology and pathology of thyroid function. The therapeutic use and limitations of radioactive iodine in carcinoma of the thyroid are indicated but this physico-chemical approach to the cure of thyrotoxicosis does not appear to have caught my eye, nor is there reference to the valuable work of Rawson and colleagues in this field at the Massachusetts General Hospital. A striking and useful chapter on the general-adaptation syndrome ends this remarkable book. To point out certain minor inadequacies or to say that the historical experimental and

physiological sections are more satisfying than the clinical, is no detractor from a splendid achievement in the complex and rapidly changing field of endocrinology, for which we are fundamentally indebted to Selye.

S. LEONARD SIMPSON

### THE MENTALLY UNBALANCED

*Le Déséquilibre Psychique Ses psychoses—sa morale* By Dr J. Borel (Pp 380 360 francs) Paris Presses Universitaires de France 1947

The subject of this monograph, the 'mentally unbalanced' is one of the wide clinical concepts for which French psychiatry has shown a preference since the last century. It comprises a large group of constitutional mental abnormalities ranging from the mild eccentricity sometimes seen in artists to severe forms of antisocial psychopathy, drug addiction, and alcoholism. Borel sees transitions everywhere and so many mixtures of symptoms that he does not even attempt to discriminate and form distinct groups. The book is mainly descriptive and its strength is the lively and clear portrayal of people suffering from all types of personality deviation. He compares their differences with the individual variations among normal human beings and mainly blames heredity for their abnormal conduct.

In the first part he discusses the mentally unbalanced person describing his mental make-up in terms of the common-sense psychology unfortunately so often used in clinical psychiatry which prevents the development of more precise and scientific discussion of the psychology of the abnormal. In the second part he draws attention to certain psychotic reactions characteristic of and modified by the unbalanced nature of the underlying personality. In the last part, on the patients' morale he describes and discusses criminal propensities and especially sexual perversions due to lack of psychological balance. Final remarks on the legal responsibility of the mentally unbalanced are inspired by the same philosophical attitude of the wise and experienced clinician which distinguishes the work as a whole.

W. MAYER-GROSS

### DYING AND RESUSCITATION

*Dying Apparent Death and Resuscitation* By S. Jellinek, M.D. (Pp 263 10s 6d) London Baillière, Tindall and Cox 1947

This book is written in a discursive style which is seldom found in modern scientific works. In parts this contributes towards interest and readability, but it tends also to obscure the fundamental points which are considered to be at issue. The author has obviously studied his subject deeply and read widely. One of the results is that we are given momentary glimpses of the death beds of Rabelais, Goethe, Verdi, Napoleon, Seneca and others, and are reminded of the comments of Homer, Cicero, Tacitus, and our own Will Shakespeare. These are all very interesting, but one is left wondering whether the author is explaining these historical and even legendary references in terms of his own beliefs or whether he is advancing them as evidence of the validity of these beliefs. We are not likely to be increasingly alarmed by the knowledge that Chopin stipulated that in the event of his (apparent) death he should be subjected to "the heart incision" before being consigned to the tomb, and surely it is inaccurate to suggest, as the author does that at the present time there are many doctors who make the same stipulation.

Professor Jellinek does well to remind us that we should ponder over the origin of the process of dying as distinct from the commonly accepted causes of death. But it hardly seems necessary to make a mystery of why people with heart disease die suddenly while engaged in heavy work. It would seem that the 'originator' is as apparent in such cases as in those of biophysical and biochemical origin which he instances. And again, why must it be accepted that a sudden collapse after an injection of eucaine (benzamine hydrochloride, dose unspecified) is of psychical origin or due to the pain of acupuncture? In discussing the 'scope and potentialities of the psychicum in the dying process' the author tends to become metaphysical. When he says that in the death agony "the life-principle and the indwelling tension (potentiality) in each separate cell seek to maintain themselves," that may or may not be intelligible to physiologists. But what are we to make of the contention that the very fact that it is movements of the emotions which are



of ethical significance—the worlds of ethics and of energy are entirely foreign to one another—which fill up the content of consciousness and lend to the clinical emotional phenomenon (the intra-rational interval) its peculiar stamp, will hardly permit of the assumption that the course and starting point of this emotional activity is to be sought in the physical sphere, i.e. in energetic processes of the nerve cells. Professor Jellinek wishes to tell us I think that on earth, as in heaven, there are more things than are commonly dreamed of in our everyday medical philosophy.

The second part of the book is a review of present day life-saving procedures and indications for their improvement, which the author considers is much needed. In particular he stresses the dangers which attend the elimination of intrathoracic negative pressure by unnatural compression of the chest and, conversely the beneficial effects on the circulation of methods which more successfully simulate the natural variations of pressure within the thorax. It is strange, therefore, to find no reference in the book to Eve's rocking method of artificial respiration which appears to meet the requirements of the author more closely than any of the other methods described. Professor Jellinek concludes with a plea for a national centre for life saving information and technique through which the subject might be taught more widely, more thoroughly, and with greater emphasis on the practical problems involved.

SYDNEY SMITH

### DEVELOPMENT OF SCIENCE

*An Outline of the Development of Science* By Mansel Davies  
The Thinker's Library No. 120 (Pp 214 illustrated 3s 6d)  
London: Writts and Co. 1948

The author of this agreeable little book is a physical chemist, but he has not yielded to the temptation to give much more space to the wonders of physical and chemical science than to the less spectacular history of the biological sciences. His book is admirably written, and could, I think, be read with pleasure by any intelligent person. The two or three pages devoted to modern bacteriology and immunology are a model of accurate summarization although some may doubt whether, as a bacteriologist, Koch was second to Pasteur. Dr Davies quotes Bertrand Russell's sneer that Newton "was honoured by monarchs and in true English spirit was rewarded for his work by a Government post in which it could not be continued. Even Governments deserve fair play: it seems quite certain that Newton ardently desired the post which he was given and very doubtful whether even a modern police State could have forced him to go on doing work which he for psychological reasons no longer wished to do.

MAJOR GREENWOOD

In *A Handbook for Nursery Nurses* by Mrs A. B. Meering, SRN (Baillière Tindall and Cox, 17s 6d) there has been added for the first time into one book a reasonably complete account of all that a pupil nursery nurse needs to study. Mrs Meering, writing from her wide experience of nursery work, approaches the subject of training in child care from the practical side and seldom forgets that she is writing for young girls the majority of whom will not have had a vestige of scientific training. In the earlier days of nursery work most of the emphasis was on the physical care of the child and provided he was well fed, was kept clean and tidy, and put on weight it was thought that little more was needed. In recent years the pendulum has tended to swing in the opposite direction and the fascinating study of the growth of the child's mind and character has sometimes obscured the study of the care and protection of his very susceptible body. Mrs Meering holds the balance fairly between these two points of view, and the student who is guided by her book will make a good start towards learning to watch and care for a child as a whole personality—growing in mind and body. Her chapters on mental growth, play and child management would be helpful to mothers as well as to students and to not a few nurses and doctors. Some chapters—for example those on anatomy—are perhaps more detailed than necessary but they are useful for reference. On the other hand, the section on the cause of infection and its prevention might well be amplified. The subject is difficult to teach to the uninitiated, but it should be possible to make more use of the descriptions of nursery technique as a means of illustrating the methods of preventing infection since practically the whole of nursery hygiene has its basis in the ubiquity and troublesome habits of pathogenic organisms. However, this is a sound book even though as Prof Moncreiff says in his foreword one may disagree with the author on some points of detail.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Fractures and Orthopaedic Surgery for Nurses and Masseuses* By A. Naylor, Ch M., M.B., M.Sc., F.R.C.S. F.R.C.S. Ed. 2nd ed (Pp 296 17s 6d) Edinburgh: E and S Livingstone 1948

This edition contains new material on the use of penicillin.

*The Driving Forces of Human Nature* By T. V. Moore, Ph.D., M.D. (Pp 461 \$6 50) New York: Grunc and Stratton 1948

An introduction to the psychology of normal and abnormal emotional behaviour and volitional control.

*Practical Bacteriology, Hematology, and Parasitology* By E. R. Stitt, M.D., Ph.M., Sc.D., LL.D., and others 10th ed (Pp 991 50s) London: H. K. Lewis 1948

A textbook for the medical practitioner.

*Textbook of Genito-Urinary Surgery* Edited by H. P. Winsbury, White, M.B., Ch.B., F.R.C.S. (Pp 1,046 90s) Edinburgh: E and S Livingstone 1948

An illustrated textbook including operative details.

*Post-Mortem Appearances* By J. M. Ross, M.D., B.S., M.R.C.S., L.R.C.P. 5th ed (Pp 308 8s 6d) London: Geoffrey Cumberlege 1948

A short account for students and practitioners.

*Recent Advances in Therapeutics* By J. R. Goyal, M.B., B.S. 3rd ed (Pp 288 Rs 7 8) Delhi: Yugantar Press 1948

A practical summary of recent advances.

*Vision and the Eye* By M. H. Pirenne, D.Sc., Ph.D. (Pp 187 12s 6d) London: Pilot Press 1948

A short account of the structure and function of the eyes including discussion of colour vision.

*Handbook of Medicine for Final Year Students* By G. I. Walker, M.D., M.R.C.P. 4th ed (Pp 305 25s) London: Sylvio Publications 1948

*A Short Practice of Surgery* By Hamilton Bailey, F.R.C.S., F.A.C.S., F.I.C.S., F.R.S. Ed., and R. J. McNeill Love, M.S., F.R.C.S., F.A.C.S., F.I.C.S. 8th ed Part II (Pp 420 Complete set 52s 6d) London: H. K. Lewis 1948

This part is on the surgery of the alimentary system.

*On Life and Sex* By Havelock Ellis (Pp 282 17s 6d) London: Wm Heinemann 1948

Essays on the problems of sex in society.

*Therapeutic Social Clubs* Edited by J. Bierer, M.D. (Pp 71 6s) London: H. K. Lewis 1948

Articles by various authors on clubs for psychotic and neurotic patients, for the mentally defective, and for difficult children.

*Educational Sociology* By F. J. Brown (Pp 626 21s) London: Technical Press 1948

A textbook of the sociology and psychology of education.

*Proteins and Life* By M. V. Tracey, M.A. (Pp 154 10s 6d) London: Pilot Press 1948

An account of the structure and functions of proteins for the general reader.

*A B C's of Sulfonamide and Antibiotic Therapy* By P. H. Long, M.D., F.R.C.P. (Pp 231 17s 6d) London: W. B. Saunders 1948

A concise summary of the use of sulphonamides and antibiotics.

*New Biology* Edited by M. L. Johnson and M. Abercrombie (Pp 130 1s 6d) London: Penguin 1948

Articles for the non specialist on recent biological advances.

*Nursing Arts* By M. L. Montag, A.M., R.N., and M. Fisher, A.M., R.N. (Pp 603 17s 6d) London: W. B. Saunders 1948

An introduction to nursing for students.

# BRITISH MEDICAL JOURNAL

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## CHEMOTHERAPY OF CANCER

From the work of Fildes and Woods in 1940 emerged the "rational approach" to chemotherapy. The administration of the sulphonamides starves susceptible bacteria of *p*-aminobenzoic acid, which is essential to their metabolism, from this it was an easy step to suggest that analogues of known bacterial growth factors or essential metabolites should prevent or slow down the growth of micro-organisms and might prove to be of considerable value as chemotherapeutic agents. Several hundred analogues of compounds known to be of importance to the cell have now been synthesized, and many of them interfere with the growth of bacteria *in vitro*. To give one example vitamin K, 2-methyl-1,4-naphthoquinone, is an essential growth factor for certain fungi such as *Fusarium solani*. An active fungicide, 2-methoxy-1,4-naphthoquinone, was obtained from *Impatiens balsamina* by Little and his colleagues.<sup>1</sup> Its fungicidal action is due to the fact that it is a competitive inhibitor of vitamin K. Similar competition occurs between vitamin K and 2-chloro-1,4-naphthoquinone, the latter compound also acting as a fungicide.<sup>2</sup>

Many of the analogues which are active *in vitro*, however, are inactive *in vivo* or are too toxic to the host to be considered as possible chemotherapeutic agents. Only certain analogues of pantothenic acid, which is essential for the growth of some bacteria and the malarial plasmodia, retain the capacity to inhibit the growth of the same micro-organisms *in vivo* and at the same time fulfil the other requirements of a chemotherapeutic drug. Had not other antimalarial drugs such as chloroquine and "paludrine" been discovered during the war years it is probable that phenylpantothenone would be regarded as a considerable practical achievement for the "rational approach". Nevertheless, Sir Paul Fildes,<sup>3</sup> in opening a discussion at the Royal Society in June, expressed disappointment that this approach had yielded nothing of immediate chemotherapeutic value. This failure was attributed partly to the fact that the metabolic patterns of host and parasite were often so similar that an agent which interferes with a given process in one cell is only too likely to interfere with the metabolism of another cell, independent of species. The repetition of metabolic patterns is strikingly shown in the group of vitamins which make up the B complex. Members of this group have an extremely wide distribution as

essential metabolites and are necessary for the nutrition of organisms as dissimilar as man and virus. Although analogues of the B vitamins have been synthesized in considerable numbers they have not found a place in chemotherapy because they interfere with the same fundamental processes in both parasite and host. Only *p*-aminobenzoic acid has been used clinically for its chemotherapeutic effect: its action on pathogenic rickettsiae was discovered when it was found that sulphonamides, which are normally inhibited by *p*-aminobenzoic acid, promote the growth of rickettsiae. Analogues such as those of aneurin, nicotinic acid, and folic acid have in fact produced in laboratory animals syndromes indistinguishable from those produced by simple dietary deficiencies.

Despite many failures in the use of these analogues for the treatment of infections a very striking application has now been found for them in the chemotherapy of the Rous sarcoma in chickens. Little and his colleagues<sup>4</sup> showed that by maintaining baby chicks on a diet completely lacking in folic acid (pteroylglutamic acid) the development of the Rous sarcoma could be prevented in 100% of them, and in 40% of six-weeks-old birds. On the other hand, N-methyl folic acid, pteroyldiglutamic acid, and pteroyltriglutamic acid can all replace folic acid, since the growth of tumours is not prevented in birds fed on a diet free from folic acid and then injected with any of these compounds. If, however, folic acid was injected with *d*(-) glutamic acid, pteroylaspartic acid, pteric acid, N-methylptericoic acid, or PAB-triglutamic acid no tumours developed since these compounds were unable to replace folic acid. The next step was to feed chickens on an ordinary mixed diet and to determine the effect on the development of the Rous sarcoma of known analogues of folic acid. When injected into chickens in doses of 200 or 400 µg per day 4-amino-pteroylaspartic acid was found to reduce the number of chickens developing tumours by 60%. When 4-amino-folic acid with *d*(-) glutamic acid was used in a dose of 400 µg per day results were even more striking, for the development of all tumours was prevented, with a daily dose of 200 µg only half the birds developed tumours.

These findings are of very considerable interest. It is now four years since Leuchtenberger and his colleagues<sup>5</sup> first claimed that pteroyltriglutamic acid, the original *Lactobacillus casei* factor, inhibited the growth of sarcoma 180 transplanted in female mice. In later publications<sup>6</sup> they showed that folic acid itself had no therapeutic effect on spontaneous breast tumours in mice, whereas the fermentation *L. casei* factor caused complete regression in 30-40% of tumours.

These findings served as an impetus to the synthesis and to the clinical use of pteroyltriglutamic acid, now referred to as teropterin. This is a yellow powder, freely soluble in normal saline, apparently stable at room temperature, and completely painless on injection. No toxic effects have been observed in animals. More than 100 cases of malignant growths in man have been treated with this drug in Boston, and details of 20 patients who have received the drug in New York have now been reported by Lehr and his colleagues.<sup>7</sup> These patients, in an advanced state of the disease, have been under treatment for one to three

<sup>1</sup> J. Biol. Chem. 1948, 174, 335.  
<sup>2</sup> Guerillot, Vincent J. and Guerillot, Vincent M. C. R. Acad. Sci. Paris 1948, 227, 9.  
<sup>3</sup> Nature 1948, 162, 356.  
<sup>4</sup> Trans. N. Y. Acad. Sci. 1948, 10, 91.  
<sup>5</sup> Proc. Soc. Exp. Biol. N. Y. 1944, 55, 204.  
<sup>6</sup> Science 1948, 101, 106 and ibid. 1948, 104, 436.  
<sup>7</sup> Trans. N. Y. Acad. Sci. 1948, 10, 75.  
<sup>8</sup> Ibid. 1948, 10, 71.  
<sup>9</sup> Ibid. 1948, 10, 99.

months. In the majority of cases pain was relieved, and the patients became more cheerful and mentally alert. Some put on weight and have returned to work. Klainer<sup>8</sup> reports a striking improvement in a female patient with metastases in the spine secondary to a breast tumour which had been removed. She was given 150 mg of testosterone propionate daily in three divided doses and 60 mg of terofterin, each drug being injected intramuscularly. After nine months, still on terofterin, the patient was completely ambulatory. Radiographs of the spine showed regeneration of bone in the involved areas, and her only complaint was of mild aching in the lumbar spine after prolonged walking or standing. How far improvement was due to terofterin and how far to testosterone cannot yet be judged.

Terofterin has also been used by Meyer<sup>9</sup> in the treatment of leukaemia. In chronic lymphatic leukaemia no striking changes occurred with doses up to 200 mg a day. Subjective improvement was seen in two patients with myelomatosis, but no changes were found in the bone marrow. In cases of acute lymphoblastic leukaemia both terofterin and pteroyldiglutamic acid have reduced the white cell count. Improvement has also been observed in patients with acute myelogenous leukaemia treated with N-[4-[(2-amino-4-hydroxy-6-pteridyl)methyl]amino]-benzoyl]dl-aspartic acid or 4-(-N[(2-amino-4-hydroxy-6-pteridyl)methyl]-N-methylamino)benzoic acid. Both these compounds are said to act as folic acid antagonists. While no claim can be made that the rational approach to chemotherapy has yet provided a cure for human malignant disease, folic acid antagonists form a group of compounds which will well repay further intensive investigation.

## VITAMIN C

The daily amount of vitamin C required by man for health, the earliest clinical signs of deficiency, and the effects of a deficiency upon the healing of wounds are questions which a recent large-scale experiment was designed to answer. The results are contained in the preliminary report<sup>1</sup> of the Vitamin C Subcommittee of the Accessory Food Factors Committee of the Medical Research Council. The experiment, which continued for eighteen months, was carried out at the Sorby Research Institute of the University of Sheffield under the supervision of Professor H. A. Krebs. Twenty volunteers took part and between them submitted to 72 wounds. The experiment was a "blind" one in that neither observed nor observer was allowed to know whether any particular individual was deprived or protected—an essential requirement when clinical features are to be assessed. The diet was designed to be complete, well balanced, and relatively palatable, but it contained less than 1 mg of irremovable vitamin C. This vitamin was provided in tablet form, and after a preliminary period of saturation (70 mg per day for six weeks) dummy tablets identical in size, shape and taste were substituted. Three control subjects continued to receive 70 mg per day, seven received 10 mg per day, whilst the 10 remaining were completely deprived of the vitamin apart from the irremovable milligramme (or less). All these 10 developed symptoms of scurvy. Four of those

in the group restricted to 10 mg per day remained normal during the whole period (424 days in three cases and 252 in the fourth). In the three others there were no signs of scurvy after 160 days, and they were then totally deprived of the vitamin in order to find out whether the period of low intake had rendered them more susceptible. In two of these three a period of total deprivation for 71 days produced at most doubtful initial lesions (slight hyperkeratosis).

In order to determine the minimum effective curative dose six of the totally deprived who had developed clinical scurvy were given 10 mg of vitamin C per day, they steadily improved upon this very small dose. Some tests for physical fatigue, though not conclusive, showed small differences in favour of the group receiving 70 mg compared with those on 10 mg per day. There are thus good reasons for supposing that 10–11 mg is the minimum daily requirement for the human adult, but the subcommittee considered that it would not be unreasonable to recommend 30 mg as the daily requirement, since a margin of safety must be allowed for additional needs as yet very ill-defined. It is, however, obvious that intakes much less than this are not necessarily detrimental to health. The U.S. National Research Council's<sup>2</sup> figure of 75 mg was based upon saturation experiments and theoretical considerations, and there is no evidence to show that it has any advantage over 30 mg, which was the amount recommended by the League of Nations Technical Commission on Nutrition.<sup>3</sup>

When the records of the experiment were reviewed the earliest clinical sign of deficiency was found to be hyperkeratosis of the hair follicles. It occurred after 17–21 weeks, but it is not diagnostic of scurvy. The perifollicular haemorrhages which followed (at 26–34 weeks) are almost diagnostic. Swelling and haemorrhages of the gums appeared later (30–38 weeks) and less constantly, this seems to indicate that oral lesions should not be diagnosed as scurvy in the absence of skin lesions, unless hard ship's biscuit happened to be the main item of food. An interesting sign was a striking exacerbation of previously existing acne, this was noticed after 22 weeks. The volunteers were intelligent, fully co-operative, and under skilled psychiatric observation, yet it proved impossible to differentiate the deprived from the protected by subjective symptoms or psychological abnormalities. Tests specially designed to detect the apathy which is alleged to accompany scurvy gave negative results. There were no complaints of general pains or weakness. There is thus no experimental basis for the treatment of vague subjective symptoms by vitamin C.

Much biochemical information was acquired. The vitamin-C content of the blood plasma in the totally deprived group and also in those limited to 10 mg of the vitamin per day fell rapidly, but it proved practically impossible to decide from a single plasma test whether any particular individual was upon a fully protecting dose of 10 mg or totally deprived of the vitamin and either suffering from scurvy or in imminent danger of developing it. The estimation of vitamin C in the white corpuscles proved to be

<sup>1</sup> *Lancet* 1948 1 853

<sup>2</sup> *Repr. nat. Res. Coun. Wash.* 1943 No 122

<sup>3</sup> *Quart. Bull. Hlth. Org. L.N.* 1938 7 461

a more sensitive test, and there is hope that improvements in technique may make it possible to estimate accurately the vitamin C deficiency in any individual. At present, however, the test can be used only to exclude the diagnosis of scurvy. No abnormalities were observed in the capillary filtration rate, in the body weight, in the incidence of minor infections, in the appearance of the capillaries of the nail bed and of the conjunctivae, and in the dark-adaptation of vision. There were no haemorrhages apart from those in the skin or gums. The "cuff" tests for capillary fragility gave no consistent results. Haemoglobin estimations and erythrocyte and leucocyte counts, including differential counts, were normal and thus gave no support for the theory that vitamin C is a necessary factor in haematopoiesis. Platelets, bleeding time, plasma protein, albumin globulin ratio, blood urea, and phosphatase were all normal.

These hard facts will disprove some of the suggestions which have been made about the clinical and pathological signs of vitamin-C deficiency, but they will not obscure the fact that scurvy can be a dangerous condition. Three out of ten of the deprived subjects developed serious symptoms. The most severely affected of these suffered an exacerbation of a previously existing but symptomatically latent tuberculous spondylitis, another had an acute cardiac emergency with an ECG suggestive of coronary thrombosis, whilst the third had praecordial pain associated with heart-block (partial) not discovered in a previous ECG. All had recognizable scurvy at the time of the breakdown. The effects of vitamin-C deprivation on wound healing are more difficult to assess from the report, and it is to be hoped that fuller details will be published. The old observation that scars become red and livid was confirmed. It was established that when clinical signs of scurvy were present wounds often showed defects of healing, but in one individual suffering from scurvy a wound healed normally. In the group of subjects taking 10 mg of the vitamin per day no defects of wound healing were seen.

It would be almost impossible in this country to provide throughout the year enough vitamin C to meet the recommended American daily requirement of 75 mg, and it is satisfactory that the subcommittee found that such a large amount was not necessary for health. It is extremely improbable that any individual living in this country on the present rations can be in danger from vitamin-C deprivation. The available supplies of the vitamin can be best used by treating vigorously the real cases of scurvy so as to obtain rapid recovery, they should not be frittered away in treating a multitude of indefinite symptoms classified as 'preclinical' scurvy. It is significant that the clinical observers were seriously concerned about the condition of at least one of the volunteers during the acute cardiac emergency which followed a few hours after an agility test. It seems clear that any patient diagnosed as suffering from scurvy should be admitted to hospital and saturated with ascorbic acid as soon as possible. Some physicians might feel inclined to try out the curative effect of small doses in order to confirm the findings of this report but such an experiment should be undertaken only with a full sense of the responsibility incurred, for liability

to sudden death during the course of the disease was formerly well recognized. When the full report is published it will undoubtedly be a unique contribution to the literature on the subject, and the M R C is to be congratulated on providing the organization and funds which made the research possible.

## SURGICAL TREATMENT OF MENIERE'S DISEASE

Perhaps only those who have suffered from severe attacks of vertigo can realize their devastating effects, social and economic. Ménière's disease is probably the commonest cause of this disability, and treatment is within the province of both physicians and surgeons. Physicians claim that medical treatment can effect a cure, but whether this treatment takes the form of limitation of intake of water or of salt, of injections of antihistamine substances, or of the administration of drugs the results are by no means permanent and some are not appreciated by the patient. Surgeons have therefore applied themselves to the problem. In view of Charcot's statement in 1874 that vertigo ceased when deafness became absolute it appeared that section of the eighth nerve should cure the vertigo, and this was suggested by Ballance in 1894 and performed by Frazier<sup>1</sup> in 1904.

Since this date neurosurgeons have developed the operation of intracranial section of the nerve. In 1933 Dandy<sup>2</sup> described the results of section of the vestibular portion without division of the cochlear nerve, this cured the vertigo and left the hearing unaffected. This operation was adopted by many neurosurgeons with very good results, though it is not without risk to life. Ray<sup>3</sup> has recently advised section of the whole nerve, since he found that even if a few fibres of the vestibular portion are overlooked vertigo can persist. As most patients are deaf before operation, he believes that the subsequent complete deafness does not disturb them.

Otologists have devised operations to deal with the labyrinth itself, directly or indirectly. Long before Hallpike<sup>4</sup> demonstrated dilatation of the endolymph system in cases of Ménière's disease this condition was suspected, and operations were performed to diminish pressure in the internal ear. The earliest was lumbar puncture, and later drainage of the pontine cisterna was undertaken. In 1927 Portmann<sup>5</sup> opened the saccus endolymphaticus, and this gave successful results in a considerable proportion of cases. Direct drainage by opening the external semicircular canal was performed by Hautant, this procedure, combined with injection of absolute alcohol to destroy the function of the labyrinth, was advocated by Mollison<sup>6</sup>. Injection of alcohol through the footplate of the stapes was devised by Wright. All these operations had the disadvantage of destroying hearing. Later Cawthorne<sup>7</sup> opened the external canal by a specialized technique and removed the membranous canal, this cures the vertigo without affecting the hearing.

In a paper appearing elsewhere in this issue Mr E R Garnett Passe and Dr J S Seymour approach the problem from a different standpoint. They put forward a vascular cause to explain the hydrops of the labyrinth, and suggest that differences in the blood supply to different parts of the internal ear may well account for the relative differences between deafness and vertigo, in some cases vertigo is the important symptom, in others deafness. Since the vertebral

<sup>1</sup> *N Y St J Med* 1905 81 272 332.

<sup>2</sup> *Amer J Surg* 1933 20 693

<sup>3</sup> *Ibid* 1948 75 159

<sup>4</sup> *J Laryng* 1938 53 625

<sup>5</sup> *Ibid* 1927 42, 809

<sup>6</sup> *Acta Oto-laryng., Stockh*, 1939, 27 222

<sup>7</sup> *J Laryng*, 1943 53 363

artery supplies the internal ear, they approach the vessel through the subclavian triangle, and after dividing or stripping it they excise the stellate ganglion. Of the 12 cases operated upon all were relieved of vertigo, in all but one hearing was improved, and in nine the tinnitus was modified or relieved. This is only a small number from which to draw final conclusions, but the results are encouraging.

### TREATMENT OF ACTINOMYCOSIS

The treatment of actinomycosis, as of many bacterial infections, has twice been improved in recent years. Whatever view may be taken about the action of iodine in this disease it is generally conceded that the sulphonamides have a more pronounced and dependable effect. Penicillin proved to be even more efficacious and often actually curative. Decker<sup>1</sup> reviewed the earlier results of penicillin treatment and also discussed other forms of treatment. He described three cases typifying his own past experience with this disease: one was cured with penicillin, one uncured by iodine, and one was not diagnosed until the post-mortem examination. It seems probable that cases of actinomycosis still remain undiagnosed or are recognized at so late a stage as greatly to reduce the chances of successful treatment. Both the clinician and bacteriologist should never lose sight of the possibility of this infection in connexion with lesions of the jaw, ileo caecal region, and particularly of the lung, pleura, and chest wall. It is in the thorax that the disease is likely to extend furthest without recognition.

Although the anaerobic *Actinomyces* usually responsible for human infections has been recognized as penicillin-sensitive for some years, there is evidence that the degree of sensitivity varies and that this may affect the results of treatment. Owing to the slow growth of the organism and the difficulty of preparing a standard inoculum estimations of sensitivity can only be approximate, and all existing information on this subject requires review in the light of Holm's<sup>2</sup> studies, which are the most thorough hitherto made. He worked with 29 strains derived from 27 patients and determined their sensitivity to penicillin by cultivation in a liquid medium containing falling concentrations of the drug, controlling the test with an identical series inoculated with a standard staphylococcus. The inoculum used was of two kinds, either a suspension obtained by crushing a colony between two sterile slides or a whole colony. When suspensions were used, all the strains were found to have approximately the same sensitivity as the control staphylococcus. On the other hand, entire colonies of the majority of the strains were able to grow in considerably higher concentrations of penicillin—3 of them in 1 unit per ml, the highest concentration tested. By using colonies of different ages Holm demonstrated that resistance varied with colony size. Comparative tests with whole colonies and suspensions equivalent in quantity showed that this was due not just to the bulk of the inoculum, since the suspensions were more readily inhibited. This difference in result according to the dispersion of the inoculum was observed in a group of 20 typical strains. A smaller group differing in morphology, colonial characters, and in being CO-sensitive did not behave in the same way. As Holm points out, the response of the disease to treatment will depend on the capacity of penicillin to attack the organism in the form in which it exists in the lesions, and a sensitivity test using whole colonies as the inoculum is therefore the better guide. The fairly high degree of resistance of some strains when tested in this way may be the explanation for the lack of response

to penicillin in some cases. Patients infected with these strains require a larger dose for a longer time. Perhaps the only safe policy is to give large doses in all cases of actinomycosis unless or until the strain of *Actinomyces* can be examined by Holm's technique, a procedure calling for both time and skill. Thus to discuss the uses of chemotherapy in this disease is not to imply that it can replace surgery: drainage is essential, and excision, if feasible, is perhaps the most valuable measure of all.

### JET INJECTION

A new method of injecting drugs without either syringe or needle is based on the fact that an extremely fine high pressure jet of liquid can pierce the skin without producing pain. Hingson and Hughes<sup>3</sup> have described the apparatus required. The material for injection is contained in a small sterile metal ampoule shaped like a blunt-nosed bullet, with a hole about three-thousandths of an inch in diameter in its end. The ampoule, which is encased in an aluminium container to avoid contamination, is locked in the front of the instrument. This is shaped like the case of a large electric torch and contains a calibrated high tension spring controlled by a release button. When the spring is released it propels a plunger against the metal ampoule, from which liquid is forced through the minute opening as a fine high velocity jet under pressures varying from 2,300–3,500 lb per sq in (1,000–1,600 kg per 6.45 cm<sup>2</sup>). The injection is given by placing the blunt nose of the metal ampoule against the skin, which is stretched taut, and then releasing the spring. The jet which is forced out passes through the skin to a depth of 0.2–2 cm according to the site of injection and the texture of the patient's skin and tissues.

The advantages claimed for jet injection are complete freedom from pain in most patients and a considerable saving of time, since the ampoules are supplied already sterilized. There is obviously a use for such a device in clinics where many injections are given, as in immunization clinics, and perhaps diabetics and those receiving penicillin or streptomycin injections several times a day would prefer it to the hypodermic needle. Jet injection, however, has its drawbacks: if the skin is wet, or if the nose of the ampoule is not in close contact with it, or is tilted, the injection produces a cut and sometimes a blister. It cannot be used for carefully placed injections or for the injection of oily liquids. It is also possible that nerves and blood vessels near the skin might be injured by a high pressure jet. Perhaps the greatest drawback at present is the cost of the apparatus. Jet injection is, however, the first basic change in injection technique for nearly a hundred years. It has already been tried out in the USA in VD and tuberculosis clinics for the routine injection of penicillin and streptomycin.<sup>2,3</sup>

The Thomas Vicary Lecture entitled "The Portraiture of William Harvey" will be delivered by Mr Geoffrey Keynes before the Royal College of Surgeons of England (Lincoln's Inn Fields, London, WC) on Wednesday Nov 17, at 5 p.m.

The Mitchell Lecture will be delivered by Dr Robert Coope, FRCP, before the Royal College of Physicians of London (Pall Mall East, SW) on Thursday, Nov 18, at 5 p.m. His subject is "Tuberculous Enlargement of Intrathoracic Lymph Nodes and its Aftermath".

<sup>1</sup> *J. thorac. Surg.* 1946 15 430

<sup>2</sup> *Acta path. microbiol. scand.* 1948 25 376

<sup>3</sup> *Curr. Res. Anesth.* 1947 26 221

<sup>2</sup> Hingson R. A. and others *J. gen. Dis. Inform.* 1948 29 61

<sup>3</sup> Hirsch H. L. and others *J. Lab. clin. Med.* 1948 33 805

## STREPTOMYCIN

## THE PRESENT POSITION

A meeting of the Medical Society of London was held on Oct 25 for a discussion on streptomycin. Dr JENNER HOSKIN presided.

Dr JACK RUBIE gave a brief account of the treatment at Highgate Hospital by means of streptomycin of a group of cases of children with tuberculous meningitis. The scheme of treatment was as follows:

	Days
Intramuscular and intrathecal injection	28
Intramuscular only	28
Intramuscular and intrathecal	28
Rest	28
Intramuscular only	28
Followed by observation for two months or more, with further treatment if symptoms reappeared	

The daily dose intrathecally was 0.1 g in 10 ml solution, and intramuscularly 0.02 g per lb body weight. Some of the cases under treatment showed symptoms such as fever, anorexia, vomiting and skin rashes, but these, if at all severe and prolonged, were considered more likely to be due to the disease than to the drug. Two types of skin lesion were encountered: an urticarial eruption and an exfoliative dermatitis. The latter responded remarkably well to a local application of cod-liver oil. Ten of the cases were operated on to relieve hydrocephalus. It was difficult to give the indications for this operation, but so far it had been performed when there was a suggestion of relapse with headache, vomiting, and papilloedema. The puncture was made to approach the descending horn of the lateral ventricle, and a tube was inserted into the ventricle and allowed to drain. This was carried out as a prophylactic measure in children under 3. The lumbar puncture was continued for the streptomycin administration, and the operation used only for the purpose of mechanical drainage.

In a small number of cases sulphathione had been added to the streptomycin. This was given only intrathecally, and its diffusion into the blood by that route gave almost as high a blood level as by the intramuscular route. This drug was toxic at anything above the blood level of 10 or 12 mg per 100 ml. One case which had received this combined treatment had a normal cerebrospinal fluid 100 days from starting treatment, and a second case appeared to be doing well. In nursing these patients it was important, especially with those under 3 years of age, that they should not lie supine for long periods. The children were made to sit up and were kept on the move, and thus exudate was prevented from forming as a solid plaque in the posterior fossa.

Of 58 patients 22 had survived more than 120 days and 20 were doing well. Out of this number 44 had had the combined intramuscular and intrathecal treatment, and of these 19 were alive after 120 days and 17 were doing well. 10 had had intramuscular treatment alone, and among these there were only two survivors, and four others started with intramuscular treatment but when it was realized that this was not proving efficacious they were switched over to intrathecal treatment, and of these only one survived. He emphasized the improved results in early cases: out of 17 cases in which treatment was begun early 11 had survived. Dr Rubie showed photographs of a number of these children to all appearances normal who, he said, had been under observation for varying periods up to sixteen months. 12 of them now had a normal cerebrospinal fluid.

## Pulmonary Tuberculosis

Dr GEORGE MARSHALL referred to the Medical Research Council committee which was set up two years ago. [The committee's report appeared in full in the *British Medical Journal* of Oct 20 p 769.] Dr Marshall said that tuberculosis presented itself most obviously as a condition in which the remedy should be tried, because the death rate was so high. He said that any good results in such cases must indicate that streptomycin had value as indeed had been proved. On the other hand in tuberculous disease of the lung it was more difficult to assess the results of treatment, and it

was necessary to have control cases. The 55 patients who received streptomycin were given treatment on what later experience showed to be a rather massive scale—0.5 g of streptomycin four times in twenty-four hours. He believed that 1 g a day was sufficient.

The overriding difficulty in the streptomycin treatment of pulmonary tuberculosis had been the development of resistant strains of tubercle bacilli. This difficulty did not arise in the cases of tuberculous meningitis. If with the development of resistance something like, say, ten times as much streptomycin was required as when treatment first started it might not worry them, but within about six or eight weeks many strains of tubercle bacilli were found in the sputum which called for about a thousand times the original strength of streptomycin. As the strains became more resistant not only was the lessened effect demonstrable bacteriologically, but parallel with it was a decline in the clinical results. The patients were better at the end of three months than they were at the end of six. Some attempt had been made to 'dodge' this effect by altering the rhythm of treatment. During the first month relatively little resistance was found and during the second month much more, so that they thought of giving streptomycin for a month and then desisting for a month. Unfortunately this did not work. During the second month even if the streptomycin was discontinued the resistant strains increased. Perhaps it was better to give streptomycin for six weeks and then end it. It was a valuable remedy, but it must be used with discretion and not in pulmonary tuberculosis unless there was a real indication for it.

Many patients who were bad risks coughing up large numbers of tubercle bacilli, had done so well that it was possible to institute collapse therapy within six months, whereas this had not been advisable at the beginning. Tuberculous ulceration of the bronchi had healed completely under streptomycin, but the difficulty arising from cicatrization remained. A small number of cases of acute miliary tuberculosis had recovered. Toxic reactions took the form of urticaria and other forms of rash, and occasionally there was damage to vestibular function in some cases permanent, and affecting the middle-aged and elderly rather than the young.

## Bact coli Infections

Sir ALEXANDER FLEMING said that under treatment with streptomycin patients with miliary tuberculosis got well for a time but the disease returned. It might not be so great a misfortune that the supply of streptomycin was restricted, when supplies became more abundant, as they would, there might well be misuse and disappointment. Streptomycin had a powerful effect on *Bact coli*. The results within twenty-four hours in some infections were marvellous, but if the infection did not disappear within twenty-four or forty-eight hours the chances were that the *Bact coli* had become resistant. There was either a quick result or no result at all. It was a pity to tinker with the drug, and it was just as well in these *Bact coli* cases to give as big a dose as practicable and kill off the organism. Certain results indicated that given by the mouth streptomycin had a rapid effect in infantile diarrhoea. It was a local action: no big dose need be given. This might turn out to be a very important use for this drug.

Dr JOSEPH SMART said that streptomycin should be used with great care and under certain specified conditions. It was thought that it might be useful to administer by inhalation and placing the drug directly on the larynx, but this had proved disappointing. On the other hand, a tuberculous larynx treated with streptomycin intramuscularly responded very well. Cases of gross ulceration and massive destruction of the main bronchi were relatively rare, but it was quite common to get small superficial ulcers, and under streptomycin treatment such ulcers healed very well.

## Urinary Infections

Mr E. W. RICHES spoke of the use of streptomycin in tuberculous infections of the urinary tract. With the small amounts available it had not been possible to try it extensively. He had used it, however, in a number of cases which he would describe as complicated in the sense that they had some other surgical condition as well as the infection, they were cases



which had undergone prostatectomy or had stricture, and so on. In these cases they had concentrated on organisms which were not responsive to most other drugs, particularly *Ps pyocyanea*. They had given doses of 3 g a day, up to a total of 12 g. *Ps pyocyanea* had disappeared in 14 out of 20 cases, *B proteus* in 4 out of 4, *Bact coli* was not always eliminated. The good results did not mean that the urine was always sterile, because frequently at the end of treatment there were streptomycin-resistant organisms left. He did not think that the results of treatment should be assessed solely on the basis of the bacteriological picture. There had been a number of cases in which the clinical improvement had been most striking. It was not to be expected that a permanent sterilization of the urine would be obtained with streptomycin in the presence of any surgical lesion such as urinary obstruction, or in gross organic disease. The great value of streptomycin urologically was in post-operative or more particularly post-radiation infections. In cases such as carcinoma of the bladder treated with radium a *Ps pyocyanea* or *B proteus* infection might in the ordinary way go on for months, and in such cases streptomycin was of great value. In urinary tuberculosis there had been no proved cases of permanent disappearance of tubercle bacilli from the urine, but a certain amount of clinical improvement had been observed, as shown by increased capacity of the bladder.

Dr W G OAKLEY said that in treating by means of streptomycin diabetic patients with urinary infection it was important to get rid of the sugar before giving the drug. Dr BUTLER described a case of *Bact coli* infection in the urine with synovitis, both of which conditions cleared up under a total of 12 g of streptomycin.

Dr MARSHALL, in reply, said that it was the general experience that little was seen of resistant strains in treating cases of meningitis, but such resistance was almost invariable in pulmonary tuberculosis. To show the value of streptomycin in ulcerative conditions he mentioned the case of a woman who became pregnant. The tuberculosis officer advised termination of pregnancy. The woman belonged to a Church which frowned upon that procedure, and she went from bad to worse. After the birth of the child she developed a severe ulceration of the epiglottis, so that she could not swallow even saliva. A supply of streptomycin was obtained, and within five days of starting treatment she was perfectly comfortable, and within a few weeks the ulceration of the epiglottis had healed.

## THE PRACTITIONER'S PART IN THE ANTI-TUBERCULOSIS SCHEME

### A PLEA FOR PROMPT RADIOGRAPHY

BY

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There is in this country a widespread failure to tackle tuberculosis adequately, and it is the aim of this article to deal shortly with one vital aspect of the problem. Through no fault of his own the general practitioner in particular does not at present fully utilize his unique opportunities of raising the Tuberculosis Service from its present mediocrity to the highly efficient organization that it might and should be. It will be shown that avoidable delay in the diagnosis of pulmonary tuberculosis occurs in the doctor's surgery, and the significance of this will be indicated. The practitioner will then appreciate how indispensable is his co-operation and how best to use his opportunities of attaining early diagnosis.

#### Delay in Diagnosis

It was decided to investigate the histories of a series of cases to determine what period of time constituted the average delay in diagnosis and, if possible, to discover where the greatest delay occurred. For this purpose 345 consecutive cases were taken diagnosed in the years 1946 and 1947 and resident in the area

of North-West London administered by Willesden Chest Clinic. Of these cases 297 were referred to the chest clinic for investigation by their own doctors on account of symptoms. Of the 48 cases referred from a mass radiography unit 35 so far have proved inactive and symptomless, and of 13 which proved active 10 had symptoms. The first obvious fact arising from these figures is that 99% of the active cases in this series had symptoms for varying periods of time before attending the chest clinic and could therefore have been diagnosed earlier had action been taken immediately these had begun.

The histories of the patients who had consulted their own doctors (86%) were further analysed to discover (a) the time interval between the first suggestive symptom and first seeking medical advice, (b) the time elapsing after this first consultation before the patient's chest was x-rayed. The intervals in individual cases vary widely but the average figures for the whole series are as follows:

First symptoms to first consultation	17 months
First consultation to diagnostic x ray	40 "
Total	57 "

The immediately striking fact is not only the length of delay but that over two thirds of this delay occurs after the patient has reported symptoms to his doctor. Furthermore it is not only patients with relatively minor symptoms whose disease is missed. In 56% of practitioners' cases in this series there was a delay of over four weeks in spite of the patients reporting haemoptysis, severe chest pain, or cough lasting more than one month.

It is instructive to compare these figures with those given by Mann (1943) for a group of sanatorium patients:

Delay in consulting doctor	3.64 months
Delay before referred for consultation	3.28 "
Total	6.92 "

The difference between the two series of figures is so marked that a conclusion is probably justifiable in spite of their not being strictly comparable (the present figures refer to a chest clinic, Mann's to a sanatorium). The significant fact will immediately be appreciated although the patient's delay in attending a doctor's surgery is markedly less in this series, there has been no similar shortening of the period between the patient's first visit and a diagnosis being attained. It would appear that the general public is becoming more conscious of the significance of pulmonary symptoms and the necessity for x-ray examination, thus throwing into relief the deplorable fact that a similar event is not occurring in the ranks of our own profession.

#### Significance of Delay

Although pulmonary tuberculosis forms our major public health problem to day, the methods for its control are deplorably inadequate. The disease accounts for more deaths in the productively useful age group than any other single factor just at a time when an increase of industrial output is urgently required. It is widely recognized that the earlier in the evolution of the disease treatment is instituted the rosier is the outlook for the individual sufferer, yet the wait for sanatorium admission is in the region of six to nine months. The rise in the tuberculosis death rate in 1947 (*Lancet* 1948) is probably in part a reflection of this fact. What is not so well appreciated is that the majority of dangerous infections start acutely in young adults and may progress very rapidly indeed. Weeks or even days of delay in referring a patient for chest radiology are often of vital significance whilst the months indicated by these figures often mean that the patient is beyond treatment before his name can even be added to the bottom of the sanatorium waiting list.

I believe that the main reason for the failure to utilize even existing facilities for radiology is the widespread misunderstanding of the symptomatology of incipient tuberculosis. Sir James Mackenzie (1923) wrote, 'The defective education of the general practitioner renders him incapable of utilizing his opportunities for the progress of medicine, and I would add that extreme overwork too often exaggerates this position. Unfortunately both textbooks and the propaganda accompanying

the mass miniature-radiograph campaign tend to suggest that insidious onset is the rule, so that the practitioner may even be led to believe that early diagnosis is a Utopian objective

The figures given show that a definite symptomatology is present in practically every active case. Sometimes dramatic but frequently only slight, these symptoms may have to be diligently sought after, and unfortunately they are often suggestive of other less serious illnesses. Such mimicry may lull the practitioner into inactivity while possible suspicions are further dispelled when the patient, after an illness of acute onset appears to recover his former health wholly or in part (a common temporary occurrence). In addition physical signs may be absent or positively misleading. A statement made by Fishberg and quoted by Jessel (1941) is an apt ending to this short review. "There may be active phthisis without physical signs revealing themselves even to the best-trained specialist but there is no active phthisis without constitutional symptoms."

The ultimate remedy obviously lies in improved and more realistic teaching of the subject in our medical schools, but meanwhile more immediate results must be obtained.

### The Practitioner's Part

To obtain these immediate results is not difficult, every suspicious case should have chest radiology arranged when first seen. Leaving arrangements till a later date and "watching" the patient in the meantime is not adequate, for he may not return. To give practical help there is reproduced below the table (with slight additions) compiled by Toussaint (1946). The occurrence of any one of these symptoms or illnesses should lead to arrangements being made for immediate x-ray examination of the chest.

Cough	Including senile patients	Influenza out of season	Particularly females aged 15-30
Haemoptysis		Recurring febrile chills	
Dyspnoea		P.U.O.	
Laryngitis		Pleurisy, pleurodynia or pain in chest	
Lassitude		Loss of weight	
Bronchial catarrh		Anorexia	
Pneumonia		Amaemia and debility	
Ischio-rectal abscess		Amenorrhoea (unexplained)	
Erythema nodosum			
Phlyctenular conjunctivitis			

(The occurrence of meningitis, military or other type of active primary tuberculosis in an infant is an added essential reason for radiological examination of adult contacts)

It may be objected that without adequate bed accommodation for the tuberculous more frequent and early diagnosis will not improve our position. It is, however, only the early case that may be treated successfully at home—an alternative to the sanatorium which is bound to gain favour as the gratifyingly successful results now being obtained by pioneers in this field are appreciated. Toussaint, working in Bermondsey and Willesden and Heller in Hounslow (personal communications), have found that domiciliary collapse therapy initially undertaken as a necessity has not only proved highly successful and enabled some patients to return to work before their sanatorium vacancy would have become available, but the waiting list can in practice be almost ignored. A second criticism sometimes advanced is the suggestion that existing x-ray facilities would be inadequate to deal with the number of films needed. My only comment upon this is again to draw attention to the fact that even the existing facilities are not being fully utilized and to point out that the mass miniature-radiograph units could be more profitably employed. Hopelessly inadequate for their present job such machines are capable of going a long way to meet an increasing demand for chest radiography by practitioners.

Finally it must be realized that the general practitioner is the only really nationwide network immediately available to advise the sufferer and if he slips through this net insidious delay in diagnosis is inevitable. Time lost in a case of tuberculosis can never be regained and only the practitioner has the never-repeated chance to act on the complaint. The patient often looks fit, he may be well enough to have no physical signs, but he has a history to which he could not have sought advice. It is upon suggestive symptoms that the chest radiograph must be ordered.

For the practitioner, the medicine prepared when the patient is first seen is the only one that counts. —OVID

### Summary

It is shown that serious delay is usual in the diagnosis of pulmonary tuberculosis—on the average a total of 5.7 months, of which over two thirds occurs in the doctor's surgery (4 months). It is also shown that the common assumption that early tuberculosis is symptomless in the majority of cases is a fallacy. 99% of the active cases had symptoms for an average of 1.7 months before attending for consultation or radiography.

The great significance of this serious delay in diagnosis is stressed by reference to the present social importance of the disease, its rapidity of progression in the young adult, and the close correlation between prognosis and early diagnosis.

It is indicated that the general practitioner can materially improve this position by (a) realizing that incipient pulmonary tuberculosis has symptoms that may closely mimic other common and less significant illnesses, and that it may be impossible by physical examination alone to make a differential diagnosis, (b) above all, taking action in the shape of immediate reference for chest radiography in any case reporting the slightest symptoms. A table of symptoms is given as a guide to the type of case that should be so referred. Even existing radiological facilities are far from fully utilized.

Finally it is pointed out that if early cases are obtained they can be treated at once, in spite of the present bed position, if domiciliary collapse therapy is extended to more chest clinics. Practitioners therefore need not hesitate to proceed on the lines indicated. With their help the attack on tuberculosis could be highly successful without it no other method can at present reap more than a small part of the possible harvest.

My grateful thanks are due to Dr C. H. C. Toussaint, my former teacher and chief, for allowing me to investigate his cases whilst working at Willesden Chest Clinic. His inspired example and enthusiasm for early diagnosis led me to undertake this investigation.

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### THE MEDICAL PROTECTION SOCIETY

Sir Ernest Rock Carling, presiding at the annual meeting of the Medical Protection Society on Sept. 29, said that it was not yet known what effect the transfer of the whole profession to the Ministry of Health would have upon litigation. The Society had had considerable experience in dealing with Government Departments, particularly the Services and the Treasury, and nothing in its past experience led it to expect that the profession would be less likely to be attacked by disgruntled patients in the future than in the past. One feature of the National Health Service might be of advantage. Medical men and dentists were obliged under the Act to keep records. Nothing had prejudiced a practitioner's case more in the courts than lack of record-keeping. Often the Society had been obliged to say that there was no defence owing to the absence of proper records. A great deal of trouble had been experienced over broken needles, and the Society had obtained reports from metallurgists which in all the cases submitted showed that there were manufacturing defects which it was impossible for the user to detect. One question which arose not infrequently was whether a practitioner should tell his patient or the patient's relatives of some mishap. It was conceivable that there were circumstances in which it was not good on medical grounds to tell the patient but in the vast majority of cases it was important that the patient should be at once informed.

Dr G. M. Stoker was introduced as the new chairman of the council in succession to the late Dr Stebbing and Dr Alistair Reginald Franch as the new secretary in succession to Dr R. W. Durand. Sir Ernest Rock Carling and Mr W. M. Mollison were re-elected president and treasurer respectively, and all the vice-presidents and retiring members of council were re-elected. An extraordinary general meeting was then held for the purpose of passing certain special resolutions, one of which authorized the Society to cover visitors from abroad who came to work in British hospitals whether professors on exchange duty or practitioners coming over for postgraduate study.

## MEDICAL DEFENCE UNION

The annual general meeting of the Medical Defence Union was held at its offices 49, Bedford Square, W.C.1, on Sept 28, with the president Mr St J D Buxton, in the chair. Mr Buxton said that the Union had been trying to help its members in matters resulting from the National Health Service Act, particularly with regard to partnership agreements, compensation, and superannuation. A memorandum had been prepared on points arising under Sections 35 and 36 of the Act (prohibition of sale of practices and compensation). Another piece of work concerned the question of consent to operation, on which several members had requested information. The council had sought opinion from a leading counsel and had embodied his views in a memorandum available to members on request.

Provision had been made during the year, Mr Buxton continued, to overcome a difficulty which had caused the council much concern in the past. The council was now vested with full discretion in dealing with problems reported by members which affected the profession as a whole as well as the individual applicant. During the year the Union had dealt altogether with nearly 1,600 cases, 200 more than the previous year. The number of cases passed to the solicitors for attention was 117.

On the financial side the chairman said that already this year they had committed themselves to a sum in excess of £40,000 for indemnity and law expenses, and there remained more cases to be settled or fought in the courts. The highest figure until the year under review was in 1939, when these expenses were over £21,000. The subscription rate of £1 had not been changed, but at the meeting next year they might learn that the council considered it advisable to raise the subscription rate.

He concluded by expressing the indebtedness of the membership to Dr Robert Forbes and Dr P H Addison, the secretary and assistant secretary, and Mr Oswald Hempson, the solicitor. The treasurer (Dr Henry Robinson) drew attention to the fact that this year there was an excess of expenditure over income amounting to £1,340. The days when members could be charged a subscription of £1 and the Union show a handsome surplus at the end of the year were over, probably for ever.

Dr J C Matthews, Dr Henry Robinson, and Mr A Hedley Whyte the retiring members were re-elected to the council. The annual report, which was adopted at the meeting, dealt more extensively with the several matters touched upon by the president in his address.

## WEST LONDON REMINISCENCES

Dr W S C Copeman, who took office as president of the West London Medico-Chirurgical Society on Oct 22, devoted his address from the chair to the story of the West London Hospital and of the Society itself from their beginnings the one in 1856 and the other in 1882 down to 1923, leaving the last quarter of a century to a later historian. Many famous names came into the narrative—Henry Maudsley, Alfred Cooper (father of Sir A. Duff Cooper, until lately ambassador at Paris), David Ferrier, Lenthal Cheatle, Charles Ballance, Stephen Paget, and among early members of the Society, John Bland Sutton, William Bennett, Jonathan Hutchinson, Howard Marsh, William Jenner, Samuel West. In 1859 Mr Ernest Hart, later editor of the *British Medical Journal* and at that time a popular contributor to *Household Words*, was elected to the staff of the West London. In the following year Sir William Crookes, the discoverer of thallium, was appointed analytical chemist to the hospital. The annual report of 1862 stated that the total number of patients seen at the hospital was 4,000, of whom 3,000 were cured.

A member of the staff, Sir William Priestley, a descendant of the famous Joseph Priestley, was appointed physician-accoucheur to the household of Queen Victoria, and attained additional fame by sending in a bill for his attendance. The bill was paid, but Dr Copeman thought his court appointment

lapsed subsequently. The first reference in the hospital reports to the nursing staff was in 1882 when seven nurses were employed, but by 1898 there were 42 nurses. Those in training received no salary during the first year, £15 during the second, and £20 during the third, and any time off (including sick absence) outside the annual holiday of two weeks (three for sisters) had to be made up before they could matriculate.

The Society, formed as a result of a meeting of medical men convened at the hospital, took a high ethical line from the beginning. In its first year it expelled a member who had put 'advice gratis' on his plate. The Society was caught on a wave of bacteriological enthusiasm in the late 'eighties when, following an address by Mr (later Sir Charles) Ballance, it was put on record that "probably within measurable distance of time each medical school will possess its own bacteriological laboratory, and this subject will be included in the curriculum". At the next meeting attention was drawn to the unsatisfactory nature of the operating theatre at the hospital, where out of 69 cases in the hands of one surgeon 11 had died of sepsis or gangrene, although 'we are all antisepticians at the West London now'.

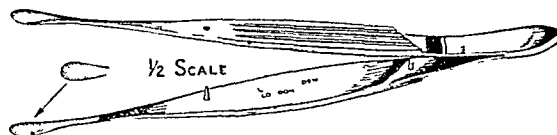
Meetings of the Society at about this period were notable for the length of the discussions. One result of this verbosity was that the editor of the *British Medical Journal* refused to print reports of the meetings for a couple of years until a deputation induced him to relent. Since that time, remarked Dr Copeman, it had been the custom to invite the editor to the annual dinner. In 1900 a special meeting was called by the Society to discuss the possible use of motor cars by medical men, but owing to the lack of interest nobody except the officers of the Society turned up. A better attended meeting discussed at length the topical question of the best form of saddle for the safety bicycle.

In concluding his survey Dr Copeman referred to the fact that in recent years a vigorous medical centre had grown up in the Society's area in the shape of the Postgraduate Medical School of London in association with Hammersmith Hospital. On this same evening the Dean of the School, Dr C E Newman, and a number of distinguished representatives of the staff were admitted to membership of the Society.

## Preparations and Appliances

### NON-TOOTHED DISSECTING FORCEPS

Mr RODNEY MAINGOT, surgeon to the Royal Free Hospital, writes: This non-toothed dissecting forceps is a modification of McIndoe's forceps and is adapted from the pattern commonly in use in the United States. It is useful for holding



Non-toothed dissecting forceps with spatula ends

intestines during anastomosis and also in suturing the various layers of the abdominal wall. As the cross-serrated spatula-like ends do not injure the tissues when used during dissection or suturing, it has many advantages over the ordinary forceps employed to-day. These forceps have been carefully made to my instructions by John Bell and Croyden, London.

The Chelsea Clinical Society held its opening dinner meeting on Oct 12 at the South Kensington Hotel, with the president Mr Nils Eckhoff, in the chair. Dr Geoffrey Evans read a paper on 'Empiricism in Medicine' before 75 members and guests. Dr Sundell, Mr Geoffrey Parker, Dr Daynes, and Dr Lankester took part in the discussion which followed.

## Correspondence

### H 11 in Malignant Disease

SIR—On behalf of the Hosa Research Laboratories we ask you to publish the following reply to the report (Oct 16 p 701) of the committee appointed by the Medical Research Council. The terms of reference of the committee were "to examine the evidence upon which is based the claim that H 11 is of value in the treatment of cancer in human beings." That evidence has not been examined.

1 *The report of the committee is based on only 27% of the 4700 (now 5600) cases*—These 139 cases out of nearly 5000 are not random samples as stated in the report since they were chosen from a selected group of 1000 cases which had died or ceased treatment and which in turn were selected in alphabetical order. The Laboratories are advised by a qualified statistician that the findings are therefore statistically fallacious and give no true impression of the total cases upon which the claim is based.

2 *The cases quoted from this selected group are atypical*—Brief case records of twelve typical cases showing H 11 inhibitory action are appended. These (and all other cases) have been treated and reported upon by doctors and hospitals independently of these Laboratories. All of these and many others were available to the committee but have been ignored.

3 *Advanced nature of the cases treated*—The report avoids mention of the fact that all the cases treated with H 11 were advanced inoperable considered untreatable, and rejected as hopeless by the clinicians concerned.

4 *Results too frequent to be fortuitous*—In such advanced cases the high frequency and great reduction in tumour size caused by H 11 reported in large numbers of cases ignored by the committee cannot possibly be attributed to reduction of inflammation. Whether or not necrosis as a mode of regression is responsible for disappearance of tumours treated with H 11 (for examples see appended cases) is of no material consequence to the matter under discussion.

5 *Relief of pain*—The high proportion of cases—e.g. 65%—is based on figures quoted by the committee—in which pain is relieved does provide evidence of the value of the treatment. This is indicated by the facts that (a) loss of pain frequently occurs in cases in which narcotics had previously been necessary, (b) relief of pain commonly effected by H 11 in advanced cancer cases is not produced in patients suffering pain due to other causes, (c) histological evidence at the Laboratories (ignored by the committee) indicates that the relief of pain is due to inhibition of peripheral tumour growth.

6 *The experimental work is outside the terms of reference of the committee*—On Feb 19 1945, the secretary of the committee wrote: "It is not within the terms of reference of the committee to examine the experimental evidence. Being accordingly concerned solely with clinical data."

7 *The experimental work which has been done on the Twort carcinoma is useless*—Table II shows that far more spontaneous regressions occurred in the controls than in the experimental animals. Which is supposed to be correct? Properly selected, treated tumours in these Laboratories show a spontaneous regression in 4% of less than 4%. The tumour forms a reliable one and the number of 'takes' varies from 80 to 90%. The Twort Laboratory reported a 90% take with the Twort carcinoma and a 100% take with the period under review.

8 *The correct dosage does not depend upon volume*—Since the investigators performed the correct dosage work on the other side of the world, the Hosa Research Laboratories even if they were to follow the Twort Laboratory would find the correct dosage of H 11 is a fact. It may also be noted that the correct dosage does not depend upon volume.

9 *The statement in the report that the Twort carcinoma is not followed by the Twort Laboratory is not correct*—The Twort Laboratory has reported that the Twort carcinoma is followed by the Twort Laboratory.

much as 10 x 13 mm. Such wide variation does not allow a reliable bio assay to be performed. In spite of the fact that some tumours were many times the volume of this, all nevertheless were given the same dosage—and that a random dosage.

(d) *Misleading and erroneous statements in the report*—Mention must be made of one in particular, that "Mr Thompson, however, rejected five control and two experimental animals for reasons unstated." On March 25, 1947, Mr Thompson wrote to the secretary of the committee fully explaining that these were rejected because fictitious figures had been given by the investigators to tumours which had not been measured. On June 30, 1947, every member of the committee was sent this information by the Laboratories. This statement should be retracted.

7 *Summary*—We consider that in view of the complete inadequacy of the clinical investigations and the unreliability of the experimental work no serious investigation has been attempted. The Laboratories have received no intimation from the Medical Research Council that the process of examining the evidence had been terminated nor that publication was proposed. The Laboratories remained completely unaware of the report and its publication until the issue of the *British Medical Journal* containing it.

Abundant and incontrovertible evidence obtained from doctors and hospitals and open to qualified inspection exists at the Laboratories that H 11 can inhibit malignant growth in the human being—We are etc,

J H THOMPSON

G J W OLLRENSHAW

Sunbury-on-Thames, Middlesex

### CASE REPORTS

Case 1—F, 56. Papillary cystadenocarcinoma (sectioned) R ovary. First seen late 1944, visible and palpable tumour from 1 in below umbilicus into pelvis. Radiographs suggested pressure on alimentary tract from without. Refused operation 14/3/45, consented. Subtotal excision only possible owing to deep fixation to broad ligament. 4/45, deep x ray 3 weeks. 8/45 abdominal swelling recurring diagnosed recurrence and 'untreatable'. Prognosis under six months. 6/9/45 commenced H 11 weight under 8 st, falling, severe hypogastric and R I F pain, some ascites increasing abdominal mass is above. 23/11/45, no pain for two months, weight 8 st 2 lb abdominal mass doughy, no ascites now. 10/4/46, weight 8 st, no pain, abdomen is sq, general condition good, housework. 23/3/47, examined under anaesthetic by surgeon who originally operated. No evidence whatsoever of carcinoma or obstruction or other abnormality. Ceased treatment 9/48 condition normal in all respects. Survival from commencing H 11 over 3 years.

Case 2—F, 51. Carcinoma (sectioned) of ovary, excised 10/6/41, leaving clearly defined peritoneal metastases *in situ*. Massive ascites, recurred post-operatively, with 6 paracenteses (average 3 gallons) before starting H 11 on 1/7/41. 9/41 ascites absent since 8/41 general condition improved, gaining weight. 4/42, ceased treatment, general condition normal, no ascites (no paracentesis since H 11). NAD abdomen or pelvis. Current report normal health sign and symptom free. Survival from commencing H 11 over 7 years.

Case 3—F, 47. Carcinoma descending colon, first symptoms mid 1945. 19/10/45 laparotomy inoperable primary, metastases in omental glands, left ovary. 31/10/45, commenced H 11 primary palpable 2½ x 1½ in some ascites, occasional blood and mucus per 17/9/46, steady general improvement, nil abnormal now found clinically. 4/11/46, ceased treatment. 8/48, normal in all respects. Survival from commencing H 11 3 years.

Case 4—M, 64. Osteosarcoma (sectioned) head of R tibia. Paget's disease present many years, sarcoma developed 11/44, confirmed by x ray 12/44. 6/45, onset increasing cough. 7/9/45, chest radiograph showed multiple secondaries upper and mid zones both lungs. 8/10/45 commenced H 11 dyspnoea increasing cough, occasional haemoptysis. 12/1/46 x ray, some improvement all opacities reduced general condition static. Radiographs on 19/6/46 8/11/46 30/7/47 *et seq* indicate lung metastases static to date. No haemoptysis since 4/46. General condition static. Survival from commencing H 11 3 years.

Case 5—M, 43. Carcinoma (sectioned) of rectum first diagnosed 2/46. 4/46 laparotomy and biopsy. Primary operable but liver metastases present, therefore colostomy only. 3/47 primary grown and now fills lumen of rectum now considered inoperable. 11/3/47, commenced H 11 intermittent local pain weight steady 8½ st, primary as above growing liver not palpable. 4/47, gained 3 lb weight, primary slightly softer more mobile, lumen larger, liver is sq. 12/12/47 seen by surgeon primary now freely mobile and considered operable. 29/1/48 complete abdomino-perineal excision of primary with ease, all observed malignant tissue removed. No evidence now of the liver metastases noted at first operation. Section

ocarcinoma, but showing central necrosis attributed to H 11 4/48, wound healed sign and symptom free 9/48, ditto Survival from commencing H 11 19 months

Case 6—F, 45 Epidermoid carcinoma (sectioned) of cervix uteri Onset of symptoms 3/44 Radium early 4/44 after biopsy 3/46, readmitted for vaginal haemorrhage Telangiectasis near ureteric orifice was only abnormality found 25/6/46, examined under anaesthetic and by cystoscopy telangiectasis still present, no other abnormality 1/47, small mobile hard mass R pelvis, 'certainly a recurrence', no further treatment possible 26/6/47, commenced H 11 weight 7½ st, falling intermittent severe pain (morphine), pelvic recurrence as above, growing purulent vaginal discharge 14/10/47, weight 8 st 10 lb no pain now (no morphine), recurrence not now palpable, hospital report 'improvement spectacular 29/2/48, ceased treatment 7/48, normal health Survival from commencing H 11 16 months

Case 7—F, 67 Malignant melanoma (sectioned) skin of arm, excised 1/4/46 Local recurrence, with secondaries on leg and face, early 1947 Radium 1/4/47 without response 30/9/47, commenced H 11 weight steady 9 st, no pain, all lesions growing 24/11/47, all lesions much smaller smaller ones having disappeared 20/1/48, no lesions found 29/2/48, ceased treatment 6/48, normal all respects Survival from commencing H 11 13 months

Case 8—F 50 Carcinoma of cervix uteri Onset of symptoms 2/47 4/47, deep x ray 19/6/47, commenced H 11, radiotherapist reported parametrium too much involved for deep x ray or radium, inoperable Weight 9 st mild pelvic pain, primary spreading 16/10/47, weight steady no pain now up 24/1/48, radiotherapist reported, 'There has been quite a striking improvement in the state of the pelvis presumably due to H 11 Feels better and pain not such a problem' 13/7/48, weight over 11½ st, no symptoms radiotherapist reported, 'Vault of vagina and cervix clear of malignancy, possible suspicious induration L uterosacral ligament I see no reason for interference with the H 11 therapy 1/10/48, gynaecologist reported cervix normal less parametrial infiltration Treatment continues Survival from commencing H 11 16 months

Case 9—F, 54 Carcinoma (sectioned) cervix uteri Onset blood-stained discharge 9/44 First reported 5/47 diagnosis prolapse 7/47 admitted, carcinoma diagnosed (biopsy) inoperable 26/8/47, radium for one hour only Discharged 4/9/47, no further treatment possible 20/9/47, commenced H 11 weight 9 st 2 lb, falling, no pain general condition fair, primary easily palpable, growing 24/1/48, weight 10 st general condition better, vaginal examination primary considerably smaller 11/5/48, gained 1 lb weight, no symptoms primary half its September size, no evidence of metastases 11/6/48, seen at hospital, no trace of carcinoma 26/7/48, ceased treatment 15/9/48, is q Survival from commencing H 11 13 months

Case 10—F, 41 Carcinoma (sectioned) L ovary Admitted 2/44, pelvic swelling 12/2/44, laparotomy malignant mass L lower pelvis involving L ovary and colon, inoperable, biopsy 23/11/44, commenced H 11 moderate lumbar and rectal pain hard mass filling pelvis but not palpable abdominally, glands palpable to L of sacrum growth apparently stationary since 2/44 21/4/45 no pain now, p.v. scarring abdominally is q 9/6/45 weight steady no pain few small hard masses in LIF scarring round cervix and corpus uteri, but now some mobility, slowly commenced cessation of treatment 27/4/48, alive, well symptom free, abdominal condition static, masses now very small hard resembling fibrous (scar) nodules Survival from commencing H 11 almost 4 years

Case 11—F, 62 Carcinoma L lower bronchus 7/5/43, chest radiograph L lung field increased opacity from above downwards, corresponding with lower lobe, greater towards heart indicates mass in lung, bronchus constricted at one point diagnosis as above 27/4/44, commenced H 11 primary radiologically stationary No previous treatment 25/8/44, condition static but gained 2 lb weight 1/45, x ray film, lung mass completely liquefied ceased treatment 4/45 all fluid absorbed 1/47 sign and symptom free since last report 4/48, is q Survival from commencing H 11 4½ years

Case 12—Transitional celled carcinoma (sectioned) of bladder 2/41-5/41 diathermy and deep x ray to primary with good result 9/41, secondaries in cervical and lumbar spine deep x ray 9/41-11/41 when liver first enlarged no further treatment contemplated 1/42 commenced H 11 weight under 7 st bed ridden, jaundiced severe spinal pain liver grossly enlarged with palpable nodules 15/3/42 weight 7½ st no pain now walking steadily, some work, liver palpable but now no nodules jaundice cleared 5/5/42, weight 8 st 2 lb no pain, walking out liver smaller and much softer 1/7/42, ceased treatment 8/42, cystoscopy bladder normal Radiograph entirely good 10/42 back at full time work 1/43, radiograph bony changes in spine stationary and sound, symptom free 25/6/45 weight over 10 st sign and symptom free, radiograph showed spinal lesions now completely re-ossified Reports subsequently to date indicate normal health, sign- and symptom free Radiotherapist commented no similar result obtained by radiotherapy alone Case published B.M.J. Aug 14 1943 (p 211) Survival from commencing H 11 over 6½ years

SIR,—I have read with much interest the report (Oct 16 p 701) of the Medical Research Council's committee on this mysterious substance H 11. The conclusions of the report are clearly overwhelming, yet I would venture to make one criticism there has been no controlled clinical trial of the substance

The Hosa reports published are obviously valueless from the point of view of assessing the effects of H 11. Nevertheless they would appear equally valueless in proving any lack of effect from H 11. Although the animal experiments are conclusive in themselves they are not necessarily in exact parallel to the condition in man. To quote but one example stilboestrol is an accepted treatment for human prostatic carcinoma and yet oestrogens are powerful carcinogens to experimental animal. I would hasten to add that, personally, I have no faith in H 11—I am, etc,

Twickenham Middlesex

DAVID WHEATLEY

SIR—In your leading article on the above subject (Oct 16 p 716) you say that many organic substances have been employed as growth controllers and that 'all have much the same effect. There is a transient diminution of pain improvement in appetite and sense of well being, and in many cases a diminution of the size of the tumour, often with softening at the margin or throughout. Very rapidly, however, the malignant process resumes its downhill course'

It is the claim of the Hosa Laboratories as I see it that one such substance named for convenience H 11, has been investigated in much more detail than has ever been done before and that in a few cases the inhibitory action has been so far intensified that incurable growths have actually disappeared and the malignant process has not resumed its downhill course. This is more than Mr Thompson would ever claim, but I have before me three case reports which appear to prove that such a claim can be made good. Even if there should be only these three cases in three thousand there would still be a case for inquiry, for this proportion far exceeds that claimed by anyone for spontaneous regression in human beings, a condition much talked about—but has any medical man in this country ever seen a case of cancer, histologically proved, which recovered after all treatment had been given up as hopeless?

I admit, of course, that Mr Thompson's results lack controls and stand up badly to statistical methods elaborated for the analysis of quite different material. He has inevitably been most severely handicapped by the fact that he is not a medical man, and by the further facts that the treatment is long uncomfortable for the patient, and unsuitable for administration in hospital. How could he obtain controls or meet a demand for scientific recording beyond the scope of the general practitioner? He has moreover felt obliged to confine H 11 treatment to those adjudged to be hopeless cases, beyond the reach of surgery or any radiation. Nor has he had any opportunity for testing different dosages on human beings. In spite of all these very heavy handicaps he has produced such results as those now before me and, for all I know has others similar. These cases do not appear among those published in your last issue. They were presumably missed by the random sampling procedure favoured by the committee of the Medical Research Council. Nevertheless that committee states 'Enough information is now available on which to form an opinion and further work on the records is not advised and your editorial announces a verdict of tried and found wanting'

I would suggest that Mr Thompson has been ill advised to rest his very moderate case (he claims no more than a significant inhibitory action) upon the slippery basis of animal experiments with the Twort cancer and unselected case records which were bound to be unsatisfactory by accepted standards. But I would suggest that your leading article and the committee's reports (p 701) are equally at fault. Here in my hand are three case reports of hopeless cancer restored to health after treatment with H 11. These cases were among the Hosa records. Did the committee miss them? If it did how can its opinion that no further record work is advisable be accepted? If it did not, if it actually considered these cases why did it suppress any mention of such striking results? *Quis custodiet ipsos custodes?*

I do not wish to close this letter on a tendentious note nor to involve anyone connected with the Hosa Laboratories in my

personal views I have had no communication with Mr Thompson for over a year, but I am expecting to see him this week. I therefore send this letter to you before I can possibly be influenced by his opinions upon the report. In conclusion, I would suggest that a purely clinical committee should now investigate the Hosa records, not in order to produce a statistical summary but to report whether or not these records contain any evidence which warrants the continued use of H 11 and, if so, what further steps ought to be taken—I am, etc.,

Sevenoaks Kent

GORDON WARD

### Bronchial Asthma and Thiopentone

SIR,—I beg the opportunity of reporting the following case in the hope that it may serve as a warning against the administration of thiopentone to patients suffering from bronchial asthma

A woman, aged 49, was admitted to hospital with carcinoma of the breast she gave a history of 'bronchitis and asthma' for the last sixteen years. General examination showed no abnormality of the cardiovascular system, and examination of the chest revealed increase in the respiratory phase on auscultation and rather high pitched rhonchi over both lungs.

On the morning of operation she was given atropin sulph gr 1/100 (0.65 mg.) at 9.40, and anaesthesia was induced with thiopentone (10 ml of 5% solution) at 10.15 to be followed by nitrous oxide, oxygen, and "trilene". The patient became cyanosed as soon as the thiopentone had been given, and in spite of vigorous movement of the diaphragm and of the thoracic cage it was obvious that no air was entering the lungs. Laryngoscopy revealed a perfectly patent larynx, and the diagnosis of acute bronchial spasm was made.

By this time a little respiration had begun to take place, but the patient was still deeply cyanosed. A little ether was added to the oxygen, which had been flowing throughout, and an injection of 5 minims (0.3 ml) of 1 in 1,000 adrenaline hydrochloride was given intramuscularly. At once the spasm became less marked but it was at least half an hour before normal respiration took place.

I feel that the danger of administering thiopentone to asthmatics is not widely enough recognized and hope that this letter may serve as a reminder of the dangers inherent in this procedure—I am, etc.,

Leicester

BRIAN D L JOHNSON

### Heart Block in Young People

SIR,—In the *Journal* of Dec 6, 1947 (p 906), we published a paper on heart block in young people. We have since had a communication from a member of the medical faculty of the University of Naples. We regard his letter as one of considerable interest for it demonstrates in a striking manner how little the functional capacity of the heart may be affected by complete heart block in the young individual. Our correspondent, Dr E B writes as follows:

I am now aged 33, married, with three lovely healthy children. My physical condition is excellent. My parents told me that I always showed bradycardia even in the first year of my life (now my normal pulse frequency is about 40 per minute). I think therefore that my disease is congenital, albeit there is another possibility since at the age of 4 I received an injection of diphtheritic toxin antitoxin mixture from a physician who suspected an initial stage of diphtheria. The first correct electrocardiographic diagnosis was established by a well known German cardiologist, Fahrenkamp, when I was 12 years old. At that time I was sent by my father for my vacation to Germany, a guest of family friends. My exceptional bradycardia had been incidentally noted by the chief of that family on the occasion of a walking tour, and it was he who took me to his friend Fahrenkamp.

Contrary to the advice of Fahrenkamp I have submitted my body to a great deal of physical stress. I have been a good tennis player, long-distance swimmer, alpinist (Mont Blanc, Monte Rosa, Matterhorn, Bernina, Piz Palu are amongst the mountains I climbed). During the last war I was a parachutist in the Allied Army and I directed a long mission in enemy held territory. The physical and psychic stress was considerable but I did not show any sign of cardiac trouble.

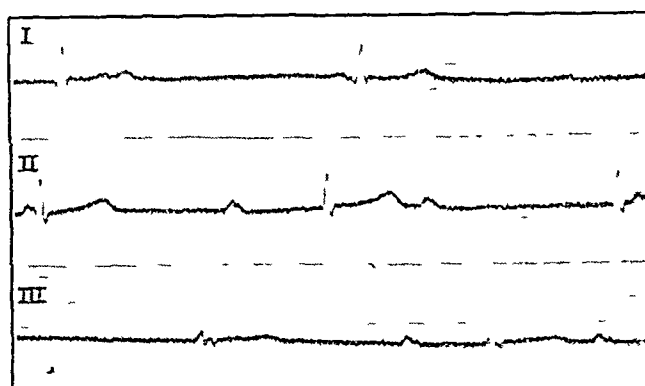
Some years ago I had the opportunity of measuring the output of my heart under muscular work. I give some of the experimentally determined figures (unpublished) for the maximum stress (duration of the experiment 10 minutes): pulse frequency 98, breathing frequency 24.8, depth of breathing 2,412 ml, pulmonary ventilation at standard conditions 48.9 litres per minute, oxygen consumption 2,967 ml per minute, carbon dioxide elimination 2,976 ml per minute,

respiratory quotient 1.0, alveolar carbon dioxide pressure 46.38 mm Hg, carbon dioxide virtual venous pressure 69.88 mm Hg (technique according to Bock *et al*—*J Physiol* 1928, 66, 121), blood minute volume 24.1 litres, systolic output 246 ml (an extraordinarily high figure). The oxygen capacity of my blood is 20.3 (van Slyke's technique) and the red cell count is 5.2 million per c mm.

I can endure a long period of hard work much better than brief and violent exercise, but I never suffered faintness or any sign of heart insufficiency. Some hours after great effort I have sometimes noted fatigue and sleepiness together with a very pronounced bradycardia (about 35 per minute).

"I am 5 ft 11 in (1.8 m) and weigh 12 stones (76.3 kg). My parents and four brothers are in good health."

Our correspondent sends us a copy of an electrocardiogram taken by Professor P M Franco, Naples, which is reproduced here.



Electrocardiogram taken by Professor P M Franco of Naples. The time interval is 0.05 second.

This is yet another example of complete heart block, probably congenital, which over a period of more than 30 years has proved no hindrance in an unusually strenuous life—I am, etc.,

JOHN R H TOWERS,  
CONRAD BREMER

Leeds

### Fibrositis

SIR,—Dr James Cyriax (July 31, p 251) has described simple facts which indicate that certain symptoms and signs cannot be explained by a lesion of muscle or muscle sheath but only by a lesion of a spinal joint. His critics attempt no alternative explanation of various aches and pains but boldly state that they are due to fibrositis—a disease which was postulated much less boldly by Gowers (*British Medical Journal* 1904, 1, 117), who himself stated, "We are without any direct evidence of the real nature of these affections, such as can only be furnished by the microscope." Would not the man who made this statement if he were alive, now be the first to deny the existence of the condition he postulated?

If Dr Cyriax's critics would produce microscopic sections of fibrositis their letters would be worth publishing. Without such sections they are not worthy of space in your journal. One critic complains that fibrositis has been interred with indecent haste. Surely after 44 years it is time that we buried a disease the existence of which was entirely supposititious and which has not been proved microscopically. Let us have no more of fibrositis. Let us have more scientific attempts to explain the many things that we do not know—I am, etc.

Mt Hawthorn Western Australia

JAMES H YOUNG

### Sensitization to Sulphonamides

SIR—In the very interesting leading article about sulphonamide combinations and sensitization (Sept 18, p 563) the author says "It would be interesting if it could be shown *in vitro* that combination with protein is affected by sulphonamide concentration in the manner which these clinical findings would lead one to expect."

As far as I can see, it is just what I have shown in my paper "On Fixation of Sulfathiazole, Sulfapyridine, Sulfanilamide and Para-aminobenzoic Acid by Plasma" (*Acta Pharmacol Kbh* 1945 1, 141)—I am, etc.,

Copenhagen

A HARRESTRUP ANDERSEN

\* In the paper he refers to Dr Andersen summarizes the results of his observations as follows "By the addition of



asma to solutions of the substances to be tested and ensuing ultrafiltration it is found that the curve for the fixation by the plasma is reminiscent of an adsorption curve, and the fixation is greatest for sulfathiazole less for sulfapyridine, and least for sulfanilamide and para-aminobenzoic acid, in agreement with the ability of these substances to pass through the blood liquor barrier"—Ed *BMJ*

### Reactions to Intravenous Sclerotics

SIR—I read Dr C E Taylor's frank report (Oct 23, p 760) on his experiences with sodium morrhuate with interest. These facts speak for themselves regarding its dangerous constitutional effects. I have repeatedly emphasized these characteristics and believe that the use of this substance with its variable chemical composition should be abandoned.

Dr Taylor now proceeds to praise sodium morrhuate. "I think I have used most of the intravenous sclerotics, but I have never found that any of them approach sodium morrhuate in reliability for giving satisfactory occlusion." I must point out that whilst it has bland local effects it has potential anaphylactic and lethal power in contrast to the rest of the sclerosant family, which though they may cause injection ulcers, are seldom generally harmful.

Further may I describe one of the newer sclerosants called P2G solution? It consists of phenol crystals 2% glycerin 30% and glucose 30% in apyrogen water. Mr J W Riddoch, of Birmingham, introduced me to phenol 2% and glycerin 30%, but I did not find this so effective as the former, which has been used daily for over two years at consulting-room and outpatient injections (approximately 3000 with doses of 3-5 ml) and at operations (about 500 in volumes up to 45 ml). It has been harmless in this series of patients. It is an effective local sclerosant giving a good non-painful thrombosis that is only tender to the touch for a short time. It never incapacitates a patient from pain as does "ethamolin" occasionally. When it is placed outside the vein an immediate sharp pain follows which makes the patient warn the operator to stop. This discomfort passes off within a minute by reason of the anaesthetic action of the phenol. No injection ulcer has followed its use although I have deliberately placed 2 ml around a communicating vein in the hope of causing fibrosis around it as well as thrombosis inside.

At operation the usual dose is 5-10 ml distributed down the internal saphenous vein to the knee and 5-7 ml upwards from the ankle. A maximum of 45 ml has been used several times. In a few instances the urine has been examined and a slight degree of carbouluria found but no harmful effect has been observed or reported. Occasionally after an injection a patient will report if asked a temporary giddiness but it has always passed off within a few minutes and no one has ever required a stimulant or treatment for it.

P2G is made by most of the leading drug houses. I would beg Dr Taylor to give it a trial and to finally lay aside that toxic and therefore dangerous fluid sodium morrhuate—I am, etc.

London W 1

HAROLD DODD

### Femoral Hernia

SIR—I must join issue with you over the slightly disparaging way in which you dismiss A K Henry's operation for femoral hernia. In your annotation (Oct 23, p 750) you state that Henry's operation "is useful for uncomplicated bilateral hernia in suitable patients but in cases of strangulation the exposure may be inadequate." Since first reading Professor Henry's article I have used his approach routinely for all cases of femoral hernia whether strangulated or not.

It has the following considerable advantages over both the low approach and the Lotheissen approach.

1 The inguinal canal is not interfered with and there is never any necessity to divide the inguinal ligament (Hev Groves).

2 Using a midline, pyramedian or Pfannenstiel incision the access to the femoral canal is much the same and with adequate muscular relaxation is good. If anything I prefer the Pfannenstiel—making the transverse incision rather more to the side of the hernia. The access is better by way of comparison, than the access to the prostate by the retropubic method.

The operation takes much less time than either of the other two methods. Using the midline approach the scalpel has only to be lifted twice before coming down on the neck of the sac—once

for the skin incision and again for the linea alba. Retraction of the peritoneum then brings the neck of the sac into view.

4 It is a simple matter to open the peritoneum in cases of strangulated hernia, and, having adequately isolated and cleaned the neck of the sac, I do this routinely in such cases, and thus one has complete control over the bowel when it is delivered from the sac.

5 The neck of the sac, which is the usual constricting agent, is dilated gently by the finger from the peritoneal aspect to allow delivery of the contents or may be divided by scissors with a finger protecting the bowel.

6 The pectineal fascia is used for closure of the canal after removal of the sac. This structure which is an astonishingly stout one, is cut with a fine bladed scalpel in such a way as to make a flap hinged either inferiorly or superiorly. The free edge is then sutured to the inguinal ligament.

It is a pity that this excellent approach, devised first by Lenthal Cheatle and later independently by A K Henry appears to be so little practised—I am, etc.

Barry Glam

H M GRANT

### Breast-feeding

SIR—I was interested to read the article by Dr Enid L. Hughes on "Breast-feeding in a Mining Town" (Sept 25, p 597), and was surprised at the low incidence of breast feeding in Newbiggin—viz, 29% at three months. Prior to reading this paper the health visitors at one of the infant welfare clinics in Southend had been keeping a record at my request of the mothers who were successfully breast feeding at three months with a view to ascertaining if any appreciable difference existed between women who were delivered in hospital and at home.

The numbers collected so far are small, 131 consecutive cases, of whom 89 were hospital deliveries and 42 home deliveries. Of the mothers delivered in hospital, including a large proportion of primiparae, 58% were fully breast feeding at three months, and of the home deliveries 55% at three months. This difference may not be statistically significant, but it certainly does not bear out the view so commonly advanced that women delivered in their own homes are more likely to have a successful lactation than those confined in hospital. It is certainly encouraging to the staff of the Rochford General Hospital, where recently much greater latitude is allowed to the mothers in having their babies in cots by the bed and in being allowed to feed them at night and occasionally "off the clock."

In addition to these infant welfare clinic cases I recently went through the records of 305 women attending the postnatal clinic in Southend six weeks after delivery. At the first attendance at this clinic all patients are asked whether or not they are breast feeding and the breasts are examined. If the child is wholly or partially bottle fed the reason for weaning is noted. Of the 305 mothers 181 were wholly breast feeding (59%), 100 mothers bottle feeding (33%), and the remaining 8% were partially breast feeding. Included in the 100 failures were seven cases where lactation was absolutely excluded—i.e., 4 stillbirths, 1 neonatal death, 1 pulmonary tuberculosis and 1 congestive heart failure. There were six cases of primary failure in lactation, the babies being discharged from hospital wholly or partially on the bottle. In a further six cases lactation was abandoned because of local difficulties—cracked, flat, or retracted nipples, mastitis, and mammary abscess. In two thirds of the remaining cases the reason for weaning was insufficiency of the milk supply—the milk "went," or the child was unsatisfied and failed to gain weight.

There remained still a substantial fraction of cases where breast feeding was abandoned because of an excessive milk supply or because the child was ill. The history given was usually, "There was plenty of milk, but it didn't suit," "The milk turned to water," "The child vomited after feeds" (or had colic, diarrhoea, or sore buttocks). Hence the baby was often weaned, although gaining weight and thriving, and very often on medical advice. Two striking examples of such advice were a baby who developed pyloric stenosis, promptly weaned without investigation, and a premature baby, 5 lb at birth, successfully breast fed for 12 weeks when 8 lb in weight who was weaned on the family doctor's advice because it had vomited on one or two occasions.

My reason for writing at such length is mainly to suggest that general practitioners should consider carefully each case of difficult lactation brought to them, bearing in mind three questions. Is the baby underfed? Is the baby overfed? Is the baby sick? If the answer to the first question is in the affirmative then the appropriate treatment is to stimulate the breasts by changing from four- to three hourly feeding, advising a night feed where necessary and a complementary, never a supplementary, feed in the early weeks of lactation. This rests and allays the apprehension of the harassed mother. If the child is ill or overfed it is bad logic and bad medicine to advise weaning. Finally, I would like to suggest that if the

family doctor has insufficient time to answer these questions himself he should refer the mother to those who have more time or experience—i.e., the local child-welfare clinic or the paediatrician of the area—before depriving the baby of its surest hold on health—I am, etc.,

Westcliff-on-Sea Essex

FLORA BRIDGE

### A Jelly-fish Sting

SIR,—While diving recently I was stung on the lower lip by a jelly fish. The pain was rather like that caused by a severe sting from a nettle (*Urtica urens*), and within ten minutes there was a diffuse erythema measuring about 6 by 4 cm running from the edge of the lip towards the point of the chin with a white centre portion. An application of adrenaline 1:1,000 for some time failed to prevent an urticarial reaction, and the lip swelled, more marked in the mouth. The pain gradually became severe, the side of the face felt numb and unreal, like a Bell's palsy, and there was a considerable feeling of general irritability and malaise.

During the five days that followed the pain slowly decreased, but at the site of the sting a vesicular dermatitis developed like an impetiginous infection, with a free serous discharge. The application of both chloroform and absolute alcohol appeared to have no effect, and the scar remained for a full fortnight. A fellow bather was stung at the same time and developed many large urticarial weals on the shoulders and buttocks.

Four days after the original sting and while the area was still discharging and painful I was stung again in three places around the left eye, between the brow and the lid, on the upper lid, and on the bridge of the nose in the area of the inner canthus. The pain commenced in the same manner, and within an hour a similar picture had developed—a large swollen area of erythema with a white centre. Tincture of *Urtica urens* was applied on damp cotton wool and the pain rapidly decreased. Next day there was a slight sensation of soreness, but on the third day there was neither discomfort nor mark. The effects of this sting had completely disappeared while the first one was still in the course of recovery.

The local swimming baths, which are tidal frequently contain jelly fish. At the end of this season the only ones which could be found were less than 2 cm long (when afloat) and about 8 mm in diameter, with a pale mauve central colouring. It is interesting, and most uncomfortable, to observe that such innocent-looking objects can cause a considerable local reaction and general malaise on what must be a very fleeting contact—I am, etc.,

Guernsey

FRANK R. NEUBERT

### POINTS FROM LETTERS

#### Gastric Herpes Zoster

Dr E D T DONALDSON (Hale, Cheshire) writes. It may be of interest to your readers in view of the cases reported by Dr R V Stone (May 8, p 882) and by Dr P E Fitzpatrick (June 19, p 1206) to describe a further case of what I consider to be a true gastric herpes zoster. The patient, aged 65, had suffered from rheumatism of the right knee for some twelve months previously for which she was in the habit of taking upwards of 15–20 gr (1–1.3 g) of aspirin daily. In August she complained of a severe pain in the right chest radiating round to the back. This was followed a few days later by a crop of lesions typical of herpes zoster affecting the 9th, 10th, and 11th thoracic segments. The pain was intense, and she complained a great deal of anorexia and nausea. One week later she vomited about a cupful of blood stained material. This was not repeated although the anorexia and nausea continued. Her alimentary tract was rayed three weeks later—no abnormality being found. All symptoms have now cleared up apart from the original rheumatism. In this case the haematemeses may have been due to "erosion" as a result of taking aspirin, although I think its coincidence with the herpes zoster is too striking to be ignored.

#### Whooping-cough and Measles

Dr FREDERICK ROTHENBURGH (Widnes, Lancs) writes. Referring to Dr B L Hodge's (Aug 7, p 312) and Dr S N Dhananjay's (Oct 16 p 725) letters, may I draw your attention to the fact that a sudden attack of pertussiform cough, with heavy fits similar to real whooping-cough, can be the first sign and the pre stage of measles? This type of cough usually disappears when the measles rash appears.

## Obituary

T SHENNAN, MD, FRCSEd, LL D

Theodore Shennan, who died on Oct 21, was professor of pathology at Aberdeen University from 1914 to 1936. Born at Bathgate, West Lothian, on March 9, 1869, he was the son of the Rev Alex Shennan. He was educated at the Royal High School and the University of Edinburgh, graduating MB CM in 1890 and proceeding MD in 1895. He obtained the FRCSEd in 1898. Shennan had early discovered his true vocation, and as pathologist to Leith Hospital in 1896 he began the career which was to lead him by way of the Royal Edinburgh Hospital for Sick Children and the Edinburgh Royal Infirmary to the lectureship on morbid anatomy at the university. Then in 1914 he was appointed professor of pathology at Aberdeen, and there he served his science and his university with distinction until 1936.

The chair of pathology in Aberdeen had been founded by Sir Erasmus Wilson in 1882. The first occupant of the Aberdeen chair was the redoubtable D J Hamilton who, by the vigour of his personality and the forcefulness of his didactic teaching had cast a spell which lingers to this day. Hamilton was succeeded in 1908 by one of his own students, George Dean already a well-known serologist but his bright promise ended with his early death after some years of ill-health. Shennan's task was an arduous one at the beginning. The outbreak of the first world war retarded the immediate development of his department and in the post-war years, with only one assistant he had to teach upwards of 200 students. But he triumphed over these difficulties and established for himself an enviable reputation alike as a teacher and as an administrator. He was dean of the Faculty of Medicine from 1915 to 1919 and again from 1925 to 1927. As chairman of the house committee of Marischal College for most of his tenure of the chair, he was busy with multifarious duties affecting the whole fabric of university life. He proved himself an invaluable member of the Senatus, which marked its appreciation of his work by appointing him as one of its assessors on the University Court. His lively interest in the student body never flagged, he served for many years on the committee of management of the Union and did much to encourage social and athletic pursuits.

Shennan will be remembered for his work as a morbid anatomist. The first edition of his textbook on *Post Mortems and Morbid Anatomy* appeared in 1912, the second in 1927, and the third in 1935. They embody the personal experience of a keen and accurate observer and contain a great store of useful information for the more mature pathologist as well as for the students for whom they were designed. In his earlier days he made notable contributions to the pathology of tuberculosis, particularly in childhood. There followed numerous publications in the *Journal of Pathology and Bacteriology* and elsewhere, culminating in an important monograph on dissecting aneurysms which was published by the Medical Research Council in 1934. Shennan was one of the original members of the Pathological Society of Great Britain and Ireland and a well-known figure at its meetings.—J S Y

C H MILBURN, OBE, MB, MS

Charles Henry Milburn, a former member of Council of the BMA, died on Oct 27, at Harrogate, at the age of 88. Most of his long life was spent in his native county of Yorkshire.

His father was the Rev J C Milburn, and he was born at Sheffield in 1860. While a student at the Durham College of Science he won the Tulloch scholarship in 1879, and followed this at the Newcastle-upon-Tyne Medical School with prizes and medals in anatomy and physiology, public health, and surgery. He took the MB and MS degrees of Durham University in 1882, and was house surgeon for three years at the Durham County Hospital. Then came a long period of work at Hull, where he was surgeon, and later consulting surgeon, to the Victoria Hospital for Children and the Hull and Sculcoates Dispensary. In 1897 Milburn was president of the Hull Medical Society. He joined the British Medical Association in 1882, and served it both locally and centrally,

being president in 1901 of the East Riding and North Lincolnshire Branch for fourteen years a member of Council, and vice president of the Section of Navy, Army, and Ambulance at the Annual Meeting in 1913. He was a member of the committee which reshaped the constitution of the B.M.A. in 1900 and of many other standing and special committees.

Ambulance work claimed a good deal of Milburn's energy before the 1914-18 war. He was deputy commissioner for No. 6 District of the St. John Ambulance Brigade from 1898 to 1903 and afterwards held high rank in the East Yorkshire Volunteer Brigade. He was also lieutenant-colonel (honorary colonel) 2nd Northumbrian Brigade, Royal Field Artillery (T.F.), and a member of the East Riding Territorial Association. He went to France in 1915 and worked at Rouen as surgeon to No. 2 British Red Cross Hospital, where he was popular both with his medical colleagues and with the many officers who passed through his hands as patients. After a short time as surgeon to the Wharfedale Hospital, Sheffield, he served on hospital trains in France and Belgium with the rank of major, and returned to England towards the close of 1918 to take up the duties of deputy commissioner at the headquarters of the Ministry of National Service. In 1919 he was appointed commissioner of medical services, and deputy director Yorkshire Region Ministry of Pensions, and a year later joined the staff of the Ministry of Health as divisional medical officer for the North-East of England, a post he held till 1925. Milburn was awarded the Volunteer Decoration, and for his services in the last war the O.B.E. He had many interests outside medicine. He was vice-president of the Kipling Society, and compiled for its journal a collection of epitaphs by Rudyard Kipling. He was also a justice of the peace and Deputy Lieutenant for East Yorkshire.

A kind-hearted unassuming man, Milburn went through life placidly doing whatever work came to hand. He was faithful in friendship and loyal to all the many institutions he had served. Deafness rather clouded his latter days at Harrogate, but he never complained, and it was characteristic of him that he should occupy some of his enforced leisure by combing local newspapers in search of items of medical interest for the *B.M.J.*

#### SUSAN ISAACS, C.B.E., D.Sc.

Mr. Nathan Isaacs writes: My attention has been called to your very full and just obituary notice of my wife, the late Susan Isaacs (Oct. 23, p. 763). May I offer a correction on a small point of fact which is perhaps not without interest or importance? You state that "when Geoffrey Pyke in the nineteen-twenties set up the Maltng House School in Cambridge Susan Isaacs welcomed his invitation to join the staff." The staff, when the school began consisted, besides my wife, of an untrained young girl who had looked after Pyke's small boy and was kept on as general help. The fact was that Pyke had the idea of starting a small model school where the most liberal and advanced educational ideas available at the time could be brought to bear on the early education of a group of young children. He advertised the idea in an arresting form, and my wife became interested in the opportunity which thus seemed to be offered. Pyke was prepared to provide the finance necessary to set the school going on an adequate and unhampered scale and to allow scope for its further development. Everything in fact pointed to the chance of carrying out an important pioneering experiment in education under the most favourable conditions and my wife was finally persuaded to undertake to translate Pyke's idea into an appropriate reality.

Accordingly it was she who set up the school, starting from virtually nothing and on the agreed condition that she was to have an entirely free hand and the sole educational responsibility. This was only possible of course, because Pyke's educational aims and outlook were in fundamental harmony with hers, and indeed he took the liveliest interest in the working and progress of the school, to which he made various suggestive and valuable contributions of his own. However, so far from my wife "joining the staff" of the school she was actually its educational founder and remained its principal, in charge of the qualified staff which was gradually collected, until she resigned at the end of 1927. As through her work the Maltng House School has passed into educational history, I trust that you will deem this correction worth publishing.

Dr. EDMUND SPENCER HEMSTED died on Oct. 7 at Kintbury Berks, at the age of 78, only about a month after the death of his wife. He was the second son of Dr. Henry Hemsted, of Whitchurch, Hants. The founder of the family was a Dutch refugee who escaped from Holland at the time of the persecution by the Duke of Alva in the sixteenth century. Nine consecutive generations of the family have included members of the medical profession. One of these married in 1746 a Miss Rustat, whose family founded the Rustat Scholarships at Jesus College, Cambridge. Of Hemsted's six brothers three were medical men and two were dental surgeons. After study at St. Mary's Hospital, Hemsted qualified as M.R.C.S. L.R.C.P. in 1892, and in 1895 started practice at Kintbury, on the Kennet a few miles upstream from the much larger town of Newbury. About the turn of the century there were two or three practitioners in Newbury of undoubted academic distinction who yet lacked the gift of inspiring hope and confidence in their patients. These qualities Hemsted had in abundance and before many years had passed he was attending not only everyone in and around Kintbury, but a good many patients from Newbury. His practice increased so rapidly that he had to take partners to cope with it, at his death he was the head of a firm of four and remained in regular hard work until the onset of his last illness in July of this year. Hemsted was for many years honorary surgeon to the Newbury Cottage Hospital. In 1914 he tried to join the R.A.M.C. but was rejected on medical grounds, so he applied himself to service in war hospitals at Barton Court Benham Court, and Albion House. He was a good shot and rider, and a keen fisherman. He contributed a paper on leucocythaemia to this *Journal* as long ago as 1896. In 1906 he married Miss Ellen Mary Stawell Brown a well-known Wimbledon lawn tennis player who narrowly missed winning a title there, and actually did win a badminton championship in 1901. Of their three children one, Dr. Edmund Henry Hemsted, is a member of the profession.—H.R.

## Medico-Legal

### THE LONGEST GESTATION PERIOD

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

A member of the Armed Forces last cohabited with his wife on Aug. 28, 1944, before going overseas. She bore a child on Aug. 12, 1945, and he petitioned for adultery with the length of the period of gestation as the chief ground. Suggestions were made that other evidence existed which might tend to prove adultery, but these were rejected by the court. Judge Topham, K.C., who was sitting as a commissioner of divorce, heard medical evidence that it was not impossible for the husband to be the father of the child and dismissed his petition. This decision was supported by the Court of Appeal on the ground that none of the unusual features of the pregnancy was sufficient to impel the court to reject the medical evidence and infer that adultery had taken place.

This period of 349 days is, we believe, the longest ever held by an English court to be possible. It supersedes the record set up last year in *Wood v. Wood*<sup>1</sup> of 346 days, and is far in excess of most of the limits set in foreign legislation. Sydney Smith says that periods of gestation beyond 300 days are distinctly unusual and suspicious, but quotes Dr. G. F. Walker's mention<sup>2</sup> in this *Journal* of one child born after 315 days and the cases in which children born after periods of 323, 324, and 336 days, weighed 12.5 lb., 14 lb., and 16.5 lb. (5.7 kg., 6.3 kg., and 7.5 kg.), respectively.<sup>3</sup> It will be interesting to see where the courts stop, or rather, as they follow the medical evidence, where the medical witnesses stop.

<sup>1</sup> 1947 2 All E.R. 95

<sup>2</sup> *British Medical Journal* 1939 1 1155

<sup>3</sup> *Ibid.* 1921 2 220

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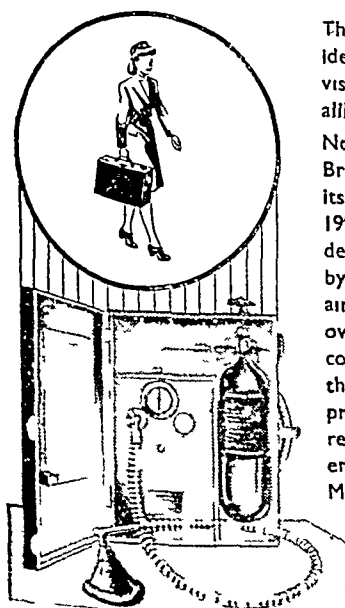
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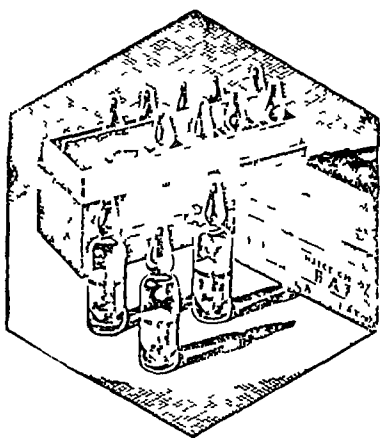
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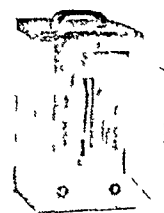
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## Medical Notes in Parliament

A new Session of Parliament was opened by the King on Oct 26. The Speech from the Throne announced that legislation would be introduced changing the constitution of the General Nursing Council and to provide for the better training of nurses. Another Bill will provide for safer milk. Improvement of water supplies in Scotland and amendment of the Scottish criminal law are also proposed subjects for legislation.

Bills introduced on Oct 27 included the Education (Scotland) Bill, which proposes among other things to amend the provisions of other Acts relating to defective children and the employment of children.

Replying to Sir IAN FRASER on Oct 29 during the Debate and Address, Mr HERBERT MORRISON said that in the opinion of the Government the case for a Select Committee to consider *war pensions and allowances* was *not made out*. He pointed out that since 1946 further improvements had been made.

Mr SOMERVILLE HASTINGS spoke on the training of nurses and the legislation proposed on this point. He said the coming legislation for this purpose would succeed or fail according to whether it made possible the ultimate complete separation of the authority for training nurses from the authority for providing treatment for the sick. The constant conflict between the duty of the nurse to herself and her duty to her patients resulted in many nurses leaving the profession during training or as soon as they were trained. The employer could not successfully be the teacher, and the hospital authority which asked a matron to be both asked her to carry out an impossible task. The nurses' course need not be a long one. It could be carried out successfully in two years but the student nurse must be a student like other students. Her life should be spent like theirs in hostel home, or lodgings. Much could be done by arranging the curriculum of the nurse and the time she spent in the wards on the same lines as those of the medical student.

The debate was adjourned.

*P.P.S. to Mr Bevan*—The Minister of Health has appointed Mr J. E. Beddoe to be his Principal Private Secretary.

## Universities and Colleges

### UNIVERSITY OF OXFORD

In a Congregation held on Oct 14 the following medical degrees were conferred:

M.Chir.—E. G. Tuckwell  
M.B.—E. J. Jones R. G. Chambers Zaida M. Megrah Mrs Jean C. Toynbee \*H. A. Evans \*A. R. Wilson \*J. W. Platt \*A. C. Cox

\* In absence

### UNIVERSITY OF GLASGOW

A series of five lectures on "The History of Medicine," by Dr Douglas Guthrie, began on Oct 26. The second lecture was given on Nov 2 and the remaining three will be delivered in the Zoology Lecture Theatre of the University on Nov 9 and 30 and Dec 7, at 4.30 p.m. They are open to members of the University, and to the public without ticket. Details will be published in the diary column of the *Journal*.

### ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a quarterly comitia of the College held on Oct 28, with the President Lord Moran, in the chair, Dr J. H. Sheldon, Dr J. M. H. Campbell, Dr E. R. Cullinan and Sir Weldon Dalrymple-Champneys were elected Councillors.

The following were elected representatives of the College: Dr H. E. A. Boldero on the Committee of Management of the Conjoint Board; Dr F. S. Langmead on the Central Midwives Board; the President Sir Leonard Parsons, Dr H. E. A. Boldero, Dr W. G. Barnard and Sir Allen Daley on the Standing Joint Committee of the three Royal Colleges; Dr C. M. Hinds Howell, Dr T. C. Hunt, Dr J. C. Hawksley, and Dr J. B. Harman on the Committee of Reference; Dr C. M. Hinds Howell and Dr J. B. Harman on the Central Medical War Committee, and Dr Donald Hunter on the Poisons Board.

Sir Weldon Dalrymple-Champneys was appointed Milroy Lecturer for 1950, his subject being "Undulant Fever, a Neglected Problem." The President announced that the Jenks Memorial Scholarship had been awarded to Martin Lawson Crossfill, late of Epsom College.

### Membership

The following candidates, having satisfied the Censors' Board, were elected Members:

I. Anderson M.B. M. W. Arthurton M.B. H. S. Baar M.D. D. W. Barratt M.B. R. E. Beamish M.D. A. C. Blandy M.B. H. J. Boutourline Young M.D. R. J. K. Brown M.B. J. A. Campbell M.B. C. O. Carter B.M. F. B. Charatan, M.B. J. A. H. Collyns M.B. E. G. Cook M.B. R. I. G. Coupland M.B. R. H. Cufforth M.B. D. F. Davies M.B. D. M. Davies M.D. P. D. B. Davies M.B. W. Dickson M.B. A. Dolphun M.D. B. V. Earle M.B. J. R. D. Eaton M.B. A. El-S. Eissa M.B. H. L. Ellis M.D. C. C. Ewart M.B. A. N. Exton Smith M.B. W. Fabisch M.D. D. A. Ferguson, M.D. H. V. L. Finlay M.B. P. B. Fox M.B. T. T. Fulton M.D. I. Gilbert M.D. S. V. S. Govinda Setty M.B. M. J. Greenberg M.B. C. Gresson M.B. J. R. Harries M.B. R. V. Johnston M.B. E. C. B. S. Keat M.B. J. O. Laws M.B. A. G. Leshman M.B. I. C. Lewis M.B. G. H. T. Lloyd M.B. Josephine M. Lord M.B. L. C. Lum M.B. R. H. G. Lyne Pirkis M.B. A. R. Lyons M.D. R. K. MacCush M.B. A. C. Macdonald M.B. G. Macdonald M.D. L. E. McGee M.B. J. K. Martin M.B. H. Miller M.B. I. Miller M.D. E. H. Minors M.B. B. S. Moos M.D., A. A. Morgan M.B. J. Nash M.D. S. R. K. Padmavati M.B. I. C. L. Patch M.B. S. H. Patel M.B. M. B. Pemberton M.B. A. R. Piracha M.B. E. MacL. Poulton B.M. F. I. Rackow M.B. D. H. Reilly M.D. P. K. Renshaw M.B., P. L. Robinson M.B. R. S. Savidge M.B. J. Shein M.B. G. Skinner L.R.C.P. A. W. Sloan M.B. W. H. Smith M.D. W. G. Spector M.B. M. P. Spence M.B. J. W. Stephens L.R.C.P. J. P. P. Stock M.D. D. H. P. Sreeten M.B., J. L. Taylor M.B. R. W. Temple M.B. H. R. Thomson M.B. P. A. Thorn M.D. E. Waddington M.B. D. C. Watson M.B. S. P. B. Way M.B. W. Whitaker M.D. J. B. Wild M.B. H. B. L. Williams L.R.C.P. Iolo G. Williams M.B. F. B. M. Woodhouse M.B. D. G. Wrath M.B. G. A. Wright M.B.

### Licences

Licences to practise were conferred upon the following 146 candidates (including 33 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and who have complied with the necessary laws:

M. S. M. Adams Maureen B. Adams D. A. Ager D. D. Alexander H. D. Alexander J. D. Arneaud N. O. Ascroft K. A. Baker K. L. Batten D. F. Bedford D. P. Belgrave S. Benaim G. R. Bennett, Elizabeth Bennett J. M. Bernstein A. J. Bervitz T. B. Binns J. A. L. Bonnell P. H. Bracewell A. T. Broadbridge Ena K. Bruck R. J. Carey J. K. Carter W. I. Carter J. A. Cheese Ellen M. Chippindale M. Cohen W. W. H. Colmer Elizabeth D. Connan, W. E. Cooper A. A. Craigen, Phyllis A. M. Crozier D. A. Davey D. H. Davies G. J. Davies Gwenhyfar Davies V. J. E. Davies Nuala M. Dowdall R. W. Doy Shirley R. Drake B. H. du Heaume Gwenllian Edwards A. A. Eley Mary G. Ellis H. B. F. Fairley J. Fine C. A. Foster Louis Gardner R. Gardner G. M. Gould A. A. Graham Edwina E. Green H. J. A. Hahn D. C. Hall J. A. H. Hancock D. F. N. Harrison J. M. Haughton G. E. Haward R. B. Heisch A. A. Hobbs P. H. Holden C. I. Hood J. C. Humber K. M. S. Hume Marjorie J. Ion T. E. Jeffreys Beryl M. Joles C. R. Jolly D. H. Jones Miriam Kahn M. A. Kalina A. J. Karlsh M. S. Kataria H. R. Ker E. Kiley G. S. Laing P. Lancer B. H. Lawrence Gerda Lewin E. A. C. Lloyd V. A. Lloyd Mary Lloyd Evans F. A. H. Logie R. H. Longton J. A. Ludwig B. Lytton Elizabeth G. S. McDowall M. H. Masina Leela Menon J. Monckton D. K. Morgan D. McK. K. Muir J. G. Neville W. T. Newman Anne Nunan H. M. C. O'Driscoll Jean M. Ottaway K. L. Owen J. J. Owens O. Parry Jones Jacqueline I. C. Payne G. W. Pearce M. C. Peterside E. M. Poulton D. G. Price Margaret D. E. Quinn B. W. Richards D. F. Richards J. L. Richards W. R. Riley I. R. L. Rose Marian W. Ruscoe D. G. Rushton J. M. S. St John E. R. J. Sarfati H. J. Sayani W. K. Schnarr D. N. M. Scott Warren R. G. Seager Thomas S. A. V. Serviss Pauline M. Seymour Cole P. W. Shillito D. W. Smith R. S. Sneath D. H. K. Sothau Margaret Speight G. D. Starte G. A. Steele Mildred A. R. Stilson Mary C. Sumption R. L. H. Tasker D. G. Taylor Margery W. Taylor J. Timmer D. A. T. Tizard Jean M. Tomlinson J. T. Trencham S. E. Trickey P. G. Tuffnell R. J. Vale J. S. Vazifdar T. Wade Evans P. R. Wagner Norma M. Whalley F. R. H. Wrigley J. R. W. Wynne

### Diplomas

Diplomas in Tropical Medicine and Hygiene, in Ophthalmic Medicine and Surgery, in Child Health, in Industrial Health, and in Physical Medicine were granted jointly with the Royal College of Surgeons of England to the following successful candidates:

**DIPLOMA IN TROPICAL MEDICINE AND HYGIENE**—To the 30 successful candidates whose names are printed below in the report of the meeting of the Royal College of Surgeons of England.

**DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY**—To J. S. McKenty and to the 52 candidates whose names are printed below in the report of the meeting of the Royal College of Surgeons of England.

**DIPLOMA IN CHILD HEALTH**—To M. F. Moses and to the 87 candidates whose names are printed below in the report of the meeting of the Royal College of Surgeons of England.

**DIPLOMA IN INDUSTRIAL HEALTH**—To the 12 candidates whose names are printed below in the report of the meeting of the Royal College of Surgeons of England.

**DIPLOMA IN PHYSICAL MEDICINE**—G. H. Dobney, D. M. L. Doran, Joan M. Gold, G. Gregg J. B. M. Milne, K. W. N. Palmer, J. D. Thompson, M. E. Wigfield, R. W. Windle.

### ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Board of Faculty of Anaesthetists was held on Oct 6, with Mr A. D. Marston, the Dean in the chair. Some 19 newly elected Fellows of the Faculty were introduced by the Dean and admitted to the Fellowship of the Faculty by the President of the College Lord Webb Johnson.

It was decided that whereas up to the present only holders of the Diploma in Anaesthetics of the two Royal Colleges should be



eligible for Membership of the Faculty, in future, holders of the Diploma in Anaesthetics of other recognized bodies should be eligible for admission

It was reported that there had been an excellent response to the first course of lectures and tutorials which had been organized by the Faculty. The Board is anxious to increase the scope of its teaching and is hoping to arrange for clinical instruction to be given at various non teaching hospitals

A Joseph Clover Memorial Lecture has been founded by the Faculty and is to be given annually. Mr A D Marston was elected to give the first of these lectures at the College on March 16 1949, after the annual general meeting of the Faculty

The Dean presented to the Faculty a gold badge of office to be worn by Deans of the Faculty. The Board presented to the College, to commemorate the founding of the Faculty and the Fellowship, a silver claret cup, once the property of Professor Simpson and presented to him by Lord Errol, and a silver gilt cup which is a replica of a cup designed by Paul Lamerie in the seventeenth century. The Board gave a small dinner-party in the College in the evening to which a few guests were invited

The following were elected Fellows of the Faculty: H K Ashworth, Wesley Bourne, S F Durrans, H E Karslake, Eccles A H Galley, Noel Gillespie, Victor Goldman, John Halton, A E W Idris, R W Ironside, F Barnett Mallinson, Mrs H Scott Mason, Mrs K L Oldham, Mrs E M Taylor, Ralph M Waters, Keith Woodruff

At a meeting of the Council held on Oct 14, with the President Lord Webb Johnson, in the chair, Professor Geoffrey Hadfield was admitted as Sir William Collins Professor of Human and Comparative Pathology, and the John Tomes Prize was presented to Professor H H Stones, of Liverpool. The following were appointed Bland Sutton Scholars: Mr R J Last (reappointed) and Mrs P H Herbert

The Fellowship in Dental Surgery was awarded to Dr Harvey H Reid (Canada) and to Professor B Gottlieb (Austria)

Diplomas of Membership were granted to R B Heisch, C I Hood, and D H K Soltau

Diplomas in Tropical Medicine and Hygiene in Ophthalmic Medicine and Surgery, in Child Health, and in Industrial Health were granted jointly with the Royal College of Physicians of London to the following successful candidates

**DIPLOMA IN TROPICAL MEDICINE AND HYGIENE**—C S Agrawal, M H S El Amroussi, Norah H C Clarke, B P Courtenay Mayers, K O Courtney, R McP Cross, R S Dayal, H G Edmunds, W Fabisch, J D Grene, J T Harold, G F Houston, M H Hughes, S A Jones, R Lwin, G McHugh, B U Mistry, Mok Hing Yiu, R Panigrahi, M Rech, A S Saffar, M A El Sayed, S C Sekar, A K Sen, F K Shah, W D L Smith, M L Sur, E Tustanowski, G H Wattle, Wu Hsueh Tsung

**DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY**—R C Agarwal, A N Ashworth, N L Bailey, S C Banerji, G M Barling, B A Bembridge, T A S Boyd, R S E Brewerton, J B Bunting, T Chadderton, R M Chambers, Shing Chue Chan, P M Chaudhuri, E S Dismorr, N F Donaldson, S Etzine, J H W Fagan, P J Franks, S Galbraith, P J A Gormley, T B Gupta, Ko Gyi, A Harrison, J R Hudson, P J L Hunter, R I Jaffe, K R Kesavachar, T G Kletz, M Lerner, H F T MacFetridge, B A Marshall, T S Maw, M Mohsin, L Myers, W J Naughton, J M Nikosiewicz, Ethne J O'Riordan, C M Phillips, S T Puttanna, J E Pyper, J L Reiss, K Rubinstein, H Saiduzzafar, A E Sawday, M Shaffi, E Shenken, N I Sreenivasan, C S Swan, J Swartz, A K Tulloch, J M Whaites, P C Yates

**DIPLOMA IN CHILD HEALTH**—H C Allan, S Balasingam, Marion B Bethune, S Bhattacharjee, Camilla B P Bosanquet, T A Brand, E J S N Briggs, F B Bromfield, H J S Brown, Isobel McA Brown, M F G Buchanan, L J Russell, Helen A Cawson, A B Christie, Margaret T Collins, W D D Cooke, E G A Crawshaw, J U Crichton, P O Crossfield, G H R Curnock, W Davies, A W Dickie, M H C Dyson, P D Fergusson, R J L Ferris, H J W Fisher, I H Fletcher, J O Forfar, Frances A Fouracres, Gin Shan Yai, Janet F Graham, J R Harries, Dorothy A Harvey, Kul W Hazratji, Betty E Howarth, M C Hudson, Bennett Pauline, M Jackson, J C Johnson, R St J R Johnston, G Kirtane, Stephanie A Laing, B M Laurance, J A Leitch, R Lindop, R H G Lyne, Pirkis Kathleen, J McCarthy, Muriel M McLean, H B Marsden, Margaret St C Masson, Gladys A Meigh, Rachel Menashe, S M Merchant, H R A Michelmore, Dorothy J M N Montgomery, N M Nicholson, W B A P Radford, Elizabeth Radovitch, J T Riley, B S Rose, D C Ryan, M Shah, G Strickland, P V Suckling, Jean C Taylor, K B Thornton, Joyce F Tucker, C H C Upjohn, D F Van Zwanenberg, D G Vulham, G F Walker, J M Watt, L E Wear, S D V Weller, R W Wilkinson, Jean C Willison, B S Wood, L A Zeki

**DIPLOMA IN INDUSTRIAL HEALTH**—T S Adisubramaniam, M A C Dowling, W Gunn, M N Gupta, E T Harrison, C O Hughes, T H McCormack, L E J Poulter, J B Sherman, J A Smiley, J M Stuart, A R Thompson

The Bai Jerbai Wadia Hospital for Children was recognized in respect of the posts of surgical registrar and first and second house-surgeons for a period of six months, in connexion with paragraph 23 of the F R C S regulations

#### ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Professor D M Dunlop will deliver the Finlayson Memorial Lecture in the Hall of the Royal Faculty of Physicians and Surgeons (242, St Vincent Street Glasgow) on Wednesday Nov 10 at 5 p.m. His subject is: The Clinical Use of the Antihistamine Drugs. Other lectures will be given in the Hall of the Faculty on Wednesdays Nov 24 and Dec 8 1948 and Jan 12 and 26 and Feb 9 1949 at 5 p.m. Details will be published in the diary column of the *Journal Medical practitioners* are invited to attend

No 42

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct 16

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for: (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths and of Deaths recorded under each infectious disease are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases, a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	36	5	10	—	1	44	4	24	1	1
Diphtheria Deaths	141	8	43	17	3	202	22	64	17	1
Dysentery Deaths	114	9	70	—	1	46	4	47	1	—
Encephalitis lethargica acute Deaths	1	—	—	—	—	—	—	—	—	—
Erysipelas Deaths	—	—	23	11	2	—	—	24	7	2
Infective enteritis or diarrhoea under 2 years Deaths	22	1	4	51	3	60	2	20	101	5
Measles* Deaths†	4 536	78	74	49	66	1 797	63	84	192	11
Ophthalmia neonatorum Deaths	55	6	7	—	—	67	5	10	—	—
Paratyphoid fever Deaths	9	4	(B)	—	—	16	—	2(B)	1(B)	—
Pneumonia influenza Deaths (from influenza)‡	479	25	1	3	—	531	35	4	2	2
Pneumonia primary Deaths	171	23	163	16	6	—	18	184	16	6
Polio-encephalitis acute Deaths	7	1	—	—	—	12	1	—	—	—
Poliomyelitis acute Deaths§	81	5	5	4	—	276	24	55	10	6
Puerperal fever Deaths	—	—	9	—	—	—	—	18	—	—
Puerperal pyrexia   Deaths	100	11	6	—	1	113	6	14	—	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 519	103	324	206	36	1 352	116	267	81	49
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	12	1	2	1	—	7	—	4	3	—
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	1 949	146	83	22	10	1 009	87	28	37	6
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	258	27	33	19	6	335	40	74	27	9
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4 336	718	562	139	118	4 023	610	546	184	84
Live births Annual rate per 1 000 persons living	7 491	1220	929	338	237	7 981	1300	1055	355	239
Stillbirths Rate per 1 000 total births (including stillborn)	197	21	28	—	—	222	25	30	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only

† Deaths from measles and scarlet fever for England and Wales, London (administrative county) will no longer be published

‡ Includes primary form for England and Wales, London (administrative county) and Northern Ireland

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county) are combined

|| Includes puerperal fever for England and Wales and Fire

## EPIDEMIOLOGICAL NOTES

## Food-poisoning at Southgate

An outbreak of food poisoning has been reported from Minchenden County Grammar School, Southgate, London, N 14. Approximately 500 pupils and staff partook of a mid-day meal served in the school canteen on Thursday, Oct 21. About 150 of those who ate the meal—it has not yet been possible to ascertain the exact number—complained of diarrhoea and severe abdominal pains during the evening of the same day or at night. In a few instances nausea and vomiting were also present, with headache, although there was no evidence of pyrexia. The symptoms passed off rapidly, all the members of the staff and most of the children attending school on Friday, Oct 22. By the following day few after-effects were reported.

The midday meal on Thursday consisted of salt beef, salad with salad dressing, potatoes, and baked almond tart. Bacteriological examination of the beef, carried out by the Central Public Health Laboratory, showed evidence of fairly heavy bacterial growth. The method of cooking the beef which had been stored in brine (concentration 16%) was as follows:

The meat was delivered to the canteen on the morning of Wednesday, Oct 20. It was immediately placed in the refrigerator in which it remained until the afternoon of the same day. It was then removed and cooked in a gas boiler for two and a half hours. After cooking the meat was allowed to cool off in the boiler during the night of Oct 20-21 being served cold with salad on the following day. It would appear that the cooling off process provided conditions in which bacteria could multiply and elaborate toxins.

An interesting feature revealed by the investigation was that similar joints from the same batch of salt beef were supplied to two other school canteens in the area and were cooked in the manner set out above. In these cases however, the meat was not allowed to remain in the boiler to cool after cooking, but was removed, placed on covered trays, allowed to cool, and was then put in the refrigerator.

Bacteriological investigations are still continuing and it has not yet been possible to identify the responsible organism. It might be stated in conclusion that conditions in the school canteen were very satisfactory and that the standard of hygiene there left nothing to be desired.

## Discussion of Table

In England and Wales increases were recorded in the incidence of measles 475, scarlet fever 246, acute pneumonia 58, dysentery 30, and diphtheria 29, while a decrease was recorded in the notifications of whooping-cough 124.

The largest rises in the incidence of measles were in Yorkshire West Riding 151, Monmouthshire 99, Essex 91 and Yorkshire East Riding 77. In contrast to the general increase a fall occurred in the south midland counties where the notifications declined from 148 to 90.

Notifications of scarlet fever have been doubled in the past six weeks since the incidence began to rise. During the week the largest increases were Lancashire 48, Essex 29 and London 28. For nine consecutive weeks a fall has been reported in the incidence of whooping-cough, the local variations in incidence were small.

The return for diphtheria was the largest for thirteen weeks. In Lancashire the notifications of diphtheria showed a rise of 14 due to an increase in the county boroughs. An outbreak of diphtheria affecting 6 persons was notified from Durham, Houghton-le-Spring U.D.

In Shropshire Oswestry R.D. 6 further cases of typhoid fever were notified. An outbreak of dysentery affecting 50 persons was notified in Essex Hornchurch U.D. The other large return of dysentery was 9 cases in Warwickshire Warwick R.D. In Lancashire only 8 cases of dysentery were notified this was 20 less than the figure for the preceding week. The largest returns of acute poliomyelitis were Lancashire 8, Middlesex 7, Northamptonshire 7 (Kettering M.B. 6), London 5 and Devonshire 5.

In Scotland an increase occurred in the number of notifications of scarlet fever 76 and whooping-cough 19 and a decrease was recorded for dysentery 18. The decreased incidence of dysentery was mainly due to a fall of 15 in the notifications from the western area. A rise in the notifications of scarlet fever was general throughout the country except in the north-eastern area where a small decline occurred.

In Eire a decrease was recorded in the number of notifications of measles 76 and whooping-cough 26 while a rise of 2 was reported for scarlet fever. These trends applied to most areas of the country. A further 25 cases of measles were notified from the outbreak in Clare Kilrush R.D. The largest returns for scarlet fever were Dublin C.B. 146 and Galway U.D. 12.

In Northern Ireland a decrease of 38 was reported in the number of notifications of measles from Belfast C.B.

## Week Ending October 23

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1389, whooping-cough 2163, diphtheria 153, measles 5303, acute pneumonia 426, cerebrospinal fever 31, acute poliomyelitis 76, dysentery 99, paratyphoid 4, and typhoid 13.

## Medical News

## Medical and Biological Abstracting

To avoid duplication of effort among certain abstracting services an Interim Coordinating Committee on Medical and Biological Abstracting was set up in October, 1947, by Unesco and will now be jointly sponsored by the World Health Organization. Arrangements have been made to exchange abstracts between some of the agencies concerned. The experiment is still in progress. The Interim Committee, believing that its work can be usefully continued, has invited certain other non-profit making organizations in the field of medical and biological abstracting to serve on it. When these invitations have been accepted, a full meeting of the Committee, which will then cease to be interim, will be held in Paris in the summer of 1949. Any organizations interested in this work should communicate with the Department of Natural Sciences, Unesco, Unesco House, 19, Avenue Kleber, Paris XVIe.

## Clergy's Appreciation of Medical Profession

The Lower House of Convocation of Canterbury recently passed the following resolution:

That at this first Session of Convocation after the inauguration of the National Health Service this House desires to place on record its grateful appreciation of the generosity and kindness shown through many generations by members of the medical profession to the clergy and their families as well as to countless other persons of small means in times of sickness and need.

The Lower House of Convocation is a representative assembly of all the clergy of the Church of England in the southern two thirds of England.

## Wessex Rahere Club

The first annual dinner of the Wessex Rahere Club was held at the Royal Hotel, Bristol on Oct 17. Dr E. R. Cullinan attended from St. Bartholomew's Hospital, and some thirty-six members were present under the chairmanship of Dr G. D. Kersley. It was agreed that membership of the club should be open to all Bart's men resident in Somerset, Wiltshire, and Gloucestershire with the possibility of extending the area later. Mr C. E. Kindersley (Bath) was elected chairman and Mr A. Daunt Bateman (3 Circus, Bath) honorary secretary for the coming year. The 1949 dinner will be held in Bath on a Saturday in October. It is hoped that any Bart's men who are interested and have not yet been in touch with the club will notify their whereabouts to the honorary secretary so that they can be kept informed of future meetings.

## Isotopes for Research

The Ministry of Supply states that radioactive isotopes have now been produced at Harwell for some months in the low-power pile to provide for the immediate needs of research workers. The production of the small pile is nearing its maximum and has recently been making about 120 samples a month, of which two thirds have been for users outside the establishment. Among the isotopes of particular use to biological workers are Na<sup>24</sup>, K<sup>40</sup>, and Br<sup>80</sup>, whose short half-lives preclude their import from America. Workers who wish to use isotopes are invited to discuss any unusual problem with the Isotope Information Officer, Atomic Energy Research Establishment Harwell, near Didcot, Berks. Allocation of radioactive isotopes must be approved by the Isotope Allocation Committee (chairman, Sir John Cockcroft, F.R.S.). Radioactive isotopes may also be obtained from the U.S.A. and Canada, but requests must be sponsored by an appropriate authority such as the Medical Research Council. Inquiries should be addressed to the Secretary of the M.R.C., 38 Old Queen Street, London, S.W.1. The Ministry has purchased a quantity of N<sup>15</sup> from the U.S.A. and allocated some of it to the M.R.C. The rest is available for distribution to workers whose research is sponsored by the appropriate body (for medicine, the M.R.C.). At present there is a shortage of mass spectrometers for assay and the M.R.C., which has two instruments operating at the National Institute for Medical Research, Hampstead, is therefore prepared to do assay work and to advise in the preparation of samples from biological material.

## Radioactive Elements for German Research

The Control Commission has decided that radioactive elements may be supplied for medical research in Germany. They will be provided from the atomic pile at Harwell, and their use will be demonstrated by a team from Harwell.

**Sparpence for Health**

The National Association for the Prevention of Tuberculosis is an independent organization, receiving no money from the Government, whose aim is to help the tuberculous patient and to educate the public in the prevention of tuberculosis. In the last ten years it has raised about a quarter of a million pounds by selling attractive stick on labels for Christmas letters and parcels. These labels, which have been given to the N.A.P.T. by the Canadian Tuberculosis Association, are now on sale again at 4s a hundred from the Duchess of Portland, Chairman, N.A.P.T., Tavistock House North, Tavistock Square, London, W.C.1. Every halfpenny helps to keep alive the voluntary spirit which is so necessary to this work.

**Nobel Prize for Work on D D T**

Dr Paul Moller, of Basle, is to be awarded the Nobel Prize for Medicine for his discovery of the insecticidal properties of D D T. This substance was made in 1874, but it was first used as an insecticide in 1939 to check a plague of potato beetle in Switzerland. Dr Moller was working in the laboratories of the J. R. Geigy Dyestuffs Company of Basle, which in 1942 drew the attention of the British Government to the usefulness of D D T as an insecticide.

**Vitamin C in Blackcurrants**

The Ministry of Food announces that blackcurrant syrup and purée will again be available through retail chemists for children, invalids, and others in need of additional vitamin C. Children are those aged up to 18 holding green or blue ration books (RB2 or RB4). Owing to the high price of fruit this year, the maximum retail price of the syrup will be 2s 10d for a 1½ oz bottle and of the purée 1s 6d for a 9½ oz can. Both commodities will contain not less than 20 mg of vitamin C per fluid ounce.

**Mr A G Timbrell Fisher**

Mr A G Timbrell Fisher has been elected to the Fellowship of the American College of Surgeons.

**Dr A C Norman**

The King of Iraq has conferred the decoration of Insignia of the Third Class (Civil Division) of the Order of Al Rafidain upon Alfred Clarence Norman, C.B.E. M.D., in recognition of valuable services rendered by him as Director of the X-ray Institute at the Royal College of Medicine, Baghdad.

**Medical Golf**

The following are the results of the competitions at the autumn meeting of the Medical Golfing Society held at Royal St. Georges, Lindsy-Rea Cup, Dr C Carron Brown (5) 3 up, Canny Ryall Cup, Dr G Armitage (5) 72, Veterans Cup, Dr D Craig (12), 74, Milsom Rees Cup, Dr A Galletly (4).

The autumn meeting of the London Irish Medical Golfing Society was held at Aldeburgh. The results are as follows: O Malley Cup, Dr R J Sandys (15), 1 down, Lett Cup (foursome), Dr T J Kelleher and Dr T Murphy 1 down, Canny Ryall Cup, Dr G Purcell (12), 70, Cahill Trophy, Dr S C Morrow (13), Mannix Cup, Dr S C Morrow (13), Veterans Prize, Dr J J Cremin (8), 79.

The London Irish Ladies Medical Golfing Society have completed a successful year with a meeting at Beaconsfield. The following were the winners of the competitions: Scratch Prize, Mrs E McGrath (19), 97, Canny Ryall Cup, Mrs K Cowles (26), 80, Foursomes, Mrs E McGrath and Mrs K Nolan (all square). The captaincy has been held by Mrs G Walters and the secretarial duties have been carried out by Mrs R Lindsy Rea. The annual general meeting is being held to day, Nov 5 at 82, Harley Street, London W.1.

**Wills**

Dr Legh Richmond Herbert Peter Marshall, of Walkernburn, Peebles shire, left £31,090. Dr Alfred Milne Gossage of Chalfont St Giles Bucks, late consulting physician to the Westminster Hospital and of the Princess Elizabeth of York Hospital for Children, left £17,236. Mr Henry Secker Walker, of Bradford-on-Avon, Wilts, left £114,937. Dr William James Deacon Inness of Horwood, Devon, late Director of Medical Services, West African Medical Staff, left £4,329.

**COMING EVENTS****London Chest Hospital**

A course of lectures and demonstrations will be given at the London Chest Hospital (Victoria Park E.) on Fridays, at 5 p.m., from Nov 5 to Dec 17, 1948, and from Jan 7 to March 25, 1949. Admission is by ticket only. The fee is £3 3s, except in the case of serving and demobilized members of H.M. and Allied Forces. Applications should be addressed to the dean of the hospital. Details of the lectures will be published in the diary column of the *Journal* week by week.

**Maudsley Lecture**

The twenty third Maudsley Lecture will be delivered by Mr Clud Mullins before the Royal Medico Psychological Association at 26, Portland Place, London, W., on Friday, Nov 12, at 2.15 p.m. His subject is "Psychiatry in the Criminal Courts." Psychiatrists and other medical practitioners, psychologists and members of the legal profession, teachers and students, and all interested are invited to attend the lecture. Admission is without ticket.

**S.E. Metropolitan Regional Tuberculosis Society**

The inaugural meeting of the South East Metropolitan Regional Tuberculosis Society will be held at the County Hospital, Sevenoaks Road, Orpington, Kent, on Nov 13 at 10.30 for 11 a.m. The Constitution of the Society will be discussed and approved and the assembly will be addressed by the Senior Administrative Medical Officer of the Region, Brigadier H. L. Glyn Hughes. All interested practitioners in the Region, and particularly those engaged in chest work, are invited to attend.

**Public Health Congress**

The provisional programme of the Public Health and Municipal Engineering Congress and Exhibition, to be held at Olympia, London, from Nov 15 to 20, has been issued. The programme is not yet complete, but 21 sessions have been arranged under the auspices of the leading professional institutes and associations, and 26 papers will be read, the subjects, to which additions will be made including hospital administration in the National Health Service, mental health services, refuse storage, sewage, rural water supplies, water supply gathering grounds, district heating, communal health facilities on housing estates, housing of old people, plumbing research, quarrying and highway engineering, planning of a new town, park organization and equipment, and health visitors work. The Exhibition and Congress are being held under the patronage of the King and the presidency of the Minister of Health, and the Ministries of Health and Transport are both represented on the organizing council, the chairman of which is Sir Roger G. Hetherington. The joint honorary secretaries are Mr G. P. Warner Terry and Mr C. W. Scott Giles, and the Congress address is 84, Eccleston Square, London, S.W.1. Contributions of particular interest to the medical profession include papers by Sir Ernest Rock Carling on 'The Provision of Homes for Old People' on Nov 15, at 3 p.m., by Mr George Watts on 'Hospital Administration in the National Health Service' on Nov 16 at 10.30 a.m., by Dr Rees Thomas on 'Mental Health Services' on Nov 17, at 10.30 a.m., by Mr A. R. Kerrell Vaughan on 'The Provision of Communal Health Facilities on Housing Estates' on Nov 19, at 10.30 a.m. and by Miss B. Townsend on 'The Health Visitor's Place in the Health Team' and Miss E. C. Jackson on 'Day Nurseries, their Uses and Abuses' on Nov 20, at 3 p.m.

**Films on the "Neuraxis"**

A joint meeting of the Scientific Film Association and the Royal Society of Medicine will be held at 1, Wimpole Street, London, W., on Monday, Nov 15, at 8 p.m. when Professor Pedro Belou, professor of anatomy at the Faculty of Medical Sciences, Buenos Aires, will show his films on the Neuraxis. Fellows of the Society and visitors introduced by Fellows will be welcome.

**SOCIETIES AND LECTURES****Monday**

MEDICAL SOCIETY OF LONDON, 11 Chandos Street, Cavendish Square W.—Nov 8, 8 p.m. Pathological meetings.

UNIVERSITY COLLEGE, Gower Street, W.C.—Nov 8, 4.45 p.m. *The Electron Microscope and its Biological Applications* by Dr E. M. Crook. M.Sc. Ph.D.

WESTMINSTER HOSPITAL SCHOOL OF MEDICINE, Meyerstein Lecture Theatre, Horseferry Road, London, S.W.—Nov 8, 5.30 p.m. *Pyelonephritis and Renal Suppuration*. Clinico-pathological meeting.

**Tuesday**

CHELSEA CLINICAL SOCIETY—At South Kensington Hotel, 47 Queen's Gate Terrace, London, S.W.—Nov 9, 7 for 7.30 p.m. *The Value of Chiropractic in Foot Disabilities*. Discussion to be opened by Mr J. H. Hanby. F.R.C.S.

GLASGOW UNIVERSITY—Nov 9, 4.30 p.m., *The Evolution of Medical Education in Scotland* by Dr Douglas Guthrie.

INSTITUTE OF DERMATOLOGY, 5 Lisle Street, Leicester Square, London, W.C.—Nov 9, 5 p.m. *Scars* by Dr H. Corsi.

INSTITUTE OF LARYNGOLOGY AND OTOTOLOGY, 330-2 Gray's Inn Road, London, W.C.—Nov 9, 11.30 a.m. *The Physical Principles of Audiometry and Hearing Aids (II)* by Dr T. S. Littler. 2.15 p.m. *The Respiratory Tract in Infectious Diseases* by Dr E. H. R. Harries.

INSTITUTE OF UROLOGY—At St. Paul's Hospital, Endell Street, London, W.C.—Nov 9, 11 a.m. *Latent Syphilis* by Dr W. N. Mascall. At St. Peter's Hospital, Henrietta Street, London, W.C.—Nov 9, 5 p.m. *Calculus Disease of the Bladder and Urethra* by Mr F. R. Kilpatrick.

*eight minutes to go . . .*



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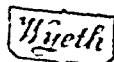
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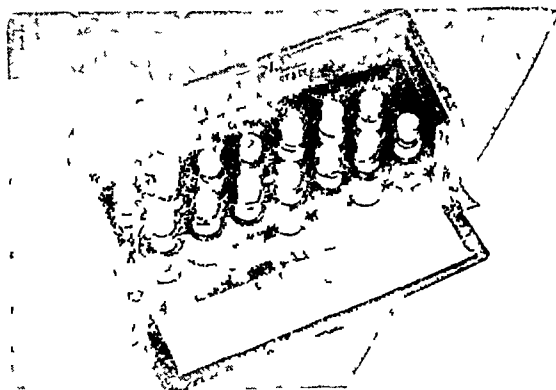
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Wednesday

**INSTITUTE OF UROLOGY**—At St Paul's Hospital, Endell Street London, W.C., Nov. 10, 11 a.m.; *Manifestations of Tertiary Syphilis* by Dr A. H. Harkness. At St Peter's Hospital, Henrietta Street London, W.C., Nov. 10, 5 p.m.; *Injuries of the Bladder* by Mr J. G. Sandrey.

**ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW**, 242, St Vincent Street, Glasgow—Nov. 10, 5 p.m. *The Clinical Use of the Antihistamine Drugs* Finlayson Memorial Lecture by Professor D. M. Dunlop.

**ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE**, 28, Portland Place, London, W.—Nov. 10, 3.30 p.m. *Placing the Impaired Worker in Industry* by N. L. Lloyd.

**ROYAL SANITARY INSTITUTE**, 90, Buckingham Palace Road, London, S.W.—Nov. 10, 2.30 p.m. *Science in the Imported Meat Industry* Benjamin Ward Richardson Lecture by Dr E. H. Callow, Ph.D., and Dr M. Ingram, Ph.D.

Thursday

**EDINBURGH ROYAL INFIRMARY**—Nov. 11, 5 p.m. *The Diagnosis and Treatment of Depression* Honyman Gillespie Lecture by Dr T. A. H. Munro.

**INSTITUTE OF DERMATOLOGY**, 5, Lisle Street Leicester Square, London, W.C.—Nov. 11, 5 p.m. *Pruritus* by Dr L. Forman.

**INSTITUTE OF UROLOGY**—At St Paul's Hospital, Endell Street, London, W.C., Nov. 11, 11 a.m. *Cardiovascular Syphilis* by Dr E. G. B. Calvert, 5 p.m. *Marion's Disease (Bladder Neck Obstruction) and Vesical Diverticula* by Mr W. K. Irwin.

**PLANNING FORUM**—At Planning Centre Hall, 28, King Street, Covent Garden, London, W.C., Nov. 11, 6.15 p.m. *Population and Emigration* discussion to be opened by Professor Brinley Thomas, Ph.D., and Mr R. J. Goodman.

**ROYAL COLLEGE OF SURGEONS OF ENGLAND** Lincoln's Inn Fields London, W.C.—Nov. 11, 5 p.m. *Proctology Throughout the Ages* Bradshaw Lecture by Mr L. E. C. Norbury.

**ST. GEORGE'S HOSPITAL MEDICAL SCHOOL** Hyde Park Corner, London, S.W.—Nov. 11, 4.30 p.m. *Neurology and Psychiatry* Lecture-demonstration by Dr Desmond Curran.

Friday

**LONDON CHEST HOSPITAL** Victoria Park E.—Nov. 12, 5 p.m. *Acute Respiratory Infections* by Dr R. Sleigh Johnson.

**ROYAL INSTITUTE OF PHILOSOPHY**—At University Hall 14 Gordon Square London, W.C., Nov. 12, 5.15 p.m. *Morality and the Social Sciences* by J. A. Passmore M.A.

**ROYAL MEDICAL SOCIETY**, 7, Melbourne Place Edinburgh—Nov. 12, 8 p.m. *Exophthalmos* by Mr D. S. Alexander.

**ROYAL MEDICO PSYCHOLOGICAL ASSOCIATION**—At 26, Portland Place, London, W., Nov. 12, 2.15 p.m. *Psychiatry in the Criminal Courts* Maudsley Lecture by Mr Claud Mullins.

**S. LILY OAK HOSPITAL MEDICAL SOCIETY**, Birmingham—Nov. 12, 8 p.m. *Hypoglycaemia* by Professor Henry Cohen.

**WEST KENT MEDICO CHIRURGICAL SOCIETY**—At Miller Hospital, Greenwich High Road London, S.E., Nov. 12, 8.30 p.m. *Treatment of Skin Conditions in General Practice* by Dr W. G. Tillman.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Holmes—On Oct. 25, 1948, at Edgware the wife of Mr Stanley Willson has a son.

Jones—On Oct. 29, 1948, at Gainborough House, Wilsons Avenue, Morden to Evelyne wife of Dr G. Lewis Jones a daughter—Margaret Lynne.

Kennedy—On Oct. 16, 1948, at Clifton Nursing Home, Whitchurch to Patricia (nee Quinn) wife of Dr D. B. Kennedy a son.

Loche—On Oct. 26, 1948, at Rubislaw Nursing Home, Aberdeen to Kathleen (nee Neill) wife of Norman J. Loche, F.R.C.S., 4 Albany Terrace, Aberdeen a daughter.

McMillan—On Oct. 23, 1948, at Carlisle Maternity Hospital to Monica Corlette (nee Brown) wife of Dr R. L. McMillan a daughter.

Murray—On Oct. 17, 1948, at Regent's Park Nursing Home to Jean wife of D. Neville Murray of 101 Barons Keep, Barons Court, London, W. a son—Stephen Francis.

Nicholson—On Oct. 10, 1948, at Harrogate to Frances (nee Burdon-Cooper, B.S.) wife of B. Clive Nicholson, M.D., M.R.C.P., a son.

Perry—On Oct. 21, 1948, at Cardiff to Joan wife of John N. M. Perry, M.B. B.S., F.R.C.S., a daughter.

Poole—On Oct. 19, 1948, to Diana (nee Myott), M.B. B.S., wife of Paul Poole of 6 Grosvenor Road, Purley, a daughter—Janet Frederica.

Steele—On Oct. 24, 1948, at Vaynor House, Welsh Street, Chepstow to Pauline wife of Captain D. E. Steele, R.A.M.C., a daughter—Hilary Ann a son—Robert.

MARRIAGES

Freeman-Lansell—On Oct. 28, 1948, at Melbourne, Australia, John only son of the late Ernest Freeman and Mrs. Freeman of Amesbury House, 12, Melbourne, to Deborah Lansell, fourth daughter of Colonel A. J. and Mrs. Lansell of Kenyang, Terang, Victoria, Australia.

DEATHS

Frederick—On Oct. 23, 1948, at Gwenn Haven, Cornwall, Harry Hunslow Brand, M.R.C.S., L.R.C.P., D.P.H.

Green—On Oct. 23, 1948, Robert Kent Green, M.B. Ch.B., G.L.S., D.P.M.

Freeman—On Oct. 22, 1948, at Brookfield House, Milbrook, near Plymouth, Arthur C. Freeman, M.B. Ch.B., D.P.H.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Hodgkin's Disease

**Q**—What is the latest treatment of Hodgkin's disease? What are the results of treatment with nitrogen mustard? Is irradiation still the most efficient treatment?

**A**—It is optimistic to regard any treatment for Hodgkin's disease as efficient. Irradiation remains the standby, and it will usually cause the enlarged lymph nodes to shrink, though most patients finally become "radio-resistant." The nitrogen mustards, especially methyl-bis-(beta-chloro-ethyl) amine hydrochloride, have been used recently and in many instances will cause a temporary remission in the disease. This substance does not cure Hodgkin's disease, and in the early stages radiotherapy is to be preferred. Nitrogen mustard is often effective in relieving—albeit temporarily—the symptoms of the generalized stage such as fever, cachexia, prostration, pruritus, and the pain of skeletal infiltrations. Some patients whose disease has become resistant to irradiation are improved by a course of this drug.

Stilboestrol in Dysmenorrhoea

**Q**—Is there any danger in treating severe dysmenorrhoea with stilboestrol indefinitely? The case I have in mind is a patient of 22 who has been having 1 mg stilboestrol daily for the first ten days of the menstrual cycle. Recently she had a dilatation and curettage but this failed to relieve the dysmenorrhoea and the administration of stilboestrol was recommenced. If prolonged treatment with stilboestrol is contraindicated what alternative is recommended?

**A**—If a psychological effect is excluded—as it can be by substituting inert tablets for the stilboestrol—oestrogens probably relieve dysmenorrhoea only when they are given during the first half of the cycle in a dose sufficiently large to suppress ovulation. Their effect, therefore, is limited to the cycle during which they are administered. Although it is not possible to produce concrete evidence, it is reasonable to suppose that prolonged and deliberate disturbance of the ovarian cycle in this way is potentially, if not actually, harmful in a young woman. The writer would therefore advise against sustained oestrogen therapy for dysmenorrhoea. Indeed all forms of hormone therapy generally give unsatisfactory permanent results in this condition.

The treatment depends very much on the cause of the pain. Have psychogenic and environmental factors been excluded? Have active physical exercises been tried? What type of dysmenorrhoea is present—is it congestive or is it of the spasmodic variety? If the latter, antispasmodics might be of some value, but failing that a second and more thorough dilatation of the cervix might be carried out. Hysterosalpingography to exclude malformation of the uterus might be useful. If all else fails and the pain is so severe as to be incapacitating, injection of the pelvic plexus with alcohol or presacral neurectomy should be considered.

Sterilization by Steam

**Q**—What is the correct pressure for steam sterilizing gowns, dressings and gloves? A salesman tells me that 10 lb (4.5 kg) for 35 minutes is absolutely safe and is anxious to sell me a sterilizer to operate at this pressure.

**A**—The deciding factor in sterilization is not pressure but temperature. The temperature of pure steam at 10 lb pressure is 115° C, and this is barely adequate for absolute sterilization. If steam under this pressure is admitted to a closed vessel containing air with no arrangement for displacing the latter, the temperature reached will be only 90° C. If half the air is discharged it will be 105° C. The answer therefore depends on the arrangements for air discharge only if this is complete, the air being blown out by steam before closing and allowing the pressure to rise, could this sterilizer be considered efficient.



## Physiology of Hearing

**Q**—*I have been unable so far to find an authority who can give me any information about the specific gravity of the fluids in the cochlea and their viscosity especially in diseased ears. I would also like references to information about theories of hearing.*

**A**—The perilymph has the same chemico-physical properties as cerebrospinal fluid. No record of analysis of endolymphatic fluid has been found. Modern views on the physiology of hearing may be culled from Stevens, S. S., and Davis, H. (1938), *Hearing: Its Psychology and Physiology* John Wiley and Sons, New York. Fowler, E. P. (1937) *Laryngoscope* 47, 289.

## Congenital Cystic Disease of Pancreas

**Q**—*A child aged 4 suffers from congenital cystic disease of the pancreas. He secretes no pancreatic juice at all. There is also a severe bronchial cough. Pancreatin is given regularly. Has this treatment been proved or not? What is the prognosis? What can be done about the cough?*

**A**—The prognosis at the age of 4 years depends largely on whether the pulmonary complication can be kept under control. If the cough is troublesome it would be advisable to try a course of aerosol penicillin inhalations, 20,000 units in 2 ml normal saline three to five times a day for a week. If this is effective, the same dose night and morning might be continued for another three weeks or according to progress. The invading organism is usually *Staphylococcus aureus* but if not sensitive to penicillin then a sulphonamide or streptomycin might be tried. As there is a danger of converting sensitive organisms to resistant ones it is advisable to stop aerosol treatment during the better periods of the respiratory condition.

Pancreatin improves the stools and seems to aid absorption of food from the gut. Anderson recommends its use, though May has cast doubt upon its clinical efficacy. Anderson considers diet and pancreatin given early in the disease help to prevent pulmonary complications. Usually as the child grows older improvement is observed, and so far cases have been followed up to fifteen years.

## Hartmann's Solution

**Q**—*The Ringer lactate (Hartmann's) solution formerly used for intravenous therapy in infants in this hospital was made up by adding an ampoule of concentrated solution to 480 ml of sterile distilled water and then adding the required amount of glucose solution to make a 5% solution. Our still gives slightly acid water and a small amount of sodium hydroxide was added before autoclaving. The final solution had a pH of about 8.0 (phenol red). Recently we have altered the method and the glucose is added to the water before autoclaving. Because of this we are unable to add the caustic soda as it tends to caramelize the glucose. The final solution now has a pH of 6.2. Will this make any difference or will the lactate be sufficient to buffer this in the blood? Can this solution still be used for the treatment of dehydration whether accompanied by acidosis or alkalosis?*

**A**—The slight acidity of the Hartmann solution will not have any ill effect, and once the lactate is oxidized in the body an ample excess of alkali will be available. It is therefore useful for correcting acidosis but in alkalosis Hartmann's solution should not be used, a simple glucose-saline solution is preferable.

## Injection Treatment of Hydrocele

**Q**—*Are good results obtainable in the treatment of hydrocele by injection with quinine and urethane and is this treatment painless? How does the result compare with operation in a patient aged 56?*

**A**—The injection treatment of hydrocele—carefully carried out—will certainly produce good results but should always be considered a second-best treatment in comparison with operation. This is because incomplete results due to loculation rather than obliteration of the hydrocele sac are by no means uncommon. It would be unwise to promise that the treatment is painless. Reactions vary greatly from patient to patient and are seldom completely absent. If the patient of 56 is otherwise fit he is much better advised to have an operation.

## NOTES AND COMMENTS

**Treatment of "Tennis Elbow"**—Dr JAMES CYRIAC (London W) writes: Surely the answer to the question on how to treat a 'tennis elbow' (Oct 9, p. 699) is not very helpful. It merely lists a number of treatments to be tried one after the other. In fact, the answer is simple. There are three varieties of 'tennis elbow'. In the commonest (90%) the lesion lies at the lateral humeral epicondyle. For this variety no treatment known to me surpasses Mills's manipulation which even when carried out by our students of physiotherapy at St Thomas's Hospital fully relieves three quarters of all cases within a month. When the lesion lies at the musculo-tendinous junction, deep massage there is usually curative in three weeks. When the lesion lies in the bellies of the extensor muscles, two or three infiltrations with procaine bring about lasting recovery.

**Difficult Delivery**—Dr WALTER McMANN (Danville, Va., U.S.A.) writes: The answer to the question on this subject (Sept 18, p. 583) seems to evade the question. A baby can present itself by the vertex occipito-anterior, and still be delivered with difficulty. The trouble is that asymmetry, which is present during the descent of the foetal head, persists after rotation. The sagittal suture, instead of being in the midline, is several degrees to the side, usually left. The occiput is still anterior. Proper application of the forceps means putting them on at an angle so that the sagittal suture is perpendicular to the shank of the forceps. The handles are then brought to the midline by a sideways movement. While an assistant presses just above the symphysis to the opposite side (Willet's forceps could be used to hold the head in place) the forceps are checked and reapplied if necessary. Extraction follows. Of course a difficult delivery can also be occasioned by the sagittal suture being in the midline and the head deflexed, but from the description given of the forceps marks by the questioner I think this is not the difficulty which has been encountered.

**Transplantation of Ureter into Appendix**—Mr A. H. MORLEY (Surgical Specialist, Tanganyika Territory) writes from Dar es Salaam: In your issue of Aug. 7 (p. 321) in reply to a question from the Congo on transplantation of the ureter into the appendix you state that the risks of reflux infection are appreciably increased by reason of the more fluid contents of the caecum as compared with the usual site in the pelvic colon. But is this really so? At the site of anastomosis, wherever it may be, there must be a pool of mixed urine and faeces, and the lower down this is the more highly infected it will be. I had this brought home to me vividly some years ago in a case at the Sewa Haji Hospital. These very large vesico-vaginal fistulae are common in this part of Africa from difficult labour in immature girls in the bush, and when as frequently happens there is an extensive recto-vaginal fistula as well there is a problem indeed. In this case I made the usual examination under an anaesthetic and satisfied myself that the vesico-vaginal fistula was irreparable by me and that there was no recto-vaginal fistula. I then transplanted the ureters into the colon and was dismayed to find that her condition was now worse in that she now leaked both urine and faeces per vaginam. Further examination then showed that she had a very small high recto-vaginal fistula in the posterior fornix, the lumen of which was certainly no greater than that of the ureter and through which a mixture of faeces and urine was pouring.

I have utilized the appendix on one occasion for a unilateral transplant for an operation injury to the right ureter. In this case it seemed to be of advantage in that the patient passed apparently normal motions instead of the two or three watery motions daily which are the usual result of ureter transplants into the colon. It would seem that it can matter little from the point of view of the danger of reflux infection where the anastomosis is made and that the main consideration in the choice of site should be the ease and safety with which the operation can be performed, from this point of view the appendix may have something to recommend it.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 6 1948

## British Medical Association PROCEEDINGS OF COUNCIL

Wednesday October 27, 1948

A meeting of the Council was held at B M A House, London, on Oct 27, Dr H Guy Dain presiding

The Chairman extended a welcome to Lord Horder on his first attendance at a Council meeting and to Dr Logan Dahne and Dr R Hale White, who had been elected to fill vacancies

The resignation of Dr J M Hunter, a member of the Council representing constituencies in Northern Ireland, on his appointment to a full-time post under the General Health Services Board was intimated

A letter of greeting was read from the Medical Association of South Africa recently assembled at Pretoria for its annual meeting. The letter spoke of the pleasure with which that Association was looking forward to the South Africa meeting of the British Medical Association in 1951

It was reported that the General Assembly of the World Medical Association had accepted the invitation of the B M A to hold its next annual meeting in London in October, 1949, and that Dr Charles Hill had been elected president-elect

A report of the British Commonwealth Medical Conference held at B M A House in mid-September was presented to the Council. A proposal from the Conference was that, with a view to developing closer personal and professional relations through their national medical units between the nations linked in the Commonwealth a conference of representatives of such units be held once a year in conjunction if possible with a general meeting of the host association, that each country be invited to send two representatives, and that a pooling system be applied for the expenses of one representative from each country. Subject to confirmation, the first conference would be held in Saskatoon in June 1949 at the invitation of the Canadian Medical Association. The Council approved the principle of the proposal and referred it to the Office Committee to look into the question of cost and to report back

### Proposed Medical Practice Advisory Bureau

The Chairman of Council brought forward a proposal for the establishment by the Association of a Medical Practice Advisory Bureau to provide advice and information to general practitioners and those seeking to enter general practice as locum-tenents, assistants or principals, and those seeking hospital and other appointments on the opportunities which exist, the procedure to be followed and associated individual practice problems. He said that he had been impressed by the need for the Association to make evident to its members or intending membership the various fields other than that in which the Association was of service to its members. With the disappearance of sale of practices the work of the British Medical Bureau would cease largely to be lucrative. It was suggested that there was a service which should continue to be provided by the Association should take up this work and set up an advisory bureau. The directors of the British Medical Bureau had decided that the time would be opportune to do so. Any of its servants would be properly

compensated for loss of office, and as far as possible the clerical staff would probably largely be absorbed by the Association in undertaking this new work

Dr E A Gregg and several other members of the Council welcomed the proposal. Dr J C Arthur stressed the need for a regional service, and the Chairman said that it was anticipated that there would be branches in the provinces

The proposal was agreed to unanimously. On a further recommendation that the facilities of the Bureau be available free of charge to members of the Association a charge being made to non-members, Dr Vickers proposed and Dr Waterfield seconded that a small charge be made to all alike, members and non-members, but this amendment was lost. On the other hand, Dr J A Ireland proposed that it be free to all, this was supported by Dr F Gray, but was lost by 19 votes to 23, and the original proposal, with a general plan of arrangements, was approved. It was stated that the new Bureau would be under the general direction of a member of the medical staff of the Association

### "British Medical Journal"

On the report of the Journal Committee, Dr O C Carter the chairman, proposed that the reduced rate of subscription to the *Journal* which is conceded to students in medical schools in this country should be extended to cover the students of all recognized medical schools in the Commonwealth, provided that no objection was raised by the Medical Associations affiliated to the B M A. This was agreed to

Dr Carter stated that the Committee had carefully considered a memorandum by Dr I H Flack, the Assistant Editor on the possibility of publishing a popular journal concerned with matters of health. A small subcommittee had been set up to pursue the matter further

Discussion took place on methods of making the *Supplement* more useful to members. A view put forward was that all medico political information, reports, and correspondence should be concentrated in the *Supplement*, that some better descriptive name than 'Supplement' might be found, that the *Supplement* should if possible be separate or detachable, and that fuller information should be given concerning any negotiations in progress and any orders or regulations affecting the profession which were issued

Dr Gregg said that there was far more already in the *Supplement* than might be supposed from the comments of some members and he pointed in particular to the exceedingly informative Appendix to the Annual Report of the Insurance Acts Committee (*Supplement* Oct 16, p 138) concerning matters dealt with by the General Practice Subcommittee of the Negotiating Committee. He also mentioned the difficulty of reporting on negotiations while they were in progress, when the premature announcement that a certain point had been gained might actually prevent the subsequent gaining of a better point

Dr Carter mentioned the continuing difficulties arising from paper restriction, but he promised to refer to the Publishing Subcommittee the question of issuing the *Supplement* in a separate or detachable form.

The question of an advertisement recently appearing in the *Journal* from the Birmingham Executive Council was raised by Dr J A Brown. This advertisement required the doctor appointed to live at a certain house in Sheep Street. Dr Beauchamp said that it was not the policy of the Birmingham Executive Council to do this sort of thing, but in point of fact in this area, with which he was well acquainted, there was no accommodation available except the house in question. The advertisement had been referred to him by Headquarters before acceptance, and he took the responsibility. He knew that the advertisement sounded like part of a policy of direction, but it was not.

The Chairman said that the office was evidently exonerated in this instance in view of Dr Beauchamp's explanation, and possibly the publicity given to this matter would prevent its recurrence.

#### Advertising of Proprietary Medicines

A report by the committee concerned with the code of standards relating to proprietary medicine advertising was placed before the Council by Dr Carter. The report was concerned chiefly with a revised code which has been formulated by the Newspaper Proprietors Association and other newspaper and advertising organizations, together with the Proprietary Association of Great Britain (*Journal*, June 19, p 1194). The committee's view was that this code of some 19 classes of advertisements which should be excluded, although only permissive in character, stood a good chance of acceptance and foreshadowed a distinct improvement in proprietary medicine advertising.

It was agreed to reappoint the committee with generous powers of co-option, and to ask it to put forward any amendments to the code to present to the Minister of Health a reasoned statement on the question of the preparation and sale of patent medicines and generally to review the whole position and report back to the Council.

#### Scottish Affairs

Dr G MacFeat, in presenting the report of the Scottish Committee, said that it was proposed to reconstitute the subcommittee which had been working on the subject as the Central Consultants and Specialists Committee (Scotland), its reference being widened to give it power to report not only to the corresponding committee for England and Wales, on which it was directly represented but to its constituent bodies, and to negotiate, within any negotiating machinery that might be laid down, with the Department of Health for Scotland. Dr MacFeat said that a good deal of importance was to be attached to the establishment of this committee, which was regarded as essential if the unity of the profession was to be attained. He hoped that the committee would give some satisfaction to the consultants in Scotland, who had hitherto had very little organization.

In reply to questions by Mr Abel and others it was explained that the committee was composed of representatives from the five Regional Committees of Scotland, to which the staff committees of the hospitals elected representatives. In addition there were representatives from the Scottish Corporations, not however, elected by the Corporations themselves, but nominated by their Presidents or Presidents in Council. The Royal College of Surgeons of Edinburgh had so far not nominated, and another representative was attending only temporarily.

The Council agreed that the Association should accept responsibility for the working expenses of the new committee and gave its approval to the appointment of the Scottish Secretary as secretary of the committee.

Dr MacFeat also brought forward a recommendation that the Scottish Committee be authorized to reopen with the Crown Office negotiations for approval of a revised scale of fees for reports and evidence required by procurators fiscal in Scotland. He said that the proposed scale for attendance at precognitions and for making examinations, conducting inquiries and giving evidence represented a 50% increase on the fees now being received. He asked that the proposal be considered an interim arrangement only until the settlement of fees in England for corresponding services had been accepted.

The recommendation was agreed to, subject to the reservation of the right to reopen negotiations if necessary to bring the fees into line with those obtaining in England and Wales.

#### The New General Medical Services Committee

Dr Gregg moved a recommendation that the designation of the new committee to take the place of the old IAC should be "General Medical Services Committee". Its constitution he said, would be on the same lines as that of the Insurance Acts Committee, but it would be able to review its constitution including the grouping of areas for the election of representatives in the light of experience. It was expected that the new committee would do precisely the same kind of work as the old committee had done, and that it would receive from the Government the same practical recognition.

The recommendation was agreed to. Dr Gregg in reply to a question, said that the constitution could be brought up at the forthcoming "Panel" Conference, but regionalization would not solve the difficulty of areas which felt themselves to be under-represented or not represented at all. This was a question of minority representation, which in the case of a body of 40 or 50 members to cover the entire country was almost insoluble.

#### Remuneration of General Practitioners

Dr Gregg stated that a subcommittee had been appointed to prepare a case for improvement in the remuneration of general medical practitioners, and was meeting on the morrow. In meetings with the Ministry the new committee would follow the practice of the old. A list of matters to be brought forward was kept and if no satisfactory result was arrived at with regard to one of them it was kept on the list and raised again when opportunity offered.

The Chairman of Council said that while a method of remuneration on a basis fair to everybody might not be attainable immediately on the outset of the new Service it was to this end that they were working and no effort was being spared to ensure at the earliest possible moment a result satisfactory to all concerned.

#### Private Patients and Medicines

The question of the provision of medicines and appliances for patients treated privately was spoken to by several members. The Council was reminded that at the Cambridge meeting the representatives expressed the view that those who wished to make private arrangements should not be debarred from obtaining the necessary medicines and appliances through the National Health Service. The view of the Ministry, however, was that prescribing and dispensing were essential parts of treatment and could not be dealt with as though they were something separate. The Ministry also considered that no workable arrangement could be made whereby expensive and life-saving medicines were available for private patients to whom the cost would mean hardship.

Dr Hale White said that if this position were accepted the Association would be condoning the Minister's action in wriggling out of his promise and would also be going back on its own promise to help the general practitioner who was in private practice. Obviously many people were able to afford a private fee to the doctor but not the continuing cost of expensive drugs. The Minister had declared in Parliament that people could take the whole or any part of the Service.

One member suggested that the matter could only be decided in a court of law by a private patient issuing a writ of mandamus, and Dr Gorsky said that the privilege of demanding this part of the comprehensive service was the privilege of the patient not of the doctor, and until a patient took action the profession was powerless.

Dr Gregg said that this was one of the matters on the list of which he had just spoken, and a return would be made to it whenever the opportunity offered. The position of the Government, however, ought to be understood. The difficulty was that there would be no control of any sort over the prescribing of the private doctor. There had been—although rarely—cases of gross carelessness and extravagance in prescribing in the past. Somebody must make inquiry into such matters and how was it possible to ask a doctor for some explanation if he was not in the Service and there was no control over him?

But the question would still be considered and an endeavour made to reach an arrangement which would involve no serious injustice or gross irregularity

The report of the committee was approved

#### Central Consultants and Specialists Committee

Mr A M A Moore, in presenting the report of this committee said that it was now really getting down to its work. By a small majority the committee was opposed to the Spens Committee's suggestion for a system of merit awards, but it had referred this matter to the regions for advice and instruction to their representatives. The committee was anxious to consult the regions at all stages. Mr R L Newell said that he hoped the committee would work together as one body and with all other interested parties, because a united body to express the views of consultants as a whole would be very much needed in the near future.

Dr S Wand pointed out the difficulties under which many young members of the profession were labouring with regard to hospital appointments and questions of accommodation. Dr Pridham raised the question of payment of whole-time members of hospital staffs for domiciliary visits. Mr Moore said that the committee was seeking the advice of the regions on this matter also. The Secretary said that substantial representations had been made to the Ministry on a number of points concerning the position of consultants, including the difficulty of those who found themselves embarrassed with regard to their financial obligations as a result of the working of the provisional scheme of remuneration and the virtual disappearance of their private practice. He understood that the Specialist Spens Report had raised wider questions bearing on national expenditure concerning university teachers and others in fields outside medicine.

#### The General Practice Committee

On the recommendation of the General Practice Committee the Council agreed to inform the War Office that in the view of the Association it was both practicable and desirable to make arrangements for the medical examination of recruits to the Territorial Army by medical boards, and the Department was urged to establish such boards without delay. The view was also expressed that where it was impracticable to arrange for the medical examination of a recruit by a medical board the scope of the examination was now so wide as to justify a fee of 14 guineas for the examination and report when carried out by a single practitioner. Failing the adoption of these proposals by the War Office members of the profession are to be advised not to undertake the work of examining Territorial Army recruits.

Among the many other matters set out in the report of the General Practice Committee was the question of doctors' signs on cars as to which the committee took the view that there appeared to be no necessity for such distinguishing signs.

Mr Dickson Wright and Lord Horder took a different view. The latter said that while it was true that the sign might be abused doctors should have some privilege in this respect in the public interest. A very modest sign on the windscreen might attract the attention of the police, who were usually sympathetic so that they would allow the car to pass if it should be at the end of a queue.

It was agreed that this matter should be looked into again.

#### Membership of the Association

In presenting the report of the Organization Committee Mr Pridham said that the membership of the Association had for the first time touched 60,000.

Concerning the new Dominions in the East his committee had received the Indian Medical Association proposals for affiliation to the two bodies. They had been informed that the Indian Medical Association was in process of formation but had not proceeded far enough for approaches to be made. The Ceylon Branch which comprised about 100 members was anxious that its constitutional position in the Association should be changed now that Ceylon had become a Dominion and it desired that its future should be decided by the Council Medical Association. Nevertheless it was agreed to remain an integral part of the Association.

and to become an incorporated body. The Organization Committee was advising the Branch on the steps it should take in the matter.

Dr Pridham reported that the committee had given careful consideration to proposals of the Winchester Division for reorganization of the constitution of the Association, which had aroused considerable interest. The Division had accepted an invitation to send representatives to discuss its proposals at the next meeting of the committee. The committee contemplates reporting on the whole matter to the Council in January.

#### Ethical Business

It was reported that the Medical Association of South Africa which had found it necessary to ask its members not to accept appointments under the Provincial Hospitals Ordinance (Transvaal), 1946, had requested that the attention of practitioners in the United Kingdom should be drawn to the fact that they could materially assist their colleagues in South Africa by not applying for such posts. The Central Ethical Committee considered that the circumstances were such as to justify an 'Important Notice,' but in view of the recent change in status of the Medical Association of South Africa this involved an amendment of regulations. It was therefore proposed that the regulations relative to the insertion of such notices be amended to provide that if the chairman of the Central Ethical Committee was satisfied that the information justified such a course such notices might be inserted upon application of the Medical Secretary of the Medical Association of South Africa (or of the General Secretary of the Canadian Medical Association). This was agreed to.

Another recommendation from the committee, which was approved, was that in advising patients referred for consultation, including those referred for examination under the Supplementary Ophthalmic Service, the general practitioner was acting in accordance with the recognized ethical custom of the profession in recommending to the patient the particular specialist whom he regarded as best fitted to provide the service required.

#### Port Medical Officers

On the report of the Public Health Committee which was presented by the acting chairman Dr R H H Jolly, the question arose of a scheme proposed by the Bristol Corporation and the National Dock Labour Board whereby two whole-time port medical officers employed by the Corporation were permitted to carry on private practice to such an extent as to enable them to make a personal contract with the Dock Labour Board to act as medical officers in an accident and first-aid scheme. The matter had been raised by the Bristol Division, and the Public Health Committee, after a lengthy consideration of the local circumstances, passed it on, with comments, for the information of the Occupational Health Committee. It was stated that the Dock Labour Board had refused to advertise these appointments. Although it appeared that the arrangement was now an accomplished fact and nothing very useful could be done in this particular matter, which had certain exceptional aspects, it was agreed that a protest should be forwarded to the proper quarter with an expression of the hope that such arrangements would not be repeated in the future.

#### Women Medical Officers in the Armed Forces

Sir Percy Tomlinson, chairman of the Armed Forces Committee, made a statement on the question of equal status for women medical officers in the armed services. This principle of equal status had been strongly affirmed by the Medical Women's Federation whose resolutions on the subject had been supported by the Annual Representative Meeting 1947. The view of the Armed Forces Committee, however, was that the Federation should not be supported in its representations to the Government on this matter, and it asked the Council to rescind a resolution of its own, passed in June, 1947, stating that it was prepared to support the Federation.

The Council agreed that the Medical Women's Federation should have an opportunity of studying Sir Percy Tomlinson's statement and that the matter be deferred to the next Council meeting, which would have before it both Sir Percy's statement and the reply.

**Association Finance**

The Treasurer (Mr A M A Moore) presented a financial statement covering the Association's accounts from May to August. He pointed out that, although income had risen expenditure had risen at a greater ratio but many items of expenditure were non-recurring—for example it was hoped that in future it would not be necessary to have four Representative Meetings in one year. Dr Wand suggested that a budget for the next financial year should be prepared well in advance and that with it there should be circulated a statement of the case for an increased subscription from Jan 1, 1950.

**Miscellaneous Business**

The Arrangements Committee submitted an early programme for the scientific part of the Harrogate Meeting, 1949. It proposed that the meetings of Sections should cover four days instead of three, and should begin on the Tuesday. This proposal was favoured by the Council. Dr Gorsky urged the creation of a Section of Forensic Medicine and Dr Wand a Section of General Practice, and these were noted for the meeting of 1950.

The report of the Building Committee, presented by Mr L. Dougal Callander, stated that the redecoration of the basement garage at Headquarters was practically completed and would afford accommodation for the parking of up to 60 cars.

On the proposal of Dr R G Gordon chairman of the Science Committee, the subjects of the essays for Association prizes for 1949 were agreed to and the Science Committee's proposal that the Association should become a contributing member of the British Standards Institution was also accepted.

The report of the Committee on Nursing was presented by Dr Mary Esslemont. It contained proposals for nursing legislation, as yet confidential, to be presented to the Government. The Chairman of Council expressed great appreciation of the work of this committee, and said that the document before them was probably the best that had ever appeared on the subject of nursing, not even excepting the report of the Working Party.

Reports from the Occupational Health Committee, the Colonies and Dependencies Committee, the Health Centre Committee, and the Committee on Psychiatry and the Law were adopted without discussion.

The Council agreed to continue the work of the Central Medical War Committee provided the Ministry of Health continued its contribution towards the expenses.

A letter and resolution from the Winchester Division on the question of the Maternity Regulations under the National Health Service Act were after consideration referred to the General Medical Services Committee.

The Secretary made a report on a proposed Joint Consultative Committee of professional bodies to facilitate exchange of views on matters of common interest. The proposal commended itself to the Council.

The final matter which then came before the Council was taken out of the Chairman's hands by the Treasurer, Mr Moore who proposed that arrangements be made for the painting of Dr Dain's portrait the cost to be borne from Association funds. This was put to the Council by the Treasurer and unanimously and with acclamation approved.

The Council, which began its meeting at 10 a.m., concluded its business at 6.15 p.m.

**TRADE UNION MEMBERSHIP**

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar.

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend.

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huvton-with-Roby, Redditch (restricted to new appointments), Tivdlesley.

**WORK AND INCOME****A REPORT FOR THE MINISTRY**

The British Medical Association is gravely disturbed by reports reaching it from all parts of the country of the effect of the new Health Service on the work and income of doctors. It is clear that as a result of the Act there are many doctors who are overwhelmed with work because of the greatly increased public demand. In spite of doctors being fully occupied many of them are finding it impossible to meet their commitments. The Association is preparing a report on the whole position for presentation to the Minister of Health and the Secretary of State for Scotland.

**MEDICAL PRACTICES ADVISORY BUREAU  
HELP FOR THOSE SEEKING APPOINTMENTS**

The Council at its meeting on Oct 27 approved in principle the establishment of a Medical Practices Advisory Bureau to provide advice and assistance to medical practitioners, including those seeking to enter practice as locum assistants, or principals and those seeking hospital and other appointments on the opportunities which exist, how they should be followed up and associated individual practice problems.

It was agreed that the services of the Bureau, which would include an Appointments Information Service, should be free of charge to members of the Association and available to non-members on payment of appropriate fees. The B.M.A. appreciates that the need for these services is pressing and will put the scheme into effect as soon as possible. Further announcements will be made in due course.

**REMUNERATION OF HOSPITAL STAFFS  
CONSIDERABLE HARDSHIP**

The Association is seriously concerned at the present financial position of many members, both senior and junior of hospital staffs. The £1,600 ceiling on the remuneration of specialists is causing considerable hardship in many cases and junior residents whose salaries were always low, have been seriously hit by the new compulsory deduction of National Insurance and superannuation contributions. The Ministry of Health's statement that present salaries are merely a payment on account is no consolation to a specialist or an ex-Service married house physician who is rapidly getting into debt. Action to relieve hardship in these categories is urgently needed.

**COMPENSATION UNDER N.H.S.  
CLAIMS DELAYED**

Oct 31 was the last day by which claims for compensation should have been in the hands of the Ministry except where delay was unavoidable. Any claim now submitted should be accompanied by a statement of the reason for the delay. The Practices Compensation Committee has begun its task. Its composition is as follows.

Chairman: Mr P M Rees M.C. F.C.A., Member of the Council of the Institute of Chartered Accountants.

Members: Dr G F Buchan (London), Dr W Jope (Lancashire), Dr S Wand (Birmingham), Mr O E Tattersall (Twickenham).

The regulations provide for a joint secretariat and one of the assistant secretaries of the Association has been appointed to act jointly with the secretary appointed by the Minister. Individual members of the Committee cannot undertake to answer correspondence. Names of claimants are not divulged to members of the Committee all cases being dealt with under serial numbers. Information submitted with the claim is of course regarded as strictly confidential. Claims for early payment of the whole or part of the compensation due may be made at any time. Full details in support of the request should be given.

## URGENT PROBLEMS OF SPECIALISTS

### DISCUSSIONS WITH MINISTRY

Among the problems disturbing specialists and consultants at the moment are the following

*The gross inadequacy of the mileage allowance*—From information collected it is clear that the Government's figure of 6d per mile by no means covers the cost of running a car, still less the cost of the time spent in travelling. Transferred whole time salaried specialists who previously received basic car allowances have been severely penalized by the withdrawal of these allowances.

*The unsatisfactory position of medical superintendents*—Evidence continues to be received that the authority and status of medical superintendents are being deliberately undermined.

All these matters are being discussed with the Ministry. It is strongly felt also that there should be no limitation on the number of domiciliary visits in a quarter, that consultants should not be penalized by receiving no payment for visits to patients in nursing-homes, and that additional fees should be payable to anaesthetists, radiologists, and cardiologists to reimburse them for expenditure on apparatus and materials. The interpretation of the "half-day" needs to be better defined with greater regard paid to the length of time occupied in the ward round or session.

The whole scope of the National Health Service as it affects specialists must be defined better. The Interim Terms of Service lay down that the fees for professional work not forming part of the duties performed for the regional hospital board or board of governors may be retained. The question is, What professional work is not a duty performed for the board? Does it include examination of cases referred by medical officers of the armed Forces or by the Ministry of Pensions and the radiographic examination of emigrants demanded by the Canadian and Australian Governments? These questions have been taken up with the Ministry.

### GRANTS FOR TRAINING ASSISTANTS SOME DEDUCTIONS

Those interested in the scheme of grants for training assistants (*Supplement* Oct 30, p 149) will have noticed that apart from the car allowance the amount available for the assistant's salary and expenses will, in effect, be under £640 a year, for the principal will have to pay something like £67 a year in employers' contributions for national insurance and superannuation in respect of the trainee assistant. Similarly, the trainee assistant will pay a superannuation contribution of 6% of his salary and of course, the national insurance contribution of 4s 11d a week. In addition, the principal pays his own superannuation contributions at 6% on the whole of the £150 training grant he receives, the employers' share of 8% of the same amount being borne by the executive council. The Association has pointed out to the Ministry that no hint of these deductions was given when the announcement first appeared.

### CENTRAL CONSULTANTS AND SPECIALISTS COMMITTEE

#### AN AUTONOMOUS BODY

There is some misunderstanding about the status of the Central Consultants and Specialists Committee. It may be partly due to the wording of Minute 71 of the Representative Body (see *Supplement* July 3 p 10), which, after providing that the Committee shall be an autonomous body, states that the decisions of the Committee shall not be subject to approval of the Council or the Representative Body *except so far as they may affect other forms of practice or other aspects of the policy or activities of the Association*. Some have felt that this proviso may undermine the autonomy of the Committee but in fact its only effect is to limit the autonomy of the Committee to its own sphere of interest. In matters relating to specialist practice the Committee is completely autonomous. Its members are nominated chiefly by the Regional Consultants and Specialists Committees and representation is open to non-members of the Association and to members.

To remove any doubts about the Committee's autonomy, the Council is being asked to recommend to the Representative Body that the minute be amended to express more clearly the wishes of consultants and specialists.

How the various bodies shall operate is now being discussed with the Royal Colleges and Corporations, and also what liaison is necessary to provide one channel for presenting the views of consultants and specialists to the Minister of Health. These discussions in no way infringe the autonomy of the Central Committee. Whatever liaison is ultimately brought into being, the Committee has a unique part to play. The better it is supported the more effective will be that role.

### SCHOOL EYE CLINICS METHOD OF PAYMENT

Revised arrangements for the remuneration of medical practitioners in school eye clinics have been announced by the Ministry of Education. The fee will be 6 guineas for a session of three hours and a proportionately lower fee for sessions normally of shorter duration. The medical practitioner (if his name is entered on the local ophthalmic list) will also be entitled to a payment from the local executive council of 12s 6d per sight-test, which he will be required to hand over to the local education authority responsible for paying his sessional fee. Alternatively, he may give instructions to the executive council to pay the 12s 6d per sight test direct to the local education authority. The existing mileage payments which are made by local education authorities for travelling to school eye clinics will remain for the time being unaltered.

It is apparently not universally known that Form OSC 2 may be used by practitioners whose names are not included in the local ophthalmic list to prescribe glasses for children at school eye clinics. In such cases the local education authority will not be entitled to the payment of 12s 6d per case from the executive council.

It is understood that neither the Ministry of Education nor the Ministry of Health has issued any instruction to local education authorities discouraging the attendance of children under 5 at school eye clinics.

The transfer of school eye clinics to the control of regional hospital boards will begin shortly and should be completed within a year. When complete school oculists will probably be remunerated by regional hospital boards in the same manner as specialists—for example, by annual salary.

### ARMED FORCES AND C.M.S.

The Armed Forces Committee has started reviewing the remuneration of Service medical officers in the light of the recommendations of the two Spens Reports, and the Colonies and Dependencies Committee has begun the same task for the Colonial Medical Service.

### REPORTING INQUESTS ON SUICIDES

The B.M.A.'s proposal that the report of an inquest on a suicide should be limited to the fact of the inquest, the name and address of the deceased, and the verdict was condemned at the annual meeting recently of the Guild of British Newspaper Editors. The meeting passed a resolution approving discretion in the reporting of such cases but stating that the limits suggested by the B.M.A. "would suppress information of great public value and would thereby hinder justice and reform". The matter was discussed at the A.R.M. on June 29, when Representatives made it clear that, in the words of one of them "the last thing they desired was to interfere with Press freedom" but evidence was shown that the reporting of intimate details in these cases was often painful to the relatives and had on occasions brought about imitative suicides.

Authorities granted by the regulations made under the Dangerous Drugs Act, 1920, have been restored by the Home Office to John Stuart Prentice, M.B., Ch.B.



## National Health Service News

### Remuneration of General Practitioners

General practitioners will be paid on account for the period Oct 1 to Dec 31 on the same basis as they were paid for July 5 to Sept 30, states the Ministry of Health. It has accordingly asked local executive councils to inform the Minister not later than Nov 6 of the total number of forms EC 1 received up to and including Oct 30. The Ministry points out that the figures submitted by executive councils of the number of these forms received by July 31 were in many cases only estimates with the result that there was a substantial measure of inflation. It emphasizes that it is important that the forms should now actually be counted. The Ministry hopes to notify executive councils early in December of the amounts available for distribution to doctors.

### Berkshire Local Medical Committee

The Berkshire Local Medical Committee has decided to send a short report of the matters discussed at its meetings to all medical men in the county in order to keep them informed of current events.

### Lay Officers to Sign Certificates

The Ministry of Health states that intermediate medical certificates for hospital inpatients may be signed by a lay officer to relieve the burden on the medical staff of hospitals. The Ministry of National Insurance will prepare the two certificates, which will be known as Med 7 for short-stay patients and Med 8 for long stay patients. Local executive councils will distribute these certificates.

## THE ASSOCIATION AND PUBLIC HEALTH

A meeting of the Public Health Committee of the Association was held on Oct 8. It was reported that Dr James Fenton, the chairman who has been seriously ill, was improving in health and was hoping to take up his active work again before very long. The Committee re-elected him to the chair and appointed Dr R H H Jolly acting chairman until Dr Fenton should be able to resume.

A resolution from the Annual Representative Meeting calling attention to the inadequacy of the percentage increases in the salaries of whole time medical officers of health was considered. It was stated to be the desire of the Ministry of Health that, as soon as the general principles concerning the Whitley machinery had been agreed, the public health part of that machinery should be brought into operation.

On the subject of the present position regarding the production and distribution of milk and of other foods of animal origin it was decided to approach the National Veterinary Medical Association with a view to setting up a joint committee to investigate the matter and ultimately to go to the Ministries concerned in this question. A letter was read from the Ministry of Health expressing full appreciation of the Committee's view that local authorities should be advised of changes in the milk regulations prior to or simultaneously with the issue of any public announcement and regret was expressed that in a recent instance a letter addressed to medical officers of health announcing such a change was not issued earlier.

A resolution from the A.R.M. calling for the frequent reconsideration of the question of compulsory vaccination was noted. It was the feeling of the Committee that it would be in a better position to make representations on the subject when the results of voluntary vaccination were more fully known.

Another resolution expressed the view that it should not be part of the duties of the public health staff to examine municipal employees for superannuation. It was pointed out that the Association's policy in this respect was laid down in 1936, when it deprecated the increasing tendency for the employment by municipal authorities of part-time and salaried medical

officers not engaged in private practice for the performance of clinical work which was within the private practice sphere. A year ago in relation to a particular case the Committee stated that it was contrary to Association policy for medical officers of health to be required to undertake the medical examination of employees but considered it inadvisable at the moment in relation to the particular case to press the point.

Considerable time was spent over a similar question relating to port medical officers. This arose over a case at Bristol where the National Dock Labour Board—a federation of representatives of employers and employees in all ports—and the Bristol City Council have arranged for two port medical officers to be available to the Board for part of their time in connexion with an accident and first aid scheme in the dock area. The view of the Committee was that it was undesirable that men who are full time servants of one authority should be farmed out with another for part time work. It was pointed out however that there were peculiar circumstances at Bristol which have been explored by a deputation from the Association to the authorities concerned. The Avonmouth docks where the service is rendered, are in fact owned by the Bristol Corporation. While the National Dock Labour Board's general policy is to appoint whole time medical officers under its direction the Bristol dock scheme is not considered large enough to justify such an appointment. In the circumstances which were quite special to the area, the Committee agreed not to take further action on the understanding that the remuneration in respect of accident and first-aid work should be regarded as additional remuneration.

It was agreed that at the earliest reasonable moment negotiations should be opened with the local authority associations on fees for service to local authorities which have not hitherto been negotiated. These include fees for a wide range of services set out under eleven headings in a document placed before the Committee.

A report was received on representations made by the Committee and the Society of Medical Officers of Health on the Children Act, 1948. Certain minor amendments only were made in the sections which had been the subject of representations by a deputation from the Committee.

### HOUSE PURCHASE LOANS IN SCOTLAND

The Medical Insurance Agency has completed arrangements for providing financial assistance for young general practitioners entering the National Health Service in Scotland. In approved cases 100% of the valuation of house property can be advanced, together with a sum not exceeding £500 for equipment. Full details will be supplied on application to the Medical Insurance Agency, British Medical Association House 6 Drumsheugh Gardens, Edinburgh 3.

## HEARD AT HEADQUARTERS

### Science at Harrogate

The Harrogate Meeting in 1949 looks like having more scientific discussion than ever before. Within living memory three days have been devoted to the Sections but at Harrogate it is proposed to have four days. There will be 18 Sections in all four of them meeting on all four days, 10 of them on two days, and the remainder on one day. When the Sections were first instituted in 1867, they numbered only four—medicine, physiology, surgery and midwifery. Ten of the Section presidents will be from the West Riding.

### Are Doctors Civil Servants?

When application was made in the Kings Bench Division recently to fix a date for the hearing of an accident case convenient to three medical witnesses it was said that doctors are now 'Civil Servants or public servants'. In refusing the application Mr Justice Hilbery said that as four fifths of the

population were rapidly becoming Civil Servants nowadays they would get nowhere if he granted it. If I fix a date because of the difficulties of these professional men, I should have to fix a date for all professional men who are incommode by having to come to court on a day which upsets all their arrangements. Nearly everyone is a Civil Servant nowadays. How many millions are there?" Since there are commonly said to be about two million, he may have felt some alarm at the threatened dislocation of the court's business. But many doctors may wonder whether the demands made on them by the sick should be put in the same category as those made on Civil Servants.

#### Much in a Name

When the retiring President of the Medical Society of London, Mr W E Tanner, vacated the chair the other evening he introduced his successor with the full medical flavour of his name—Dr Theophilus Jenner Hooper Hoskin. The portraits of Jenner and Hooper, both of them outstanding figures in the early history of the Medical Society, were on the wall behind him. The "most noble Theophilus" was the person to whom the beloved physician St. Luke dedicated his Gospel, while Hoskin, the surname, had a medical significance before Dr Jenner Hoskin gave it further distinction for his father is still remembered as a well-known London physician.

#### Tributes

Though the Council of the Association spent a long day mostly looking to the future, it did not forget to honour the past. It warmly endorsed a tribute paid by the General Practice Committee to Dr J W Bone, who, for part of the time as chairman, has served that committee for 25 years, and a similar tribute by the Finance Committee to Dr Bone's outstanding services as Treasurer of the Association. The Central Ethical Committee also said a regretful good-bye to Dr N E Waterfield as chairman, he still remains a member of the committee. Finally, the Council agreed unanimously that Dr Dain's portrait should be painted at the expense of the Association, but this does not signify the end of Dr Dain's service to the Association, although he has intimated that this will be his last year in the chair.

#### The Bill Comes In

It is a good answer to those who prophesied a large number of resignations that at the end of October the membership for the first time touched 60,000, with five to spare, a gain of 2,000 during the last seven months. The revenue of the Association also is increasing, but the Treasurer has given a salutary reminder that expenditure has a tendency to increase at an even greater rate. Special Representative Meetings one after the other are important affairs, but they are costly ones too, each of them running into something like £1,000. Plebiscites, too, are not taken for nothing, and public relations and similar activities, while very fruitful, swell the bill. There are hints of an increase in the Association subscription from 1950. If that does come to pass it will only be in line with the course taken by societies and institutions of all sorts representing all professions and interests.

#### Occupational Health Abroad

The Occupational Health Committee some time ago asked for information about schemes of occupational health in foreign countries. Inquiries were made of the embassies of the United States and Brazil and of nine European countries. From the United States, Belgium, Norway, Switzerland, and Denmark full information has been forthcoming. The Soviet Embassy forwarded a copy of the constitution of the USSR and documents on public health, accident prevention and Soviet health protection in peace and war. Sweden, misunderstanding the request, sent particulars only about insurance. There has been no response from the others, yet the recent International Congress on Industrial Medicine in London showed what active occupational health work is being done in Czechoslovakia, the Netherlands and other countries.

#### Solving the Nursing Problem

The Association Committee on Nursing is very active, although much of its work, such as representations to the Government, must remain for the time being confidential. Under Dr Mary Esslemont, it has completed its discussion of the problem of obtaining more nurses through reformed methods of training and is now considering how the available force of skilled nurses may be used to the best advantage. Economy in the use of trained nurses is probably as necessary as bringing in new recruits. Incidentally, at the recent Nursing Conference held at Seymour Hall, London, the number of male nurses attending was remarkable. They came not from mental hospitals alone but from special hospitals such as urological centres.

## Correspondence

#### Basic Salary

SIR,—Apart from any other consideration, I joined the National Health Service in July in response to the express wishes of two junior partners. At that time the only official correspondence in my possession in regard to the scheme of payment for doctors under the Service which I had received consisted of a double sheet entitled "Remuneration of General Practitioners," issued by the Ministry of Health in April and the regulations of the Health Service entitled "Statutory Instruments, 1948 No 506." In the first of these it is stated that the fixed annual payment of £300 is open to any principal at his choice, while the second states as the first item of remuneration of practitioners "the fixed annual payment of £300." It was obvious to me having conducted a private middle class practice for nearly 30 years that my income would suffer severely under the new Service, and I therefore notified the Clerk of the London Executive Council at the time of entering the Service, that I wished to be remunerated under the system which would give me in the first place a fixed annual payment of £300.

On Oct 1 I received a cheque from the London Executive Council without any reference to payment of the fixed annual payment, and I therefore communicated with the clerk of the council to ascertain why my request in that matter had not been met.

On Oct 7 I received a circular letter from the clerk of the council in which he informed me that the fixed salary of £300 was no longer to be the option of any practitioner that it was only to be given at the discretion of the council and that the council would give its consent only in cases where there is reasonable justification for so doing. He went on to explain that reasonable justification included any case where a practitioner's income could be shown to have dropped substantially as a result of the new Service. He also went on to say that the council and the local medical committee would require to be completely satisfied that such justification exists. He finally wrote that if the grounds of my application were that my income had fallen it would be of assistance if I would supply information with regard to the amount of income at present derived by me "from professional and other sources."

On Oct 11 I wrote to the clerk of the council recapitulating the information in my possession at the time I joined the Service in regard to the remuneration of practitioners. I pointed out that I had received no notification that the terms which had been published had been altered and that I had not been consulted in regard to this unilateral alteration of these terms. I ended my letter by giving notice of my resignation from the Service as from March 31 next year.

On Oct 14 I received a letter from the clerk of the council acknowledging my letter of resignation. He said "It is impossible for me to say at the moment what information will be required in connexion with an application of this kind." I replied on the same date to the clerk of the council saying that his statement amazed me, considering the fact that on Oct 6 he had written asking me for information with regard to the amount of income at present derived by me "from professional and other sources."

I have had no further communication from the council, and I am therefore left to assume that the Minister of Health is free to seek my service under the National Health Act by offering me a contract regarding my remuneration for that service which he has not the slightest intention of honouring.

This surely is a useful illustration of the new meaning of the word freedom as now understood in a Socialist democracy—I am, etc.,

London S.E.24

KENNETH MCFADYEAN

SIR,—Local medical committees have recently had the invidious task of advising executive councils as to which applications for the £300 fixed annual payment should be granted. Among the considerations which weighed heavily with these committees has been the fact that each payment of the basic salary reduces the sum available for all other practitioners in the area. Many rejected claims would have been approved had the money been derived from some other source than the local pool. One chairman of committee stated that all the claims would have been approved in such circumstances. Nearly one third of the practitioners in the area concerned had applied for the fixed annual payment.

The logical inference is that had the Minister offered an optional basic salary in addition to the capitation pool it would have been generally acceptable. What a long way from the principle of no salary element in National Health Service! A demand for higher remuneration for practitioners is rapidly gaining impetus. An increase may be offered to the Negotiating Body in the form of a basic salary in addition to the existing central pool. Have our negotiators now any grounds for believing that such an offer would be unacceptable to the profession?—I am, etc.

Worcester Park, Surrey

R. V. GOODLIFFE

SIR—Two matters which seem to be exercising the minds of your readers at present are the failure of the B.M.A. to stick to its guns in the matter of joining the National Health Service, and the recent cold douche so many received along with their first cheque. May I as one who resigned from the B.M.A. because of what I conceived to be a foolish and unrealistic policy pursued by misrepresentation and supported in the main by those who (1) disliked the Labour Government (2) disliked Mr. Bevan, and (3) disliked change, comment on the above points?

While I believe there was too much inspiration against the Act from the Headquarters of the B.M.A., I consider nevertheless that B.M.A. policy did truly represent the views of the profession as evidenced by resolutions passed at Branch meetings and so the members who voted for these resolutions have little reason to complain now if the cheques they have recently received are not so large as they expected. They insisted on resistance to the Act rather than thrash out the details in good time. I agree, however, that we were led to suppose we should receive a basic salary of £300 per annum plus a capitation fee of 15s. 6d. to 18s., and we naturally supposed that if we did not elect to receive the basic salary we should get a correspondingly larger capitation fee. Instead we find a capitation fee of about 16s. reduced by one seventh if we are permitted the basic salary. The net result is that many are rather worse off than if all their patients had been put on the panel under the old arrangement.

To sum up in my opinion the B.M.A. is suffering from some unjustified mudslinging and the profession as a whole has been let down by the Ministry while blindly looking for wood amidst the trees—I am, etc.

Richmond, Yorks

A. F. T. ORD

### Opticians and Home Visiting

SIR—A patient of mine who is above 70 years of age and an invalid needs glasses. I gave her Form OSC1 and suggested that the optician should visit her to change the glasses. The optician refused to come and on inquiry with the executive committee I find that they cannot compel any optician to see the patient at her home, and furthermore if any optician agrees to do so the patient will have to bear the expenses. Obviously the patient can only go to the optician in an

ambulance or an invalid conveyance. To me it sounds ridiculous that a doctor, who is paid 3½d. a week has to visit the patient every time and an optician who I believe is paid 15s. 6d. for sight testing and is at the moment making about £120 (authentic information) per week, has no obligation to see an invalid at her home. This is our so-called comprehensive service. Personally I think that nothing can be more ridiculous—I am, etc.,

Preston, Lancs.

H. C. SAXENA

### Domiciliary Treatment of Obstetric Emergencies

SIR,—At a recent meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine the value of some form of 'flying squad' for the domiciliary treatment of obstetric emergencies was clearly illustrated. Reports from many parts of the country showed that the number of calls for such service are increasing each year, as are the number of maternal lives saved. Most speakers agreed that the efficiency of the service depended on the presence of an experienced obstetrician on the spot.

I would like to draw attention to the fact that the present rate of payment to consultants for domiciliary consultations under the National Health Service constitutes a serious setback to the further development of such schemes. In many cases the payment is even less than that previously paid by the local health authorities. When long distances have to be covered and half a day or night may be occupied in dealing with such cases a fee of 4 guineas plus 6d. a mile will hardly encourage suitably experienced persons to undertake the work. If a larger fee is payable for major treatment in the home (which is often to the advantage of the patient and saves valuable hospital beds) there is a corresponding reduction in the number of cases for which payment will be made in any one quarter.

If the standard of obstetric practice in the country is to be raised the drop in maternal mortality maintained, and the unnecessary use of hospital maternity beds avoided there is surely an urgent need for the revision of the rates of payment to consultants for domiciliary service—I am, etc.

A. P. BENTALL,  
Chairman of the Obstetric Committee  
Norfolk Executive Council

Norwich

### Cambridge Meeting Guarantors

SIR—When it was first decided to hold the 1948 meeting of the British Medical Association in Cambridge the customary practice was followed of getting the local medical men to become guarantors of £5.5s. towards any possible loss. I am now notified by Dr. F. A. Grange, the Secretary of the Finance Subcommittee here, that B.M.A. Headquarters have decided to abolish the guarantee and that no call will be made upon the guarantors.

I shall be grateful if you will kindly publish this announcement, mainly for the information of those concerned but also because it gives me an opportunity of expressing Cambridge appreciation to their visiting colleagues who paid their registration fee, as well as to Headquarters for relieving them of financial responsibility for the meeting—I am, etc.

R. SALISBURY WOODS  
Hon. Local General Secretary  
B.M.A. Meeting 1948

Cambridge

### Representation of Civil Service M.O.s

SIR—Has not Civil Service M.O. (Supplement Oct. 9 p. 134) overlooked the fact that the Institution of Professional Civil Servants is the body duly recognized as the responsible negotiating body for the medical officers as well as other professional officers, in the Civil Service? The Institution's medical panel is a very active body and has already given notice to the Treasury that the pay scales of the Civil Service M.O.s need adjustment in the light of the Spens Reports. The medical panel is now engaged in drawing up details of its claim, based on the Spens Report, and it goes without saying that in this matter the Institution keeps in touch with the B.M.A.—I am, etc.,

STANLEY MOYSE  
Gen. Secy

Institution of Professional Civil Servants

### Age Limit for Practice

SIR—I enclose a letter which I received two days ago. The subject matter is not of other than local interest, except for one paragraph, the second. There it states that according to our records you are already beyond the age limit which is being considered in connexion with this service, and I regret that when the service is functioning fully, I may be unable to avail myself of your assistance. Meanwhile please carry on until you are formally fired.

Everybody realizes that there is a great shortage of medical men. Every doctor realizes that the new Health Service will make that shortage stand out in high relief, yet we have a Government Department announcing that it is proposed to adopt an arbitrary age limit without reference whatever to efficiency. The action is the more illogical since general practice under the Health Ministry has no age limit.

I am a long way past the age limit—I know what it is—but I hold the (unpaid) chairmanship of two rather important Ministry of Labour Committees without any noticeable display of senility. Is not this a matter that the B.M.A. might well consider? You will notice that the letter is cyclostyled. There must be quite a number of us dodderers—I am, etc.,

Salford Lancs

STANLEY HODGSON

### Partnerships

SIR—Many partnerships will view with dismay the proposals which form the basis of the memorandum submitted on behalf of the profession to the legal committee on partnerships appointed by the Minister. So many partners count their capital assets in terms of valuable options as well as in the actual shares they held on the appointed day. It is of course right that the buying and selling of these options should be discontinued, although apparently that is still permissible under the present form of the Act. Such buying and selling is not only contrary to the general ban on such business imposed on all individuals who entered the Health Service but it may often involve a partner in the compulsory purchase of some share in a partnership the value and availability of which have been entirely changed because the Act came into force. On the other hand in a large number of cases it would be grossly unjust to deprive a partner of capital ownership to which he was entitled and which he had to some extent already bought. It is not clear whether the recommendation to stop the exercise of options etc. merely forbids the passage of money pending final settlement or whether this clause taken in conjunction with the next one tying compensation to the actual shares held by partners on the appointed day, is to be taken to mean that capital assets not actually held as such on the appointed day will be just rubbed out. If that is what is really intended, however liberal compensation may be, scores of partners are going to be very harshly dealt with.

Take the usual case of a junior partner. He often pays for a small share in the partnership and expects to do a large share in the work, increasing the total value of all the partners' shares by bringing to bear all his youthful enthusiasm and energy with a fund of up-to-date knowledge. If he is very green and has no previous experience of general practice it may be argued that this is all worth while for the experience and such guidance as a senior partner can offer. In actual fact that is seldom the case and most junior partners are not called upon to accept the position for such intangible rewards. It is in fact the rule for their agreements to specify that they will by definite stages or on partners' retirements succeed to greater rewards for their early labours for the common weal. They have at least the option to purchase at these junctures some of the shares held by the senior partner or partners, thereby enjoying henceforth a correspondingly greater share of the income and acquiring legally a right over capital they have already earned morally.

The price paid is fixed at the time the original agreement between the partners is drawn up in the full knowledge and expectation that the new partner by dint of his own labours, may increase the sale value of this share beyond that price. Prospects of that sort are a very real and most important consideration for what is paid down by an incoming partner and any law which deprives him of these is most unjust, especially if it intervenes after the junior partner has nearly completed the period of hard work for disproportionately little remuneration.

Surely he will not be frozen permanently in this position. One hopes that he will remain sufficiently liberated in future

to enjoy at least as much as he now earns, even if he has lost for ever all prospect of enjoying anything more than that when he takes a junior partner. But what of the share capital he should now be entitled to acquire at the initially agreed price? At present it is, and was on the appointed day, part of the senior partner's holding and may be included in the senior partner's claim for compensation. To say no more of the income is not the junior partner at least entitled to claim compensation for loss of whatever difference there may have developed between the agreed price of this share and whatever will eventually be paid to the senior partner by way of compensation for that gentleman's loss of the right (or rather obligation) to sell it to his junior? Even if the junior partner was not actually prevented by his agreement from exercising his option before the appointed day, there is no reason why the senior partner should be permitted to appropriate all right to compensation for it. If that is the force of the proposals (a) and (b) of our representatives, then the profession and in particular junior partners, may have good reason to hope that we shall be better represented in future—I am, etc.

Eye Suffolk

J SHACKLETON BAILEY

\*\* The Secretary of the Association writes. The effect of the recommendations where both or all the partners join the Service is that, at the appropriate time the partner who would have been the purchaser acquires a share without payment. The junior purchaser receives a free transfer the senior "vendor" receives compensation due on the share transferred.

### Capitation Fee

SIR,—The basic wrong still remains—namely, that the capitation fee is paid out of a pool and is subject to deductions. The only possible deduction is the 6% superannuation payment. Practitioners should be paid honestly an agreed and adequate fee from the Treasury. We are not interested in the manoeuvre of paying so much into a pool and then monkeying about with percentages and estimates by local executive councils. It is outrageous that £13 million should be subtracted to constitute a mileage fund. Peter is just being robbed to pay Paul. There is no sense or justice in claiming mileage if you know that your brother practitioners are so much the poorer. Mileage is an 'extra' not a deduction.

As regards the payment of basic salaries as distinct from capitation fee payments, why should one have a priority over the other? Both have got to be honoured equally and punctually. It is just not understandable why percentages and reserves have got to be set aside and guessed and underestimated. Pay the doctor what is due, not what is left over from an inadequate, arbitrary pool. Why on earth should a doctor in London be paid at 3s 9d and in Bristol at 4s 0½d? Both have entered the Service on the same terms and with the same heavy commitments, both may have that quarterly cheque as their sole income till Christmas—nothing coming in weekly or monthly—and yet the local executive committee have the power to withhold moneys at their whim and pleasure, and even do this to the extent of 9d per caput in London. The whole situation seems fantastic and barely believable. Luckily we have a generous and co-operative committee in our area.

Are the administrators of the NHS paid their salaries in similar fashion, fluctuating from time to time and place to place? I see discussions with the Ministry are now being sought and figures are being reviewed. Can we hope that the Ministry having got us safely in the bag, is likely to discuss anything?—I am, etc.,

Croydon Surrey

J W WAYTE

SIR,—I am stimulated to join in with the list of dissatisfied doctors who are writing letters to the B.M.J. by the excellent letter from Dr S. T. Pybus (*Supplement*, Oct 16 p. 143), who in my opinion expresses many of the thoughts which many of us have stored up in our minds. Doubtless much of our trouble has been brought upon ourselves by our insistence on the high ethical standard with which we approached the Service and the directions we gave to our negotiating body, combined with our childlike trust in the negotiators of both sides. Now, after receiving our first quarter's cheque, we are able to look upon the Service from a more practical angle—to realize that

we are going to find ourselves financially much embarrassed and that the position that we have struggled so hard to gain during the years we have been in practice has rapidly changed for the worse

Not only has this position changed financially, but also ethically, so that we are placed in such a position that we must accept so large a number of patients on our lists that it will be impossible to provide them with the amount of considered attention and skill to which they are entitled. Dr Pybus's suggestions of limitation of *capita* scaling of remuneration, and retrospective consideration of years of service under the NHI scheme to count for pension seem to me to be eminently practical and worthy of consideration. The present position, with surgeries lasting from two to three hours morning and evening a visiting list stretching anything from thirty to fifty or more daily with one so called half-day per week and a curtailed Sunday list seems to me to be a prostitution of the profession—I am, etc.,

Highcliffe-on-Sea Hants

E C PARKER WILLIAMS

SIR,—I should like to associate myself with the letter of Dr S T Pybus (*Supplement* Oct 16, p 143). There is no doubt in my mind that a doctor in the NHS should not be allowed to look after the health of more than 2 500 patients, as he or (she) cannot do justice to himself or the patients. Doctors with a list of 4 000 patients will find themselves—if it is a severe winter—with 10% of their list requiring visits when the weather is at its worst. To visit 400 people a day is an impossibility.

With regard to payment I consider that a capitation fee of £2 per head is fully justified if the doctor has the welfare of the patient at heart and treats an NHS patient as if he were treating a private patient.

Finally it would seem to be extraordinary that the BMA does not insist on the basic salary being paid automatically—without the degrading cross-examination at present required—to every general practitioner with a panel under 1 000. It is annoying to say the least of it, to hear of young dentists and opticians earning £200 a week while the young doctor, with a much greater responsibility, has to go cap in hand for £300 a year. I consider that it is the duty of the BMA to attend to the wishes of the members in these matters—I am, etc.,

Glasgow

CONSTANCE F ROSS

### Financial Strain on Young Specialists

SIR,—I read the letter from 'Ex-Service' (*Supplement* Oct 16 p 144) with a great deal of fellow-feeling. I hope that he might be interested in the position of one who did not serve and will agree with me that the whole question of remuneration for young specialists should be reviewed.

Turned down on medical grounds, I spent the war years in hospital positions and in an 18 months spell in general practice. My maximum salary in the latter was £650 after 12 months at £500 p.a. Prior to this I received £200 p.a. in hospital as a maximum. This is, on balance, less than a serving officer received in salary and allowances. I could save little and with the pressure of work could only study very late at night. I had one child at the time.

After the war I obtained my postgraduate qualification after 12 months study in London. I was not paid while studying and had to rely on parental help to maintain myself and family. Now I am a whole time specialist—rooms obviously being out of the question in such times. Though my salary is £1,250 per annum, tax and superannuation take a large slice out of this. In addition a whole time specialist cannot claim car expenses against income tax except for inter hospital travel, and the State does not allow such expenses the hospital being deemed HQ for this. I thus pay over £100 per annum to run my car—out of income. Let this be a warning to potential whole timers. In addition, I have had to buy a house, and this has again to be paid for. As I now have three children, my bank balance does not show a profit at current prices after 12 years as student and doctor.

The moral is to pay specialists during and after training a salary commensurate with their training and liabilities—professional and social. The vast majority of us are all similarly placed whether we were in the Forces or not, if in our early thirties. This perhaps explains the interest many colleagues show in permutations. A last word of warning to a future whole-timer. A part time specialist was paid a fee for doing

my holiday locum. I was due to undertake a similar locum which did not eventuate. When I made inquiries I was advised that a whole time man could not be paid any extra for such work. This is since July 5, his whole time salary covers all work—I am, etc.,

HOME FRONT

### Civil Service Medical Officers

SIR,—The letter from 'Civil Service M.O.' (*Supplement* Oct 9, p 134) raises a very important issue, as, although many of the Civil Service medical officers have staff representation through the Institution of Professional Civil Servants, which has done Trojan work on their behalf the IPCS has always been limited in its efforts for medical officers because the official side (i.e., the representatives of the Treasury) has always refused to concede even parity in salary scales of the professional classes with the administrative classes, and medical officers' salaries are therefore kept at an unjustifiably low level merely because the medical officers' non professional bosses are not considered worth a relatively higher salary. There is also a danger that in BMA negotiations the Treasury can say, 'But we have already negotiated successfully salary scales for large numbers of well qualified doctors on figures which are much below what you ask.'

These large numbers of doctors have had to accept these salary scales willy nilly, and have done so patiently hoping that they would share in the final settlement made by the BMA. Unless the BMA takes active steps to ensure in the final settlement that established Civil Servant medical officers including those of consultant status—and I emphasize this, as many of us are of consultant status but are refused recognition of this and paid as basic grade of medical officer—have their salary and conditions of service brought into line with the rest of the profession a grave injustice will be perpetrated. Civil Servants are to a very large extent a 'silent service' and cannot ventilate their grievances openly. What about it, BMA?

ANOTHER CIVIL SERVICE M.O.

### Earnings of Specialists

SIR,—This letter is addressed specifically to the medical men and women who intend to become specialists. The Spens Committee has recently proposed your future salaries. For the benefit of those of you who cannot take a few days' vacation for the purpose of minute study of this report, I have outlined below a fairly complete but basically simple sketch of the income you will receive in the future. The average age of qualification including military service, is 25 years of age.

You commence with an A appointment and follow this with a B2, lasting six months each. The Spens Report offers nothing for this first year, it completely ignores it. You now procure a Grade III appointment, which you hold for one year. You are paid £600 for this year, but this is non resident pay. If you live in the hospital, which is usually compulsory, you pay £200 for your emoluments. Thus, you only earn £400. Your age is now 26 years.

The year goes by and more by influence than luck you obtain a Grade II post. You are now a junior registrar and hold the appointment for two years. You receive £700 for the first year and £800 for the second—minus of course, your emoluments making your salary £500 and £600 respectively. You are now 29 years old. Perhaps you are unfortunate in having a wife and even doubly cursed if you have a child. 29 years of age and earning £600 per annum.

By now you should have a higher qualification. I should like to add here that in studying for higher degrees there comes a time when you have to stop clinical work and take to the books and perhaps attend courses. Otherwise, why are there so many courses available? While you take off your few months for this purpose you earn nothing, you even pay for these courses. It is again unfortunate if you or your family have appetites.

Now you scramble for the less numerous Grade I posts—few assistants. You are 30 and, if non resident, receive £900. For the next year you earn £1,000.

At present the policy of the powers that be is to discourage specialization—the need for more practitioners is great. As a GP you will not have to wait until you are 31 years of age before you earn the princely sum of £1 000 per annum. Remember too we still have to pay for our six years of medical training. Finally, the Government states that the cost of living has risen only 13% since 1939. Tell that to the shopkeepers and

Nov 6, 1948

## CORRESPONDENCE

landlords Try educating your sons, as well perhaps as you yourself were educated with an income of £1 000 per annum to day None of the above figures mentioned are tax-free Specialists at the age of 31 years are worth more to the community than they will receive according to the Committee's Report I invite your comment—I am, etc,

Hitchin Herts

S BALFOUR-LYNN

## Shortage of Forces M.O.s?

SIR,—I apologize for adding yet another M.O.s grouse to the many you have doubtless received in the past I am only constrained to write by the fact that I am one of those recently qualified men who were called up after only six months in a house appointment I was prevented from taking an invaluable B2 post with its opportunities for training for a higher qualification by an autocratic edict which referred to the imminent severe shortage of M.O.s in the Forces

At my present unit in England there are at present four M.O.s, approximately 1 600 men and women, and a small CRS of 12 beds at the moment containing four patients These figures speak for themselves For the benefit of the CO at the R.A.M.C. training depot I would say that I cannot occupy myself with unit hygiene and welfare matters as, being M.O. to the CRS that's outside my job

I am extremely fortunate in having a good civilian hospital handy which enables me to continue my studies for a higher degree in my present circumstances I am aware that the three months' extension of service may in part be responsible for this state of affairs—I am, etc,

CRS M.O.

## Salaries of Medical Officers of Health

SIR,—I am concerned about the position of medical officers of health throughout the country in regard to salaries It would appear to me in so far as I can judge from my own observations that the British Medical Association has done little or nothing to increase the salaries of medical officers of health whereas much has been done to increase the salaries of general practitioners and consultants It will be a tragedy if the present cloud which overhangs public health is not lifted So many of its best medical officers of health have left for the service of regional hospital boards, and young male doctors seem to be choosing other branches of medical service as their life work The great work which preventive medicine has done and has still to do for the health and welfare of the people of this country must not be forgotten and I appeal to the British Medical Association to endeavour to bring the salary scales of medical officers of health to a level in keeping with those of other members of the profession—I am, etc

Batley Yorks

W J FRAIN

\* The Secretary of the Association writes Apart from negotiating interim increases of 25–35% in the pre-war Askwith Scales the Association has submitted to the Ministry proposals for permanent revision of the remuneration of the public health service

## POINTS FROM LETTERS

## Recruitment of Young Practitioners

Dr J D BURY (London E.1) writes It was very pleasing to see by "Surgeon Lieutenant's letter (Supplement, Aug 28, p 96) that someone else has noticed the shameful decision regarding the appointment—or rather the non appointment—of newly qualified practitioners to 'B' posts I do not think it is generally realized to what extent the group involved has already suffered the 'slings and arrows of outrageous fortune' While it is fully understood that they have not had to bear the set-backs of their seniors who have experienced upwards of three years in the Forces, I would like to point out some of the many circumstances which have already led to their education being interrupted and incoordinated Preclinical studies were undertaken in many instances in foster homes in the provinces where quarters were cramped and laboratory facilities overburdened The course was further interrupted by re-evacuation back to the parent school Here preclinical and early clinical studies were undertaken through blitzes—ordinary and of the buzz bomb and rocket variety (I well remember candidates and examiners ducking under tables when I took 2nd MB) Some started their clerkship and dresserships in sector hospitals which were in the process of closing down Introductory courses were

perfunctory or non-existent, due to shortage of teaching staff Other subsequent improvements, such as the tutorial system were denied for the same reason Midwifery experience was limited, due to the withdrawal of teaching units from municipal hospitals before the teaching hospitals districts had regained their pre-war size This meant that many students were hard put to it to achieve even their statutory fifteen cases The years immediately before us had had the advantage of increased practical experience in the sector hospitals Student house officers had then been plentiful The years immediately after us have had fully co-ordinated clinical teaching, and in some respects increased clinical experience Yet now it is precisely on our group, and on our group only, that the axe again falls Clinical experience as house officers was what we had been pinning our faith on, and this has been taken from us due to the needs of the Forces," as the Minister says This when on all sides we hear examples as gross as nature of the wastage of medical man-power in the Forces We have no desire to shirk our responsibilities to our country and many are looking forward to a period in the Forces however, it seems to have been forgotten that part of our responsibility to our country is to be good doctors, and we will not be such efficient practitioners if vital clinical experience is denied us

\* A statement on the recruitment of young practitioners was printed in the Supplement of Oct 16 (p 144)—ED, B.M.J.

## Mould the Service

Dr J F ROBINSON (Garforth, Yorks) writes It is several months since we told the B.M.A. to go ahead and do the best for us in the new Service But what has it really done to help its members and what is it now doing? What, indeed compared with the B.D.A.? It is high time the responsible committee—if one there be—did something to prove its worth Six months ago we were advised to accept the Minister's final terms in order to give the leaders of the B.M.A. time to mould the new Service so that it would be a pleasure and an honour to work in it and a service really worth having Those leaders do not appear to have helped the profession very much in the moulding process and I suggest they recast it in the shape of a munt

## Prescribing and Dispensing

Dr A HENRY GREGSON (Cromer, Norfolk) writes I regret most sincerely that you should make a laughing stock of any Minister of our Crown yet in Section 14 of the Report of the Insurance Act Committee for 1948 (Supplement Oct 16 p 135) your report that he thinks prescribing and dispensing are inseparable makes him so For now every doctor, consultant included, must dispense (drugs as well as wisdom) After all, if your report is correct he cannot have it both ways

## Capitation Fee

Dr BARBARA J HICK (Lee on the Solent Hants) writes I hope the General Medical Services Committee will make it quite clear to the Minister that a capitation fee of 17s 5d is not a living wage We were given to understand before we joined the Service that the capitation fee would be 18s 6d Now the highest figure mentioned is 18s and mileage, etc, deducted from that A minimum of 18s 6d with the present allowances added will barely be enough to cover overhead expenses, but applications for further allowances are turned down Unless we can have locums and reasonable holidays as well as the concessions already refused we must have a higher capitation fee, or each one of us will be faced with bankruptcy The position is serious enough to warrant universal resignation unless pay is materially improved

Dr C E BROWN (Whalley, Lancs) writes With the present extremely high cost of living the capitation fee should be not less than 45s per head per annum It is a most vital point which must be ever pressed that a living wage is absolutely essential The young principal building up a practice has many commitments far greater in these present times than were considered by the Spens Committee. Values have changed beyond conjecture and must be appreciated now This brings me to the question of the basic salary This question is at present being considered by the local executive councils. It surely must be appreciated that any fixed sum of money considered, as an aid to the young principal building up his practice must be a complete sum and must not be quartered To split such a sum into quarterly payments of £75 will defeat the end for which it was intended May I conclude with a repetition of my earnest recommendation that we should all demand a living wage?

## Prescribing by Retired Doctors

Dr N J C RUTHERFORD (Farnham Surrey) writes I am glad to see that retired doctors have raised the question of being deprived of obtaining medicines on their own prescription free of charge I have always saved local practitioners trouble by prescribing for myself family and employees in all minor ailments Surely prescription pads under the NHS could be issued to retired doctors?



## H M. Forces Appointments

### TERRITORIAL ARMY

#### ROYAL ARMY MEDICAL CORPS

Colonel G J V Crosby, CBE, TD, has been restored to establishment from Supernumerary List (The notification in a *Supplement to the London Gazette* dated Aug 6, and in the *Supplement to the Journal* dated Aug 21 (p 92), is cancelled.)

Lieutenant Colonel G B Mitchell Heggs, OBE, has been granted the acting rank of Colonel

Major (War Substantive Lieutenant-Colonel) J P Raban, TD has been granted the acting rank of Lieutenant-Colonel

Majors G A Kane, OBE, TD, and T D Pratt have been granted the acting rank of Lieutenant-Colonel

Captain (Acting Lieutenant-Colonel) J H Prain to be Major

Captain (War Substantive Lieutenant-Colonel) M L Formby TD, to be Major

Captain J A Perpoli to be acting Lieutenant-Colonel

Captains (War Substantive Majors) W B Evans, H Dickie, C N Suter and C H Imrie to be Majors

Captains J B Mackay, MBE, J G Oliver A V Russell, and B St J Steadman to be Majors

Captains A Barber MC W J Aitken, and C K Sconce to be Majors, and have been granted the acting rank of Lieutenant Colonel

Captains T F Redman and K H S Dalwall to be acting Majors

Lieutenant L H V Longmore to be Captain and has been granted the acting rank of Major

Lieutenant (War Substantive Captain) J A R Johnson to be Captain

Lieutenants B Andrews C Nicholson, MC, M I Hepburn, R M Harvey, R Lamb, C K Bridge W A M Smith B H M Cohn, W A Bromley, C E C Wells, R M Marsden, and R Creece to be Captains

R V Stone to be Lieutenant and has been granted the acting rank of Major

The notification regarding Lieutenant R M Marsden in a *Supplement to the London Gazette* dated Sept 14 has been cancelled

#### TERRITORIAL ARMY RESERVE OF OFFICERS ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel J W Craven, MC, TD, having exceeded the age limit, has relinquished his commission retaining the rank of Lieutenant-Colonel (Substituted for the notification in a *Supplement to the London Gazette* dated Dec 2 1947)

Major (Acting Lieutenant Colonel) R A S Keighley, from Active List, to be Major, and has been granted the honorary rank of Lieutenant-Colonel

Major W J Aitken, from Active List to be Major, and has been granted the honorary rank of Lieutenant Colonel

Majors J M Dewar and C V Light, from Active List, to be Majors

Captain (Acting Major) G T Ashley, from Active List to be Captain and has been granted the honorary rank of Major

Captain G Punshon has relinquished his commission on account of disability and has been granted the honorary rank of Major

Captain F H Leckie, from Active List, to be Captain

### REGULAR ARMY EMERGENCY COMMISSIONS

#### ROYAL ARMY MEDICAL CORPS

War Substantive Captains J J N Daniels, C E Van Rooyen K H L Scougall, J Smbert and F C Bourgault Du Coudray have relinquished their commissions and have been granted the honorary rank of Major

War Substantive Captains B E Welton and J L Washington have relinquished their commissions and have been granted the honorary rank of Captain

War Substantive Captains H Binysh and W H Smith have relinquished their commissions on account of disability and have been granted the honorary rank of Captain

*Short Service Commission Specialist*—War Substantive Captain T B S Dick has relinquished his commission and has been granted the honorary rank of Major

Lieutenants C J T Archer, A P Baker, D C Barker, W S Bell, P G Bevan B H Brock, H C Butterworth, J H Cameron J E Carlyle, B N Catchpole, I C Church, H C Churchill Davidson L W Clarke E D Cloughley, P S Davis D Dencer, E M L Evans A F Fairlie D M Garratt J S E Gilbert, N A Gray H W Hall J B Hearn J H Hobson J S Holden D A N Hoyte R G Hughes A M Huntley G A Jeffery A S Jones, J M Jones K L Jones H D Leggatt D R Lucas S L Mann E D Marsh R Martin, D G Miller R D Mills W A McDougall, P C MacGillivray A M McKinnlay H S McWalter, W C Palmer T J Parkinson H S Pauli R Pilsworth A Pines R J Randall A H C Rathliff J S Rivers A Ross F Sheffield D Stenhouse I M Stewart J O Taubman, J H Wallis C H Wheatley, D Whitehouse M Anderson W Rardiger, D A L Bowen, P A Boxall L Brodmacher P Y Carlyle H Clark R A Cocks A J Crowe J A Davis S P Dawson J B Entintrap H M Giles J M Cillies E R Gunn J Hamilton L H Hamlyn S Happel C E Harlev L I Hatherley J P Kelly D M Mackay, S McKechnie G K McLehman J McLenachan W McNaught P R A May K Mehta J Needoff L G Nicol J F Patterson J A E Primrose G C Provan J M Raynor, H A N Richmond D St C Roberts, J L Robertson J F F Rooney T J Ryan

R G Rooney, R Schnitzer, H J Stott, W B Webb, J M L Winton, and I C Wilson to be Captains

To be Lieutenants K R V Argles D E Argent, M D V Bowen A Boyd P Coling, D W Dawson, M B Diverie D E Donald, K P Duncan, M B Edwards M Feingold, P Glasma T W A Glenister, W W Gordon E H Griffiths, J Harper, J E Hawkings, A R Horler, H B Houldsworth, B Isaacs B A E Johns, G D Kay, J W Kerr, E MacD Little A B Mann R K Mason, J G Mathue, R H M Mayor J McCulloch A MacDonal, J M McGillivray, W McKerrell W T Mackie, D McLoughlin M C Macnaughton, D B Meek A Murphy W O Thom J N Phillips, J C E Pougher D A Rice S L Royce, J W Scott G Slaney, A H Sneath D B Stott, P K Sylvester J D Wilkie, W M Wilkinson, P Wolf A F Alvarez J P Andersen M S Boyd, P H Bright, D E Burgess, F G Campbell C L Casimir, M H F Coigley J J Content H S Coulsting G B Currie, T L C Dale, A L McF Davidson A J Dark J R B Dixey, A C Douglas A N Dowie D R Edwards C G Elho R W Emanuel, C W Fleischmann J M Gate H J Gilbird R A Griffiths I MacD Hall J L Hamilton H Harrop Griffiths, A G S Heathcote, J H L Jones, P D A Kent, H M Leathe J B R Lewis, L T Lewis E L W L Lonbry, J E MacIve C E MacDonald, J A MacLeod, D L McNab J B McMillan A L Mintz A M Nelson, K O'Flynn D L Phillips R S Pine V H Redcliffe J J A Reid R T Rennie D H Richards G G Richmond, P W H Robinson P G Seear, O R W Seppur J R W Sinton C W Smith J Stephenson S N Stotesbury, R I Timms P G Treharne, D C Turk, J T L Unsworth D H W Walford A A Wilson, H W Wilson T A Wilson, O M Whene

The surname of Captain W H Oldershaw is as now described and not as notified in a *Supplement to the London Gazette* dated Sept 14

### ROYAL AIR FORCE

Air Vice Marshal T McClurkin has retired at his own request  
Group Captain J D Leahy, MC, has retired at his own request retaining the rank of Air Commodore

To be Flying Officers (Temporary) W E C Astle, J I Bentley, J B Bunks, H M Brand, F A J Bridgewater E J S N Briggs, T H S Burns R Cowley, P J N Cox, J N Cuthill, F P A Garton G I T Griffiths, B Hayes J L Hayward, A Herschell J R R Holms, B R Hunt J W Junor A Kinsey A A Lawson I R Lindsay, A McCawley D I Mackenzie, S D Mackenzie R W L McLeish, A Mair E C Matheson, R Matheson, D W Menzies F W Millard B T Mulligan, P J R Nichols R Ormerod, D H Paterson, R C Read W H Rees A D Ross, A D Ross, T Russell A H Saddler, J R Scott, D Shearer J N S Simpson R Strang A MacM P Thomson J M White R Whitfield D R Wilkie R G Williams J M Workman S P Wrightson, M Shearer J D Andrew J H Ansell D A L Ashforth, R H Balme M S Barnett D H Bowden D J Brewer G B Carruthers A Coady, R E Coupland, J D Cox J Craig D M Curtis M E S Cutts D W Davies, J E R Dixon W Ellenbogen M G Fitzgerald P D Fowler I K Fry, N G Gler R N Grabowsky Atherstone J H Grant V L Guillem, W P Haigh, P R Harben, N H Harris J Hendry, D D Hilton S M Hilton, J F B Hird W B McN Howie G A Humphreys S F Iles J H Inskip R L Jones, H E Kane R V Knight W C Lathbury, A G R Law J B Lyn Jones J E Mandel D N Mitchell G E Mitchelmore C T Morgan, G N Mulliner R A M Oliver D S Paine R C S Poinson, F B Proudfoot D M Rahilly T B Rankine, C S C Roberts A W Robinson V E S Rolfe I K Sharp N K Shinton M J Simpkins S Slovick F H N Smith D M Strange P G S Sutton N Tate M B Thompson, J S Turner, J S W Whitehead, K M McVicol D R H Urquhart

## Association Notices

### FORMATION OF CAITHNESS AND SUTHERLAND DIVISIONS

Notice is hereby given by the Council to all concerned of the formation of a Caithness Division comprising the area of the County of Caithness, and a Sutherland Division comprising the area of the County of Sutherland, in place of the existing Caithness and Sutherland Division

CHARLES HILL,  
Secretary

### Branch and Division Meetings to be Held

SOUTH ESSEX DIVISION—At Dagenham Civic Centre Fri  
Nov 5 9 pm Dr A E Clark-Kennedy 'Indigestion'

### Meetings of Branches and Divisions

#### ALDERSHOT AND BASINGSTONE DIVISION

At a general meeting of this Division held on Oct 24th a resolution was passed unanimously

"That this meeting regards with grave dissatisfaction the results of negotiations to date and requests the Association to inform the profession what measures it is taking to secure the implementation of the Snes Committee's recommendations and what steps it prepared to recommend to enforce such implementation"

## THE ROLE OF SPECIAL DIETS IN THE TREATMENT OF FEMALE INFECUNDITY

BY

MARY BARTON, MB, BS

AND

B P WIESNER, D Sc., Ph D

First Assistant Fertility Clinic Royal Free Hospital

Consulting Biologist Royal Northern Hospital

Infecundity in seemingly healthy women is often associated with infective conditions whose eradication may bring about, or assist in, the restoration of fecundity (Lane Roberts *et al*, 1948). However, refractory cases of infecundity combined with infective states are common. In these the infection cannot be eliminated either by antibiotics or by other and more drastic procedures, nor do they respond to the more specific methods for the treatment of infecundity. We have noted that this refractory state is particularly common in women aged 30 to 40 who are either distinctly overweight or frankly obese. The combination of overweight with refractory infecundity of this type could not be regarded as fortuitous, for, quite apart from our own observations, previous authors have emphasized the close association between obesity and sterility (Aschner, 1924, Bauer, 1934, McCann, 1934, Siegler, 1944, Guggisberg, 1946) and have advised the use of various reducing diets involving lowered energy intake.

In view of the generally accepted relation between nutritional state and reproductive function we also instituted dietary measures. In our cases, however, the strict rationing involved in the prevailing food situation, and the bacteriological findings, suggested a qualitative change of diet rather than lowered calorie intake only. These dietary measures assisted in the restoration of fecundity in a number of previously refractory cases, and are described below. The present report will be limited, however, to one section of these cases—namely, women in whom the major sterility factor discovered on investigation was cervical dysfunction associated with cervical infection and resulting in non-receptivity to spermatozoa ("cervical block"). This limitation recommended itself to us for several reasons. First, cervical block probably represents the most common immediate "cause" of sterility (Palmer and Palmer, 1945) in women aged 30 and over; secondly, the present investigations were suggested by findings in such cases, that the general condition of the cervix and its functional state are readily ascertained by precise laboratory and clinical methods (Lamar *et al* 1940, Barton and Wiesner, 1945, Clift, 1945, Viergiver and Pommerenke, 1946) so that corrective measures can be readily assessed. Lastly, the state of the cervix, though only one of the factors in genital function, often reflects the state of the reproductive system as a whole. Thus facts relating to cervical responses have a wide validity.

### Subjects

The investigations were carried out during 1946-8 and concerned 88 women aged 30 to 40 with a history of primary or secondary sterility, in the latter group are included women who had conceived but aborted. All subjects sought advice because they desired children and not for any clinical complaint. They were women of widely different social status, and included many housewives with arduous

duties and some women with outside employment in addition. A few were doing work requiring considerable output of energy (e.g., market gardening).

Minor complaints or deficiencies were common in this series, particularly constipation, mild and transitory rheumatism, dental sepsis, nasopharyngeal catarrh, and sub-clinical infections of the urinary tract. Nearly all the patients complained of high fatigability and abdominal distension after meals. We have excluded from the present series any case with marked departure from the menstrual norm or with other than diphasic temperature records, or with any severe chronic illness.

### Cervical Condition

In all cases the *initial cervical examination* was made during the late follicular phase—that is to say, during the days immediately preceding, and including, the shift of the waking temperature from the low to the high level. At this stage of the cycle the mucus secreted by the fecund woman is abundant and clear, while in the subfecund woman deficiencies of secretion are least pronounced, probably because of the temporary increase in cervical flow at this time. Conditions for invasion by spermatozoa are thus optimal, and failure of invasion at this stage may consequently be regarded as a reliable and definite sign of cervical dysfunction. In many of the cases the volume of the mucous cascade was abnormally reduced, and erosions, small occlusion cysts, or other clinical signs of cervical infection were present. In other cases the macroscopic appearance of the cervix was not demonstrably abnormal. The rheological properties of the cervical mucus, such as fibrosity (capacity to form threads), varied from the normal to the definitely abnormal without any constant relation to the appearance of the cervix. An invasion test was carried out in every case, the cervical mucus being brought into contact with fecund semen under anaerobic conditions according to the standard method (Barton and Wiesner, 1946). As mentioned before, the present group includes only cases of severe impairment of cervical receptivity (complete absence of sperm invasion or sparse and shallow invasion with rapid inactivation of sperms). In about 70% of the cases the number of exfoliated epithelial cells and of polymorphs, which are scarce in normal ovulatory mucus, was increased, often to a density resembling that normally prevailing in the luteal phase.

The *second cervical examination* was carried out as close as possible to the onset of the next menstruation (late luteal phase). This stage was chosen because our experience has shown that infective and inflammatory processes in the cervix are exacerbated at that stage of the cycle. Pathological processes which may be masked during the follicular phase can thus be recognized, and the identification of pathogens is facilitated. The latter task is of significance in

the treatment of cervical block. It is true that in some such cases no organisms have been demonstrated which could be regarded as pathogenic by any standard. Conversely, not all infections of the cervix produce cervical block. But in the great majority of cases either undoubted pathogens (e.g., coagulase-positive chromogenic staphylococci, *B. proteus*) or organisms suspected of being pathogenic in this site (e.g., coliforms) can be recovered, their nature and their *in vitro* responses determine the choice of antibiotics. Furthermore, culture of the cervical mucus is essential in order to distinguish between infective and non-infective cervical block—a distinction which cannot be made by any other means.

During the pre-menstrual examination the cervix was exposed with the appropriate precautions against contamination (cf Kuester, 1929, Hite *et al.*, 1947) and a loopful of cervical mucus, obtained after thorough dry swabbing from just within the external os, was planted out on warmed blood-agar slopes. Additional inocula on other media were made as required. The inocula were submitted without delay to the laboratory. In view of the great variety of organisms that may infect the cervix detailed bacteriological examination was carried out\*.

The present series includes only cases in which pathogens or suspected pathogens were recovered, but excludes cases of Neisserian infection. The findings are illustrated by the results in 25 successive cases (Table I). This table

TABLE I—Showing the Presumptive Pathogens Recovered from the Cervix in 25 Successive Cases of the Series. Reference to Presumptive Non pathogens Commonly Recovered (e.g. *Staph. albus* diphtheroids) is omitted

Case	<i>B. coli</i>	<i>B. proteus</i>	Chromogenic Staphylococci	<i>Streptococcus</i> <i>faecalis</i>	<i>Streptococcus</i> <i>tridans</i>	Other <i>Streptococci</i> (incl. Haemolytic)	Pneumococci	Other Organisms
1	++				++++			Cl Welchii ++
2	+++					+		
3	+++	++					+	
4	+++					+		
5	++							
6	++	+				+	+	
7	++					+		
8	++					+		
9	++					+		
10	++		+			+		
11	++					+		
12	++			+		+		
13	++					+	+	Fusiforms
14	++					+		
15	++	+			+			
16	++	+		+				
17	++							
18	++		++					
19	+++	+				+		
20	+++					+	+	
21	++							
22	++	+	++					
23	++							
24	+++		++					
25	+++	+++						

does not include the full variety of organisms recovered on culture, but it shows the predominance of infection by coliform organisms. In view of the precautions taken against contamination and of the heavy growth usually obtained, the cultures probably reflect the true flora,

\*The bacteriological routine procedure employed anaerobic culture for 48 hours followed by aerobic conditions for, usually, 18 hours at 37°C. At this stage it was decided, from the colonial characteristics and the Gram films of the primary culture, what further information was necessary to arrive at the true state of the cervical flora, and subcultures of colonies requiring identification were made on the appropriate media. MacConkey's medium and SS (as an enrichment medium) were generally used to identify genuine non-lactose-fermenters and were followed by the carbohydrates for two or three days for final confirmation. Nutrient agar was used for growing suspected genuine chromogenics such as *Staph. aureus* for the coagulase test, and *Ps. pyocyanea* is also easily identified by this means. Sensitivity tests with antibiotics were carried out in the appropriate subcultures.

though not necessarily the whole flora, of the blocked cervix in these cases. It is of course impossible to ensure that a loop will not in any circumstances take up organisms from the border between cervical and vaginal epithelium. The term "cervical flora" is thus subject to qualification imposed by the technique. But while in some cases the vaginal films and vaginal inocula showed an atypical vaginal flora, the pathogens cultured from the cervix were not generally also found in the vagina, and vice versa. Thus coliform organisms are sometimes recovered from the cervix and even the urine, but not from the vaginal wall proper. It must also be added that an abnormal cervical flora may vary from cycle to cycle even to the extent of one pathogen being replaced by another without manifest cause.

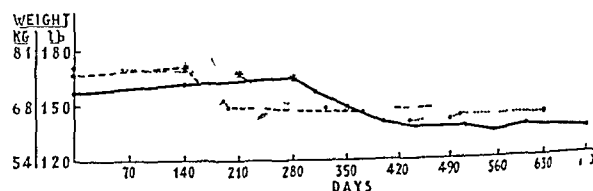
### Response to Antibiotics and Oestrogens

Impaired cervical receptivity that is combined with infection often responds to the administration of oestrogens which stimulate cervical secretion and condition its receptivity for spermatozoa, provided that infection is first dealt with by suitable treatment—e.g., sulphonamides, penicillin, or other antibiotics used locally or systemically or both. The response is usually manifested not only in the favourable results of the invasion or post coital tests, but also in the macroscopic appearance of the cervical flow. This becomes abundant and transparent, with reduced diapedesis of leucocytes.

The present cases were characterized by the absence of this response or by a partial response only. Notwithstanding the administration of antibiotics and oestrone (1.5 to 3 mg in microcrystalline suspension per week for four to twelve successive weeks) the mucous flow remained scanty, or else it increased without becoming receptive for sperms. Again, pathogens could be recovered at any time during or after the treatment with antibiotics. Some of these cases had previously received local treatment for cervicitis, including cautery, with varying response of the local lesion but with persistence of cervical block.

### Body Weight

As stated above, the present group is composed entirely of cases showing distinct overweight—i.e., more than 10% above the mean weight for age and height. The degree of adiposity varied widely (see Graph). In the pronounced



Graph showing changes in body weight under treatment (The asterisk denotes date of commencement of diet).  
— Woman aged 32, height, 5 ft 2 in (157.5 cm) *B. coli* infection of the cervix. Lactose diet (Group I).  
- - - Woman aged 31, height, 5 ft 3 in (160 cm) *B. coli* infection of cervix combined with vaginitis (mixed infection including *Trichomonas*). Simple sugar-free diet (Group II).  
... Woman aged 32, height, 5 ft 3 in (160 cm) *B. proteus* infection of cervix. Supplemented by sugar free diet (Group III).

cases adiposity—if the term may be used without prejudging the nature of the deposits—was most marked in the subscapular region, the waist, and the thighs. In the frankly obese women no specific distribution could be noted.

### Therapeutic Methods and Results

In refractory cases it was at first intended to employ recognized and well-tried reducing diets involving severe restriction of calorie intake or to adjust the salt balance but most patients were working too hard to be easily placed

on a severe reducing diet, nor could they spare the time for treatment in hospital. Most of them could not afford to purchase much unrationed protein, and it certainly did not seem safe to lower fat consumption below that provided by the rations. A different approach, suggested by the predominance of infections by organisms of intestinal type, was therefore chosen—namely, an attempt to reorganize the intestinal flora. This form of therapy has been widely advocated by previous workers for many different conditions, including genital infection. Three specific procedures were used in successive groups of patients.

#### Group I (Lactose Group)

The first method chosen (14 cases) was the administration of lactose (Lactose BP, 3 oz (85 g) daily), for numerous investigators have agreed that this sugar, administered in comparatively small quantities, assists in the establishment of a favourable intestinal flora (for bibliography, see Robinson and Duncan, 1931, Robinson and Gilliland, 1937, Koehler and Allen, 1934, Koehler, Rapp, and Hill, 1935, Webb and Whittier, 1948, Rojas *et al.* 1948), and has only mild side-effects, such as slight laxative and diuretic action (Hunt, 1931, Koehler, Rapp, and Hill, 1935). With the intention of enhancing the reputed action of lactose, ordinary sugar (sucrose), as the most ready source of fermentable carbohydrate, was eliminated from the diet. An additional reason for the experimental elimination of sugar and its replacement by lactose was supplied by the results of experiments in rats carried out by Whittier *et al.* in 1935. They placed paired groups of rats on diets containing lactose and sucrose respectively and found that the lactose diet prolonged the span of life compared with the sucrose diet. Furthermore, the sucrose-fed animals developed significantly larger deposits of fat than those receiving lactose. It seemed possible that not only was lactose beneficial—as claimed by various observers—but also that sucrose was actively deleterious by promoting abnormal adiposity.

All our subjects, therefore, were instructed to avoid rigidly any article of food or drink containing sugar (biscuits, cake puddings, sweets, etc), and not to add sugar to food or drinks. Glucose and syrup were not allowed either. No restrictions were placed upon other foods, whether rich in carbohydrates or not, and the subjects were told to still hunger by eating more of permitted foods (e.g., bread, potatoes, etc) than they did before being placed on the diet. The only medication advised was mucilage where necessary to promote bowel action.

All subjects found the diet difficult to observe during the first few days and meals unsatisfying but no ill effects upon working capacity were reported. Abdominal distension generally disappeared and subjective energy increased. Marked losses in weight occurred in all but three women of this group, the loss becoming apparent within one week of beginning the regime. The average loss was about 1 lb (450 g) per week, and the rate of loss was not clearly related to the initial weight. Weight continued to fall until a level approximately corresponding to the mean weight for age and height was attained. In some cases the weight remained stationary rather above this level in spite of the continuation of the diet.

The lactose diet was continued for at least four weeks before further steps were taken, re-examination being carried out in the second cycle after starting the regime and being repeated as required. In three cases spontaneous recovery of the cervix, with positive invasion tests, was then noted, but the dietary regime alone did not, as a rule, entirely restore cervical function even when body weight was much reduced.

Where invasion continued to be impaired (i.e., in all but three cases) treatment with antibiotics and oestrone was now resumed, the diet being continued and the procedure being in all essentials a repetition of that previously used without success. It was then that entirely different responses were recorded in a further six women all of whom had shown loss of weight. The mucus assumed normal volume transparency and invadability in these cases. Epithelial lesions healed without further intervention and without relapse in subsequent cycles. Conception occurred in four women, but male fecundity varied so much in this series that the conception rate does not reflect

the response as adequately as does the occurrence of a positive invasion test. Cervical recovery failed to occur in five cases, three of which had shown no significant reduction of weight.

#### Group II (Sugar-free Diet Without Lactose)

The second method chosen (65 cases) differed from the first solely in the omission of lactose, the subjects were simply placed on a "sugar-free" diet. All other instructions and procedures were precisely the same as in Group I. This regime was originally chosen to ascertain whether administration of lactose was an essential factor in the treatment of refractory cervical block.

The results showed unequivocally that lactose was *not* necessary for the desired results, and the group was then expanded. The sequence and rate of responses (reduction of weight, restoration of cervical function under repeat treatment with antibiotics and oestrone) resembled that in Group I so closely that no detailed description is needed. Cervical block was removed in 45 cases, conception occurred in 24, but, as in all such series, the conception rate is not an adequate measure of female fecundity, and the series includes cases in which treatment was but recently concluded. Incidental subjective responses (relief from post-prandial distension, decreased fatigability) occurred in this group as in the first, and in several cases infections of the urinary tract disappeared together with the cervical block. In this series there were several cases in which distinct cervical improvement took place under dietary regime alone. There were two cases in which no loss of weight occurred but the cervix responded to repeat treatment in other responsive cases loss of weight had taken place. There were 18 failures (see Table II).

TABLE II

Dietary Group	No of Cases	Cases Showing Loss of Weight		Cases Showing No Loss of Weight	
		With Cervical Response	Without Cervical Response	With Cervical Response	Without Cervical Response
I Lactose group (sucrose free)	14	9	2	—	3
II Sucrose free group (without lactose)	65	45	12	2	6
III Supplemented sucrose free group	9	6	—	—	3

#### Group III (Supplemented Sugar free Diet)

In the present circumstances sugared foods supply a large proportion of the total energy intake of our subjects. Conversely their elimination from the diet involves a severe reduction in energy intake unless it is balanced by increased consumption of unsugared foods. Most of the subjects in Groups I and II clearly compensated themselves by such adjustments. Hence it seemed that reduction in weight and restoration of fecundity could occur without significant reduction of energy intake. But it seemed desirable to test this conclusion by specifically prescribing to a number of subjects a sugar-free diet which did not involve for any case a decreased calorie intake and for most cases in fact procured a significant increase.

The composition of the diet in this group (9 cases) was dictated, first, by our intention to provide a diet which in certain experimental animals, and so far as is known in man, is adequate for maintenance and for reproduction (whole grain, milk), secondly, by the limited variety and quantity of foods available to patients with small incomes, thirdly, by the need to avoid additional work—i.e., in procuring or preparing food.

The diet prescribed excluded (1) all foods containing sugar, as in Groups I and II, (2) breakfast cereals and other foods prepared by toasting. It included explicitly all rationed foods except sugar bread (85% extraction), oatmeal, unrationed vegetable oil, fruit, fish, potatoes, and yoghurt, which is unrationed and available to anyone living in London. The subjects were instructed concerning the purpose of the regime. Although with few exceptions, they were not asked to weigh their food or to adhere to specific menus, they were clearly told the approximate minimal quantities which they were to consume per day.

The general and the cervical responses resembled those seen in Groups I and II. Loss of weight occurred at about the same rate as in those two groups. In three patients the weight

remained almost constant. Cervical function was restored in six who had lost weight, and conceptions have occurred so far in two. This group, like Group II, contains a number of recent cases, so that the incidence of conception cannot yet be assessed.

As stated, the energy intake of several women of Group III was higher during the regime than before. Increased intake, in spite of the exclusion of sugar, was facilitated by the peculiar food habits not uncommon in obese women. Before treatment they ate no potatoes, hardly any bread and very little fat—all foods which they believed to be fattening. Being childless, they did, however, consume their own (and sometimes their husbands') sweet rations, and quantities of cakes, biscuits, stewed fruits, etc. Furthermore, they did not bother to prepare meals for themselves when their husbands were out, so that their "elevenses" lunches, and teas consisted quite often of a cup of tea or coffee with a slice of cake. When they were taken off sugared foods and ordered to eat bread, oil in addition to their fat ration, oatmeal porridge, yoghurt, and so on, they more than made up for energy intake surrendered with sugared foods. The subjects were not in hospital, so precise figures concerning calorie intake cannot be submitted, but in Table III gain and

TABLE III—Showing Loss of Energy Intake through Exclusion of Sugared Foods by a Subject of Group III together with Energy Intake from Additional Foods Prescribed to Balance this Loss\*

A Loss per Week through Exclusion of Sugared Foods	
Sugar (8 oz 227 g)	860 cal †
Cake (purchased) (28 oz 794 g)	2 800
Biscuits (16 oz 454 g)	2 176
Jam (8 oz 227 g)	560
Sweets (3 oz 85 g)	450
Flour used in puddings (about 7 oz 200 g)	680
<b>Total</b>	<b>7 526 cal</b>
B Gain per Week from Prescribed Minimum Intake of Specified Foods	
Oatmeal (14 oz 397 g) taken as porridge and girdle cakes	1 400 cal
Yoghurt (14 bottles estimated at about 100 cal each)	1 400
Additional bread (28 oz 794 g)	1 960
Potatoes (3 lb 1 36 kg)	2 700
Vegetable oil (20 fl oz 568 ml) taken in salads and for cooking	5 100
<b>Total</b>	<b>12 560 cal</b>
<b>Positive balance per week 5 034 cal</b>	

\* The figures do not take into consideration meat, fish, cheese and other foods which were not significantly affected by the regime, nor do they reflect increased consumption of fruit and vegetables. The figures relate to the average consumption during a period of three weeks at the beginning of the regime. The subject, aged 32 years, height 5 ft 3 in (160 cm), weight 157 lb (71.2 kg), lost 6 ½ lb (2.7 kg) during this period.

† Calorie values obtained from Nutritive Values of Wartime Foods. Med Res Coun War Mem No 14 London 1945.

loss of energy intake are shown relating to a particular subject. From this it will be seen that in this clinical condition and in the prevailing food situation an increased calorie intake is compatible with a significant decrease in weight and an increased chance of recovery from cervical block.

### Supplementary Notes and Discussion

1 *Control Data*—Two groups of control data for the present series are available. First, the cases were unsuccessfully treated by oestrone, antibiotics, and sometimes local applications before institution of the diet. Experience shows that mere repetition of such treatment after an interval, and without intervening measures, rarely brings about success if it has failed the first time. The cases thus constitute their own controls. Secondly, properly organized therapeutic measures could not be instituted, or were interrupted for incidental reasons, in 9 patients. When these were seen again after intervals varying from two to six months restoration of cervical function was noted in but one case. Rapid spontaneous recovery without change in environment thus being rare, the regime appears to have contributed materially to the restoration of cervical function.

2 *Alternative Effect of Diet*—Previous workers found that infecundity in overweight women responds well to reduction of weight by decreased energy intake, by treatment for fluid retention, or by both. In our cases, too, the effect seems to be related to loss of weight. However, we

avoided any attempt to procure a negative energy balance. In some patients energy intake was possibly decreased simply by withholding sugared foods, in others, however, intake was not sensibly reduced, or was even raised. No did the patients produce a negative energy balance by increased exercise. In fact, in some of them the amount of work was deliberately reduced, for we are under the impression that such reduction, by imposed periods of rest, promotes recovery in women of this age group who have been exposed to continuous or excessive physical strain. It may thus be deduced that in such cases loss of body weight was due to a change in metabolism.

3 *Metabolic State and Infective Process*—This alternative effect may be responsible for the subsequent response to treatment. It is uncertain whether the response was related to an increase in general resistance or to a more specific action, or both, certainly general improvement in health occurred in many instances during the dietary regime. Resistance to infection is of course known to depend on nutritional conditions (Cannon, 1942; White, quoted by Duncan, 1947), and is lowered by specific metabolic disturbances (e.g., diabetes mellitus). But while alteration in the rate or the nature of metabolism appears to have favourably affected the infective process the connexion between infection and metabolic state in these cases cannot be regarded as a one-way relationship. Thus we have noted that the resumed treatment of the infection while maintaining the diet often accelerates reduction of body weight. Furthermore, the case histories show that increase in weight, and even rapid development of obesity, often dated from or followed upon, the first signs of genital infection or the infection of the urinary tract which not infrequently precedes cervicitis. The data are compatible with the suggestion that metabolic disturbances resulting in overweight and infective conditions of the type described are subject to mutual enhancement whatever the mode of origin may be.

4 *Metabolic State and Response to Oestrogens*—The restoration of cervical response to oestrogens may not represent an independent effect of metabolic changes but merely reflect the elimination of the infection. This interpretation suggests itself not only in view of previous findings already referred to but also because of other observations (unpublished). These show that in infecund women the reactivity to sex hormones (measured, for example, by uterine response to oestrogens and by endometrial or thermal response to progesterone) may be impaired by unspecific infections even if these are not localized in the reproductive system. Also pyometra, which commonly develops in aged rats, is often associated with suppression of vaginal response to oestrogens, the response may be restored by hysterectomy. It should be recalled, too, that the response to another hormone—namely, insulin—may be impaired by infective conditions.

5 *Role of Sugared Foods*—The only common factor in the three diets we employed was the exclusion of sucrose (with the exception of that occurring naturally in fresh fruit), and we are inclined to regard this as the essential factor. It seems likely that the high intake of sugared foods adversely affected metabolism either directly or indirectly (e.g., through promoting an unbalanced intestinal flora). The suspected effect of sugar may of course be conditioned by the form in which it is taken and which determines its availability for intestinal agents, and may be related to the diet as a whole (e.g., to the protein-carbohydrate ratio).

6 *Effect of Crude Sugar*—It seemed also possible that the adverse effect of sugared foods depended upon the use of highly processed sucrose, but the lactose used was also highly processed, yet it appeared to be harmless. Further, more, 12 women were placed on a diet corresponding to that of Group II but received about 12 oz (340 g) of crude cane sugar per week. This diet did not evoke any loss of

weight or other response. Sugared foods were then entirely excluded from the diet, and the usual response occurred in these cases. The data, so far, certainly do not suggest that highly processed sugar is any better than the crude substance.

7 *Age Factor*—The relationship between refractory infective conditions, metabolic state, and response to oestrogens is further complicated by an age factor, the threefold disturbance being comparatively less common in infertile women under 30. Its incidence seems to rise, like that of obesity in general, during the fourth decade of life. The complex here discussed represents one of the modes by which fecundity declines.

8 *General Notes*—The use of sugar-free diets is not suggested for cases of obesity in general, for our experience is entirely limited to infertile women in the reproductive phase of life. Also, the syndrome involving refractory genital infection, overweight, and lack of response to hormones may be determined by specific and topical conditions such as the prevailing food restrictions combined with the demand made upon the physical resources of women in this country during the past years. Nevertheless, we are submitting our findings because the dietary measures described have been of great practical assistance to us in our work, and in recent months dietary measures have been employed in every suitable case from the very beginning of treatment in order to save time.

#### Summary

Refractory cervical block is a common cause of infertile women aged 30 to 40. It tends to respond to treatment by antibiotics and oestrogens if loss of weight is first procured by dietary measures. Suitable diets which do not interfere with the routine of the subjects are described. Their main characteristic is the exclusion of sucrose with concomitant increase in other foods chosen to produce a diet adequate for maintenance and reproduction within the limitations imposed by rationing.

The bacteriological investigations for the present series were carried out by Dr R C Matson, pathologist, Royal Surrey County Hospital, Guildford, to whom our thanks are due for help and advice on many occasions. His routine procedure is summarized in the footnote. We are also indebted to Mr A L Bacharach for discussion of nutritional aspects of this investigation, and to the Scientific Adviser, Ministry of Food, for supplying crude cane sugar for issue to subjects.

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## THE BIOLOGICAL ASPECT IN TREATMENT OF THE INFERTILE MARRIAGE

BY

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At the present day, when so many women seek advice with reference to the infertility of their marriages and so much investigation is carried out in an attempt to elucidate the causes, the criticism might be offered that most of our energies are spent in investigation and little in treatment. Nevertheless, many of our lines of investigation seem to have a direct curative value—as, for example, it would appear to be established that the performance of a tubal patency test has a curative as well as a diagnostic value. Green-Armytage (1943) has recorded a 43% success rate following the simple process of salpingography. It is not clear how this process achieves these results, but speculation upon figures quoted suggests that there is a direct relationship between the two. So many cases of immediate pregnancy following upon the simple procedure of endometrial biopsy have been reported that it is impossible to avoid the conclusion that here also the results are not merely accidental.

Reviewing treatment from the time-honoured method of dilatation of the cervix and curettage to the present-day methods of demonstrating tubal patency (salpingography and insufflation) and the surgical procedures of salpingostomy, it is at once apparent that most of our means of approach are mechanical. This is what might be expected in the present mechanical age and from the fact that the problem of the infertile marriage occupies the minds of surgeons rather than physicians.

Now that the role of the hormones of human gestation is becoming clearer and the endocrinologists are turning their attention to the problem, it is likely that the pendulum will swing a little away from the mechanical aspect towards the medical and biological side.

#### Four Important Questions

In investigating an infertile marriage we are concerned with four major questions: (1) The husband, his potency and the quality of his semen; (2) Ovulation; (3) The pathway which the sperms traverse to reach the ovum, and here we may consider two subdivisions—(a) the cervix and the influence of its secretions on sperm migration; (b) the Fallopian tubes; (4) Nidation or embedding of the ovum. In my opinion, the importance of nidation of the ovum has not been sufficiently stressed, and treatment based upon the assumption that many cases of infertility result from difficulty experienced by the ovum in embedding itself in the endometrium has proved to be successful in an appreciable number of my cases.

Since treatment based on the assumption of faulty nidation is purely medical and can be carried out with little inconvenience to the patient, it has gradually become my practice of recent years to initiate medical treatment aimed at securing firm implantation of the ovum in practically every patient who consults me with reference to infertility and in whom there is no gross pathology. Medical treatment can be undertaken while the patient is awaiting the propitious moment for such tests as the post-coital test, endometrial biopsy, and the tubal patency test and while the husband is being investigated by a seminologist.



Under such treatment it is surprising how often the completion of these tests is not necessary because the patient has become pregnant in the interim. Occasionally, of course, at the first examination one finds some definite and likely cause for infertility which calls for specific treatment, but more frequently no gross cause is discovered. In these latter cases treatment aimed at securing firm nidation can be started at once. In most of the patients nowadays, apart from performing a post-coital test, I like to give a trial period of two or three months under medical treatment before further investigations are undertaken.

Most authorities agree that the ovum, after fertilization, takes several days to traverse the Fallopian tubes and reach the uterus, the endometrium of which should be prepared to receive it—that is, it should be in the secretory phase, having responded to the hormones elaborated by the corpus luteum. An extended experience of endometrial biopsies taken just before the onset of a period has led me, however, to appreciate that all endometria do not show the same degree of preparation. Whether this is due to a deficient action of the corpus luteum or, as Bourne (1947) suggests, to lack of a receptive factor in the endometrium rendering it unresponsive to a normal hormonal stimulus must await further work on the subject. The fact remains that a good number of women produce an endometrium which, by our gross methods of assessment, would appear to be inadequately prepared as a nesting-ground for the fertilized egg.

### A Plan of Treatment

Basing treatment upon this evidence, I advise my patients to adopt the following plan

1 To concentrate intercourse on their fertile dates, which can be calculated for them either mathematically as occurring on the 16th, 15th, or 14th day prior to the anticipated onset of a period (in a woman with a 28 day cycle these days will be the 12th, 13th, and 14th days from the first day of the last period) or, more accurately, by instructing them to assess the days by the early-morning temperature method

2 To abstain from intercourse for a week or ten days prior to these fertile days which in practice amounts to abstaining from the first day of a period until the fertile days

3 To take from the first fertile day 0.6 mg of 'dienoestrol' and 10 mg of 'ethisterone' daily

4 To continue to take these hormones until the onset of the next period, when they are discontinued, since obviously the onset of a period indicates that on this occasion the attempt to aid nidation has failed. Should the period not start, the patients continue with these hormones daily until the 18th week of the pregnancy

It should be noted that the administration of these hormones may delay the onset of the period by a few days even in the absence of pregnancy, but not longer. I quote the results of this treatment in 111 patients, in not one of whom could I discover any apparent cause for infertility by ordinary clinical examination. All of them had been sterile for more than two years, and 87 of them for periods varying between 3 and 10 years

TABLE I—Cases in which there had been no Previous Pregnancies

Total number of cases	111
Failures	73 (65 8/)
Successes	38 (34 2/)
Analysis of failures	
Certain failures	37
No reply to letters of inquiry	36
Analysis of successes	
Pregnant in one month	13 (11 7/)
two months	4 (3 6/)
three months	6 (5 4/)
six months	15 (13 5/)
Number of miscarriages	3

It will be seen that within six months, to my knowledge, on medical treatment alone, 38 (34.2%) patients had become

pregnant. Three of these patients miscarried, but all the others gave birth to live babies.

Since this line of treatment can obviously have no influence upon obstructed tubes, it is not worth trying for more than a few months. I maintain, however, that it can influence the marriage which is sterile on account of poor spermatogenesis, as I shall attempt to show, and it is particularly useful in those patients who suffer from repeated miscarriages. Table II shows the results of the analysis of 38 cases in which there had been no difficulty in conceiving but merely in retaining the foetus. Not one of the patients whose records are shown in the Table had suffered from less than two miscarriages and not one had carried a baby to term.

This method of treatment has thus a wider application, particularly in two types of case—namely, (1) cases of repeated miscarriages, (2) cases in which a fault in the husband's semen is responsible for the infertility.

### Cases of Repeated Miscarriages

Many of such miscarriages appear to result from faulty nidation due either to a poorly prepared endometrium—that is, a fault in the environment—or to what can be described as poor germ-plasm—namely, a fault in the embryo. In fact, all causes of miscarriage must fall within these two categories, since Nature and Nurture, operating together, fashion the foetus—that is, embryonic development depends upon the interplay between genetic factors and factors imposed upon it by environment. A fault in either may result in impaired development or death of the embryo.

Many environmental causes of miscarriage are obvious and well known—for example, diseases of the maternal organism such as nephritis, hypertension, virus infections, etc. On the other hand, it is not so generally realized that inadequate endometrial preparation for nidation must be regarded as forming an adverse environment for the growth of the embryo, and thus it can be considered to be one of the environmental causes of miscarriage. This conclusion, however, is complicated by the fact that although the suitability or otherwise of the endometrium for nidation in the first instance is imposed upon the foetus—that is, it depends upon the activity of the corpus luteum—this is true only up to the moment of nidation, since from then onwards the continued activity of the corpus luteum and consequently the character of the endometrium depend upon a stimulus from the embryo itself. There is therefore a direct link between the genetical composition of the embryo and the continuation of the life of the corpus luteum.

Nature has in this way cunningly contrived that the intra-uterine environment shall be genetically determined, and has imposed upon the embryo the necessity to plough its own furrow.

This linkage between genetics and environment brings into consideration the father's contribution, and apportions to him part of the responsibility of ensuring an adequacy of the pregnancy hormones. The evidence obtained from the assessment of pregnanediol excretion rates suggests that a weak embryo means a weak stimulus (chorionic prolactin), and a weak stimulus a deficiency of the ovarian hormones, with a resulting poor environment and probable death and expulsion of the foetus.

Whether or not a fault in nidation is genetic (that is, a fault in the ovum) or environmental, a better environment—namely, a better-prepared endometrium—may make all the difference between success and failure. Just as in dealing with a delicate seed the husbandman prepares his soil carefully, so in order to facilitate the growth of the human ovum we should see that the endometrial soil is well

prepared before the seed is sown, and this can best be achieved by the administration of the pregnancy hormones (oestrin and progesterone) from the day of ovulation and consequently before it is known whether the patient is pregnant or not

Below, Table II shows the results of treatment of 38 cases of repeated miscarriage, for none of which was any apparent cause found. In all these cases rhesus incompatibility was excluded. It is a point of interest that in 30 of these cases the seminologist reported that the semen was subfertile, but, since it appears to me that seminologists have no normal standard on which to base such decisions, I do not think that any accurate conclusion regarding the semen can be drawn from these reports

TABLE II—Repeated Miscarriages

Total number of cases analysed	38
Number pregnant in 6 months	28
Live births	20
Miscarriages	6
Stillbirths	1
Spina bifida	1
Number not pregnant in 6 months	10
Previous miscarriages (96) among the 38 patients	
26 had had 2 miscarriages	52
8       3	24
4       5	20
Results According to Number of Miscarriages	
Two miscarriages	
Cases	26
Pregnant in 6 months	20
Living children	15
Miscarriages	5
Three miscarriages	
Cases	8
Pregnant in 6 months	6
Living children	4
Miscarriages	1
Spina bifida	1
Five miscarriages	
Cases	4
Pregnant in 6 months	2
Living child	1
Stillbirth at 8 months	1

Thus in six months 28 of these 38 patients were pregnant and 20 carried their babies through to term. Two were delivered by caesarean section.

### Infertility due to Inadequate Semen

Where we are dealing with a case of infertility in which we know that the semen is inadequate the same argument of preparing the soil to compensate for genetic weakness of the seed holds good.

Finally, there are two points in this plan which I would like to emphasize.

1 It has been shown by Allen (1932) and Leonard, Hisaw, and Fevold (1932) that progesterone proliferation of the endometrium will not take place unless it has been first sensitized by oestrin. It is for this reason that dienoestrol is administered in conjunction with ethisterone (progesterone). Also, it may be that the varying endometrial changes sometimes seen are due to an imbalance of these two hormones—that is, the endometrial response to progesterone is poor because there is not present at the same time an adequate oestrogenic secretion.

2 The hormonal treatment is continued until the 18th week and then withdrawn since it has been shown by Browne, Henry, and Venning (1939) and others that there is a sharp rise in pregnanediol excretion about the 13th to the 16th week, and this increased excretion has been interpreted as signifying the commencement of elaboration of progesterone by the foetal chorion.

To continue to boost a pregnancy after this time, apart from being difficult and expensive, would appear to be eugenically unsound, since, if the foetus cannot elaborate enough hormones for the continuation of the mother's pregnancy, it might be a dysgenic act to allow it to live. Malpas (1942), Wenner (1941), and others have drawn attention to the fact that the incidence of foetal malformation is closely bound up with the problem of miscarriage,

and Wenner states that if a threatened miscarriage continues to term there is a greater than average chance of a deformed baby resulting.

During the recent war I was tempted on three occasions to give larger quantities of the ovarian hormones than is my custom and to continue them throughout the whole of the pregnancy. These three patients had threatened to miscarry before I saw them, and were bleeding when I first examined them, although uterine contractions were absent and urine pregnancy tests were positive. All three continued to bleed from time to time throughout the pregnancy, uterine growth was poor, and the breasts lacked serum.

After treatment of such patients for a week or two I would normally have withdrawn the hormones and allowed the miscarriages to take place. These three patients, however, were elderly primigravidae, and their husbands were going on service abroad and were not likely to return in time to make further conception possible. I therefore continued to administer large quantities of hormones throughout the pregnancies in spite of repeated bleedings, slowly growing hard uteri, and poor breast changes. All three terminated their pregnancies by premature labour between the 30th and 35th weeks, and all three gave birth to abnormal babies, not one of whom survived. Two of the babies were cases of exomphalos and one was a case of microcephaly, and the labour was accompanied by bleeding from a placenta praevia.

I therefore now discontinue administering the hormones at the 18th week, at which time the function of the corpus luteum is over and the hormones should have been elaborated entirely by the embryo itself. The embryo should, as it were, stand on its own feet from then onwards.

To continue to treat a case of threatened miscarriage in spite of repeated bleedings can be likened to watering a garden when a plant is withering. The damage has already probably been done and we are unaware of the direction in which the embryo is developing. In most cases it would be advisable to allow the miscarriage to complete itself and start again with an endometrium adequately prepared—that is, to sow the seed in better soil by adopting the plan which I have outlined above—since a good start means good roots and good roots a good superstructure (the foetus). For this reason it does not appear to me to be unwise to aid the embedding and early growth of the embryo, but once the stage is reached at which large quantities of hormones are necessary and at which they are elaborated entirely by the foetal chorion I think that in the interest of eugenics the help should be withdrawn.

Embryos of all animals lower than the mammals have a very uncertain environment, for which they are compensated by multi-egg spawning. The environment of the mammalian embryo, however, is so potentially safe that were some check not placed upon it many abnormalities might survive. Nature, however, has determined that mammalian embryonic environment shall be genetically controlled, and thus those embryos which fail to elaborate enough hormones for their own survival are discarded. In the present state of our knowledge of embryonic growth it would seem to be unwise to run counter to this principle.

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# RINGWORM OF THE SCALP IN THE EASTERN REGION OF SCOTLAND, 1946-7

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The main object of this paper is to present a picture of ringworm of the scalp in the Eastern Region of Scotland (counties of Angus and Perth) from July 1, 1946, to the end of 1947. During this period there were two epidemics of small-spore ringworm and 631 cases were seen. Owing mostly to lack of appreciation of the factors involved, misleading or doubtful statements are still being made about ringworm of the scalp, and the opportunity is here taken to make categorical statements when these appear justified. Some experiments with local treatment are described.

The great majority of cases of ringworm of the scalp in this country are due to microsporon infection, but as one travels south through Europe the proportion changes till in Italy nearly all cases are due to the trichophyton (Walker and Percival, 1939). Recent reports confirm this statement. Keddle (1947) found in an epidemic of scalp ringworm in Bathgate, Scotland, that all the 351 children were infected by microsporon. Chmel (1946), in analysing results of cultures from 156 cases of ringworm, not confined to scalp cases, in Czechoslovakia from 1942 to 1946, found that microsporon was responsible for 40% (he states that the number is still increasing), *Trichophyton endothrix* 22.4%, *T. ectothrix* 26.9%, *achorion* 2.56%, and *epidermophyton* 8.14%. Catanei (1947) states that out of 871 cases of ringworm in school children in Algiers examined in 20 years 4.5% were due to microsporon (*M. canis* more often than *M. audouinii*), 9.5% were favus, and the remaining 86% *T. endothrix* infections.

In the U.S.A., reports of several epidemics have recently been published showing an overwhelming preponderance of microsporon infection of the scalp. Schwartz *et al* (1946) found *M. audouinii* in all but 8 cases out of 565 in Haverstown, Maryland, during 1944-5. Lewis *et al* (1946) saw in the New York Hospital 312 patients with tinea capitis from July 1, 1943, to June 30, 1945, 305 were microsporon infections (*M. audouinii* 275, *M. lanosum* 30), 5 were due to *T. endothrix* and 2 to *achorion*. Over 28 months to May, 1945, out of 928 cases in the Vanderbilt Clinic Miller *et al* (1946) found 96.9% due to *M. audouinii*, 2.6% due to *M. felineum* (*M. lanosum*), and only 0.5% due to other organisms.

With regard to the type of microsporon found in this country, Duncan (1945) states that *M. audouinii* seems to be the predominant species causing tinea capitis in the Midlands and North, while the animal types were common in school-children in the southern counties and in the London area. In the latter area the two types of microsporon were found in approximately equal numbers.

Favus was formerly common in Scotland. McCall Anderson (1871) found it in 1.56% of 10,000 consecutive dispensary cases in Glasgow. Norman Walker (1899) stated that the opportunities of studying favus were numerous in Scotland. As will be seen, it is now rare in the part of Scotland under consideration, though cases continue to crop up occasionally.

## Two Epidemics of Ringworm

Fig 1 shows the occurrence of ringworm of the scalp as seen in the ringworm clinic of Dundee Education Authority from its inception in 1914 to the outbreak of

the last war. It will be seen that the infection had almost disappeared from this area by September, 1939. Its recrudescence is simply explained by war conditions: mass movement of children in evacuation schemes and consequent relaxation of supervision by parents and school medical staffs allowed an endemic condition to become epidemic.

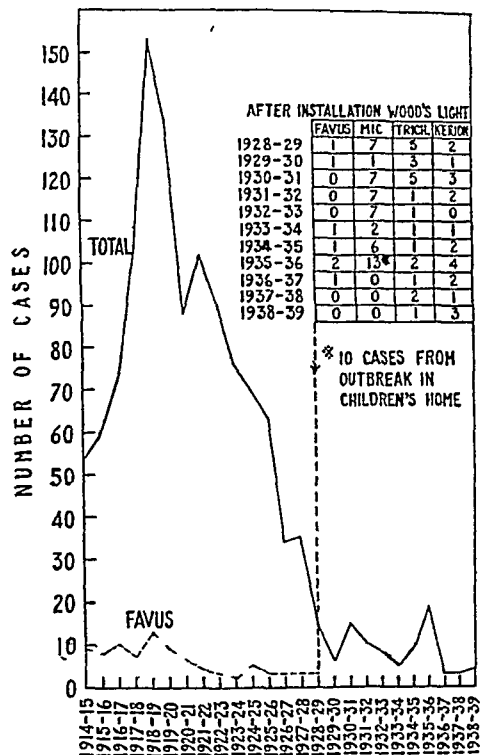


Fig 1—Incidence of scalp ringworm in Dundee from 1914 to 1939

In this region there have been two recent major epidemics of ringworm of the scalp—one in Dundee (population 180,000), which first appeared in 1944, and one in Arbroath (population 18,000), some fifteen miles away, in which cases were first noted in the middle of 1946. Fig 2 shows the progress of these epidemics.

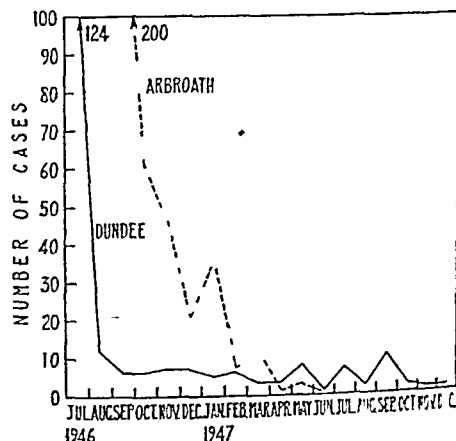


Fig 2—Progress of epidemics in Dundee and Arbroath (1946-7)

Before the return of one of us (J.K.) from war service considerable difficulty was experienced in dealing with the Dundee epidemic. Adequate facilities for x-ray epilation were not available and thallium had been procurable only in inadequate quantities when it had been available at all. From the middle of June, 1946, however, the epidemic could be tackled satisfactorily, and when asked to deal

with the subsequent epidemic in Arbroath we were able to arrange at once for the requisite organization and facilities

From July 1, 1946, to the end of 1947 Dundee produced 217 cases, in Arbroath there were 381, while from other parts of the region we received 33—a grand total of 631 cases

### Mycology

Owing to scarcity of Sabouraud's original medium and the difficulty of classification with any modification, not all the cases were examined culturally. By random culture from cases considered typical of infection by *M. audouinii* and routine investigation of all the rest we were able to satisfy ourselves that any error in clinical diagnosis put the more inflamed audouinii infections among the animal ringworms, never the reverse

TABLE I—Type of Infection

	Micro sporon		T. endothrix			T. ectothrix (Clinical)	Ach. scl. on	Total
	Aud	Lan	Crater	Sulphur	(Clinical)			
Dundee	202	8	5	1	1	—	—	217
Arbroath	381	—	—	—	—	—	—	381
Rest of region	30	—	—	—	—	1	2	33
Total	613	8	5	1	1	1	2	631

Table I shows the types of infection found and the very great preponderance of *M. audouinii* infections—97.1%. In all, 98.4% were microsporon infections

In Dundee 183 cases were in boys and 34 in girls, in Arbroath the figures were 322 and 59 respectively, while from the rest of the region there were 26 boys and 7 girls. This gives a proportion of 84.15% boys and 15.85% girls affected. Keddie (1947) found 89% boys affected and 11% girls out of 381 cases, Schwartz *et al.* (1946) give 84.4% boys and 15.6% girls among their 565 cases, so that the figures from this country and from the U.S.A. for similar epidemics are almost exactly the same. Fig. 3 shows the age and sex incidence in the Dundee and Arbroath epidemics

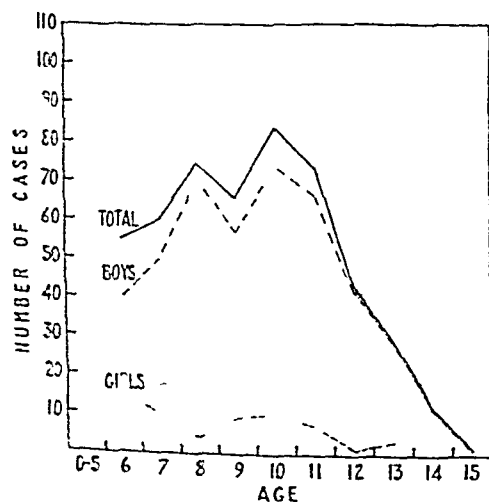


Fig. 3—Age and sex incidence in combined epidemics. Not shown in the Graph are ages 0-5 years: boys 72, girls 33, total 105 cases

The marked prevalence of the infection in boys in the clipper area—that is, the area so dealt with in barbers' shops—had been commented on by Schwartz *et al.* (1946). They found 65% of boys were affected in this area alone, 21% in the clipper area and elsewhere, and 4% on the crown. In girls the commonest site was the parting of the

hair. Table II shows the site of the primary lesion in the Dundee and Arbroath epidemics. In the case of the disseminated infections it was impossible to ascertain accurately where the disease started, but the clipper area was always included. The cases affecting the eyebrows were interesting. Here typical lesions of *M. audouinii* infection of the glabrous skin were seen, including in their orbit parts of the eyebrows. Examination under Wood's light showed the typical fluorescence of the eyebrow hairs within the infected areas. Lesions of the hair margin showed fluorescence of the lanugo hairs as well as of the scalp hairs within the lesion.

TABLE II—Site of Original Lesions Dundee and Arbroath Epidemics

	Boys	Girls
Occipital region	56%	32%
Parietal region	9%	17%
Vertex	4%	16%
Frontal region	2%	6%
Hair margin	4%	6%
Disseminated	25%	21%
Eyebrow only	1 case	2 cases

In boys the most prominent part of the occiput was the one most frequently involved. This led one to incriminate as the source of spread something with which this part in particular came in contact, such as the back of cinema seats, but no definite proof could be obtained that they were at fault. Barbers' shops are a more likely source of spread. Few barbers sterilize the tools of their trade between customers, and scissors, clippers, combs, and brushes can easily pick up infected particles of hair and pass them on to other scalps. Girls are not so exposed to this risk, and their long hair affords a considerable degree of protection from infection. This is shown by the fact that the more easily accessible portions of the scalp about the parting of the hair are most often involved, as Schwartz remarks.

### Organization

To control ringworm infection it is essential that efficient organization and liaison exist. Any case of ringworm of the scalp should be notified to the school medical officer concerned so that all possible contacts can be examined by Wood's light and missed cases discovered. By this means other epidemics have been nipped in the bud, and by the end of the period under review ringworm seems to be well under control throughout the whole of the region. For instance, in one small town a game of blind-man's-buff resulted in four girls developing ringworm in the area which had been in contact with the handkerchief. The source of infection was known and further spread was prevented. A pupil in a private girls' school was found to have ringworm. She had recently returned from India, where she had had ringworm but had been pronounced cured by her doctor. On being informed the school medical officer visited the school by arrangement and examined all the girls under Wood's light. Three other girls were found to be infected, but though this examination has been repeated there have been no further cases. A boy in hospital suffering from paralysis following anterior poliomyelitis was observed to be infected. He had passed the disease on to two other boys in the ward, but his history showed that he had had the infection before admission. The school medical authorities visited his home town and found among his class at school three other cases.

School medical authorities should have a portable source of Wood's light and a staff trained in its use. The immediate examination of all possible contacts, treatment of any case found, and repetition of the examination made till a period of at least three months has elapsed since the last case was discovered will ensure extermination of the outbreak.

For the investigation of children under school age one has to depend on the co-operation of the parents, but they

are as a rule very willing to have their children examined. The demonstration of a vividly fluorescing head creates a very strong impression on parents.

For treatment accommodation provided with Wood's light and a trained staff is essential. Cases were seen by us weekly, but manual epilation where required was done by the nursing staff. They soon grew very proficient in the detection of infected hairs and in their removal. Skilled fingers will remove many an infected hair which would break off under less adept hands.

Recording must be carefully done not only to provide a record of treatment but to keep a check on attendance so that absentees can be rounded up. Although attendance of patients was on the whole satisfactory, carelessness had to be checked and absentees induced to return by visits to their homes to explain the necessity for regular attendance not only for the child's sake but for that of others who might be infected by him.

The running of the clinics was under our supervision, for it is very necessary that a trained dermatologist should oversee the treatment. Ringworm of the scalp varies so much in its manifestations that the many problems that crop up can be solved only by one experienced in dealing with ringworm.

No child was allowed to return to school until given permission by the dermatologist. Without the use of Wood's light it is impossible to be certain that all infection by microsporon has gone. Many cases have been seen in which clinically no evidence of infection remained and yet under Wood's light the tell-tale fluorescence showed that the disease was still present. It should be stressed to all general practitioners that this is the only certain method of assessing cure and preventing children still infected being allowed back at school.

### Clinical Varieties of Scalp Ringworm and Their Diagnosis

The various types of ringworm must be considered separately, they present different problems in diagnosis and require different forms of treatment.

*Small spore Ringworm*—All cases of this infection showed characteristic fluorescence under Wood's light. This appears to be common to hairs affected by different species of microsporon, but in addition by this means information can be obtained about the age and state of the infection.

*M. audouinii*—Recent infection showed well-defined circular areas within which the hairs fluoresced bright green. Sometimes the hairs at the margin were more evident than those at the centre, they had not been broken off so short. In such cases total epilation by x rays or by thallium is the most rapid and certain means of cure. The infection is virulent and likely to spread. In older infections the patches are not so well defined and the fluorescence may not be so vivid—whitish rather than green. There is often a more pronounced scaly reaction of the skin than in new infections and there is not the same tendency to spread. The fungus appears to have lost some of its virulence and is more amenable to treatment by local epilation by x rays or even to local application of a fungicide and manual epilation. The hairs are not so brittle as in a recent infection and can often be epilated whole.

Occasionally, especially after thallium epilation, a few hairs remained infected in an attenuated form. These hairs may be of normal length and show an interrupted fluorescence giving rise to a beaded appearance under Wood's light. It was usually possible to epilate such hairs completely. If a hair broke below the surface of the scalp a scale was apt to grow over the follicular orifice and hide the stump. Consequently there was no green fluorescence under Wood's light till the scale had been removed when the vivid green of the growing stump became visible. Any scale must be removed and the underlying scalp inspected before one can be certain of cure.

Sometimes a case of *M. audouinii* infection showed a kerion reaction. If one lesion became affected, all did. These crises were apt to be mistaken for animal microsporon infections but culture showed the characteristics of *M. audouinii*. The development of kerion in these cases is spontaneous and not affected by any form of treatment used. It may be active enough to cause spontaneous fall of the affected hairs and consequent cure, but is less likely to do so than in the case of infection by *M. lanosum*. Out of the 381 Arbroath cases 24 showed this kerion formation—15 were cured by local measures and 9 required x ray epilation.

*M. lanosum*—At first this infection is clinically indistinguishable from that due to *M. audouinii* but in all cases seen a follicular inflammatory reaction occurred, probably at least a fortnight after the first appearance of symptoms, leading to mild kerion formation, usually with defluvium of the patches and cure. This could be helped by manual epilation of the affected hairs under Wood's light. Sometimes these crises were given x rays before the onset of kerion, this seemed to have little influence on its progress. The kerion did not seem to be made worse by x ray treatment.

The degree of kerion produced by microsporon infections is much less than by *T. ectothrix* and no sequelae such as permanent loss of hair or scarring were noted. The appearance of this reaction is therefore beneficial and it is regrettable that so far no satisfactory method of producing it artificially has been devised.

*T. ectothrix*—In view of the small number of cases seen there is little to say about this infection. Careful examination under Wood's light failed to show any fluorescence of the affected hairs. No case resembling a condition which could be called 'black dot ringworm' was seen. The clinical appearance in all cases was an irregular area showing loss of hair with some scaldiness and with broken hairs scattered between those of normal length. Scrapings from the affected area examined in liquor potassae under the microscope revealed among the scales fragments of hair containing the typical chains of squared spores. Local epilation of the affected areas by x rays was sufficient to cure the condition.

*T. ectothrix*—Only one case is included in this series. Owing to the length of time the disease had existed no affected hairs remained and culture from pus and crusts was negative. The kerion was typical of this type of infection, a well defined swollen, inflamed area oozing pus from dilated follicular openings. The child came from a farm where cattle were infected with ringworm. During the period under review we have seen only one case of ectothrix kerion in which affected hairs remained, and on careful examination under Wood's light no fluorescence of the hairs was noted. In this case *T. gypsumasteroides* was the fungus responsible. Fortunately Wood's light is not essential for the management of such cases, the clinical picture is adequate guide for diagnosis and estimate of cure.

*Favus*—The two cases in this series were in brother and sister who lived in the country. The disease had existed for over a year and had been diagnosed as seborrhoeic. The mother had been conscientious in her treatment, which consisted in regular washing and application of ointment, consequently no scutula were seen and there was little alopecia. The picture was of well-defined patches of inflammation of the scalp especially round the follicles. The scalp in the affected areas was red and rather scaly, there was slight patchy cicatricial alopecia, but no broken hairs were seen. The margins of these areas were sharply defined. Favus was suspected on account of the above characteristics and the occurrence in two members of the same family. There was also a distinct mousy odour about the scalps. Under Wood's light the diagnosis was easily confirmed, and the extent of the infection was found to be much greater than had appeared at first sight. There were numerous unsuspected small areas of infection. Achlorion infection can readily be distinguished from microsporon infection under this light. The fluorescence is a dusty green quite different from the brilliant green fluorescence of microsporon infected hairs. A still more distinctive characteristic is that the hairs are not broken off short but are more or less of normal length. The combination of long dusty green fluorescing hairs on a scalp inflamed and red in colour showing alopecia with

scarring occurring in well-defined patches is pathognomonic of favus and enables a diagnosis to be made even in the absence of scutula. Chronic impetigo of the scalp, the lesions remaining in the same situation for more than a few weeks, should always lead to a suspicion of favus.

It may be mentioned that during the period under review two cases of favus of the glabrous skin were seen both showed typical scutula. One of these patients, a boy, had lesions on his abdomen, the other, an adult female, was affected on the left upper arm. In the latter case *A. quinceanum* was the responsible fungus.

### Treatment

Epilation by x-rays or thallium was employed in all cases of microsporon infection except (a) cases showing kerion formation in which local treatment was given a chance first—and only if there was likelihood of insufficient spontaneous epilation were other means used, (b) those with attenuated old infection—in these cases also local applications and manual epilation were used and (c) children under 2 years old, because it was not thought desirable to use thallium at such an early age, and because, the hair follicles being relatively shallow in young children, the disease is more amenable to local treatment. It was found, however, that at best these cases took longer to cure than those which were epilated by thallium or by x-rays.

In all 93 cases were cured without x-ray or thallium epilation—a percentage of 14.74. Lewis *et al.* (1946) state that there is a tendency to spontaneous recovery in approximately 10% of patients. The remainder underwent x-ray or thallium epilation. All children under 7 years of age who were unlikely to remain still enough for satisfactory x-ray treatment received thallium. Beyond transient and mild symptoms there were no bad effects from this drug. Strict precautions were taken for its administration, weighing was done by a nurse and checked independently by a doctor, who wrote out the prescription for the dose, using Ingram's method to calculate the amount required—i.e., multiplying the weight in pounds by four to get the dose in milligrams. The dose was made up in orange squash and given to the child and drunk in the nurse's presence. No difficulty was experienced in inducing the child to take the dose in this way. It was not regarded as 'medicine'.

In view of the large numbers to be dealt with, x-ray epilation of local patches was used in selected cases to save time. At first all the cases so chosen were probably not suitable, and the treatment had to be extended in some cases as the disease had spread. Later more careful selection made this method more successful.

Thallium epilation is not so complete as that following x-rays and considerable trouble was experienced when all the affected hairs did not fall out. Treatment had then to be continued by manual epilation and in some cases thallium had to be repeated or x-rays used to obtain a cure. Six months were allowed to elapse before thallium was repeated, and no bad effects were encountered, in fact, some children showed more reaction after the first dose of thallium than after the second. Details of treatment are given in Table III.

TABLE III—Treatment (in Addition to Manual Epilation)			
Total cases	93	Total x-rays repeated	2
Local x-rays	197	Thallium	77
Thallium repeated	10	Thallium repeated	6
Thallium then x-rays	25	Thallium then x-rays	16
Total x-rays	20	Refused all treatment	2

Ointments were used in preference to liquid applications. The greasy nature makes infected particles less likely to be rubbed off and infect others. Iodine was not used, it coats the scalp so that they appear jet-black under Wood's light and the fluorescence is obscured. Whitfield's ointment was employed if a kerion was present it was

replaced by 1% ammoniated mercury in petroleum jelly. Through the kindness of ICI (Pharmaceuticals), Ltd., a supply of salicylanilide ointment as recommended by Schwartz (1946) was obtained. The formula used was

Salicylanilide	4.5
Cetavlon	1
Carbo wax 1500	to 100

In addition salicylanilide in "eucerin" base and in alcohol were used, and latterly sodium salicylanilide.

Parents were instructed to apply the ointment to the whole scalp daily, to wash it twice weekly, and to keep it covered with a cotton cap. When the hair began to fall it was to be assisted by daily pulling out the loose hair with the object of completing the epilation as rapidly as possible. Patients attended the clinic weekly during this period so that the epilation could be supervised. This is extremely important, as parents varied in their efforts to extract the loose hairs.

Schwartz (1946) found it difficult to show statistically the advantage of salicylanilide in carbo-wax over other applications, but it was undoubtedly present, though we find ourselves in the same position. Those who had to deal with the epilation of the hair in the various clinics were unanimous in their opinion that it was the only application which seemed definitely to assist in cure. Under its influence hairs were more easily epilated and more likely to come out whole than with other ointments. The greater penetrative power of the carbo-wax was apparently the important factor, as salicylanilide in eucerin base was no more effective than other ointments, and salicylanilide in alcohol was found to give a similar result. Sodium salicylanilide was disappointing and less effective than salicylanilide.

It is important to remove any ointment before examination under Wood's light, as vaseline fluorescence obscures that of ringworm. Carbo-wax is non-fluorescent, but sodium salicylanilide, unlike salicylanilide, fluoresces blue, not unlike vaseline. It was found that by passing the light through a lens not only was its intensity increased but much of the vaseline fluorescence was removed without altering the fluorescence of the affected hairs. Lenses were used both in this way and to examine the scalp to facilitate the identification and removal of faintly fluorescing hairs and short stumps.

Four weeks after x-ray or thallium administration the scalp was normally clear of infected hairs and the child was allowed to return to school. Supervision was continued for a further six weeks, and the child was re-examined in a fortnight and again in four weeks. Occasionally an odd fluorescent hair was detected at these examinations, this was usually easy to remove completely. In this case the child reported again in four weeks. By the end of that period the hair had started to grow again and its progress could be noted. A satisfactory regrowth was obtained in every case except those of favus and ectothrix infection which showed some trace of permanent baldness.

Regrowth of the hair after x-ray epilation often shows an increase in curliness over its previous condition. The number of curly-headed boys in Arbroath was at one time noteworthy, but to the relief of most of them this state is only temporary, and the hair gradually resumed its former condition and the curls disappeared in the hairdressers shops.

### Summary and Conclusions

After a review of the occurrence of ringworm of the scalp in Europe and the United States of America a summary of the incidence of this disease as seen in Dundee from 1914 to 1939 is given. Cases seen in the Eastern Region of Scotland from



July 1, 1946, to Dec 31, 1947, are analysed and show that, including two major epidemics during this period out of 631 cases 98.4% were microsporon infections (97.1% *M. audouinii*) and 84.15% were in boys. These figures correspond closely to recent figures from other parts of Scotland and from the U.S.A. Infection most commonly appeared to occur in barbers' shops.

Wood's light was found essential in the diagnosis and management of microsporon and favus infections but of no use in trichophyton cases.

Epilation by x rays or thallium is still the most rapid and successful means of cure but fungicides assisted by a wetting agent in carbo-wax 1500 offer a chance of cure in at least a fair proportion of cases after a considerably longer period of treatment. It must be realized that especially with the animal microspora, a modified kerion reaction may occur leading to spontaneous cure, so that in assessing the value of any 'cure' for ringworm the actual fungus causing the condition and the criteria of cure must be known.

A brief note is made of the organization required for a centre to deal with cases of ringworm and the standards necessary for ensuring that patients are non-infectious before their return to school.

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## CIRRHOSIS OF LIVER PRESENTING AS SEVERE ANAEMIA

### REPORT OF TWO CASES

BY

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This paper concerns two cases of cirrhosis of the liver in which a severe anaemia, thought to be haemolytic, was the predominant feature. Both cases were sent to hospital because of anaemia, and cirrhosis of the liver was not diagnosed until after further investigation, in the second case not until necropsy. They are reported because haemolytic anaemia is said to be an uncommon complication of cirrhosis.

The anaemia accompanying cirrhosis of the liver is described as normocytic or macrocytic, and haemolysis is not a feature. The anaemia is seldom severe. Macrocytic cases resemble pernicious anaemia in some features (Whitby and Britton, 1946; Wintrobe, 1936; Wintrobe and Shumacker, 1933; Singer and Dameshek, 1941).

Davidson and Fullerton (1938) report a case of a macrocytic haemolytic anaemia in cirrhosis in which red-cell fragility was increased. Watson (1939), from studies of urobilinogen excretion, emphasizes that in some cases of cirrhosis a haemolytic element is present. He describes seven out of 38 cases of cirrhosis studied in which there was evidence of haemolysis. One of these had two severe haemolytic crises, during the second of which the patient died. Haemoglobin fell to the low level of 25%. Necropsy

revealed a diffusely cirrhotic liver, which on section showed portal cirrhosis. The liver was described as quite fatty. Femoral marrow was red.

Singer and Dameshek (1941) include disease of the liver among the relatively few conditions that can give rise to symptomatic haemolytic anaemia. They describe a case of subacute hepatitis in which a severe haemolytic anaemia was an important symptom. The haemoglobin fell to 27%, there was marked reticulocytosis, sternal puncture revealed a normoblastic hyperplasia, the anaemia was macrocytic and fragility was normal.

#### Case 1

The patient, a man aged 66, was admitted to Townleys Hospital on Oct 2 1947, because of extreme pallor and shortness of breath. He had been working as a lorry driver up to three weeks before admission. He gave a history of vague abdominal pain and lack of appetite for several months. He had been a heavy beer-drinker for 30 years. He was extremely pale with an icteric tinge. Liver was enlarged to the umbilicus and the spleen was palpable two fingerbreadths below the costal margin. A blood count showed Hb, 18%, red cells 890 000, C.I., 1. The red cells appeared normal in size and shape. Biochemical findings supported a diagnosis of cirrhosis of the liver. The van den Bergh test gave a positive direct reaction, total serum bilirubin was 2.6 mg per 100 ml. Thymol turbidity was 12 units. Serum globulin was raised to 4.1 g per 100 ml, serum albumin was 3.3 g per 100 ml, and the albumin-globulin ratio was reversed. Urine gave a strong reaction for urobilinogen and contained a trace of bilirubin. Tests for occult blood in the faeces were negative on three occasions.

The patient received a series of blood transfusions until he died 21 days after he was admitted to hospital. Although he showed no obvious reaction to these transfusions it soon became evident that the transfused cells were rapidly destroyed because the rise in haemoglobin obtained was very small. Twelve days after admission to hospital he had received 11 pints (6.25 litres) of blood and his haemoglobin had varied between 28 and 35%. Shortly before he died he received the packed cells from 3 pints (1.7 litres) of blood and the haemoglobin was raised to 45%.

At necropsy the liver was of normal size and showed a diffuse cirrhosis. The spleen was enlarged to twice normal size. Section showed a portal cirrhosis with the architecture of the lobules destroyed by numerous bands of young fibrous tissue insinuated between the liver cells. There were considerable deposits of iron pigment in the liver and spleen.

#### Case 2

A woman aged 58 was admitted to Townleys Hospital on April 1 1948 because of pallor and dyspnoea. She gave a history of vague ill-health for over a year and had recently had a small vaginal haemorrhage. She had been living on a very poor diet for a long time and said the only thing she really cared for was a glass of beer.

On examination the patient was pale slightly icteric, and looked very ill. There were purpuric spots on forearm, thighs, and buttocks. She was obese but it was thought that a tumour (? liver) could be felt in the right hypochondrium. Pelvic examination revealed nothing abnormal. The blood count on admission was as follows: Hb, 29%, red cells 1 410 000, C.I. 1.03, reticulocytes, 22.5%, white cells 4 600, normal differential, platelets, 160 000, bleeding and clotting time normal. There was a little anisocytosis, but the majority of red cells appeared normal in size. Five orthochromatic normoblasts were seen while counting 100 white cells. Biochemical findings were as follows: van den Bergh test gave a positive direct reaction, serum bilirubin 3 mg per 100 ml, direct indirect quotient (Gray, 1947) 68. Thymol turbidity was normal (4 units), alkaline phosphatase normal (10 units), and urine gave a very strong reaction for urobilinogen and contained a trace of bilirubin. No occult blood was found in the stools. The patient was given 3 pints of blood, which raised her haemoglobin to 55%, but her clinical condition showed

The following treatment was given: penicillin 9 mega units (Jan 25 to Feb 3) sulphadiazine, 75 g (Feb 7 to 19), and blood transfusions of 10 oz. (280 ml) on Feb 11 13 15, and 17. There was no clinical improvement with penicillin, but once the sulphadiazine and transfusions were begun the temperature rapidly subsided and the patient's condition improved. She was discharged from hospital on Feb 26 and reported to the outpatient department on April 14. She had been afebrile since discharge, felt well in every way, and there was no splenic enlargement.

The following are the results of further investigations  
Feb 19 —Blood count red cells 4,380,000 per cmm, haemoglobin, 87%, white cells 5,200 per cmm Agglutinations negative in dilutions of 1 25 and 1 50 against *Br abortus* positive in dilutions of 1 125 1 250 and 1 1 250  
April 16 —Blood count haemoglobin, 95% red cells, 4,680,000 per cmm, white cells, 6,600 per cmm (polymorphs 68%, lymphocytes 30%, monocytes 1%, basophils 1%) Agglutinations negative in dilutions of 1 25, 1 50, 1 250 and 1 1 250 against *Br abortus*, positive in dilution of 1 125

### Case 2

This patient, a woman aged 38 first complained of feeling ill on Jan 24 1948. She had shivering, sweating, headache, and pain in the right ear. On examination she was found to have an evening temperature swinging to 102° F (38.9° C), but no other abnormality was found. On Feb 8 a blood count showed haemoglobin, 84%, red cells, 4,690,000 per cmm white cells, 4,000 per cmm (polymorphs 46%, lymphocytes 49%, monocytes 4% basophils 1%) Agglutinations positive in all dilutions up to 1 500 against *Br abortus*.

The following chemotherapy was given sulphamezathine, 48 g (Feb 2 to 5 and 9 to 11), penicillin 1 200 000 units (Feb 9 to 11) and sulphadiazine 51 g (Feb 27 to March 3). Despite this treatment the patient's condition deteriorated, she had distressing rigors with profuse sweating and pyrexia rising to 105° F (40.6° C).

On March 4 she was admitted to the Staffordshire General Infirmary. She was still seriously ill, the temperature rising to 104° F (40° C) and the spleen was slightly enlarged. Treatment with sulphadiazine and blood transfusions was begun on March 5, as follows sulphadiazine, 30 g (March 5 to 9) and 6 g (March 13), blood transfusions, 10 oz (280 ml) (March 5), 15 oz (425 ml) (March 8) and 4 oz (110 ml) (March 13). The patient felt much better after the first transfusion and there was an immediate lessening of the severe rigors and sweating. She was discharged from hospital afebrile on March 18.

She felt well and remained afebrile until April 6, when she developed pain under the right costal margin and a temperature of 102° F (38.9° C). A diagnosis of acute cholecystitis was made and she was readmitted to hospital on the following day. The condition showed no signs of settling despite 25 g of sulphadiazine over a period of four days, and finally a cholecystectomy was performed by Mr B R Sworn on April 19. The gall-bladder was acutely inflamed and a pure culture of *Br abortus* was obtained from the contents.

There was some increase in the pyrexia and malaise after the operation so it was decided to try further treatment with sulphonamides and blood transfusions. Sulphadiazine, 12 g (April 22 and 23) and 6 g (April 27), and blood transfusions, 8 oz (225 ml) (April 23) and 6 oz (170 ml) (April 27) were given. There was a mild reaction to the second transfusion, a rigor, and transient rise of temperature, but immediately afterwards the pyrexia subsided completely and the patient said that she felt better than she had been throughout the whole illness. She was discharged from hospital on May 5 and has since remained well.

### Comment

Both these cases of abortus fever had failed to respond to ordinary chemotherapy. Case 1 did not improve with penicillin and Case 2 was not affected by penicillin, sulphamezathine, or sulphadiazine. In each case there was rapid response to sulphadiazine and small blood transfusions. Case 2 returned three weeks later with acute cholecystitis due to *Br abortus*, the temperature did not subside following cholecystectomy but responded to further sulphadiazine and blood transfusions.

While it is impossible to draw conclusions from only two cases, we feel that these results are encouraging and that this method of treatment should be given a more extended trial.

Our thanks are due to Dr D B W McKendrick, who called our attention to this method of treatment of abortus fever.

## Medical Memoranda

### Pneumococcal Meningitis in an Infant of 8 days Recovery

The value of intrathecal penicillin in pneumococcal meningitis is now established, but the optimum dosage still seems to be a matter for controversy. Shalom (1945) reported eight cases of pneumococcal meningitis with three deaths, the patients having been given intrathecally 4 000 units of penicillin daily together with penicillin intramuscularly and full doses of sulphadiazine orally. As purer preparations of penicillin have become available larger doses have been used. Smith, Duthie, and Cairns (1946) reported 18 cases (with only one death, due to fat embolism) treated with varying amounts of intrathecal penicillin but they never gave more than 20 000 units in one injection though 16,000 units 12-hourly were given in a few cases. They state that injections of 40 000 units or over may cause fits or gumming of the subarachnoid space. At that time they were using a preparation of penicillin containing 500 to 700 units per mg.

The following case is reported because of the extreme youth of the patient and because of the very large doses of penicillin which were given intrathecally without any ill effect.

### CASE HISTORY

A male child aged 5 days was admitted on Jan 16, 1947 with his mother, who had lobar pneumonia, for breast feeding. He was fully examined on admission. The cord had separated and the stump was dry and clean. He was slightly jaundiced and apparently had been so since he was 2 days old. His heart and chest were normal and his spleen was not palpable. There was no neck rigidity and his mouth and throat were healthy. He weighed 6 lb (2.7 kg). According to the mother his weight at birth was 7 lb 4 oz (3.3 kg).

In spite of adequate amounts of milk for a child of his size and age he had lost weight. On Jan 19 he passed one green relaxed stool and his temperature was 100° F (37.8° C). No physical signs were found and his jaundice had faded. On Jan 20 the temperature was 102° F (38.9° C). He was not taking his feeds well, and there was slight neck rigidity, but no other signs. A lumbar puncture was performed, and a turbid yellowish cerebrospinal fluid was obtained. Penicillin, 30,000 units, was injected intrathecally. The report on the cerebrospinal fluid was as follows: Opalescent fluid, lymphocytes, 6 per cmm, polymorphs 82 per cmm, total protein insufficient fluid, globulin, ++, chlorides 700 mg per 100 ml fluid, Gram positive diplococci + + + +, culture, profuse growth of pneumococci, penicillin sensitive.

He was also given 0.5 g of sulphadiazine followed by 0.25 g four-hourly for seven days, then 0.125 g six hourly for seven days (total 14.6 g). 30 000 units of penicillin daily intrathecally for eight days (total 240,000 units) 30 000 units of penicillin intramuscularly three hourly for 16 days (total 2,880,000 units) and subcutaneous salines to combat dehydration when he was not taking feeds well.

After three days there was some clinical improvement—less neck rigidity—and he took his feeds better. At the end of eight days the pyrexia had almost settled and the cerebrospinal fluid was nearly normal. Intrathecal penicillin was discontinued. Further recovery was uneventful. Owing partly to the fact that she was herself, the mother's milk dwindled in amount, and the baby was gradually weaned on to a proprietary milk preparation. He was discharged on Feb 7 when fit and gaining well, his weight being 7 lb 2½ oz (3.25 kg).

### DISCUSSION

It must be unusual for so young an infant to recover from pneumococcal meningitis. As the child was already in hospital early diagnosis and treatment were possible.

A preparation of pure white crystalline penicillin, containing 1,650 units per mg, which is much less irritating than the older impure preparations is now available. Certain points are thought to be of importance in the avoidance of reactions to the injections and of the introduction of secondary invading organisms. The penicillin used was prepared in separate doses of 30 000 units in 3 ml, each in a sealed ampoule. This prevents contamination of the penicillin solution. The small volume of the dose is, I feel, important, as large quantities of fluid may raise the tension of the cerebrospinal fluid considerably, particularly in small infants. I always aim how-

at removing an equivalent volume of cerebrospinal fluid plus 1 ml before the injection. This should of course obviate that danger.

I wish to thank Dr B A Young, medical superintendent, St Alfere's Hospital, and Dr B Gottlieb, senior resident physician, for permission to publish this case, and the latter also for his help in preparing the paper.

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### Therapeutic Scurvy

The following case is of interest in that it shows the importance of viewing the body requirements as a whole when placing any patient on a dietetic regime.

#### CASE REPORT

The patient, a married woman aged 42, with one son aged 16 alive and well, was admitted to hospital complaining of swelling of the left leg for four weeks, with bruising of two weeks' duration. Five weeks before admission she noticed that her teeth were tender and that her gums were swollen and bled easily. Several teeth were extracted without undue haemorrhage. A few days before admission she got a severe pain in the left thigh, with a "cramping" sensation in the calf and the foot. She was sent into hospital as a case of thrombophlebitis.

Vision was blurred, but there was no definite night blindness. On admission she noticed dryness of the skin. There were no pins-and-needles or paraesthesia, no soreness of tongue, and no haematuria. She had had no serious illnesses, but since the age of 8 had been subject to attacks of migraine, which had become more frequent two years ago. She consulted her doctor, who diagnosed nervous dyspepsia and put her on a diet. This consisted of 2 pints (1.14 litres) of milk a day which was simmered for some while before being consumed. She also had three eggs a week, steamed fish, bread-and-butter and milk puddings but she had no vegetables or fruit of any kind. No drugs were taken except stomach powders.

On examination she was seen to be thin and pale, and her lower gums showed purple red proliferations between the teeth. In the upper jaw where the teeth had been extracted, there was no abnormality. Examination of the chest and abdomen revealed nothing abnormal. Blood pressure was 120/60. The left leg was markedly swollen with discoloration of the whole thigh, the appearance being like an extensive bruise. Both legs showed many small petechiae. A blood count showed haemoglobin, 58%; red cells, 2,800,000; white cells, 6,000, normal differential count. Blood ascorbic acid was 0.1 mg per 100 ml. Urinary excretion of ascorbic acid was 2.15 mg in 24 hours.

It was considered that minimal doses of vitamin C would be of value. She was put on an ascorbic acid free diet and given 15 mg of ascorbic acid daily. After three days she noticed improvement in her teeth and the left leg rapidly became more comfortable. Seven days later objective improvement in the leg and gums could be seen. In four weeks there had been no further bleeding from the leg and there were only traces of the petechial haemorrhages on the fresh ones. After approximately three weeks the urinary excretion was 7.1 mg in 24 hours and the blood ascorbic acid was 0.25 mg per 100 ml. She was given 15 mg of ascorbic acid daily and discharged from hospital but it was noted that large doses of vitamin C did not produce any beneficial effect.

The patient has been followed up since discharge. She still complains of indigestion but the haemorrhages have disappeared and on a diet of normal food she has no symptoms.

#### COMMENT

This case of scurvy due to grossly deficient diet and emphasizes the importance of giving adequate attention to the diet used for treating dyspepsia. The very small amount of ascorbic acid required to cure the condition is also a minimum daily requirement of ascorbic acid. It is generally accepted as being in the region of 15 mg. The appearance of bleeding from the gums is a primary symptom and is remarkable.

### Facial Seborrhoea in Arteriosclerotic Pseudobulbar Palsy

Profuse seborrhoea of the face associated with Parkinsonism is so characteristic of encephalitis lethargica that in exception to the rule is not without interest. In the following case the condition was due to arteriosclerotic degeneration of the brain.

#### CASE REPORT

The patient, a man aged 46, had never had seborrhoea until his present illness. Six months before admission his wife noticed that he seemed dull and sleepy, that he dribbled saliva, and that both hands were "shaky." He became slow in movement, irascible, and difficult to handle. His speech was slurred and his expression fixed.

On examination he looked older than his years, and his typically Parkinsonian face was thickly covered with a glistening film of sebum. The rest of the body was not so affected. He was given to fits of causeless weeping, but pathological laughter was not observed. He was disorientated for time and place, and showed defective memory for recent events. Insight and judgment were faulty, and he displayed a consistent disregard for cleanliness and the conventions. Speech was slow and slurred, it was embarrassed by Cheyne-Stokes respiration. There was no gross defect of sight. The fundi showed marked arteriosclerosis. There was a supranuclear paralysis of conjugate upward movement of the eyes, lateral and downward movements being intact. The tongue was spastic and could barely be protruded. Marked spastic rigidity of both arms and both legs was present. The left arm and leg were weaker than the right, and there was a left extensor plantar response, the right plantar was flexor. There was a coarse tremor of the fingers of both hands but it was not typically Parkinsonian. Voluntary effort of one limb increased the rigidity of the opposite side of the body, consequently his incapacity was more pronounced when standing or attempting to walk than it was when lying down. He walked with a spastic shuffle and festination. There was no gross sensory loss, but his mental state precluded tests of the finer modalities. Sphincter control was intact.

The left ventricle was much enlarged. Blood pressure was 280/140. The urine contained a trace of albumin and a few hyaline casts. Blood urea was 60 mg per 100 ml. The spinal fluid was normal in all respects, and the Wassermann reaction was negative in both fluid and blood.

Eight months after the first appearance of symptoms he had a series of epileptiform convulsions between which he remained in an attitude of decerebrate rigidity. Twenty-four hours later he died.

The post mortem report (Dr J. G. Cummings) on the findings in the brain was as follows. A recent haemorrhage filled the left hemisphere. Colloidin sections were cut from various parts of the brain and stained with haematoxylin, van Gieson, P. A. H. da Faria, and by the Gross method. Weigert-Pal preparations were also made. There is a widespread vascular abnormality with marked proliferation of the intima and endarteritis. Atheromatous patches are present. The most marked damage is in the midbrain and pons, where in addition to vascular changes there are small zones of demyelination in relation to the vessels. The cerebellum shows slight changes of a similar type and also some loss of Purkinje cells. Very few zones of cellular infiltration are to be seen, but in a few cases in the midbrain and pons there is some perivascular lymphocytic infiltration in relation to damaged capillaries. The appearances are those of arteriosclerosis; there is no evidence of encephalitis.

#### COMMENT

This case is of interest in two respects. First, it illustrates the sound rule that encephalitis lethargica should not be diagnosed except during an epidemic of that disease; sporadic cases resembling it almost invariably turn out to be some other condition. Secondly, facial seborrhoea has not hitherto been described in pseudobulbar palsy. Its occurrence in this case is perhaps explained by the unusually rapid onset of facial rigidity, which in encephalitis lethargica, came on within a few weeks, in contrast to the usual insidious onset in arteriopathic Parkinsonism. The seborrhoea is limited to the face, and it is only in the face that rigid muscles by their insertion into the skin can impose immobility on the integument in which the sebaceous glands lie. It is suggested that the seborrhoea which occurs as a temporary phenomenon with rapidly developing Parkinsonian rigidity of the face has a mechanical explanation and is not due to a central autonomic disturbance. This view is in harmony with the current belief that the sebaceous glands are not under nervous control.

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## Reviews

### MARXIST GENETICS

*Soviet Biology The Situation in the Science of Biology*  
Address delivered by Academician T D Lysenko at a session  
of the All Union Lenin Academy of Agricultural Science,  
July 31 to Aug 7 1948 Translated for Science Section  
of the Society for Cultural Relations with the U.S.S.R. (Pp 51  
2s 6d) London Birch Books

This address to the Lenin Academy by its president deals with the new epoch which he has created for science in the Soviet world. It consists in the first six sections of a philosophical-historical-social-political examination of the fallacies the jargon, and the reactionary pseudo science of the followers in Western countries and in Soviet lands of Mendel, Morgan, and Weismann. Lysenko shows in simple words how the great Darwin himself introduced a fatal error into his system by studying the 'preposterous reactionary ideas' of Dr Malthus. All these people have been led away from the true path of materialism, which was laid down, it seems, by Lamarck. They have been led either into 'feeble Morganistic metaphysics' or into mere idealism culminating in Schrodinger's book *What is Life?* which a Russian geneticist was so unwise as to translate last year into the language of Lysenko.

The next three sections demonstrate the practical value of the teaching of the great Russian plant-breeder Michurin. The evidence is again primarily philosophical. 'The organism and the conditions required for its life are an inseparable unity,' declares Lysenko. 'Is it possible perhaps under the Soviet rule to ignore that death (or even imprisonment) separates them?' Such mighty truths are interspersed with general statements of achievements, reiterated from Lysenko's tract on 'Heredity and its Variability' (translated in 1946 by Dobzhansky), and of theories resting on long-discredited evidence of the inheritance of acquired characters.

These are the foundations of Soviet Darwinism, or, as it is now called, 'Michurinism'. The tedium of this recital was relieved, however, by the introduction of a new figure in Soviet mythology—always an interesting event. This was a certain Williams, even more obscure than Michurin, who unknown (but no doubt persecuted in his own country) helped the master to create the new science. We shall all watch Williams.

Now, however, comes the first sensational new fact, the announcement that with wheat 'after two, three, or four years of autumn planting (required to turn a spring into a winter crop) durum becomes *vulgare* that is to say, one species is converted into another'—one, incidentally, with a different number of those idealistic metaphysical bodies the chromosomes.

After this the feeling of the meeting must have become obvious, even to the speaker, for after a couple of references to Lenin and Stalin, Lysenko continues:

'Before I pass on to my concluding remarks I consider it my duty to make the following statement. The question is asked in one of the notes handed to me, What is the attitude of the Central Committee of the Party to my Report? I answer, the Central Committee of the Party examined my report and approved it.'

Lysenko then summarized once or twice again what he had said before, and concluded, 'Long live the Party of Lenin and Stalin'. The Academy endorsed his opinions. On Aug 26 the leading geneticists (the remnants of those liquidated in 1941) were dismissed from their posts. The Academy itself, the universities, and research stations were ordered to be cleansed, and books conveying Western scientific notions were banned in all educational establishments. Rarely has so small a work produced such great effects.

One footnote may be allowed. Lysenko did not say what deletions the Central Committee of the Communist Party had made before approving his report. One such deletion will be obvious to Lysenko's admirers abroad. There is no reference to last year's uncensored revelation—the notion that there is no competition within species. Some expert in the Central Committee must have noticed that this discovery was slightly at variance with the Marxist theory of the class struggle. The Western professors who have been sweating and tying

themselves in knots in imitation of Lysenko's contortions are thus caught in the middle of the act with their eyes shut and not knowing whether to go on coiling or to turn over backwards. It seems indeed to be as ungrateful a task playing at apology as at discovery under the Soviet circus master.

For the publication of this official work the English speaking world, and men of science in particular, are under a deep obligation to the anonymous translator and to that devoted body the Society for Cultural Relations with Soviet Russia.

C D DARLINGTON

### ADVANCES IN SURGERY

*Recent Advances in Surgery* By Harold C Edwards, CBE  
M.S., FRCS Third edition (Pp 437, 131 illustrations 24s)  
London J and A Churchill 1948

This is a book which every surgeon should have. The author has recorded—and with an easy literary style—all the important contributions to surgery since the last edition was published. It is more than a digest of the literature, for he gives a balanced summing-up of all those surgical problems which are in process of being solved and about which divergent opinions are held. The chapters on abdominal surgery are particularly attractive, but what is the meaning on page 146 of the statement, "Fluid absorption is retarded but lymphatic absorption is increased"? This sentence needs elucidation. Mr R C Brock has written an excellent article on thoracic surgery. In discussing the treatment of heart wounds he has omitted all details of operative procedure except the method of approach, yet Harken could scarcely have obtained his extraordinary results without his simple technique for opening into the heart cavities and controlling haemorrhage. As no surgeon is likely to meet more than a very occasional case of heart wound he might naturally in his emergency turn to a book like this to refresh his memory of essential operative details: a book he would be more likely to have than the original papers. On the other hand the technical aspects of pneumonectomy are very thoroughly described.

Mr D W C Northfield's account of the nervous system is informative but we do not find quite such a clear summing up of neurological problems, perhaps because of the intrinsic difficulties of the subject. The statement that "if the cranio vertebral axis [*sic*] be a rigid container, then in the erect posture the pressure in the ventricles and lumbar theca should be equal and should be the same in the horizontal as in the vertical position" is surely not right hydrostatically. This section however, is a very good review of neurological surgery for the general surgeon and will be particularly useful for those who are obliged to teach some of the more elementary facts to undergraduate students. Sir Stanford Cade in the section on radiotherapy crystallizes the modern outlook of the radio therapist in a very satisfying manner.

C A PANNETT

### MATERNITY NURSE

*De Lee's Obstetrics for Nurses* By M Edward Davis M.D.,  
and Mabel C Carmon R.N. Fourteenth edition (Pp 640  
illustrated 15s) Philadelphia and London W B Saunders  
Company 1947

The latest edition of this book is, like its predecessors based largely on the work at the world-famous Chicago Lying In Hospital. It is a grand book, but anyone expecting to find it a pupil-midwives' textbook of the type that we are accustomed to in Britain will be surprised. The difference is largely explained by the fact that in most areas in the U.S.A. the counterpart of our midwife is the obstetric nurse, who does not ordinarily conduct deliveries on her own, she does not even carry out vaginal examinations except on the instructions of the medical practitioner. Only 2½ pages therefore out of more than 600 are on delivery by the nurse—and that merely when the doctor does not arrive in time. The authors' intention which they successfully achieve, is to supply the nurse with as much knowledge of normal and abnormal obstetrics, including operative and anaesthetic technique as is necessary to enable her to give competent and intelligent assistance to the doctor. References to the history of midwifery and to famous obstetricians of the past broaden the outlook of the reader and arouse interest. The authors describe in great detail the purely nursing

T N A JEFFCOATE.

Harry Brown

A monograph on haemolysis and the structure of the red cell



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## NHS

No one expected that such a vast scheme as that outlined in the National Health Service Act of 1946 would begin in a way that would please everybody—least of all those upon whom the main burden of the work falls, the medical men and women of this country. The situation is still too confused to give anything like a clear picture of what is happening, but perhaps the most noteworthy fact is the eagerness with which the public has sought to take advantage of a service which, in effect, guarantees the supply, free of direct charge, of everything from wigs to iron lungs. There has been an overwhelming demand for spectacles and dentures, and a run on the chemist shops so fast at times as almost to exhaust the supplies of certain pharmaceutical products. Presumably in time the novelty will wear off and the demand for such things as spectacles will decrease as the numbers of those apparently needing them diminish. This rush of the public for remedies and appliances has put an acute strain upon the medical profession, especially those in general practice. Evidence comes in from all over the country that doctors' surgeries are crowded out, and the doctors themselves deplore that this heavy pressure of work has made it at times impossible for them to give their patients adequate care and attention. If the demand for the doctor's time continues at the present level we can foresee that in the event of an epidemic in the winter the life of the general practitioner in particular will become intolerable. The fact that there has been this huge demand for remedies, appliances, and medical advice may, indeed, be held to indicate that the economic consequences of ill health discouraged many from seeking assistance before July of this year, although the Minister of Health himself has felt obliged to urge the public to use the new Service with prudence and discretion. It would seem that the idea of getting something apparently for nothing has led some members of the public cheerfully to act in an irresponsible way and to disregard the cost which the country as a whole will eventually have to meet. For the first three months of the Service the national bill for eye-testing and spectacles was £981,951, for drugs, £1,905,447 and for dentists (including dentures), £1,232,057. These figures do not include the cost of treatment and appliances provided through the hospital service.

If medical men and women are to continue to give of their best the country at large must act in a more responsible manner and not create circumstances which will exhaust the profession and incidentally discourage those who may be contemplating taking up Medicine as a career. Although no exact figures can yet be given, it seems that a large proportion of those who might well have been expected to pay direct for their medical treatment have,

in fact, asked to be cared for under the National Health Service scheme. There has been a much sharper fall in private practice, specialist and general, than was expected by the profession. This is probably a reflection of the hard economic times in which we live, in conditions which fall with particular severity on the professional classes.

Our correspondence columns show that general practitioners from all parts of the country are critical of many aspects of the Service and are especially apprehensive about their economic position. It is not yet possible to assess the volume of discontent or to measure the extent of the economic distress. The Secretary of the B.M.A., in a letter to all practitioners (published in the *Supplement* of Oct. 23), gave a careful analysis of those factors which enter into the general practitioner's income, and recorded the fact that the total available income for general practitioners is now in the region of £45,000,000, as against £28,000,000 that was earned in 1938. In an industrial country such as Britain the majority of general practitioners will receive the greater part of their income from what were formerly described as "panel patients." So, given the numbers which any one doctor may have on his list, it would seem fair to assume that the general practitioner in the big industrial areas should be earning not less than he did before July of this year, but he is having to work very much harder for it, and in conditions which he deprecates as unsuitable for the practice of good medicine. The position of general practitioners in rural and semi-rural areas is, however, different, although it will not be possible accurately to assess their economic position until mileage and special inducement moneys have been paid out. Topographical factors alone make it quite impossible for doctors in this type of practice to secure an equivalent income if all those in their district decide to take advantage of the National Health Service. The economic position of medical men and women in such areas is causing concern, and is a matter which the B.M.A. is taking up with a full sense of the urgency of the problem. It is imperative that men in established practices with families to educate and all the other numerous commitments which a doctor has to enter into should not suffer, and we believe, too, that public opinion fully informed of the situation would forcibly assert itself against economic injustice even though this may have been endured by a relatively small percentage of practising doctors. The Remuneration Subcommittee of the Insurance Acts Committee had before it on Oct. 28 an amount of evidence on which it is to assert the economic case of the medical profession. This can be asserted with all the more force in that the medical profession in May of this year decided to do its best to make the National Health Service a success. This it has done at the cost of much time and labour, and the country's sense of fair play, we may be sure, will be behind the medical profession's attempt to secure equitable treatment.

Among the points that have come out in our correspondence columns are the proposals that the capitation fee should be increased and fixed, that separate funds should be established for mileage and basic salary, and that there should be a reduction in the numbers of persons any one practitioner should have on his list. Another point is that

the maximum of £400 000 for special inducement payments should be reconsidered. It is well to recall that the Government gave general approval to the Spens Report on the Remuneration of General Practitioners. In terms of the 1939 value of money, it may be remembered the Spens Report recommended that between the ages of 40 and 50 approximately 50% of general practitioners should receive net incomes of £1 300 a year or over, that 75% should receive net incomes over £1,000 a year, that approximately 25% should receive net incomes of £1,600, that less than 10% should receive a net income of £2,000, and that it should be possible for a small proportion to receive net incomes of at least £2 500. These figures, it may be emphasized are *net* figures and in terms of the 1939 value of money. The medical profession is at the moment doing its job in extremely difficult circumstances, and it is up to the Government to meet promptly the causes of discontent which now prevail.

### FACTORS IN INFERTILITY

In a paper<sup>1</sup> published in this *Journal* in 1946 on the subject of the receptivity of cervical mucus to spermatozoa Dr Mary Barton and Dr B P Wiesner continued their combined clinical and biological studies of infertility. They then put forward the view that cervical hostility may be due to various factors including general debility, oestrogen deficiency, and local infection. Further work on these particular factors and their interrelations is reported by Drs Barton and Wiesner in the opening pages of this issue. The authors selected infertile women aged between 30 and 40 in whom the main cause of infertility was considered to be hostility of infected cervical mucus to spermatozoa. The infecting organisms were predominantly of intestinal type, and the women were all more than 10% heavier than the mean weight for their age and height. After excluding those women in whom the cervical mucus regained normal receptivity after treatment with oestrogens, antibiotics, and local applications 88 remained to form the subjects of the investigation.

In the first 14 cases the resistant cervical infection was treated by means of a sucrose free diet, supplemented by vitamins with the object of encouraging the growth of a healthy intestinal flora. The authors have not included reports of the results of subsequent bacteriological examination, and there is no mention of whether their objective was attained. In nine of the 14 cases, however, the cervical mucus became normal mostly after resumption of treatment for the infection in addition to the special diet. It was concluded, however, that the response to treatment was better in those patients who lost weight on the diet than in the remainder of the women were not treated. Results of the same order were obtained in 2 of the 88 cases the cervical mucus returned to normal in not less than 70 cases conception. The percentage of successful results was more than 50% in the patients who lost weight than in the remainder. It has often been noted that some of the factors associated with obesity are associated with infertility, and it is likely, however, it would appear that some of these factors are of some endocrine disturbance

which also includes impairment of gonadal function. Many workers have reported that reduction in weight, usually brought about by a diet of lower calorific value and by the administration of thyroid, can increase fertility. Barton and Wiesner attempted to exclude this type of case by requiring evidence of the regular occurrence of ovulation, and they maintain that reduction in weight brought about by a sucrose-free diet of high calorific value helps to restore the normal cervical function though how it does so is not clear.

A relation between nutrition and reproductive efficiency exists in some animals, but the results of animal experiments have not always been applied scientifically to human beings. One of the best examples of this concerns vitamin E, which has been used extensively in the hope of improving the fertility of both man and woman. It now seems generally agreed that it has little if any value, and this was the consensus at the recent annual conference held by the Family Planning Association in Exeter<sup>2</sup>. This is not surprising when it is remembered that the original experiments on which the treatment was founded showed that vitamin-E deprivation causes abortion but not infertility in female rats<sup>3</sup> and in the male leads to testicular degeneration which is irreversible<sup>4</sup>.

It is always difficult to assess the importance of any one infertility factor, and this is particularly true of conditions such as obesity and cervical hostility. Thus it was often noted, at all events before the war, that some women in the poorest section of the population living mainly on starchy foods were both remarkably obese and fertile. Again although much has been written on the importance of the mucous barrier in the cervix, it seems wise to retain a healthy scepticism. There is still disagreement among workers in this field, and the importance of the quality and quantity of mucus in an apparently healthy cervix has never been convincingly established. Pregnancy, in fact, frequently occurs despite the presence of obvious cervical infection, and Barton and Wiesner admit that a spontaneous restoration of normal cervical function occurred in one of nine untreated cases within six months.

Although the state of the cervical canal almost certainly affects fertility, there may have been a tendency in recent years to exaggerate its importance, sometimes to the neglect of what might be termed fundamental investigations. A carefully taken personal and marital history of the infertile couple together with general and local examination of them both will often indicate the fault or at least give a guide to it. In a large percentage of the remaining cases the probable cause will be discovered from the results of investigations which are now almost routine. First, thorough and repeated analyses of a complete specimen of semen should be undertaken. Semen removed from the vagina after coitus is unsatisfactory for this purpose. In the woman tests for ovulation are carried out and also

<sup>1</sup> *Brit. Med. J.* 1946, 2, 606.  
<sup>2</sup> *Family Planning Association Conference on Infertility* reported in *Lancet* 1948, 2, 127.  
<sup>3</sup> *Proc. Roy. Soc. Med.* 1947, 40, 127.  
<sup>4</sup> *Proc. Roy. Soc. Med.* 1947, 40, 127.  
<sup>5</sup> *Proc. Roy. Soc. Med.* 1947, 40, 127.  
<sup>6</sup> *Proc. Roy. Soc. Med.* 1947, 40, 127.  
<sup>7</sup> *Proc. Roy. Soc. Med.* 1947, 40, 127.  
<sup>8</sup> *Proc. Roy. Soc. Med.* 1947, 40, 127.  
<sup>9</sup> *Proc. Roy. Soc. Med.* 1947, 40, 127.  
<sup>10</sup> *Proc. Roy. Soc. Med.* 1947, 40, 127.

endometrial biopsy (which sometimes reveals an unsuspected tuberculous infection) Insufflation of the tubes is not a completely reliable guide to tubal patency and should be supplemented by hysterosalpingography with screening, and again the result of one test is not conclusive. Moreover, even when the tubes are patent careful study of hysterosalpingographs may reveal adhesions interfering with the passage of the ovum from the ovary to the abdominal ostium. Post-coital and *in vitro* tests of cervical mucus with a view to determining its receptivity to spermatozoa are supplementary to the above, and for practical purposes are really necessary only when the cause still remains in doubt and when dilatation of the cervix and the passage of gas or other medium have failed to have a therapeutic effect.

But what of the cases in which all the tests are negative and no cause is found? Mr Christie Brown, whose paper also appears in this issue of the *Journal*, points out that sometimes childlessness may result not from the failure of fecundation but from the inability of the fertilized ovum to embed itself successfully in an endometrium not fully secretory in type. He treated a number of patients on this assumption—for it is not proved—with 0.6 mg 'dien-oestrol' and 10 mg 'ethisterone' daily from the expected date of ovulation to the beginning of the next period or, if conception occurred, until the 18th week of pregnancy. This dose of ethisterone might almost be called homeopathic when it is remembered that it is probably equivalent to only about 1.5 mg of progesterone by injection, yet he reports that at least 38 out of 111 patients became pregnant within six months of starting this treatment. The results of any treatment for infertility are not easy to assess, and it is rarely justifiable to claim a cure. Mr Christie Brown also reports good results with his regime in cases of habitual abortion, another condition in which it is difficult to relate treatment and outcome. Apparent success in such cases has been reported by others who employed much larger doses of oestrogen and progesterone<sup>5</sup> or of progesterone alone.<sup>6</sup> Among the latter MacGregor and Stewart<sup>8</sup> dryly comment that "there is almost an air of the miraculous about the results reported on doses which are almost infinitesimal in comparison with the amount of progesterone produced in normal pregnancy". It should be noted, too, that an almost equal measure of success is claimed for other therapeutic agents, including thyroid, vitamin E, blood serum, and even cold baths. Workers in this field should always keep in mind the findings of Malpas<sup>9</sup> on the spontaneous cure rate to be expected in cases of repeated abortion.

The subjects of sterility and abortion bristle with difficulties when it comes to the appraisal of probable causes and the results of treatment. There has been so much loose and inaccurate thinking and writing in this field that Swyer has recently found it necessary to present a paper criticizing some of the papers on infertility which have been published during the last two years. If a scientific outlook is essential for the advancement of knowledge a proper perspective is important in the interests of the patients. Over-zealous and misguided inquiry and treatment can convert a complaint into an obsession, to the detriment of health and marital happiness.

## PRESIDENT TRUMAN AND MEDICINE IN THE U.S.A.

With Mr Truman as President, and with a Democratic majority both in the Senate and in the House of Representatives, it looks as if the Federal Government will go ahead with plans which have been described by Senator Taft as "a socialistic monstrosity". Early this year Mr Truman asked Mr Oscar R. Ewing, the Federal Security Administrator, to undertake "a comprehensive study of the possibilities for raising health levels and to report upon feasible goals which might be realized by the American people in the next decade". Mr Ewing presented his report, a summary of which appears on page 869, to the President on Sept. 2, but it is doubtful if anyone except the President himself believed that the recommendations made in the report would ever be matters of practical politics. The whole outlook has now changed, and the coming struggle between the Government planners and those who abhor all their works promises some bright displays of fireworks.

Few Americans would to-day disagree that their medical services could not be greatly improved, it is the method of making improvements which provokes controversy. In a comprehensive survey of the American medical services Professor T. McKeown<sup>1</sup> points out that at least 25% of the counties are without basic public health services, 40% have no registered hospitals, doctors are very unevenly distributed, and the costs of medical care are quite beyond the means of many people who are either not protected or are inadequately protected by voluntary insurance. The need for more hospital beds led to the passing in 1946 of the Hospital Survey and Construction Act. This law requires States to submit plans to the Surgeon-General for a complete hospital service based on comprehensive surveys, and the regulations set forth standards for the number of beds to be provided in various categories. This Act was conceived in the House of Delegates of the American Medical Association, and it was supported by all sections of medical and political opinion mainly because the hospitals are to be developed under State and not under Federal control and because provision is made for hospital buildings but not for the staff required to operate them. Professor McKeown remarks in his paper that American experience is no exception to the general rule that fundamental changes in the organization of medical services seldom occur without widespread political controversy. In the Senate hearings on the Murray-Wagner-Dingell Bill (for a prepayment medical service similar to our own N.H.I.) official expressions of opinion were presented by organized labour, the American Association of Manufacturers, the Chamber of Commerce, the Farmers' Union, the National Lawyers' Guild, the League of Women Shoppers, and many other organizations. Apart from the opposition of the American Medical Association, the States of the Union have no wish to see the Federal Government intrude on local affairs, and at present health is certainly included among such affairs. The Federal Security Agency, which is responsible for the Federal

<sup>1</sup> *Brit. J. Soc. Med.* July 1948. In the press.

<sup>2</sup> *British Medical Journal* 1948 1 645.

health services as well as education and social welfare, is not a cabinet department, though there is a Bill now under discussion to provide for the establishment of a cabinet department of health, education, and security.

In preparing his report Mr Ewing consulted many persons inside and outside the Government, and in particular has been guided by the findings of the 800 persons who met in the National Health Assembly in Washington in May of this year. The Medical Care Section of this Assembly unanimously agreed that "the principle of contributory health insurance should be the basic method of financing medical care for the large majority of the American people." Mr Ewing points out that there was disagreement on how such insurance should be effected, but he finds himself compelled to recommend a scheme of national health insurance. This is likely to give rise to considerable controversy and to be opposed by the American Medical Association. It may be recalled, too, that in the series of investigations conducted by the New York Academy of Medicine and reviewed in these columns<sup>2</sup> the conclusion was reached that health insurance should be conducted on a voluntary basis. In Mr Ewing's view a satisfactory system of health insurance should provide "(1) That everyone should have ready access to adequate health and medical services, (2) that everyone should have the kind of services, and all the services, he needs to promote better health, and (3) that everyone should be able to obtain these without regard for the level of his personal income." These criteria, he observes, go beyond any voluntary insurance plan. He considers that only about half the families in the U.S.A. can afford on a voluntary basis even a moderately comprehensive health insurance plan. He provides arguments against the six principal objections to a Government health insurance, namely: "(1) That Government health insurance is socialized or State medicine, (2) that it is compulsory, (3) that it would be highly centralized and would concentrate too much power in Federal Government, (4) that there are not sufficient personnel and facilities to make it effective, (5) that it would cost too much, and (6) that it would open the way to over-use and other abuses and would lower the quality of medical services." Socialized or State medicine, Mr Ewing observes, means that the Government owns and operates all hospitals, and that practising physicians are employed by the Government on a salary basis, but this is not the plan laid down in his report. There would be full freedom to doctors, hospitals, and other health agencies in deciding whether they would participate in the scheme, and the method and rate of payment would be matters for negotiation. Compulsion to contribute would be no innovation, because payments for unemployment and old age insurance are compulsory. "The benefits of these systems are well established, and they are an accepted and valuable part of our American way of living." The administration of the plan would rest mainly with the States, and the part of the Federal Government would be to aid the State programmes and "to handle the finances of the total system." As to shortage of personnel and facilities, this is recognized, but Mr Ewing considers that his plan will provide for the increase of medical manpower and facilities. He considers that the cost of running a national

health insurance scheme would be less than the expenses involved in the voluntary non-profit plans. He examines carefully the charge that a system of Government health insurance "would inevitably lower the quality of medical service." In the pattern of legislation recommended in his report Mr Ewing is confident that the insurance system "should be fully insulated from 'politics' of all sorts, so that purely medical concerns are left in the hands of the physicians and there is no unwarranted interference or 'political control of medicine'." The views of the Republican Party were summed up by Senator Taft in these words: "We have adopted in this country as a supplement to the private system the principle that the Government will supply through the State a minimum standard of subsistence, of housing, of medical care, and of education for every citizen. The minimum standard cannot be so high as to destroy the interest of men in securing something better through their own efforts."

Assistance in providing medical care should be confined to the group unable to pay for doctors' services so that there be no socialized medicine. Initiative and administration should rest on the local and State authorities."

We may therefore expect to see medicine the centre of a lively political struggle in Congress, with President Truman using the great personal victory he has gained to enforce Mr Ewing's plan. The medical profession in this country will watch with interest and sympathy the way in which the American medical profession will meet a situation which a few weeks ago the assessors of public opinion in the U.S.A. suggested would be postponed for at least another four years.

### ORAL PENICILLIN IN CHILDREN

An important question in connexion with penicillin treatment is the extent to which oral administration is justifiable. Against the single advantage of convenience must be set its extravagance, the dose required being at least five times greater than that injected, and the grave disadvantage of marked irregularity of absorption. All observers who have carefully studied its effects have noted that absorption varied widely from case to case, with the result that in any series of patients some will inevitably absorb only inadequate quantities of a dose which will suffice for others. The general adoption of the oral route also opens wide possibilities of misuse, particularly the self-treatment of venereal disease. Giving penicillin by mouth to infants and children, however, is a rather different matter: they are naturally less tolerant of injection and require oral doses on a less extravagant scale. Two years ago Buchanan<sup>1</sup> suggested that infants under six months should absorb penicillin better than older children and adults because of the low HCl content of their gastric juice, and her own observations on 25 babies supported this. Satisfactory blood levels were obtained by adding penicillin to feeds in amounts equivalent to a daily dose of only 4,000 units per lb (454 g) of body weight.

Various authors, including Suchett-Kaye and Latter<sup>2</sup> in this *Journal*, have reported favourably on the treatment of acute infections in young children with oral penicillin. Two publications on this subject, both from the U.S.A., tend rather to emphasize the limitations of the method

<sup>1</sup> *Lancet* 1946 2 560

<sup>2</sup> *British Medical Journal* 1947, 2 953

<sup>3</sup> *Amer J Dis Child*, 1947, 74 19

<sup>4</sup> *J Pediatr* 1947 31 195

than to reclaim its efficiency. Reisman and his colleagues<sup>3</sup> begin with the disquieting statement that 'several children have been admitted to the wards of the Queen's General Hospital with advanced pyogenic diseases of various types after ineffective oral treatment with penicillin at home'. They add that such treatment frequently makes the causative organism more resistant, but the implication that resistance has been acquired *in vivo* would have to be confirmed. They themselves treated 22 children, most of whom had upper respiratory tract infections, with large doses of oral penicillin, from 50,000–1,000,000 units being given every hour by day and every two hours by night. The results were 'fair' in 12 patients, in the remaining 10 there was no apparent effect. In the majority no penicillin was detected in the blood, which is surprising in view of the amounts given, but this may perhaps be explained by irregular administration: case 4, for instance, receiving "1,000,000 units every hour while awake and every two hours while asleep" for five days, is stated to have had a total dose of only 7,800,000 units—an unexplained discrepancy. The patients' ages are not stated, and there are no bacteriological data. Possibly some of the infections may have been caused by insusceptible organisms. The more valuable part of this paper is a study of absorption after oral administration, this again emphasizes what many previous authors have observed—namely, the importance of an empty stomach if absorption is to be adequate. Buffers and tablets were found to have no advantages, a simple solution in water being recommended.

A similar study was made by Markowitz and Kuttner.<sup>4</sup> They gave a standard oral dose of 50,000 units to children at various times before and after meals, and found that a satisfactory blood level was usually maintained for two hours only when the dose was given after a 4-hour fast. According to these findings the continuous maintenance of a therapeutic blood level by the oral administration of any reasonable dose must be impossible. It may well be concluded that older children should be treated like adults and given penicillin intramuscularly, at least in the first stage of the treatment of any severe infection. The form of oral treatment with penicillin which has the best justification is the addition of the drug to the feeds of infants in the way suggested by Buchanan.

### SAFER MILK TO COME

Once more, this time by Dr Wyndham Lloyd in a recent Chadwick lecture which is reported on another page, the attention of the country has been drawn to the tragic fact that in England and Wales each year just under 2,000 people die of bovine tuberculosis. This takes no account of morbidity—the number of persons who need treatment must amount to several thousands—nor of the waste of time, money, and hospital facilities that the treatment of this large number of patients must involve. These deaths and this waste are preventable. The infection is caused by drinking milk drawn from the udder of a cow which is suffering from tuberculosis. In a letter appearing in *The Times* of Oct. 30 Lord Bledisloe has pointed out that Great Britain, with about 40% of her cattle infected with tuberculosis, is at the bottom of the list for Western Europe, while in the USA and in Canada the figures are 0.5% and 2% respectively. The Danish agricultural attaché has stated that in 1947 in his country 97.4% of the cattle were healthy. It should surely be possible to improve upon our own deplorable figure.

But an improvement in the health of our dairy herds is not enough. There is an urgent need for much more pasteurization of raw milk. About one quarter of the milk supplied to schools is neither from a T.T. herd nor has

it been pasteurized, and this is given by local education authorities to children when they are at an age highly susceptible to bovine tuberculosis. There is no danger in pasteurization, and the process has the additional positive advantage that it destroys organisms of the *Salmonella* and other groups. The amount of vitamin C in milk—the destruction of which is used as an argument by those who oppose pasteurization—is small. There are, however, objections to relying upon only one method of making milk safe for the consumer. Tuberculin-tested milk has come originally from a healthy cow, but infecting organisms can easily gain access to milk between the cow and the consumer while pasteurized milk may become reinfected after pasteurization—to the great detriment of children under the age of 2 years. Further, the installation of pasteurizing plant in rural areas is impracticable. The building-up of healthy herds must therefore be encouraged while at the same time much more milk is pasteurized than hitherto. In his speech at the opening of Parliament His Majesty said that proposals would be laid before the Houses "to provide for a safer milk," and it is to be hoped that these proposals will concern both the Ministry of Health and the Ministry of Agriculture, in this way the promise given by the Government to Lord Rothschild, when he raised the question in the House of Lords in April 1946 will be fulfilled.

### CEREBRAL ABSCESS AND CONGENITAL HEART DISEASE

Although cerebral abscess has been recognized as a complication of congenital heart disease for at least 68 years—Ballet<sup>1</sup> described it in 1880—it is not generally known that it is the cause of death in about 5% of all cases. Gates, Rogers, and Edwards<sup>2</sup> have recently reported five fatal cases from the Mayo Clinic. Fallot's tetralogy, which is the underlying lesion found in 50% of recorded cases, was present in two of these, but two others had nothing more than an atrial septal defect. Bacterial endocarditis was absent in all. The authors point out that the abscess is commonly solitary and may be amenable to surgical treatment. There can be little doubt that the cause of the abscess is paradoxical infected embolism, and therefore it occurs only with permanent, transient, or intermittent veno-arterial shunts. It has been seen in association with an arterio-venous aneurysm of the lung. Although cerebral abscess has not yet been reported following cardiac catheterization in this country, the procedure should be undertaken with special care in patients with congenital heart disease who are known to have a right-to-left shunt. It is never safe to clear a blocked catheter by means of pressure from a syringe, the catheter must always be changed. To prevent accidents a suitable dose of heparin should be injected at the start (50 mg for an adult, about 25 mg for a child of 8–12), and 100,000 units of penicillin three times daily, should be given during the subsequent 48 hours.

Dr J. A. Charles, F.R.C.P., will deliver the Bradshaw Lecture on "Victorian Medical Administrators and Their Significance for To-day" before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday Nov. 23, at 5 p.m.

The next session of the General Medical Council will open on Tuesday, Nov. 23, at 2 p.m., when the President, Sir Herbert Lightfoot Eason, will take the chair and deliver an address.

## MEDICINE IN THE U S A

### REPORT TO MR. TRUMAN

At the beginning of the year President Truman requested Mr Oscar R Ewing, Federal Security Administrator, to "undertake a comprehensive study of the possibilities for raising health levels and to report upon feasible goals which might be realized by the American people in the next decade." The report, entitled 'The Nation's Health,' has now been published, and amongst its main recommendations are the training of more doctors, dentists, and nurses, the building of more hospitals, compulsory health insurance for all employed persons and their dependants, improved care for children and the chronic sick, the rehabilitation of the physically and mentally handicapped, and the local integration of all the health services.

#### The Need for Doctors

In order to estimate the total number of doctors required, Mr Ewing has chosen as an approximate indication of the proper standard the present average figures for the top twelve of the 48 States. This works out at 667 people for each doctor. Such an increase of doctors even at the end of ten years is admittedly impossible, and Mr Ewing sets as a goal for 1960 a net gain of 15 000 doctors, 5 000 dentists, and 17,500 nurses over the numbers which would be produced at currently expected rates. To obtain the 15,000 additional doctors Mr Ewing recommends that medical schools must be expanded, new ones built, and Federal scholarships awarded to needy students. Perhaps it is significant of the U S A that he estimates that the output both of trained psychiatrists and of paediatricians needs to be three times the present rate. A lowering of existing barriers against negroes entering State and private medical schools would assist in overcoming the deficiency.

From the conclusion that medical schools can be expanded by no other means than by using public funds the report recommends that \$40 million a year in Federal funds should be made available as a beginning only for salaries, equipment, and construction. The question of Federal medical scholarships is more complicated, since this constituted a major part of the recommendations of the very able professional President's Committee on Higher Education of 1947 but it is emphasized that in planning medical scholarships with Federal funds care should be taken that medical schools, through taking students later than other professions, would not be cheated of the most promising scholars.

#### Hospital Beds

The lack of hospital beds is even greater, largely because of the uneven distribution of the national wealth between the States. And it is the States, primarily, which must take the initiative in building up the hospital service. At present almost three quarters of general hospital beds in the U S A are operated by non-profit voluntary organizations, even in the boom year of 1946 their average annual deficit ran to 13% of total costs. The national goal is taken from basic standards set by the States themselves under the Hospital Construction Act of 1946. This sets a basic standard per 1,000 population of 4.5 general hospital beds, 2 beds for the chronically ill, 5 beds for mental patients, and 2.5 sanatorium beds—a round total of 14 beds per 1 000 people. By this standard the United States, with 900 000 'acceptable' hospital beds, has less than half the hospital capacity it really needs.

At present the Hospital Construction Act adds one Federal dollar for every two raised from State and local resources. In most States no laws have yet been passed to meet the Federal offer. According to the report, "Many areas of the country cannot finance new hospitals either because they cannot contribute enough towards construction or because even if hospitals were built the local income levels are so low that sufficient income for hospital operation and maintenance cannot be guaranteed. Indeed, 40% of American counties have no general hospitals at all. From this analysis Mr Ewing concludes that the Federal Government must not only assist in building new hospitals but will have to subsidize the

maintenance costs of voluntary hospitals. Even by doubling present budgets the further 900,000 beds needed could not be constructed in under 15 years. The Federal share of costs, moreover, should be raised from a third to 40% for construction, and in special low-income areas also to 40% for maintenance—the States providing another 40%.

#### Health Insurance

At the combined lay and professional National Health Assembly held in Washington this spring the Medical Care Section could agree only that "the principle of contributory health insurance should be the basic method of financing medical care for the large majority of the American people, [and] should be accompanied by the use of such tax resources as may be necessary to provide additional services for special groups and services not covered by prepayment or insurance." But it admitted a deep division between the American Medical Association and many of the lay delegates from national social and labour organizations regarding whether a National Health Insurance plan was necessary to achieve this end. Mr Ewing concludes that compulsory national health insurance is necessary. According to his report voluntary prepayment plans do not generally provide for hospital services for more than a limited period or for mental, venereal, or tuberculous patients. Voluntary plans offering physicians' services fail to provide in general for care outside the hospital. But the chief objection against them is at bottom a financial one—either services offered must remain incomplete or the costs must be raised, with the result that only the affluent will be able to afford the contributions. Present charges for prepayment plans in the U S A range from £12 to £18 a year. According to the report this already excludes all the 18 million Americans dependent on incomes of less than £250 a year, most of the families with £250–500 a year, and about 70% of the £500–750 a year group. The net result already is to rule out the lower half of American families.

#### Scheme for Employees and Dependants

The fact that by these plans, in or out of the Blue Cross organization, a flat rate is charged irrespective of income has plainly influenced Mr Ewing to suggest that contributions for national health insurance should be based on a percentage of the employee's wages. Learning perhaps from British difficulties, he advises a three-year "tooling up" period after the necessary legislation has been passed by Congress before any benefits under the scheme are made available. In this period procedures in each State and locality could be minutely worked out, machinery set up, and people thoroughly informed of what they were entitled to and under what conditions. Even then services under the insurance scheme would be related strictly to available resources. Later these resources could be expanded and improved until the full scheme was in operation.

No detailed limits are set in this report for the scope of the compulsory insurance beyond saying it should be as broad as possible and should cover dependants. It is insisted that legal guarantees should be given to insured persons of complete free choice of physician, dentist, or hospital, that all personal records should be confidentially kept, and that there be a right of appeal to proper committees and even courts against administrative decisions. The medical profession, on the other hand, would also receive legal guarantees that participation in the scheme would be by free choice, that their right would be protected to accept or reject individual patients, to retain control of professional aspects of professional service, to choose the method of payment, to negotiate rates of payment through representatives of their own choice, and to have a corresponding right of appeal against administrative decisions. Administration of the scheme would be by a small board of full-time members, who would be both professional and lay. The board would be so constituted as to co-ordinate the insurance scheme with other social security and public health programmes. The members would be aided by a larger advisory council representing the interested public, the consumer, and professional groups. The details of administration could be designed to fit in with existing social security agencies.

The complete plan—at some unspecified date after 1952—would at least cater for those Americans already protected by social



security legislation for old age and other benefits—about 85 out of 140 millions—with in addition farmers and agricultural labourers at present excluded. Complete services of general practitioners and specialists would eventually be made available, though at first this would be difficult. Hospitals also would be open to insured persons though they would continue to be autonomously governed by their existing managers. Extra charges for private rooms and, at first for long stays would be necessary. With dental care, too full provision would at first be impossible, and it might have to be limited to children. Nursing services again might have to wait on long term improvement in some areas.

### Mental Health

Plans for improving mental health are also proposed. The report quotes some interesting figures to show prevalence of mental illness. Ten per cent of the men examined for military service during the last war were rejected for neuro psychiatric disorders. In addition to these nearly 500 000 developed mental ill health at a later date. The loss in military man-power from these causes totalled nearly 2 000 000. It is estimated that 8,000 000 persons in the U S are suffering from mental disease.

At the present time the nation has 4 500 psychiatrists, 5 500 nurses working in psychiatric hospitals, and 1,000 qualified psychiatric social workers. It is estimated that \$75,000 000 must be devoted to training-centres and grants for students in order to overcome these very serious shortages which are worst in the State mental hospitals. Chiefly through lack of space there is overcrowding in these hospitals ranging from 20 to 70% above accepted standards. They suffer from a 50% shortage of attendants and an 80% shortage of trained nurses. Public mental hospitals have one quarter of the number of psychiatrists needed. The present patient day cost is said to be only \$1.50. In addition to measures aimed at remedying these conditions the report advocates the increase of the existing 600 psychiatric clinics to a number which would provide one for every 100,000 persons.

### The Chronic Sick

Under the heading "Healthy Maturity" the report advocates increased research programmes in geriatrics and chronic disease. It estimates that 70% of sufferers from such diseases can be treated at home. To meet this an additional 50,000 public health and visiting nurses must be added to the present 21 500 in existence. Housekeeper services, group living, and foster-homes are also advocated. An additional quarter of a million hospital beds are recommended to supplement the 39 000 which are at present believed to be available for the chronic sick. Both specialized hospitals for chronic disease and chronic units in general hospitals are recommended.

Vocational rehabilitation is already attempted, but the scale is inadequate. Each year 9 000 persons are rehabilitated out of an annual requirement of a quarter of a million. The major share of this work still falls upon voluntary agencies. It is calculated that an increase of Federal appropriations from \$18 000 000 to \$70 000 000 and State appropriations from \$7,000 000 to \$30 000 000 would supply the nation with a complete rehabilitation service.

The remainder of the report deals with an extension of child health services at an estimated cost of \$430 000 000 a year and the development of local health units each staffed by one full-time medical health officer per unit, one additional full-time public health physician for each 50 000 population, one full-time nurse for each 2 000 to 5 000 population, one sanitarian for each 15 000 population, one health educator for each 50 000 population, and one clerical worker for each 15 000 population. For this purpose an initial appropriation of \$40,000,000 rising in five years to \$50 000 000 is suggested.

Finally Mr Ewing discusses the broad framework within which these services would operate and the importance of integration between the medical centre, district and community hospitals and rural clinics. The report ends "If the people will get together—professional workers and public representatives alike—in citizen health councils throughout the country we will have the satisfaction of proving not only that health is everybody's business but that it is good business, essential business and successful business."

## PREVENTION OF TUBERCULOSIS ENVIRONMENTAL FACTORS

A Chadwick public lecture was given on Nov. 2 at the Westminster Hospital Medical School by Dr WYNHAM E. B. LLOYD, tuberculosis officer for South Devon, on the subject of the prevention of tuberculosis with special reference to environment.

Dr Lloyd said that tuberculosis was not a mere disease, it was a social and economic problem. It struck down alike the adolescent, the breadwinner, and the housewife. It was an infectious disease, the infection being of two types, human and bovine. Its prevention should be simple, but in fact it was a problem of extraordinary difficulty. Tuberculosis began insidiously, the sufferer remained infectious for very long periods and it was not acquired by one unlucky contact but, for the most part, after massive doses of infection over a long period. The incubation period was very variable, in some cases the first detectable signs of tuberculosis might develop years after the patient had been removed from a source of infection.

To prevent infection the first step was to discover which individuals already had the disease. It was necessary to examine not only the patients but all with whom they had been in direct contact. The examination had to be carried out from two points of view: the ascertainment of the source from which the patient might have acquired the infection, and the direction in which he might have imparted it. It was a fact that among contacts there was a larger proportion of people with tuberculosis than in the ordinary population. When cases were found they must be treated and educated so as to be no longer a danger to others.

### The Tuberculosis Service

To deal with this apparently simple problem a great tuberculosis service had grown up. It began with voluntary effort. In 1911 the National Health Insurance Service came into being and in 1912 the present scheme was launched, the purpose of which was to ensure that no sufferer should go undetected and untreated. Patients were sent to the tuberculosis officers by their own doctors, and the first step was diagnosis. Clinical bacteriological, and x-ray examinations were undertaken. Contacts were also called for examination. Mass miniature radio-graphy was now available.

The treatment of the patient was based on food, rest and fresh air, although more active measures, such as artificial pneumothorax, were adopted in suitable cases. If all these methods failed or the case was unsuitable for such treatment a chronic case remained with an infection which might exist for years. It was not practical politics to segregate these people permanently, and with proper instruction and reasonable living conditions they were not a danger to others. It was all a matter of good housing, cleanliness, and common sense.

Too much stress could not be laid upon environment in the prevention of tuberculosis but the word must be interpreted in the widest terms. It included adequate housing, water supply, proper ventilation, absence of overcrowding. Children must have sufficient diet to build up resistance, and there must be freedom from want, from fear, and from insecurity. Having put a patient in a sanatorium, it was no use sending him back to a overcrowded slum where he could not put into operation what he had been taught. Contacts must be examined and submitted to x-ray inspection every three months for at least two years. Every member of the household, young or middle aged must be examined. The main reservoir of infection was the sputum positive person who did not know or care. Tuberculosis was sometimes found in the middle aged person who had had bronchitis for years, and on looking into the family history it might be found that a baby had died of tuberculous meningitis, or an adolescent had died of the disease many years before, and the parents had never been examined and were spreading infection undetected all the time. Many of these chronic infection carriers felt perfectly well if they had a cough it was put down to bronchitis or possibly to smoking. The problem of finding these carriers was acute, although mass radiography was of much assistance. Their numbers were great and segregation would not be practicable so that the obvious recourse was education. The patient must be taught how to dispose of sputum, the need for keeping separate from those of others his eating and drinking utensils and his personal linen must be impressed upon him and he must be instructed to avoid kissing and fondling

children These were common sense measures to be taught at sanatoria and by the staff of the tuberculosis officer, which should include health visitors, who would attend the clinics, particularly on older patients' days, so that they could get to know the people and their families Personal contact was important, and it was as a friend of the family that the health visitor must appear in the home

If housing accommodation was unsuitable, better accommodation should be asked for on behalf of such patients Housing committees must be made aware of the fact that if tuberculous families were not provided with proper housing nothing would stay the disease In country districts shelters might be set up in the garden so that the tuberculous person lived away from the other occupants of the house

In a passing reference to bovine tuberculosis Dr Lloyd said that the methods of preventing spread due to drinking milk from infected herds ought to be simple to apply All milk not taken from tuberculin-tested herds should be heat-treated and no one suffering from the disease should be allowed to handle the herds or the milk Some schools still provided children with raw, untreated milk, and this should be remedied as soon as possible

#### Present Position

At first sight the results of the work done in combating tuberculosis seemed very unsatisfactory Infections were increasing, the total of known cases of the disease was greater, and waiting lists for sanatoria were very long But the position was not quite as black as it might seem More cases were known, but that was not to say that more existed Notifications were no indication of the increase of the disease, for the more the research was intensified the greater the number of cases which would be found The larger the number found the better would be the position from the standpoint of prevention, and it was not until all cases were discovered that it could be said positively that new cases were on the decrease The most reliable guide was the number of deaths reported, although this also must be regarded with caution Twenty years ago not nearly as many people with chronic coughs had x-ray examinations as was the case to-day, and the cause of death was often certified as bronchitis Between 1914 and 1943 the crude death rate for pulmonary tuberculosis had been reduced by more than 50%, but the figure for 1943—the year with which the most recent report of the Registrar-General was concerned—was not so good as the figure for 1942

The scheme which had been taken over by the regional boards under the new Act was to be reviewed by March, 1949 It was to be hoped that all available resources would be mustered for an intensification of the methods of treatment and prevention More doctors, more radiographers, and increased nursing staff in hospitals and sanatoria were needed Many beds were empty because of lack of staff More mass radiography units should be available But what was most needed, said Dr Lloyd in conclusion, was public enlightenment Large numbers of the public did not realize how important it was that they should co-operate with the tuberculosis service Only when that co-operation was fully forthcoming would tuberculosis become a really preventable disease

### THE NEW PHARMACOPOEIA EXPERT WORK OF THE COMMISSION

The Pharmaceutical Society of Great Britain has arranged a series of lectures on the new *British Pharmacopoeia* The introductory lecture was given by Dr C H Hampshire, secretary of the Pharmacopoeia Commission, on Oct 28 Before him on the table were all the seven volumes of the *Pharmacopoeia* the earliest a small volume in black binding dated 1864 Dr Hampshire touched first on the question of nomenclature Apart from a few minor changes, he said, the nomenclature followed the system employed in previous volumes An unfortunate position was created by the issue of the same drug under a variety of proprietary names given it by different manufacturers The intention now was to provide non-proprietary names which could be used by all manufacturers, and if the drug was eventually included in the *Pharmacopoeia* the approved name would be given to it The selection of drugs for inclusion was decided principally on clinical and

pharmacological grounds, but pharmaceutical knowledge was a factor in deciding on the manner of presentation and the inclusion of materials in the preparation The desire was to make a book which would reflect the latest achievements of medical science and clinical research while at the same time recognizing old preparations which were still in use and required control Thus it came about that many products of the modern biochemical laboratory were included side by side with senna, castor oil, aloes, and the like A large number of authorities had been consulted, including the Committee of Revision of the *U.S. Pharmacopoeia* and the expert committees of the Health Organization of the League of Nations The ideal pharmacopoeia would give for every drug prescribed a complete set of standards, tests, and assays for its control The progress made to this end was considerable, but it had not been possible to avoid some gaps Scientific research went on continuously, but in preparing a periodical volume there came a time when it was necessary to close down for publication, so that in some respects the book was quickly out of date

The crude vegetable drugs, Dr Hampshire said, had been examined by an expert committee, and 11 of those previously appearing had been deleted on the ground of insufficient clinical importance Cinchona was deleted as the result of a decision made by the Commission some years ago that this drug was to be regarded simply as the source of quinine, and that quinine was to be regarded simply as an antimalarial drug Therefore certain tinctures, extracts, and so on of cinchona were removed, and some preparations of quinine had also been deleted Drugs like linseed were dropped because better drugs were now available Fresh infusions had been deleted owing to the fact that they were very seldom used, and plasters on the ground that it was no longer pharmaceutical practice to prepare plasters in a small way when much better preparations were produced on a manufacturing scale The question of uniformity of size of tablets had been considered and an approach made to a definite standard for the purpose, but the information received made it evident that to introduce standards, with the necessary changing of dies and punches, would cause a great deal of inconvenience and expense at a time when this would not be justifiable

The ointment of tannic acid had been included at a time when there was enthusiasm for unification with the *U.S. Pharmacopoeia* but this and other ointments had now disappeared and been replaced by better preparations During the war attempts were made to economize fats and paraffins by producing ointments containing a considerable proportion of water Only the best of these had been retained The range included had been decided by a committee of dermatologists and pharmacists as giving different types of bases which doctors could use for the addition of any drug they required Boric acid ointment had been reduced in content to 1% This ointment was simply retained in the *Pharmacopoeia* as a protective, and it was just as good without the boric acid as with it, but as it was a popular remedy it was thought desirable to retain the name and justify it by the inclusion of this minimal proportion The sections on penicillin complied with the regulations under the Therapeutic Substances Act, and were simply put forward as being in accordance with the present state of knowledge In connexion with penicillin it should be noted that the standards were brought into effect by notices in the *Gazette*, it was possible now to make changes very quickly by that method. Vitamins A, B, C, and D, and of vitamin B complex the constituents aneurin hydrochloride, riboflavin nicotinic acid, and nicotinamide, were all included.

The desire for unification in terminology and strength of composition had led to attempts from 1874 onwards to produce an international pharmacopoeia An international conference at Brussels in 1925 reached agreement covering 77 potent drugs and preparations Of these, 40 were not included in the 1948 *British Pharmacopoeia*, and of the 37 included, 25 complied with the requirements of the agreement and 12 differed in greater or less degree The Health Organization of the League of Nations set up a technical commission in 1937 with a view to preparing a new international agreement, and an interim report was made The war had delayed matters, but the formation of the World Health Organization offered an opportunity for the resumption of this work An expert committee for the unification of pharmacopoeias met regularly at Geneva, and it

was hoped that a new international agreement would be forthcoming to meet the difficulties arising from different standards for drugs in different countries, which were especially troublesome and conceivably dangerous for travellers who had occasion to have a prescription dispensed in a country other than that in which it was issued

## SEX BEHAVIOUR OF THE MALE

### DISCUSSION ON THE KINSEY REPORT

A report on the sex life of some 14 500 American men has lately been published in the United States. This report, by Dr Alfred Kinsey, of the University of Indiana, is the first of eight volumes, and the second will be on the sex behaviour of the female. A meeting of the Planning Forum was held in London on Oct 27, when this report was the theme for discussion. The subject was introduced by Dr FRED GRUNDY, chairman of the British Social Hygiene Council who said that the inquiry had shown the enormous range of variability of sex activity among men, and it was claimed by the author that both the very low and the very high activity were found among people who were well adjusted and efficient citizens. On the whole the highest activity was found to be in late adolescence, and usually it dropped off slightly after the age of 30, though in many men it continued to an advanced age (85 was mentioned). Among Dr Kinsey's findings were that there was no real evidence that sexual activity could be voluntarily diverted to art, literature or other high-level activities, that sex activity tended to be higher in the subsequent life of males who attained puberty earlier than normal, that masturbation was more frequent among high school and "college educated" men while pre marital intercourse was more often found among those of ordinary school education, and that men of the lower occupational and educational groups more often found extra-marital sexual outlets during early married life but returned to marital faithfulness later, whereas the reverse was true at college level.

Dr Grundy said that Dr Kinsey had employed the interview technique. The sample taken was not a completely random one, it was what was known as a judgment sample. As these interviews were with persons who had attended a talk by Kinsey and had been willing to subject themselves to his technique, there was a possibility that in his anxiety to get a completely representative sample Kinsey had over-weighted his selection with people who were at one or other extreme or were perverted in their sex activities, though the experts believed that such errors, if they existed, made no serious difference to the final results. Dr Grundy thought that much the same pattern would be found in this country, though the incidence of homosexual practices would probably be rather less. Another question was whether Kinsey was justified in publishing results of this kind beyond a limited scientific circle, though he had not intended to make the report a "best seller". But in fact, said Dr Grundy, Kinsey had brought a breath of realism into the subject of sex behaviour which perhaps was not so much needed over here as it was in the States.

#### Interview Technique

Dr DAVID MACE, secretary of the Marriage Guidance Council, who had met Kinsey in New York and had subjected himself to his technique, said that the interview lasted fifty minutes, during which he was asked about 350 questions. Kinsey had an ingenious method of recording data using a card hardly larger than a postcard, and setting out the history in code to an extent which if written in full would occupy twenty five typewritten pages. He believed that Kinsey had done his best to get a complete cross section of the population, and he and his three colleagues had spared no pains to ensure the integrity of the inquiry. The report was a picture of sexual behaviour in a sexually sick society, for the disturbed state of family life in America needed no emphasis. Normal sexual behaviour which was the standard whereby these extremes and deviations had to be judged was difficult to define, but it might be regarded as the way in which men and women behaved about sex in a society enjoying a sound stable, and secure family life. One of the striking things elicited was the early development of sexual power in boys. It was disturbing

to find that the average man had masturbated from his early teens at the rate of two or three times a week and it seemed possible that while they had been teaching young people about the "facts of life" as illustrated in the animal kingdom their pupils were already engaged in sexual activity. He thought there was danger in the statement that pre marital intercourse did not cause any trouble in subsequent marital adjustment. A small inquiry in Marriage Guidance Council cases had shown that there was a greater tendency for people who had had pre marital intercourse to break away from the marriage when strains and stresses arose. No real answer could be given on this and other points until the investigation of female sex behaviour was completed for women suffered more than men from irregular sex relations.

Dr E H LARKIN said that none of his psychiatric colleagues who had taken sex case histories had expressed any surprise at the American figures. The report was not a psychological work, there was no attempt to equate the findings with the psychological state, but it contained many points of psychological interest as for example, that boys of 11, if they masturbated although they had no emission, had an orgasm. The finding that the earlier sexual activity began the greater was its persistence was correlated with the well known fact that in females in whom menstruation had begun unusually early the menopause was unusually late. One experience of the psychologist, hardly borne out by the Kinsey report, was that people who had most intense sexual pressure often lived most active professional or occupational lives. The subsequent discussion was noteworthy for the women speakers who attacked the Kinsey report for its non-idealistic outlook.

## EMPIRE RHEUMATISM COUNCIL NEED FOR RESEARCH

The annual general meeting of the Empire Rheumatism Council was held in the state rooms of St James's Palace on Nov 2. H R H the Duke of Gloucester, who presided, said that the council was at all times happy to place its knowledge and experience at the disposal of all interested bodies and persons. In industry alone it was estimated that three million weeks of work were lost each year by the insured population as a result of rheumatic disease, and that the annual cost of rheumatism was in the neighbourhood of £20 million.

Lord Horder, who was re-elected chairman of the council described the combating of rheumatism as "one of the major preoccupations of my life". He supposed he was too near to this particular crusade in medicine to say whether the Empire Rheumatism Council had justified its twelve years of existence. Its threefold purpose had been very carefully stated—namely, to organize research into the causes (not the cause) of rheumatic disease, to encourage education, both medical and lay, in the subject and to stimulate public authorities to provide treatment for rheumatic sufferers at as early a stage of the disease as possible. Remembering as he did the very considerable advances that had been made during the existence of the council in all these three fields, he thought it not too much to say that the council's share in them had not been a minor one.

Dr W S C Copeman, honorary medical secretary of the council gave a brief address on the need for research. Rheumatism, he said was a word difficult to define. Professor Hench, of the Mayo Clinic, in his recent visit to this country had stated that there were over 200 forms of so called rheumatism. Dr Copeman himself evaded a definition by reciting three typical cases from his own records. One was a fatal case of juvenile rheumatoid arthritis in a child of 7. Next to nothing was known of the cause of these cases and little enough about their treatment. The second case was one of swollen and painful joints in a working woman condemning her to hopeless bedridden crippledom—a condition which might have been relieved and possibly cured if it had been tackled in time. The third example was of spondylitis in a young naval officer. Dr Copeman said a few words about other serious forms of rheumatism—sciatica, neuritis, osteoarthritis—all major enemies of industrial life owing to the toll they took of health and working time. Rheumatic fever came into a

different category, attacking the heart muscle of its victims and being responsible for a very large proportion of heart disease in this country

Finally he made a plea that funds should be provided for specially trained workers and for laboratory and other equipment to assist research. If the council, he said, in addition to its present all too modest funds, could be assured of half the money which was justifiably spent on cancer and tuberculosis the answer to the question of rheumatism could be found. The Government gave sympathy but no financial support, and therefore he appealed for voluntary help, especially from industrialists and organized labour. He was sure that the result would yield dividends exceeding the most sanguine expectations.

## Reports of Societies

### CANCER OF THE CERVIX EARLY AND PRECURSORY STAGES

At a meeting of the North of England Obstetrical and Gynaecological Society held in Manchester on Oct. 8, with the president, Mr J. E. Stacey, in the chair, Professor EMIL NOVAK, of Baltimore, U.S.A., gave an address on 'Early and Precursory Stages of Cervical Cancer'.

Professor Novak pointed out that in the U.S.A. 18,000 women died from cancer of the uterus last year. The chief hope of reducing the death rate lay in the early diagnosis of established disease and the detection of precursory lesions. Although there were no dramatic advances to report, certain generalizations could be made. It was agreed that a cancer cell was a cell which had "gone wrong" and assumed a different and uncontrolled form of life. In this change heredity was an important factor, and this was borne out by animal breeding experiments and by human studies. It appeared that there were three classes of individuals: (1) those whose inherent predisposition was so strong that they were destined to suffer cancer irrespective of any other circumstances; (2) those in whom the predisposition was less well developed and who required exciting factors before the growth appeared (there might be many exciting factors, but so far as the uterus was concerned the possibilities were injury, infection, and oestrogenic hormones); (3) those who had no predisposition to the disease, and who would never develop cancer even when exposed to those activating factors which determined the onset of the disease in class (2).

The relationship of oestrogens and carcinoma was a difficult one to assess. Judging by the well-known effects of these hormones it was reasonable to suppose that they might cause cancer in susceptible women, but this effect could only operate in respect of the breast, uterus, vagina, and vulva. Reviewing experimental work on the production of breast cancer by means of oestrogens, Professor Novak pointed out that this disease had only been produced in mice, and the results had been negative in all other species. Cervical changes in animals following the administration of oestrogens were also reported, and it was of interest that these could be prevented by giving progesterone. Progesterone would appear to have some protective action against the carcinogenic effect of oestrogen. Although a study of biological hormonal effects and of the pathology of uterine carcinoma might make one hesitate to employ oestrogen therapy in the presence of a precancerous lesion or in a woman with a strong family taint of malignant disease, yet Professor Novak did not know of a single case in which oestrogens had been shown to have been the cause of cancer in women.

#### Precancerous Lesions

Professor Novak went on to discuss some pathological features with particular reference to precancerous lesions. Leukoplakia of the cervix, a condition first recognized and described as a result of colposcopic studies by Hinselmann, was now generally accepted as not predisposing to malignant change. The most important lesion was intra-epidermal carcinoma, or Bowen's disease. In this the cells of the epidermis showed malignant characters but the condition might remain localized for many years before ultimately breaking through the basement membrane to assume typical malignancy. Professor

Novak said that in his experience, when this condition affected one part of the cervix, then it was common to find fully established carcinoma in another part, provided a thorough search was made. Nevertheless, routine and careful examination should make it possible to detect and treat this condition while it was still localized. Amputation of the cervix was probably sufficient to deal with it adequately, although in his clinic total hysterectomy was usually carried out—partly for the purpose of having all the material for study and research. Another change in the cervix which might be significant was unusual activity of the basal cells of the epidermis. This might be a reaction to a hormonal stimulus. Such a change and even pseudo-malignant features were to be seen in the cervix sometimes during pregnancy. These changes were reversible and might well be associated with the profound hormonal changes of pregnancy.

Discussing the early diagnosis of malignant and pre-malignant states, Professor Novak referred to the newer techniques. The Schiller test with iodine had little application, since it indicated merely the site of pathological change and not its nature. Vaginal smears were in vogue but were extremely difficult to interpret, even the few experts admitted a comparatively high proportion of errors in diagnosis. He considered that cervical biopsy still remained one of the most reliable methods but advocated a modification, namely "surface biopsy" in which large areas of the superficial layers of the epithelium were removed by scraping with a curette or sharp spoon. This technique was most satisfactory for revealing intra-epidermal carcinoma. Finally Professor Novak referred to the difficulty of making a diagnosis of carcinoma on histological grounds. This applied to endometrial as well as cervical studies. There were many borderline cases. He illustrated these and other points by photomicrographs of cervical and endometrial tissue.

The president and Sir William Fletcher Shaw, speaking on behalf of the Society, both thanked Professor Novak for his interesting and instructive address, and Professor Novak replied.

### TREATMENT OF THYROTOXICOSIS LIVERPOOL MEDICAL INSTITUTION

At a meeting of the Liverpool Medical Institution on Oct. 21, with Dr H. H. MacWilliam, vice-president, in the chair, a discussion took place on thyrotoxicosis.

Mr PHILIP HAWES said that five years had elapsed since the introduction of the thiouracil compounds and still there was no unanimity of opinion about their value. To provide a standard against which the results of thiouracil therapy could be judged the records of two series of cases operated on by the speaker at the David Lewis Northern Hospital, Liverpool, were analysed: (a) a post-war series of 86 cases (1945-8), and (b) a pre-war series of 78 cases (1936-9). Carcinoma was found on pathological examination in three cases. The average hospital mortality rate was thought to be substantially above 0.5% (this did not refer to patients prepared for operation with thiouracil). There were three deaths among the 164 cases analysed, all were poor-risk patients with long-standing nodular goitre.

The efficiency of the operation was illustrated on the basis of a recent 'follow-up'. In both series the results were highly satisfactory—almost 90% of the patients were capable of normal duties six months after operation, and, allowing for advancing years, there was evidence to show that these results were maintained for at least nine to twelve years. Exophthalmos was slow to improve in the post-war group, but in the pre-war series the eyes had with few exceptions greatly improved or returned to normal. Of the 18 cases with fibrillation 15 returned to a normal rhythm after operation and remained normal over long periods. A group of 6 pre-war adolescent patients was found to be very well indeed with the exception of one who suffered from mild hypothyroidism. Of 78 pre-war cases 8 developed hypothyroidism—4 severe and 4 mild—and recurrence occurred in 3 cases. The early results of thiouracil were thought to compare favourably with those of surgery, but would these good results be maintained through the years as they were after operation?

Dr LESLIE CUNNINGHAM pointed out that the discovery of the effect of thiouracil introduced a new principle in practical therapeutics. For the first time it appeared possible to control

disease by preventing with drugs the formation of a hormone. Results of thiouracil therapy were discussed, and the favourable cases included one of auricular flutter which responded to thiouracil alone in three weeks. Contraindications appeared to be the previous occurrence of agranulocytosis, intrathoracic goitre and cases in which there was evidence of pressure phenomena, hyperophthalmopathic Graves's disease, suspected malignant disease, and cases of thyrotoxicosis in which the temperament and economic circumstances contraindicated a prolonged and tedious treatment. The treatment of post-operative auricular fibrillation by means of quinidine was described. Out of 9 cases 8 responded very rapidly, 2 responded after thiouracil had been given as well, and without operation.

Professor CHARLES WELLS thought there was a tendency to minimize the risks of thyroidectomy and that extremely low mortality figures could be obtained only by rejecting a number of bad risk cases. Up to a couple of years ago he had had a long series of cases with almost no mortality but in the last two years he had had a few unexpected shocks. Two cases in the treatment of which he was concerned were examples of gross nodular goitre in elderly women without recognizable toxic manifestations. In each case a severe post-operative crisis developed.

### Thyroidectomy or Thiouracil

Professor HENRY COHEN recalled that in the symposium on thyrotoxicosis ten years ago which he had the privilege of opening there had been general agreement that thyroidectomy was the treatment of choice but it was recognized that the operation was based on the primitive and barbaric principle of cutting off the offending part, and the hope was expressed that with the unmasking of causative factors non surgical methods of treatment would be discovered. We still remained ignorant of essential factors in the causation of thyrotoxicosis. The clinical picture of the victims of thyroid addiction showed that thyrotoxicosis and hyperthyroidism were not synonymous, though the former included the latter. Moreover, the various patterns of thyrotoxicosis suggested that it might be the expression of more than one aetiological factor and that the susceptibility of different tissues to thyroxine, and their capacity to use it might well modify the clinical picture. Thiouracil and radio active iodine were most valuable both in treatment and in pre operative care, but they did not attack extra-thyroid causative factors. Thiouracil had its toxic hazards and might produce, from swelling of the goitre, mechanical disabilities demanding urgent surgical intervention. Moreover, there was always a risk of overlooking the malignant thyroid with thyrotoxicosis if medical treatment alone were advised. But there was a real place for thiouracil in the therapy of thyrotoxicosis, and Professor Cohen subscribed to the indications laid down by Dr Cunningham, and mentioned the benefit which had followed the exhibition of oestrin in large doses in a few severe cases of exophthalmic ophthalmoplegia.

Mr A M ABRAHAM said that the symptom of exophthalmos was caused by (a) lid retraction and (b) true exophthalmos. It was usually the former that improved. One case in 250 had increased exophthalmos after operation, excision of the retrobulbar fat improved the condition. Auricular fibrillation had occurred in 19 cases of the series of 250 he had reviewed (8%). This ceased in 6 cases within three weeks of operation and still persisted only in 3 cases. The results of operation were excellent in 187 (77%), good in 46 (19%).

At a meeting of the Devon and Exeter Medico Chirurgical Society on Oct 26 Dr Horace Evans concluded a review of hypertensive disease with special reference to its surgical treatment by saying that as a rule operation should not be undertaken on patients over 50. Certain unpleasant sequelae must be anticipated, the most important of which was sterility in young male subjects. In a series of about 100 cases treated surgically it was fair to say that in most of them the operation had been worth while, though only a few had shown dramatic improvement. Sympathectomy apparently cured retinitis and it undoubtedly relieved symptoms especially headache. Very few men were still alive four years after operation but this was a considerably longer prognosis than that to be expected without operation. Operation also provided a possible alternative to the termination of pregnancy in hypertensive expectant mothers.

## Preparations and Appliances

### WALKING-APPLIANCE FOR LOWER LIMBS IN PLASTER

Dr A R THOMPSON, Medical Officer of Vauxhall Motors and Mr L W PLEWES, Surgeon to the Orthopaedic Clinic, Luton and Dunstable Hospital, write: The ideal walking appliance for patients with a leg in plaster has not yet been found, although improvements are constantly being developed. This problem was put to the rehabilitation unit at Vauxhall Motors, Luton, several years ago and under the guidance of the engineer director, Mr Newell and his assistant, Mr Trussell, a boot has been designed and used successfully for the past eighteen months in 70 cases.

Using scrap leather, 1-in (2.5 cm) "sorbo," and elmwood soles, these boots are made by the patients themselves in the Centre. Their weight varies from 1½ to 2 lb (0.68-0.9 kg) according to size. The accompanying illustrations show the design in some detail.

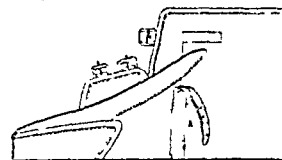


FIG 1—Diagram illustrating the principle of the boot. The strap A is incorporated inside the boot to secure the plaster cast firmly within.

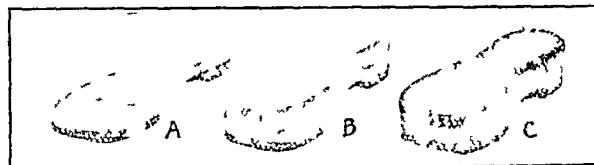


FIG 2—(A) The elmwood sole has been fitted with three bars of hard rubber. (B) One inch sorbo has been fixed on to the top of the wooden sole. (C) Scrap leather has been used to cover the sorbo.

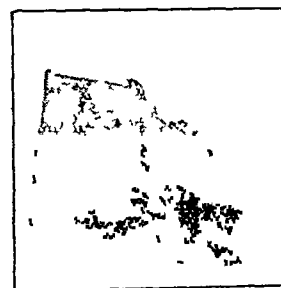


FIG 3—The finished boot, showing three strong straps to keep it in place.

One of the distinct advantages of this appliance is the relative normality of gait which is possible. Not only is the natural heel and toe action permitted, but the sorbo gives a springiness to the gait which is so apparently missing in the usual rocker arrangement. Other advantages are the smart appearance and the removability of the boot, which saves bed linen.

One difficulty which was soon overcome was the slight alteration in skin-tight plaster technique necessary when the boot is to be used. The sole of the plaster cast should be as nearly flat as possible and reinforcement of the cast at the ankle and just above the ankle was necessary. Another problem was the discomfort along the front of the leg, as the weight is borne by the front of the foot. A felt pad 2 in (5 cm) wide placed along the subcutaneous border of the tibia proved satisfactory.

We wish to pay tribute to the Vauxhall Rehabilitation Unit for the interest, care, and ingenuity shown in the development of this successful walking appliance.

## Correspondence

### New South Wales Branch of B.M.A. and R.M.B.F.

SIR,—In your issue of Jan 3 (p 28) you published a letter from me informing the profession that the members of the New South Wales Branch of the British Medical Association were sending food gift parcels to beneficiaries of the Royal Medical Benevolent Fund.

I would like to make further public acknowledgment of their generous action and to report that up to date our beneficiaries have received four or five gift parcels addressed directly to each of them. This makes the wonderful total of over 2,500 parcels altogether. Your readers can imagine how grateful the recipients feel and how deeply touched they are by the kind thought of professional colleagues so many thousands of miles away. I have written to the members of the New South Wales Branch telling them that their action makes them very near and dear to us—I am, etc.

WEBB JOHNSON,  
President  
Royal Medical Benevolent Fund

### Tudor Edwards Memorial

SIR,—In the *Journal* of June 7, 1947 (p 821), you were good enough to publish a letter inviting contributions to a fund for the establishment of a memorial to the late Mr Arthur Tudor Edwards, MCh, FRCS.

The fund was closed on March 31 last and reached £4,000, with which the Royal College of Surgeons of England and the Royal College of Physicians have consented to form and administer a trust to found a Tudor Edwards Lectureship to be given alternately at the two Colleges.

It is hoped that the lectures will reflect Tudor Edwards's wide interest and that they will embrace not only the surgery and medicine of diseases of the chest but also the allied studies of anatomy, physiology, pathology, and anaesthetics applicable to thoracic surgery.—We are, etc.,

HORDER (chairman),  
COURTAULD-THOMSON (treasurer)

London W 1

### Femoral Hernia

SIR,—I feel I must reply to the remarks in your annotation on femoral hernia (Oct 23, p 750) regarding the use of the low approach in cases of strangulation and I must disagree with the statements that "it is very hard to justify a low approach in cases of strangulated femoral herniae" and that "the low approach may give a totally inadequate view of the strangulated viscus".

All are agreed that the contents of the sac must in every case be carefully examined and the viability of the bowel ascertained before returning it to the abdominal cavity, but this I contend can adequately be carried out from the low approach. The sac having been defined and opened the cause of the strangulation either the lacunar ligament or the narrowness of the neck of the sac itself (the latter being the more frequent in my experience), is freed and the loop of imprisoned bowel delivered into the wound—as much as is necessary can readily be brought outside and the constriction rings especially examined for viability. If viable the bowel is returned and the repair continued in the usual way. Should resection be decided upon (this is a comparatively rare occurrence, the vast majority of cases do not require anything further than relief of the constricting agent—in the series reviewed under required resection), then in my opinion this can be more readily and more safely performed through a separate paramedian incision.

It has been my experience that even in a Richter's hernia there is little danger of the bowel slipping back through the femoral ring before it has been brought into full view and its viability ascertained and even though this should occur (I recall a rarity) it is quite a simple matter to open the abdomen and thus be enabled fully to inspect this loop of bowel.

I have used the low operation for strangulated femoral herniae over a large series of cases and with very few troubling complications. In the majority of strangulations the

operation has proved to be a simple and straightforward procedure and is especially suitable for frail and aged subjects—local analgesia being all that is required. It is worth noting in this connexion that the average age for a strangulated femoral hernia is between 63 and 64.

Obviously no operation is without its own particular drawbacks, but surely it is wise to select the one which is the simplest and the most straightforward and at the same time the one which gives the most gratifying end-results. (In a careful follow-up there was no increased rate of recurrence in the strangulated as compared with the non-strangulated cases.) This is the claim I put forward for the low operation. It would indeed be most interesting and enlightening to hear other surgeons' views on this point—I am, etc.,

Bedford

ANDREW G BUTTERS

SIR,—As one who has practised the "low" repair for femoral herniae for some years to the total exclusion of all other methods I welcome Mr Andrew G Butters article (Oct 23, p 743) and find myself in agreement with most of what he says. That the cleansing and freeing of the neck of the sac, so as to allow good retraction following transfixion and removal of the sac, is the most important step cannot be too strongly emphasized. I am opposed to the "high" operation in view of the unnecessary damage inflicted on the inguinal canal.

I do, however, disagree with him and with the annotation on this subject in the same issue (p 750) that the abdomen should be opened through a separate incision should resection of bowel be necessary in strangulated femoral herniae. I have always carried this out through the "low" approach and have found this safe, adequate for visualization of the afferent and efferent limbs of the affected bowel, and readily accomplished under local anaesthesia.

Peritonitis from incompletely inspected strangulated Richter's hernia which the annotator describes and which he uses to condemn the approach, should surely reflect on the inspector rather than the operation used—I am, etc.,

Isleworth Middlesex

J SCHOLEFIELD

### First Conference of Industrial Medical Officers

SIR,—The preoccupations of the Ninth International Congress on Industrial Medicine prevented my reading Sir George Schuster's paper in the *Journal* of Sept 11 (p 505) until recently. In paragraph 29 Sir George refers to the first conference of industrial medical officers in 1921 as having been convened by the late Sir Thomas Legge. In the interests of historical accuracy may I point out that that conference was convened by the Industrial Welfare Society and was opened by H.R.H. the Duke of York, now H.M. the King?

It is right to say that the late Sir Thomas Legge together with Sir Thomas Oliver and others were sources of great encouragement and support to that conference, and indeed it was Sir Thomas Legge who suggested the holding of such a conference to Mr Robert Hyde, the director of the Society—I am, etc.,

London W 2

T E A STOWELL

### Pensions for Diabetics

SIR,—I should like to air my opinion about the hundreds of claims for pensions by Servicemen who have developed diabetes while in the Forces, particularly as more than a hundred have been referred for my opinion as to whether Service hardships shocks, or wounds are aetiological factors. This problem is no new one, as diabetes discovered after accidents in civil life is a common source of litigation. In such cases there has seldom been a urine test for long before the accident to prove that diabetes was not present before that accident. But Service cases are different.

Diabetes in recruits is normally excluded by a urine test, and so, if and when they develop diabetes in the Forces, they conclude that their service has caused it and that they should be pensioned. Some have gone through wounds and hardships, others have never left this shore, but too many of these cases find something—a knock, a cold winter, bad food—to which they ascribe their diabetes.



The scientific and considered medical opinion in every country finds no evidence that trauma, shock, physical or mental strain, exposure, or climatic conditions are causal factors in the aetiological mysterious disease diabetes, though factors of heredity and previous obesity are well recognized. This opinion grows stronger with more experience. Both major wars produced no increase in diabetes, and London with its tensions and 'blitzes' shows no increased incidence. A phrase in my book, *The Diabetic Life* 'When shares go down in Wall Street diabetes goes up' (p 10) partially contradicts this. I must confess that this sentence was copied from another writer into my first edition in 1925 when I knew little and has remained there too long. I shall expunge this phrase from future editions. Factors of worry can sometimes increase the sugar in established diabetics but, I think, never *per se* are a clear primary cause, otherwise the majority of humanity would become diabetic. So let me repeat that I think war claims for pensions for diabetics are unfounded on fact.

The expense to the State of tribunal appeals and High Court litigations must be considerable, probably thousands of pounds to the taxpayer. I should mention that many times the British Legion too presses for compensation in such cases and approaches me for supporting certificates. These I cannot provide on factual grounds, as I consider that diabetes must be looked upon aetiological in the same light as cancer or leukaemia.

And after all is diabetes a disability requiring or worthy of a pension, award, or support? The Council of the Diabetic Association, a sympathetic body of lay diabetics has often considered appeals to support claims for pensions and has refused—this on the ground that adequate treatment and co-operation in it by the diabetic produce normal health and no real important disability in work or life—I am, etc.,

London W 1

R D LAWRENCE

### Forequarter Amputation

SIR—If it is not too late I should like to refer to Dr J D C Millar's interesting memorandum (Sept 18, p 559), which I overlooked. There is in fact a good deal of literature on the subject of forequarter amputation, particularly a comprehensive monograph by Paul Berger,<sup>1</sup> the French surgeon whose name has for so long been associated with the classical operation. In Berger's book are to be found the histories of many cases of traumatic amputation as well as amputation for pathological conditions. It would seem that most of the cases have been recorded by British surgeons, one of the first mentioned being Cheselden's case to which Mr J Dudfield Rose (Oct 16 p 722) draws attention. A case in recent times similar to Dr Millar's is that recorded by Drake Lee and Frank Radcliffe.<sup>2</sup> It is worthy of note that in the majority of these cases there is little haemorrhage but much shock, and that while the scapula comes away with the arm the clavicle remains attached to the body. The case of avulsion of the hindquarter recorded by Dr Protheroe Smith (Oct 2, p 662) is indeed a remarkable one, perhaps the first on record.

According to Berger there has always been great controversy as to who was the first to perform forequarter amputation. Claims were advanced on behalf of Cheselden because of the case mentioned above and on behalf of Baron Larrey, Napoleon's famous surgeon, who accompanied the Emperor's armies on five different campaigns. Eventually credit was given to Ralph Cumming, a surgeon-captain in the Royal Navy, who performed the operation on a young sailor aged 21 at Antigua in 1808. Cumming did not publish his case, but a letter from A Copland Hutchinson with reference to it was published in the *London Medical Gazette* November, 1829. The letter was treated with scant respect by a Scots reviewer, who wrote a blistering comment on the data supplied.

I was interested in the subject some years ago, and reference to the naval records showed that there was no doubt whatever that Cumming performed the operation but the only note he made at the time was 'amputation of the shoulder'—a brevity in keeping with the silent Service. The operation took place in March 1808 and the sailor arrived back in England in the autumn of that year and reported to the Naval Hospital at Greenwich. It was found that complete forequarter amputation had been done—arm, scapula, and clavicle, all had gone

It would appear also from the records that the surgeon-captain drew the highest pay of any officer on the station. *O tempora O mores!*

The Berger or classical operation continues to be described in detail in surgical textbooks, but it is open to question if it is the best operation. To say the least of it it is not an easy one to perform. The essential feature of the method is control of the main vessels at the outset. The middle third of the clavicle is resected to allow of exposure of the subclavian artery, here situated behind the vein, the artery is divided between ligatures, the arm elevated to empty it of blood, and the vein is then likewise secured. While this procedure may be an interesting anatomical exercise on the cadaver, it may prove a difficult if not a dangerous step in the living particularly when one is dealing with a large tumour and engorged veins. All this is done with the object of conserving an arm full of blood, a questionable procedure now that blood transfusion is a commonplace of surgery. Besides, it is more than doubtful if ligature of the subclavian artery at this site fulfils its object, for it certainly does not control the arterial anastomosis around the scapula.

In fact it will be found much easier and quicker to perform the operation from behind, following the method carried out originally by McGill<sup>3</sup> of Leeds, and later given in detail in the *British Medical Journal* by Littlewood,<sup>4</sup> another Leeds surgeon. It will be found too that there is not any more loss of blood than in the Berger method. If for any reason the posterior method is not advisable then a modified anterior approach can be used by first dividing the pectoral muscles and getting control of the axillary vessels as high as required. This exposure also gives access to the subscapular artery, which plays a large part in collateral circulation. The clavicle can then be divided and the vessels controlled higher up if necessary.—I am, etc.,

London W 1

MICHAEL SMYTH

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- <sup>1</sup> *Amputation Interscapulo-Thoracica* 1887 Paris
- <sup>2</sup> *Brit J Surg* 1940 27 559
- <sup>3</sup> *British Medical Journal* 1880 21 702
- <sup>4</sup> *Ibid* 1922 1 381

### H 11 in Malignant Disease

SIR,—As a general practitioner who has used H 11 to a limited extent but with encouraging results I was interested to read the report from the Medical Research Council (Oct 16 p 701) and the leading article on this subject (p 716). I must admit, however that I was not impressed with the completeness of the investigation, and I do not therefore feel that the conclusions reached are justifiable.

The committee states, "To attempt to follow up the subsequent life histories of the patients by inquiry of general practitioners would involve an amount of time and labour incommensurate with the results likely to be achieved." I would respectfully suggest that this is the only satisfactory method of reaching a conclusion on the efficacy of H 11 in the treatment of human cancer. In your leading article is the amazing statement, "Few general practitioners will see more than three or four cases of cancer a year." As a partner in a busy industrial practice a conservative estimate of the number of cases seen by me in a year would be fifteen to twenty.

I have personally used H 11 in the treatment of three cases to date. One patient, a woman with carcinoma of the ovary with massive peritoneal and pelvic secondaries died of intestinal obstruction within three months but I feel her case was quite hopeless from the start and H 11 was employed as a last resort. The other two cases are alive and comparatively fit. One, a case of bronchial carcinoma confirmed by bronchoscopic biopsy, shows clinical and possibly radiological improvement, but he has only been under treatment for five months and requires more prolonged observation to assess the results of treatment.

The remaining case is that of a man of 42 with carcinoma of the rectum who has been under continuous treatment with H 11 since March 1947. His case is of great interest and I hope to publish full details at a later date. We had a laparotomy in March, 1946 when the diagnosis was confirmed by biopsy, but owing to two palpable nodules in the liver, thought to be due to secondaries, only a colostomy was performed. Treatment started with H 11 in March 1947 and his clinical condition improved to such an extent that a further laparotomy was performed in January, 1948, when, as so

econdaries in the liver or elsewhere could be detected an abdomino-perineal excision was performed. This patient has recently returned to work in good health. He is continuing with H 11 therapy.

Nobody suggests that H 11 should be used as a substitute for surgery or radiotherapy, but the general practitioner is called upon to look after most cases of malignant disease abandoned as hopeless by the consultants. I would therefore make a plea for a thorough investigation of the effects of H 11 therapy on their patients by general practitioners. I consider that failure of the Medical Research Council to enlist the assistance of general practitioners largely vitiates the value of their conclusions. My own results, although not conclusive, are encouraging enough in my opinion for me to continue to employ this agent in the hope at least of relieving pain and distress and possibly of prolonging life. If this hope is not fulfilled in the future I can assure you I shall abandon this therapy as I have many others in the realm of medicine. At the moment, however, I consider the treatment *sub judice*—I am, etc.,

Birmingham

H JOSEPHS

SIR—To those observers who have recorded a conspicuous success with the use of this agent the uncompromising report of the Medical Research Council's committee (Oct 16, p 701) will come as a great disappointment. Surely an agent that has cured a few hopeless cases calls for a more systematic clinical trial at a research centre rather than so curt a dismissal?

It seems to me right that all cases of cancer, confirmed by biopsy, that have been successfully treated by H 11 should be reported in the medical press immediately. The astonishing case of carcinoma of the bladder which I reported in the *Journal* of Aug 14, 1943 (p 211), has remained in the full enjoyment of health and has again undertaken work of serious responsibility. His survival since the commencement of H 11 treatment is now 6½ years. There is no doubt whatever that he owes his life to changes in his state which started a few days after H 11 was first used and continued progressively. I have used the treatment in five subsequent cases where the diagnosis has been confirmed by biopsy. In one breast cancer the progress of the disease was arrested, death taking place later from cerebral haemorrhage. In another similar case progress is retarded—I am, etc.,

Fairwarp Sursex

FREDERICK CURTIS

### Classical Caesarean Section

SIR—With regard to the correspondence in your columns about caesarean section, although my experience of the operation is probably not so extensive as your other contributors I feel that in the classical operation a great deal depends on careful sewing up. I learned my technique from the late Mr Louis C Rivett whom I admired as a very gracious man and a most expert operator. He used good thick silk for at least one layer of mattress sutures, and he was most careful to approximate the whole thickness of the uterine wall.

The tendency is still very often to exhibit speed in this operation and in the presence of the usual free bleeding in the wound and with the fear of the suture going right into the uterine cavity it is easy to fail to get down to the uterine endometrial layer exactly. The wound can be quite successfully closed at the time and yet considerable gaps might easily thus be left in the thickness of the uterine wall. Following the Bornev-Rivett technique of course several layers are in reduced leaving as everyone knows a large ridge of uterine wall. I should have thought that barring accidents such as careful sewing up would leave a very sound uterus, as indeed, I should almost venture to say, does happen in a very large percentage of cases.

The use of spinal anaesthesia for the operation encourages one to operate leisurely and also I think reduces haemorrhage to a considerable extent. The use of ether if anyone uses it to-day, is of course as in other operations where free bleeding is less intense than bleeding. Perhaps what I have said is of interest to all experienced operators but I think that it may be well to draw attention to these points—I am, etc.,

N BEATTIE

### Hereditary Haemorrhagic Telangiectasia

SIR—I read with interest Dr C P Petch's account (Oct 30, p 785) of a case of hereditary haemorrhagic telangiectasia. Although uncommon, I have in my own experience encountered six cases during the past four years, and in my opinion the incidence of the disease is greater than might be expected from the number of published reports. The anaemia in the case described was the result of repeated epistaxis, the usual source of bleeding in such cases, attention is thus focused on the site in which the telangiectases are most frequently situated, and their presence is unlikely to be overlooked.

Nose bleeding is, however, sometimes absent throughout, as occurred in a recent case which came under my care. The patient had been treated for anaemia for ten years and complained intermittently of periods of extreme fatigue, palpitation, and dyspnoea. Investigation at a general hospital had shown no abnormality. Regular blood counts had been carried out during the six months before she was referred to my out-patients. The first gave the picture of a megalocytic anaemia, anisocytosis, poikilocytosis, and numerous normoblasts were present. Treatment with liver had resulted in a maximum reticulocyte response of only 17%.

The diagnosis was based on the association of telangiectasia on the lips and tongue with a sudden drop in the blood count from R B C 4,470,000, Hb 70%, to R B C 2,790,000, Hb 44%, in one week. This change was unassociated with overt blood loss or evidence of haemolysis. The stools gave a consistently strongly positive benzidine reaction, which was unaltered after treatment for 10 days with rutin, 80 mg tds. The ineffectiveness of this preparation in controlling bleeding accords with Dr Petch's experience.

An increased awareness of the disease and a careful scrutiny of the lips and mouth in every case of anaemia in which the cause is not clearly apparent may well bring many new cases to light and permit of rational instead of haphazard treatment—I am, etc.,

Guildford

HEWARD BELL

### Therapeutic Abortion

SIR—May I refer to the report which you gave recently of a medical trial which had caused considerable interest—that of Drs Eleanor Bergman and Mary Bell Ferguson, who were acquitted at the Old Bailey in May, 1948, of a charge of criminal abortion (May 22, p 1008).

Both the public and medical accounts of this case failed to report that Mr Justice Morris has given real assistance to the medical profession by enlarging upon the principles established in the Bourne case and by generally clarifying the practitioner's position in relation to the practice of therapeutic abortion. During the long and careful summing-up of this case the judge quoted the following words from the Bourne case:

'If the doctor is of opinion, on reasonable grounds and with adequate knowledge, that the probable consequence of the continuance of the pregnancy will be to make the woman a physical or mental wreck, the jury are quite entitled to take the view that the doctor who, under those circumstances and in that honest belief, operates is operating for the purpose of preserving the life of the mother.' He added "I fully adopt those words and invite you to bear them very much in mind."

Moreover, he told the jury, "You are not concerned with the question as to whether Dr Ferguson arrived at the right conclusion; you have not to decide whether Dr Ferguson did or did not make a mistake. Between medical people there may often be differences of opinion; sometimes it is difficult to assert which of two opinions is to be preferred; but you are not here to weigh up whether Dr Ferguson was correct or incorrect in the view that she had formed. You have to be satisfied by the prosecution that she expressed a dishonest opinion, and that when she advised if you think she did advise the termination of pregnancy by her letters in these two cases, you will have to consider whether you are persuaded by the evidence called by the prosecution that that lady gave a dishonest opinion, did not act in good faith, and was therefore advising something that was unlawful."

The medical position in the future is, therefore, greatly clarified. Provided that the practitioner who recommends the termination of pregnancy can satisfy a jury that his opinion was given "in good faith" he will not be expected to produce

irrefutable proof of the validity of his medical opinion—a point occasionally so difficult that practitioners have been known to hesitate to give consent in cases where their clinical judgment would have favoured termination

These matters are clearly of importance to the medical profession, and we trust you will make them available to your readers. The Abortion Law Reform Association possesses a few copies of the summing up of Mr Justice Morris which could be borrowed by interested readers—I am, etc.,

ALICE JENKINS  
Hon Secretary  
Abortion Law Reform Association

53 Gloucester Terrace London W2

### Neonatal Asphyxia

SIR,—Dr W N Leak (Oct 30, p 797) refers to the work of the late Sir Joseph Barcroft and his associates on the foetal circulation and especially their discovery that in the case of the sheep it is the nasal area which receives the first stimulus at birth and thus initiates inspiration. In the lower mammalia the sensory area of the nose often extends over the alae and is not as in man chiefly confined to the inside of the nostrils. I do not know whether the stimulation of the nose of the newborn lamb is tactile thermal or olfactory (that is to say to the sensation of smell), but the nose of man is certainly a poor receptive organ compared with the nose of the lower mammalia.

It has long been the practice of obstetricians to use carbon dioxide as a means of resuscitating asphyxiated infants, but it seems to me to be idle to suppose that any of this gas can be absorbed through the nose to reach the respiratory centre, and it cannot be expected to reach the circulation through the unexpanded lungs. Nevertheless, it is the experience of many of us that carbon dioxide is beneficial, and I suggest that its action is purely a local one of sensory stimulation. The tickling sensation experienced in the nostrils when we essay to drink an effervescent liquid is not due solely to the bursting of the bubbles of liquid containing gas but to the gas itself, and the same sensation is produced by blowing a current of dry carbon dioxide on to the nasal mucous membrane from a sparklet apparatus. Like Dr Leak, I am astonished that this physiological principle has been so far omitted from obstetrical textbooks—I am, etc.,

Wivenhoe Essex

W RADCLIFFE

SIR—Dr W N Leak (Oct 30, p 797) is to be congratulated upon the admirable way he reminds us of the late Sir Joseph Barcroft's brilliant researches into the physiology of neonatal respiration. It is unfortunate that there is still so little liaison between physiologists and clinicians, not only for their own sakes but because patients are often unable to benefit from the results of physiological research until many years after these have become common knowledge among non clinicians. In this respect I agree that it is astounding how many authorities are ignorant of, or prejudiced against, a physiologically rational treatment of neonatal asphyxia such as that mentioned by Dr Leak.

The most frequent criticism is that cerebral stimulants will encourage the respiratory centre to metabolize the last remaining molecules of oxygen available, with still further depression of the centre and that should these stimulants prove ineffective other methods will fail owing to the anoxic condition of the centre. Presumably this is what is meant by the 'sadistic attacks' quoted by Dr Leak as occurring in a pre-publication copy of a new textbook. The answer is of course that injections of cerebral and respiratory stimulants ('cardiazol', ephedrine, alpha-tubocurarine, nikethamide) into the circulation via the umbilical vein or the heart itself in desperate cases so rarely fails to initiate respiration that the above criticism rarely applies—in any case should the baby fail to take a breath on its own the last few molecules of oxygen will be used up anyway and to no effect.

Dr Leak suggests that the basic pattern of respiratory response to sensory stimuli—i.e. exteroceptor impulses from the skin, proprioceptor impulses from muscles, and enteroceptor impulses from internal structures—may persist long after birth and into adulthood. With regard to the skin painful stimuli

and sudden douching with cold water are known as respiratory stimulants even to laymen. It is not generally recognized however, what a large part proprioceptor impulses may have in reflexly affecting respiration. Physiologists now regard these impulses as responsible for the greater proportion of the hyperpnoea of exercise,<sup>1</sup> and Dr Carl F Schmidt,<sup>2</sup> professor of pharmacology of the University of Pennsylvania, goes so far as to suggest that the very existence of muscle tone itself is sufficient to maintain a continual reflex bombardment of the respiratory centre which combines with carbon dioxide and other reflex stimulation in maintaining the "tone" of the respiratory centre. It has been proved experimentally that even passive movements of muscles (whose blood supply is isolated from that of the parent body) will stimulate respiration, which makes one feel that Sylvester's method of artificial respiration in adults may be the most rational of those available. In addition one wonders whether keeping newborn babies still prior to the initial respiratory effort is quite as reasonable as was hitherto supposed.

Anaesthetists may be interested to note that Dr Schmidt's theory may have some bearing upon the respiratory depression which accompanies high spinal analgesia. In some cases this depression commences before any of the intercostal muscles are paralysed, and one explanation might be the progressive cutting off of sensory impulses from the periphery, which are then no longer available to bombard the respiratory centre—I am, etc.,

London SE 5

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- <sup>1</sup> MacLeod's *Physiology in Modern Medicine* 1941 pp 600 and 604-5
- Edited by P Bard Henry Kimpton London
- <sup>2</sup> *Anesthesiology* 1944 1 77

A H GALLEY

### Large-intestine Colic

SIR,—I was interested in Sir Heneage Ogilvie's article on colic due to sympathetic deprivation (Oct 9, p 671). May it not be that the syndrome was caused by irritation of the coeliac sympathetic nerves by the tumour cells rather than by deprivation? On this supposition the irritation of the sympathetic nerves produced spasm of the sphincter ani and atony of the colon, as actually seen in one barium enema on Case 1 and as evidenced by the lower abdominal distension in both cases.

The cramp like pains and increased peristalsis represented the attempts of the intact parasympathetic system to overcome the obstruction. Because the pain pathways through the sympathetic were intact these cramps were painful. I offer this as a suggested explanation and not in any dogmatic way—I am, etc.,

Plymouth

J LAWRENCE HENRY

### Breast-feeding

SIR—I would like to suggest as a possible cause of the failure of lactation the unnatural sleeping arrangements of mother and baby in hospital. Breast feeding is an intimate love act between mother and baby and should be followed by a satisfied sleep together in the warm intimacy seen in animals. Instead of this the baby is removed from its mother and put in an isolated cot (frequently in another room). This is emotional privation and often agony to the mother, who dares not protest against the accepted order of the hospital for fear of victimization by the nursing staff. The anxiety which inevitably follows is well known to cause suppression of lactation—I am, etc.,

London, S W 3

RACHEL PINNEY

### Out-patient Electric Convulsion Treatment

SIR,—In the hope of encouraging Sir W P Mallinson to make better use of the out-patient facilities at St George's Hospital I want to ask a few questions and make some criticisms of his paper on electric convulsion treatment (Oct. 2 p 641).

Dealing with the problems in the order in which Sir Paul discusses them there is first the question of technique. There is no uniformity at clinics throughout the country in respect of restraint of the patient during the convulsion, the administration of oxygen, or in the type of "box" used. Each clinic claims that its particular degree of restraint, or the absence

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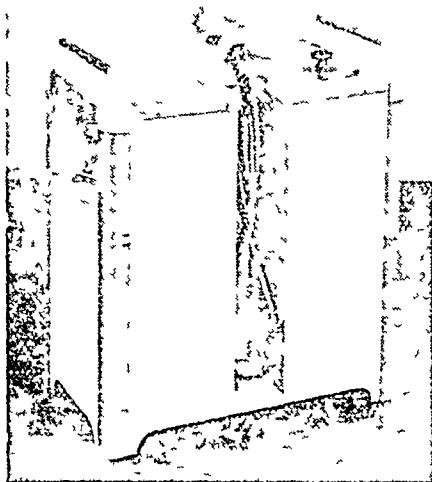
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of any at all, is the best method, and all, like Sir Paul, use such unfortunate expressions as "an almost complete freedom from undesirable complications for a long time". Similarly, of oxygen one is told "We see no need for it, our cases recover very rapidly, and we have no complications," or, "We always use it, we think it helps for this or that". For one make of 'box' it is even claimed that the type of fit produced is less likely to produce fractures than the fit from boxes working on another system.

There is much lip service paid in high places to the need for research in psychiatry, but surely the need for an inquiry into these simple points is more urgent and so easily undertaken. It is only necessary to take a series of alternate cases with and without restraint, recording not only the radiological injuries but the complaints of back-aches and to give alternate fits with and without oxygen, recording the depth and duration of cyanosis and the incidence of post-operation headaches and confusion, to settle these points. The claim that one make of 'box' produces a different type of fit, if taken seriously, could be settled by high speed cinematography.

If the value of oxygen should be established, can it be shown that there are any respiratory movements to justify its use before the end of the clonic phase? Oxygen may be cheap, but it has important industrial uses, and it seems wasteful to turn it on during the period of apnoea.

Similarly, if the need for restraint is established I question whether the 'Sutton' method described by Sir Paul is best suited to out-patient work. I have seen it used in two other clinics and think it is most alarming to the patient and wasteful of staff. I believe that whatever degree of restraint is required can be obtained by straps. Knowing the partiality of my Sutton friends to physiological theories I would point out that we are all positively conditioned to being strapped since our happy pram days. Anyone who has been taken aerobating knows how comforting are the hard tight straps that press one to the seat. But restraint by other people, particularly when gagged, is a highly provoking negative stimulus. Sir Paul says nothing about the use of pre-operative anaesthesia, to which I will refer later.

On the subject of selection of cases for out-patient treatment I find Sir Paul still more disappointing. It is already well known that the depressive patients are most likely to benefit, but every psychiatrist wants to know how he can usefully extend his range. What is the use of writing about "rigorous selection" and then quoting only two cases which from the details given come right outside the criteria and make spectacular recoveries? Are these the only occasions on which Sir Paul broke his own rules, or were there others with less happy consequences? Is there nothing more to say about the huskiness of the patient's voice except that she was resistant to psychotherapy and wanted to go abroad? She sounds like a Miss Penicillin wasted into the clinic on a breeze of urgency.

My final criticism is with the manner in which Sir Paul deals with the patients' reaction to the treatment. This, he writes, has been much over-emphasized. In actual fact from his own series five broke off because of their dread, ten ceased to attend (probably for the same reason) and 27 apparently became so bad that they had to be admitted during and after treatment. My estimate of the position is that not more than 5% of unanaesthetized patients are indifferent to the treatment, all the rest dislike it, 25% have to break off treatment because of their dread, and 50% have to summon all the courage they have not to be able to face it. Sir Paul does himself an injustice if he thinks that fearful patients are evidence of incorrect selection. I could show him one or two cases where treatment had to be broken off on account of the patient's dread but after some weeks was restarted at the same clinic and anaesthesia had been introduced and brought to a satisfactory conclusion.

Is it not possible that the line drawn across the affective disorders by ECT separating the depressive states from the manic states is an artifact? Other findings in psychiatry suggest that they are different manifestations of the same disorder depending on the personality of the sufferer. It may be that the manic states fail to respond because the techniques commonly employed are so desperately fear-provoking. My psychiatric clinic has its failed ECTs from other causes. Sometimes the patient has failed to attend, sometimes the patient has admitted having concealed their lack of progress, sometimes the patient has seen of avoiding any more shocks, sometimes the patient has refused to attend. I hesitate to refer to my own failures because the numbers are of no statistical significance. From the successes I have made are based chiefly on the fact that I have gained from it I would say that I give my

treatments single-handed, I use a home-made restraining device with webbing straps, I do not use oxygen, and I always use pentothal (about  $\frac{1}{4}$  of a 0.5 g ampoule, just sufficient to produce the first stage of relaxation). None of my patients has the slightest dread of treatment, some have failed to improve, but none have become worse—I am, etc.,

London NW 1

J F COOPER

## POINTS FROM LETTERS

### Traumatic Amputation

Dr CASSIA E WILLIAMS (Goring-by-Sea, Sussex) writes: Some years ago, while I was working in the North Midlands, a case of this kind was brought into the hospital during "Wakes Week". The patient was a stout, middle-aged woman who had been riding on the roundabouts in a state of semi-intoxication. She failed to get off the platform when it stopped and was dragged round clinging by her left arm. This was completely avulsed at the shoulder-joint. There was hardly any bleeding, for the torn vessels were all twisted up, and the axilla looked quite clean. This patient died from shock before any attempt could be made to clean up the wound.

### Scratching in Bed

Dr D SAKLATVALA (Bournemouth) writes: I have tried several more or less clumsy arrangements to prevent a child with a rash from scratching in bed. The mother of one of my little patients has recently devised a neat and ingenious method which I believe is new. Each arm of the child is placed in a woman's stocking. The tops of the stockings are pinned together behind, between the child's shoulders, and the stocking feet are tied together. The child is perfectly controlled and very comfortable.

### Bilateral Stress Fracture of First Rib

Dr W E SNELL (Medical Superintendent, Colindale Hospital, London, NW 9) writes: At about the same date on which you published a report of a case of bilateral stress fracture of the first rib by Capt Roy Astley and Capt A Batty Shaw I observed a similar case in a theatre porter, aged 29, at this hospital. The x-ray shows a clear-cut line running through both 1st ribs in the region of the scalene tubercle, and the appearance almost resembles a joint. This porter has been lifting patients on and off trolleys and theatre tables for a period of two years, and this type of lifting may well involve sudden stresses on the first rib. Although he gives no history of pain, and no tenderness can be elicited on palpation, it seems that this must be another case of bilateral stress fracture.

### Failure of Kidney Function

Dr O S KOHNSTAMM (London, NW 2) writes: The following case shows, I think, some unique features. A man aged 68 was dying of cancer and secondaries (inoperable carcinoma of the pelvis of the left kidney). There was a probable involvement of the supra-renal glands. The patient had for some time refused solid food on account of severe nausea. On July 2 he ceased to pass urine, the bladder was empty. At the same time uraemic symptoms appeared. I gave 6 g NaCl and 10 g glucose in concentrated solution intravenously, which brought the patient round quickly. I told him to drink as much fluid as possible. Continuous drip proved unfeasible. On July 9 the patient passed  $1\frac{1}{2}$  oz (42.6 ml) of concentrated urine, which unfortunately could not be analysed properly. No urine appeared any more until the patient's death on July 18. Up to then the patient was comparatively clear and capable of making important decisions, at least at intervals. Blood urea was 240. All the time I had continued the concentrated injections, chiefly of glucose and salt solutions. The length of survival after the kidney had ceased to function and the clarity of mind are quite unusual. They may be connected with the lack of protein intake over a long period.

### The Common Cold

Dr G C PETHER (Hadley Wood, Herts) writes: Although much research has been done to determine the infecting agent in coryza I would suggest that one aspect of the matter has been neglected. Is it not possible that the defensive mechanism in the very front line—namely, the mucosa—could be considered with advantage? I have in mind that certain external agents, notably dusts, fumes, and extremes of heat and dryness, may reduce the defences considerably. The prophylaxis against catarrhal conditions is of great economic importance. For a time we are obliged to put up with scandalous travelling conditions, but it should be possible to discover whether the viruses of common catarrhs are helped or retarded by fumes of such substances as toluene, methyl alcohol and sundry other solvents. I do not think any statistical approach under factory conditions can give the answers. But proper laboratory experiments might be more promising than some which have been performed.



## Obituary

### RICHARD P STRONG, CB, MD

Eminent Professor Richard P Strong who was professor of tropical medicine at Harvard University from 1913 to 1938 died in Boston, Massachusetts on July 4 at the age of 76. Strong was educated at Yale and Johns Hopkins, graduating MD in 1897. He entered the American Army Medical Service and soon attracted attention by his work on tropical pathology in the Government Laboratory at Manila. He became professor of tropical medicine in the University of the Philippines in 1907, leaving there on his appointment to the chair at Harvard in 1913. During the first world war, as Colonel Strong, he became well known to British physicians and pathologists in France, and the 'Report on Trench Fever' which he edited will be remembered by many. From 1917 to 1919 he served as a member of the Inter-Allied Sanitary Commission and in 1919 was made CB for his services to Britain.

Strong's work in tropical medicine took him to all parts of the world civilized and uncivilized, and for his professional help to other countries besides his own he received many honours, he was either president of, or elected to, many learned societies. He was made an Honorary Fellow of the Royal Society of Tropical Medicine in 1936. He directed scientific expeditions to parts of the Amazon and in 1930 to the Belgian Congo and Liberia. His investigations in Amazonia foreshadowed the great Hylean Research Scheme which is now being inaugurated under the auspices of Unesco. Strong's two stout volumes on Liberia represent a wealth of scientific information and threw light on a corner of Africa which till then had remained in complete darkness. His most important scientific work, however, was carried out on onchocerciasis, which he had seen both in America and Africa; his investigations on this disease were embodied in a monograph published in 1934. He was head of so many commissions and committees that he was often away from his chair at Harvard, but all his efforts were everywhere and unremittently directed to one object—the improvement of medical conditions in the tropical countries throughout the world. Strong lived up to his name: he was tireless and of a robust constitution. It was characteristic of him that when America came into the war in 1942 he at once rejoined the American Army Medical Service although he had then turned 70. For four strenuous years he served at Army Headquarters, where his personal knowledge of the Tropics and subtropics was of inestimable value both to America and to the Allies. During this period he also found time to help in bringing out two editions of *Stitt's Tropical Diseases*. He had a great capacity for friendship with those he liked and nothing pleased him more than to entertain his many friends not only in his home in Boston but in his many clubs, which were scattered throughout the principal cities of two continents. Many doctors in Britain, as well as those who knew him only by his work, will regret the passing of a sincere friend to this country and of a great servant of tropical medicine.

### P P COLE OBE, MB, FRCS

Mr R W Raven writes: May I add my tribute to the memory of the late Mr P P Cole (Oct 30 p 801)? We are conscious that a great personality has been removed from our midst and that we have lost a wise surgeon who contributed to our knowledge right to the end. He was an important master and his works have received the recognition which they merit. It is of interest to notice that the pathological investigations he made in 1913 concerning the intramural extension of carcinoma of the colon are quoted by the authors of a study of the same subject in the current number of *Surgery Gynecology and Obstetrics*. His was a mind which penetrated immediately into the essence of a surgical problem and was able to marshal the facts required for its solution. The scope of his surgical thinking was very wide and his experience in the art was commensurate but his real love was reparative surgery. At the Royal Cancer Hospital I often sought his advice when

planning a surgical procedure which would necessitate at some stage a reconstruction operation. He was always most helpful. P P Cole endeared himself to those who really knew him. Supremely honest and straightforward with no thought of self, his opinion regarding affairs was most valuable and was coloured by fine judgment and clear vision. We will remember him and all the little human touches which he brought into our daily lives. Who can forget that figure pacing up and down a room with head bent considering some problem, the sudden arrest and crisp 'Look here, liddle'. We cannot forget him, and the impact which he made on our lives will remain.

Surgeon-Captain Percival M May, R N, writes: As medical officer of the Royal Hospital School, Greenwich for some thirteen years, Mr Percival P Cole operated on many of the surgical cases that I had to send into the Dreadnought Hospital. I often consulted him on cases that worried me, and I always found him ever kind and helpful. Many old boys of the R H S have much reason to thank Mr Cole for what he did for them. I often saw him operate and much admired his skill and dexterity especially in cases of facial deformity.

Mr E S Page writes: I should like to call attention to a point in surgical technique elaborated by my late lamented teacher, Mr Percival P Cole. I refer to the double pointed needle which had the eyelet situated in the middle of the shaft of the needle. Using the movements of pronation and supination of the wrist, stitches could be placed with accuracy, speed and precision that I have never seen surpassed once the manoeuvre had been mastered. Always a strong advocate of the 'no touch' technique, this needle enabled him to put into practice this admirable principle. Surgery has lost a great exponent in the passing of P P.

Dr L Carlyle Lyon writes: May I add a few words of personal appreciation to the tributes already paid to the late Percival P Cole? I had the privilege of working under him as house-surgeon at Queen Mary's Hospital for the East End in 1928 and the memory of his brilliant surgery, profound judgment, and not least his scintillating wit will remain with me for all time. His passing is a grievous loss to surgery as well as to his wide circle of friends and admirers.

Dr CECIL PRYOR LANKESTER died on Oct 13 at the age of 74 at his home in Peaslake, Surrey, where he had retired several years previously owing to failing health. Although coming of a medical family, his father and three brothers being members of the profession, his first inclination was towards law, but the urgent need for medical men in the missionary field caused him to throw up his legal studies and embark upon medicine. Immediately upon qualifying in 1897 he joined his brother at the CMS Hospital at Peshawar, and worked as a medical missionary in India for nine years. Then he returned home and entered general practice at Guildford. Shortly afterwards he became one of the medical officers to the Royal Surrey County Hospital and he continued with this work until he was compelled to give up because of his increasing deafness. Dr Lankester then took up radiology, and until failing health finally compelled him to retire, at the age of 64 he held the post of radiologist, and was subsequently in charge of the electrical and x-ray therapy department, at the hospital. Lankester was keenly interested in ambulance work and rendered valuable service in this field during the first world war. He was for many years honorary divisional surgeon to the local St John's Brigade, and during this time he gave regular classes in first-aid and nursing. For these services he was made an honorary associate of the Order of St John and assistant commissioner of the brigade in Surrey. When war broke out in 1939 his health prevented him taking an active part in ambulance work, but his energetic spirit and desire to do something would not allow him to rest and, as he was always keen on engineering, he occupied himself in making delicate machine parts on his private lathe at home. Lankester was an ardent evangelical churchman, keenly interested in mission work and the YMCA, and for eight years he was vicar's warden at St Saviour's Church. He was a member of the British Medical Association for thirty years and served on the Organization Committee from 1919 to 1922 and on the Insurance Acts Committee and the Organization of Medical Students Subcommittee from 1919 to 1921. He represented his constituency at the

annual Representative Meetings on six occasions and he was also honorary secretary of the Surrey Branch from 1922 to 1924 and chairman of the Guildford Division in 1924-5. Lankester will be remembered for his quiet, courteous, and unassuming manner, his devotion to religion, and his unbounded energy and desire to be of service even when in failing health. He leaves a widow and three sons, one of whom, Dr Lionel V A Lankester, is in practice at Guildford.—A F T

Dr EDWARD AUGUSTUS BULLMORE died in London on Oct 29 at the age of 73. Dr Bullmore was born in Budock, Cornwall, in 1875 and educated at Falmouth School and at University College Hospital London. He qualified in 1898 and took the Edinburgh F.R.C.S. in 1903. He held several house appointments at his teaching hospital and was also house physician at the North Eastern Hospital for Children. Subsequently he was a ship surgeon with the P & O Line, and in the 1914-18 war he served with the R.A.M.C. Dr Bullmore had been a member of the British Medical Association for over forty years, and he was president of the Cambridgeshire and Huntingdonshire Branch in 1936-7.

Dr Max F Tylor writes: For the past thirty years I have only occasionally seen my old friend Dr E A Bullmore but for a decade or more previously I was in partnership with him and the late Dr Rupert Butterworth at Wisbech. Long ago as those days seem, their memory is still very green, and I recall with great happiness my association with him. He was a most loyal colleague and his outstanding sincerity and devotion to duty made him loved and trusted by all. Like many men of his stature he had a gentle voice. He had nothing petty in his disposition and spoke ill of no man. His professional ability was high; he always kept in touch with the advances of medical science and his good work will long be remembered in the district in which he spent practically his whole professional life. Besides his professional work he had many other interests, and had long looked forward to a greater enjoyment of these on his retirement to his native Cornwall. This, alas, was not to be, for owing to the war his retirement was delayed, he still worked on in practice and when at length he did retire the years he had left to him were sadly marred by frequent and serious illness, borne without complaint. He died not in his native county but in the hospital in which both he and his wife had served.

Dr ALEXANDER COWIE PATERSON died at Millbrook, Plymouth on Oct 22 at the age of 54. He was educated at Kenney High School, Aberdeenshire and went on to Aberdeen University where he graduated M.B., Ch.B. in 1918. He joined the R.A.M.C. immediately and served for some time with the Army of Occupation in Germany. Towards the end of 1919 Dr Paterson entered the West African medical service and went out to the Gold Coast. He was appointed S.M.O. of Sierra Leone in 1929 and returned to the Gold Coast a year later. Early in 1938 he had to resign from the service on account of ill health and he then joined the staff of the Ministry of Pensions. After nearly three years at the Ministry he went into general practice at Millbrook and soon became well known as a painstaking and conscientious practitioner. The sympathy of his colleagues, his friends, and his many patients will be extended to his wife and his daughter.

Dr Alfred Cox writes: Your generous and well-deserved notice (Nov 6 p 839) to my old friend C H Milburn omits one of his activities of which he was justly proud. Always interested in the military side of medicine he was an active member of the B.M.A. committee whose report was largely responsible for the establishment of the R.A.M.C. fifty years ago. When I attended the jubilee celebration of the Corps I was pleased but not surprised to hear that Milburn's memory records he had preserved had been of great service to the Corps for the celebration. I had known Milburn to be a member of the Constitution Committee of 1900 and to have been instrumental in the transformation of the Association into a more democratic body. I am now the only member of the Association who was hoping to live to take part in the Annual Meeting next year and a recent letter to me from the Association of Surgeons of the Association.

## Medical Notes in Parliament

### HOUSE OF LORDS

#### Subscriptions to Hospitals

LORD SALTOUN in the House of Lords on Nov 2, asked whether the removal of hospital collecting boxes from railway stations was not contrary to the Government's expressed desire that private subscriptions to hospitals should continue.

LORD SHEPHERD, replying for the Government said the Minister of Health and the Secretary of State for Scotland hoped and were confident that private generosity, which had in the past done so much for the hospital service, would not come to an end. But they did not consider it proper that the new governing bodies of hospitals, which were public bodies no longer dependent on private charity, should themselves appeal for funds. Appeals made by independent voluntary organizations on behalf of the hospital service or of particular hospitals for money to provide extras and amenities outside the ordinary running of the service were a wholly different matter.

### HOUSE OF COMMONS

#### Payment of Specialists

SIR ERNEST GRAHAM-LITTLE asked whether Mr Bevan knew that many young consultants were undergoing severe financial privation owing to the delay in the payment of their remuneration for three months, during which time they had to pay interest on overdrafts at their banks, and whether he would take measures to prevent repetition of this delay.

Mr BEVAN replied on Nov 2 that certain Regional Hospital Boards were unable owing to initial staffing difficulties immediately after the appointed day, to pay specialists before the end of September. He saw no reason why this difficulty should continue. The Board which Sir Ernest had in mind were now paying monthly or quarterly at the wish of the specialist.

Mr HASTINGS asked the Minister of Health to give instructions to Regional Hospital Boards that advertisements for senior specialist staff should appear in the medical press and not in the lay press only.

Mr BEVAN replied that Regional Hospital Boards were required by Regulation 5 (1) of the National Health Service (Appointment of Specialists) Regulations, 1948 (S.I., 1948, No 1416) to advertise vacancies on the specialist staff of hospitals in two or more professional journals. He promised to inquire into any case where Mr Hastings believed that this regulation had not been followed.

#### Cost of N.H.S.

SIR STAFFORD CRIPPS stated on Nov 2 that the National Health Service and the National Insurance schemes would have been in force for the last nine months of the current financial year. He estimated that during this period the cost to the taxpayer of the former would be equivalent to an income tax of about 1s 0½d and that the contributions of the Exchequer to the latter would be equivalent to one of about 8½d.

#### Basic Salary

Mr RANKIN on Nov 4 asked why it had been decided that new entrants to the general practice of medicine were not to receive the basic salary as of right.

Mr BEVAN said this had been done to meet the wishes of the medical profession themselves.

Mr HASTINGS inquired in how many cases applications for basic salary had been received by executive councils in England and Wales, and in how many cases this had been granted.

Mr BEVAN replied that precise figures were not available but that more than a thousand applications had been granted. The matter was primarily for the executive councils, and unless appeals were made he did not receive the information at this stage.

Dr SEGAL asked whether Mr Bevan agreed that the attempt on the part of the medical profession to impose a means test on doctors who applied for a basic salary was an effort to defeat the whole object of the basic salary.

Mr BEVAN said it would be undesirable for him to make a comment on the representations of the medical profession. He must deal with its representatives. If doctors had individual complaints they should make them first to the profession so that he could hear them through the profession.

### Food poisoning

Mr CHARLES TAYLOR on Nov 4 asked Mr BEVAN to introduce legislation making it compulsory for handlers of food to be examined periodically to ascertain that they were not carriers of disease such as paratyphoid.

Mr BEVAN was afraid the very elaborate arrangements which would be needed were at present impracticable, and that the present state of knowledge would not justify them.

Mr ORBACH asked whether the Minister of Health in view of the number of cases of food poisoning recently reported, was satisfied that existing legislation and regulations were adequate to deal with the manufacture and sale of impure and unclean foods.

Mr BEVAN said that so far as this could be controlled by regulation there were already wide powers. Whether further practical measures could usefully be taken was engaging the attention of his Department in conjunction with the Ministry of Food.

Mr HASTINGS asked Mr BEVAN whether his attention had been called to the danger of the dissemination of typhoid fever, infantile paralysis, and other diseases as the result of the lavatories of main line trains discharging directly on to the track and what action he proposed to take.

Mr BEVAN replied that there was hardly any evidence at present that disease was spread in this way. His medical officers kept in close touch with current research in this field.

### Press at Committee Meetings

Mr BEVAN said the function of Hospital Management Committees was the day-to-day control and management of their hospitals. While he hoped they would take every opportunity of keeping the closest contact with public opinion, the admission of the Press to their meetings was a matter for their own decision.

### Controls Off

Mr WILSON on Nov 4 set out a long series of relaxations or modifications in Board of Trade controls. These included the relaxation from last June of administrative control of distribution of lactic acid, edible and B.P. and of calcium and sodium lactates, a similar relaxation, from October, of the control of potassium permanganate, and change from public to private purchase of pyrethrum. During November and December he proposed to revoke the statutory control of amylalcohol, carbonate of potash dehydrated castor oil, methylated spirit and paraformaldehyde, and to abandon the permit scheme for distribution of vacuum flasks.

### Treatment in Switzerland

On Nov 4 Mr BEVAN told Mr Anthony Greenwood that he had no power to make it possible for regional boards to pay for the treatment of tuberculous cases in Switzerland. Mr Greenwood asserted that this had been the practice of some county and county borough councils before the National Health Service Act came into operation. Mr BEVAN said he had no power to authorize expenditure of that kind. He could not agree that patients were worse off than before the Act. If further forms of treatment could be given in other countries the remedy was not to send British patients there but to make that form of treatment available here. He did not accept that forms of treatment were available elsewhere which could not be provided here. It was undesirable that they should spend large sums of money in sending patients abroad. A committee working in conjunction with the Treasury considered whether hardship cases could be sent abroad. That was a matter for the Treasury and not for him.

Mr GREENWOOD said there was a serious shortage of beds for treating tuberculous cases and if some patients could be sent abroad it would be a relief.

Mr BEVAN replied that there was no serious shortage of beds. The most serious shortage was of staff. The Ministry was doing its best to recruit staff. It was far better at present to use its energies in that direction.

### Disseminated Sclerosis

Answering a question put on Nov 4 by Mr JANNER Mr HERBERT MORRISON said observations on cases of disseminated sclerosis were being made by neurologists in hospitals throughout the country in the hope of gaining a better understanding of its cause and nature or of improving its treatment. Investigations were in progress at the Radcliffe Infirmary, Oxford and at the Middlesex Hospital London. Much research had been done in the past with Government aid and otherwise. Such aid had not been sought for either of the special investigations he had named but support would be forthcoming if required for exploiting any promising new idea on the subject.

One must be selective as to a promising line of research, but his Department was on the look out for it.

### Air Ambulances

Mr LINDGREN said on Nov 3 that it was necessary on occasion to remove patients by air ambulance at short notice from some Hebridean islands to hospitals on the mainland. Where ground facilities were available patients were so removed at all hours of the day and night. He would ask the Scottish Health Department to communicate with medical men in the Hebrides to make this information more widely known.

*Alien Doctors*—The number of medical practitioners enabled to practice in this country by virtue of registration in the foreign list of the *Medical Register* under the Medical Practitioners and Pharmacists Act, 1947 since Jan 1 last is 932 of whom all but 85 had previously been temporarily registered. The number of dental practitioners registered in the foreign list of the *Dentists Register* this year is 37.

*Joined Health Service*—Mr BEVAN told Mr CHETWIND on Nov 4 that 18,165 general practitioners and 8,343 dentists had joined the Health Service. The proportion of the population which had joined was 93.1%.

*Cars for Nurses*—The possibility of improving the supply of motor-cars for midwives and home nurses is being examined. Arrangements already exist for motor dealers to give preference to midwives.

*Streptomycin*—The Minister of Health is satisfied that there are sufficient supplies of streptomycin in the country to benefit all war casualties who require this treatment.

*Break down Denied*—About 1,750,000 persons have applied for free dental treatment since the setting up of the National Health Service. Mr BEVAN denied that doctors and dentists were breaking down under the strain put upon them by the Service.

## Medico-Legal

### SCHIZOPHRENIA AND RESPONSIBILITY

[FROM OUR MEDICO LEGAL CORRESPONDENT]

In the early morning of May 15 a night nurse at the Queens Park Hospital, Blackburn missed one of the children from her ward. Search was made at once and the little girl's body was found in a near-by field. She had been raped, and had been killed by having her head battered against a wall. Surprisingly, the murderer had left behind a set of finger prints on a bottle and the police matched these against no fewer than 46,000 prints taken from men known to have been in Blackburn on the night of May 14. The culprit was found to be a youth of 22 named Peter Griffiths. In a statement he made to the police he said that he had spent the evening drinking that a man he did not know had given him a lift in a car and dropped him outside the hospital that he had got over the railings and later found himself outside a ward where there were children. He took off his shoes and left them outside, tried the door which opened to his touch and went in, but heard a nurse at the sink and came out again. He re-entered the ward went into the kitchen and picked a bottle off a shelf at random, took it into the ward and left it on the floor. Thinking he heard a nurse he turned round lost his balance and woke up one of the children who started to cry. He hushed her, but another child woke so he took the first in his arms out into the field and put her on the grass. As she would not stop crying he lost his temper and swung her by the feet against a wall until she died. He went back into the hospital put his shoes on again and went back to where he had left the child and then to his home. He read about the murder in the paper next day but was not shaken and behaved normally until he was arrested. He expressed regret and sorrow for the child's parents and "hoped he got what he deserved."

At his trial at Lancaster Assizes before Mr Justice Oliver it appeared that he had spent two years at the hospital as a child of 8 and that a week before the murder he had heard that his half brother's daughter aged 24 years was in the hospital. His father had been confined in a mental hospital for nine

months in 1918 suffering from paranoid schizophrenia, and at the age of 6 he himself had fallen on his head out of a milk float. His disposition and habits were childish. A few days before the murder his girl friend had broken off their association.

Dr Alastair Robertson Grant, medical superintendent of Whittingham Mental Hospital, said that he regarded Griffiths as an early case of schizophrenia and considered that he had been suffering from the disease at the time of the murder. He thought that the prisoner had known what he was doing, but had not fully appreciated that he was doing wrong. In cross-examination he said that he considered that the mania began when Griffiths had started to attack the girl and had ended after her death. It was very common in cases of schizophrenia to have a blank in memory but not invariable. He agreed that Griffiths's description of his movements in the hospital ward were those of a man, alert and conscious, who knew he was doing something he should not be doing. Griffiths might not have remembered committing the assault on the girl and that might have been the reason why he had not mentioned it in his statement.

The judge asked why he should forget that if he remembered everything else and the witness replied that that was the sort of partial amnesia that occurred in drink. In ordinary schizophrenia he would be rather surprised to find that a man had remembered so much and had forgotten such an important thing. It was quite possible for a schizophrenic to have a maniacal attack for a short time and then recover himself quickly afterwards with full knowledge of what had happened. Prosecuting counsel asked why from the prisoner's statement the witness had fixed the time of the maniacal attack at the time he had placed the child on the grass. The judge interposed to suggest that if the prisoner had been in a schizophrenic mania he would have dashed the girl down in the ward, and the witness replied, "Yes".

The police surgeon Dr Gilbert Bailey said in cross-examination by Griffiths's counsel that he considered that the man who did this act must have been in a state of maniacal frenzy but that normally such a man could not be certified. He had formed the opinion that the man who committed the murder was a schizophrenic and agreed that a person suffering from that disease might suffer a defect of reason as a result of which he might not know at the time that what he was doing was wrong. Dr Francis Brisby, the principal medical officer at Liverpool prison, testified that from observation and examination he had found no evidence of any disease of the mind.

The judge said in his summing up that there was abundant evidence that this might have been the act of a lunatic and that Griffiths might have been a sufferer from schizophrenia, but the vital matter was Did he know that what he was doing was wrong or did he not? After an absence of 23 minutes the jury found the prisoner guilty and the judge said that the jury had found him guilty of a crime of the most brutal kind and he entirely agreed with their verdict. He sentenced Griffiths to death in the traditional words, which since the introduction of the Criminal Justice Bill judges have usually replaced by the new shorter form.

### M'Naghten Rules

The question of responsibility for a criminal act on the ground of insanity is still contained in the 'rules in M'Naghten's case' which were laid down over one hundred years ago by the judges of the House of Lords in the course of a trial but on the request of the House of Lords Chamber. In this the ruling is unique in the history of a valid legal principle. It lays down that in order to establish a defence on the ground of insanity it must be proved that at the time of committing the crime the accused was labouring under such a defect of reason as to be incapable of knowing the nature of the act he was doing or if he did know it that he knew that what he was doing was wrong. In the case of the prisoner, the evidence of the act gave rise to strong evidence of the insanity of the prisoner and he clearly had a defect of reason of mental instability. There was evidence that he knew what he was doing and

that it was wrong. The defence of irresistible impulse is not open to a defendant in our courts. If it had been his advisers would in all probability have made it their principal defence. This is a typical borderline case of the kind which raises again the question of whether the M'Naghten rules, so clearly anachronistic and out of line with modern knowledge of the mind and of responsibility, ought any longer to be tolerated. Their amazing persistence is due to several factors, but probably one of the most important is that in practice they work unexpectedly well and that in the few cases in which they would allow an irresponsible offender to be condemned the Home Secretary's exercise of the Royal Prerogative stands behind the court to prevent a miscarriage of justice.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

Edgar Douglas Adrian, O.M., M.D., F.R.C.P., F.R.S., Professor of Physiology in the University, has been appointed a Manager of the Pinston-Darwin Fund for three years from Jan. 1, 1949, and Henry Albert Harris, M.D., Professor of Anatomy in the University, a Manager of the Charles Slater Fund for four years from Jan. 1, 1949.

The Faculty Board of Medicine has approved the courses in pharmacology given at the Middlesex Hospital, University College Hospital, and St. Mary's Hospital Medical Schools.

The Raymond Horton Smith Prize for 1947-8 has been awarded to Dr. David Vérel, of Corpus Christi College.

Professor Geoffrey Jefferson, F.R.S., will deliver a lecture on "Cerebral Compression in Man" in the Physiological Laboratory theatre of the University on Friday, Dec. 3, at 5 p.m. The lecture is open without fee to members of the University.

The following medical degrees were conferred on Oct. 16:

M.D.—O. C. Lloyd  
M.B., B.Chir.—H. Middleton \*J. Wedgwood \*N. R. Greville \*A. Hill  
\*I. C. Peebles

\*By proxy

### UNIVERSITY OF LONDON

The following awards have been made to students of the course for the Academic Diploma in Public Health at the London School of Hygiene and Tropical Medicine for the year 1947-8: *Chadwick Prize*, P. M. Elliott, *Hecht Prize*, G. Larkin and N. S. Hepburn, *Industrial Medical Officer's Prize*, P. M. Elliott and D. F. Eastcott. The Duncan Medal in the course for the Diploma in Tropical Medicine and Hygiene (England) at the school for the year was awarded to Hing-Yui Mok.

The title of Professor Emeritus of Bacteriology in the University has been conferred on Sir Alexander Fleming, M.B., F.R.C.P., F.R.C.S., F.R.S., Professor of Bacteriology at St. Mary's Hospital Medical School since 1928.

The title of Professor Emeritus of Medicine in the University has been conferred on Sir Francis Fraser, M.D., F.R.C.P., Professor of Medicine and physician at St. Bartholomew's Hospital Medical College from 1920 to 1934 and Professor of Medicine at the British Postgraduate Medical School from 1934 to 1946.

Professor Robert Wilfred Scarff, M.B., B.S., has been appointed to the Bland Sutton Chair of Pathology tenable at the Middlesex Hospital Medical School, from Oct. 1.

### UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. at the Welsh National School of Medicine have satisfied the examiners at the examination indicated:

Honours—Marjorie J. Adams, Mary P. E. Alban, F. W. Beswick, C. H. Bannan, Mildred L. Cattell, R. B. Davies, Elizabeth B. Dew, D. C. Dymond, L. Ellen, A. R. Evans, K. Gammon, E. H. Griffiths, E. I. Gwynne, G. E. Heard, J. I. Hocking, June D. James, Ruth E. Lewis, Mair G. Lloyd, D. P. Miles, Rhona E. Morgan, Biddulph Phillips, H. M. N. Rees, J. A. E. Richards, R. M. Richards, \*D. C. Saunders, C. P. Seazer, \*J. A. Stanton, Brenda M. Thomas, D. G. H. Thomas, E. Thomas, J. G. H. Thomas, S. Thomas.

\*With distinction

### ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the annual meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on Nov. 1, the following officers were elected: *President*, Dr. W. R. Snodgrass, *Visitor*, Mr. Walter W. Galbraith, *Honorary Treasurer*, Mr. Matthew White, *Honorary Librarian*, Dr. Archibald L. Goodall, *Representative on General Medical Council*, Mr. Andrew Allison.

## The Services

### TERRITORIAL DECORATION

The Efficiency Decoration of the Territorial Army has been conferred upon Colonel W. Graham, OBE, Major (Honorary Lieutenant Colonel) D. A. Langhorne, MBE, and Major A. G. Emslie, RAMC, TA.

Flight Lieutenant Alexander Mather, R.A.F.V.R., has been appointed MBE (Military Division) for distinguished service in Palestine.

### EPIDEMIOLOGICAL NOTES

#### Poliomyelitis in the British Zone

The peak of the outbreak of poliomyelitis in the British Zone of Germany was reached between Sept. 18 and 25, when 267 cases and 34 deaths were recorded. The following week a decline began, and this has continued. The total number of cases reported during September was 937 with 67 deaths almost double the figure for the previous month. Although the incidence has been higher this year than in September last year the mortality has been much lower. This is certainly due to better certification, and does not represent a true decreased mortality.

The 1948 British film on poliomyelitis, "dubbed" in German, has been shown in Hamburg and Berlin to large audiences of medical men.

#### Discussion of Table

In *England and Wales* an increase in the number of notifications was recorded for measles 767, whooping cough 214, diphtheria 12, and a decrease was reported for scarlet fever 130, acute pneumonia 53 and dysentery 15.

The largest rises in the notifications of measles were Lancashire 179, Lincolnshire 126 (mainly due to the appearance of an outbreak in Grimsby C.B., where the cases increased from 16 to 94), Yorkshire West Riding 69, Southampton 82, Gloucestershire 58. A small increase in the incidence of whooping cough was 43 in Cornwall. The notifications of diphtheria have increased by 27% during the past fortnight, during the week the largest rises were London 8, Devonshire 7, Middlesex 6 and the largest decrease was 9 in Warwickshire. The fall in the incidence of scarlet fever was confined to a few counties and the largest decreases in notifications were Essex 37, Lancashire 33, and Yorkshire West Riding 32.

Only one further case of typhoid fever was notified from Shropshire, Oswestry R.D. where during the past seven weeks 101 cases have been notified. This outbreak of typhoid occurred in the Orthopaedic Hospital. An outbreak of dysentery involving 22 persons was notified in Somerset, Bridgwater R.D. Only 7 further cases of dysentery were notified from Essex, Hornchurch U.D., where 50 cases were reported last week. In Lancashire a rise of 12 occurred in the notifications of dysentery. The largest returns of poliomyelitis were Lancashire 9 (Manchester C.B. 3), London 7, Kent 5, Surrey 5.

In *Scotland* a fall was recorded in the notifications of scarlet fever 47 and diphtheria 14, while a rise was reported for measles 26 and whooping-cough 12. There was a small increase in the notifications of scarlet fever in the cities of Edinburgh and Glasgow, elsewhere the incidence tended to diminish.

In *Eire* a decrease occurred in the notifications of scarlet fever 17, diarrhoea and enteritis 27 and measles 12, the only rise of any size was 30 for whooping cough. In Dublin C.B. the incidence of the common infectious diseases of childhood was unchanged. Notifications of diarrhoea and enteritis in Dublin C.B. were 17 fewer than in the preceding week.

In *Northern Ireland* the notifications of scarlet fever increased by 12 mainly owing to an outbreak involving 10 persons in Londonderry C.B. In Belfast C.B. the notifications of measles increased from 66 to 116.

#### Week Ending October 30

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,374, whooping-cough 2,060, diphtheria 129, measles 6,211, acute pneumonia 418, cerebrospinal fever 22, acute poliomyelitis 66, dysentery 68, paratyphoid 7 and typhoid 10.

### INFECTIOUS DISEASES AND VITAL STATISTICS

No 43

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 25.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases, a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	31	5	17	3	1	34	1	19	—	1
Diphtheria Deaths	153	16	29	12	7	238	24	49	13	4
Dysentery Deaths	99	5	62	1	1	340	3	30	—	1
Encephalitis lethargica acute Deaths	1	—	—	—	—	—	—	2	—	—
Erysipelas Deaths	—	—	32	12	2	—	—	32	12	3
Infective enteritis or diarrhoea under 2 years Deaths	26	3	2	24	5	69	7	13	84	4
Measles* Deaths†	5 303	86	100	37	116	1 981	41	105	213	2
Ophthalmia neonatorum Deaths	53	6	15	1	1	53	7	13	1	—
Paratyphoid fever Deaths	4	—	1(B)	—	—	3	—	1(B)	—	—
Pneumonia influenzal Deaths (from influenza)‡	426	24	2	1	1	482	33	5	2	2
Pneumonia primary Deaths	175	31	153	16	6	30	238	21	7	6
Polio-encephalitis acute Deaths	4	—	—	—	—	29	4	—	—	—
Poliomyelitis acute Deaths§	76	7	5	2	—	251	23	54	6	7
Puerperal fever Deaths	—	—	12	—	—	—	2	16	—	—
Puerperal pyrexia	115	12	14	—	1	125	12	3	2	1
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 389	86	277	189	48	1 452	132	308	73	49
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	13	1	4	3	—	4	—	2	17	—
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2 163	120	95	52	17	1 003	78	54	30	1
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	267	39	30	17	9	354	39	61	34	15
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4 371	710	534	158	104	4 364	729	578	177	93
Live births Annual rate per 1 000 persons living	7 270	1 208	918	369	234	7 765	1 290	1 016	429	277
Stillbirths Rate per 1 000 total births (including stillborn)	193	24	25	—	—	254	32	24	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the figures are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales (London administrative county) will no longer be published.

‡ Includes primary form for England and Wales (London administrative county) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London administrative county) are combined.

|| Includes puerperal fever for England and Wales and Eire.

## Medical News

### Information on Hospital Management

The Sir Edward's Hospital Fund for London has established a Division of Hospital Facilities comprising an information bureau, a library service, a library of hospital books, journals and plans and an index to hospital literature. The bureau will provide information on hospital organization and management to hospital officers, holders of bursaries, students of hospital administration, hospital committees and other organizations and individuals. Information may be obtained from the Director, Captain J. E. Stone, 10 Old Jewry, London E.C.2.

### Jacobaeus Memorial Lecture

In accordance with the statutes of the Professor Jacobaeus Memorial created by the Nordisk Insulin Foundation in 1939, a lecture is given every year under the auspices of the Memorial on some aspect of clinical or experimental medicine within the field of organology and endocrinology. Professor F. G. Young of University College London gave the lecture on Oct. 5 at the Rikshospitalet in Oslo the chair being taken by Professor Olav Hassnes. The subject of Professor Young's lecture was "The Relation of the Pituitary Gland to Diabetes Mellitus". The first Jacobaeus lecture was given by Professor Key in Sweden, and the second in Copenhagen in 1947 by Professor C. H. Best of Toronto.

### Industrial Rehabilitation

The Ministry of Labour and National Service announces that it is opening up 10 industrial rehabilitation centres in addition to three already opened at Birmingham, Coventry and Felling-on-Tyne "to help men and women who have got out of touch with working conditions through absences caused by sickness, accident, or by long unemployment an opportunity to become gradually accustomed to mental and physical exertions of a full day's work and to regain the confidence to tackle a job, either of the kind which they were doing before they became disabled or of some other kind for which they are now more suited. For several years past a residential industrial rehabilitation centre has been in operation at Egham, in Surrey. The experiment has been so successful that some time ago the Ministry began to prepare for the establishment of six other centres on similar lines, but there is difficulty in obtaining suitable premises. The Ministry has therefore decided as an interim measure to use some of the accommodation which has become available at Government training centres as non-residential rehabilitation centres. The course at these new units will be broadly on the lines of the course given at the Egham centre, the objects being: (1) To help to foster and confidence persons who, although not in need of intensive medical treatment, are not fit for full time employment; (2) To cover by observation and tests and with medical advice the personal factors impeding satisfactory settlement in employment; and (3) To give guidance to placing-officers of the Ministry about the effect of a disability on a person's working capacity. The maximum length of the course will be 12 weeks but in many cases it is expected that a month or six weeks will be sufficient. On completion of the course special efforts will be made to find the type of employment or training recommended by the placing-officer who have had the person under observation and to help the person to be eligible for allowances for which he is qualified in the same way as the general scale of allowances for people undergoing training at a Government centre. The scheme is being issued to organizations in which industrial rehabilitation is being carried out. Another leaflet will be issued to industrial rehabilitation applicants for the

### Films on the "Neuraxis"

Owing to Professor Pedro Belou's inability to be in London on Nov. 15 to show his films on the Neuraxis, the meeting at the Royal Society of Medicine announced in Coming Events last week at page 844 has been cancelled.

### Food Hygiene Exhibition

Iford Borough Council recently held an exhibition of "Food and Drink Infection Precautions". Photographs and diagrams illustrated how bacteria contaminate food, how the chain of infection may be broken by proper hygiene, and the methods adopted to suppress an outbreak of food poisoning. The medical officer of health, Dr. J. H. Weir, spoke at the exhibition.

### Dr Robert J. Peters

Dr Robert J. Peters, Deputy Chief Medical Officer, Department of Health for Scotland, sailed for the U.S. recently to attend the American Public Health Association's annual conference at Boston. He and Dr. A. H. Gale of the Ministry of Health, will attend a subcommittee on the control of infectious diseases set up by the Committee on Research and Standards of the American Public Health Association. Dr. Peters will conclude his U.S. tour with visits to Washington and to important centres of medical and public health education at Boston, Baltimore, and New York. He will return to Scotland at the beginning of December.

### Sir Thomas Houston

Sir Thomas Houston, consulting physician to the Royal Victoria Hospital, Belfast, and Pro-Chancellor of Queen's University, has been presented by his colleagues with his portrait in oils, painted by Mr. Frank M. Kelvey. The presentation was made by Professor W. W. D. Thomson, who referred to the affection in which Sir Thomas was held by the profession, his services to the community, and his work in bacteriology over the last fifty years.

### Mr Clifford Ellis Roberts

The Sultan of Zanzibar has conferred the Order of the Brilliant Star of Zanzibar, Insignia of the Fourth Class, upon Clifford Ellis Roberts, OBE, BM, FRCS Ed, Specialist Officer, Health Department, Zanzibar, in recognition of valuable services rendered by him.

### Save the Children Fund

The Save the Children Fund announces that its hospital team is being withdrawn from the hospital at Schlutup, Schleswig-Holstein. The Fund has run this hospital of 100 beds since July, 1945, for the care of children from the neighbouring D.P. camps, and has also maintained a convalescent home in conjunction with the hospital. Local people were employed so far as possible and to an increasing extent, so that it might ultimately be transferred to the German authorities.

## COMING EVENTS

### London Medical Exhibition

The London Medical Exhibition will be held in the New Hall of the Royal Horticultural Society (Greycoat Street, Westminster, S.W.) from Monday, Nov. 15, to Friday, Nov. 19, from 11 a.m. to 6.30 p.m. each day.

### Empire Rheumatism Council

The autumn week-end course arranged by the Empire Rheumatism Council will be held at the Society of Apothecaries of London, Black Friars Lane, Queen Victoria Street, E.C.4, on Friday, Saturday, and Sunday, Nov. 26, 27, and 28. At 4.30 p.m. on Nov. 26 Dr. W. S. C. Copeman will open the course with "A Survey of the Rheumatic Diseases" and at 5.30 p.m. Dr. G. D. Kersley will discuss "Gout". The programme for the other two days is as follows: Nov. 27, 10 a.m. Dr. F. Dudley Hart, "Spondylitis"; 11.15 a.m. Dr. W. S. Teeper, "Rheumatoid Arthritis"; 2 p.m. Dr. R. E. Bonham Carter, "Juvenile Rheumatism"; 3 p.m. Dr. Oswald Saage, "Fibrositis"; 4 p.m. Mr. J. H. Kellgren, "Differential Diagnosis of Backache". Nov. 28, 10 a.m. Dr. Hugh Burt, "Physical Medicine in the Rheumatic Diseases"; 11.15 a.m. Mr. W. D. Coltart, "Orthopaedic Aspects of the Rheumatic Diseases". The fee for the course (limited to 100) is £2.25, payable at least one week before to the general secretary of the Council at Tavistock House (North), Tavistock Square, London, W.C.1.

### Course in Physical Medicine

A course in preparation for Part I of the Diploma in Physical Medicine will be held at Guy's Hospital commencing on Monday, Jan. 19, 1949, provided there are a sufficient number of candidates. Further information regarding this course can be obtained from the Dean of the Medical School, Guy's Hospital, London, S.E.1.



## SOCIETIES AND LECTURES

### Monday

**HUNTERIAN SOCIETY**—At Society of Apothecaries of London, Blck Friars Lane Queen Victoria Street E.C., Nov 15 8.30 p.m. *That the Practice of Instructing the Layman in the Nature and Treatment of Disease is Being Carried to Excess* to be proposed by Dr W. J. O'Donovan and Miss Arnot Robertson and opposed by Dr Charles Hill and Miss Brownen Lloyd-Williams

### Tuesday

**INSTITUTE OF DERMATOLOGY** 5 Lisle Street, Leicester Square, London W.C.—Nov 16, 5 p.m. *Histopathology of the Skin* by Dr I. Muende

**INSTITUTE OF UROLOGY**—At St Paul's Hospital, Endell Street, London W.C., Nov 16, 11 a.m., *Visceral Syphilis* by Dr E. G. B. Calvert at St Peter's Hospital, Henrietta Street, London, W.C., Nov 16, 5 p.m., *Aetiology Pathology and Symptoms of Benign Enlargement of the Prostate with Indications for Treatment* by Mr F. J. F. Barrington

**LONDON UNIVERSITY**—At Westminster Medical School Horseferry Road London S.W., Nov 16 5 p.m. *Rubella in Pregnancy as an Aetiological Factor in Congenital Malformations and Still births* special University Lecture by Dr Charles Swan (University of Adelaide)

**SCOTTISH EASTERN ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION**—At B.M.A. Scottish House 7 Drumsheugh Gardens, Edinburgh, Nov 16 8.45 p.m. *Recent Work on the Toxaemias of Pregnancy* by Professor R. J. Kellar

**UNIVERSITY COLLEGE**, Gower Street London W.C.—Nov 16 1.15 p.m. *Psychology as a Science—I* by Dr S. J. F. Philpott D.Sc.

### Wednesday

**HARVEIAN SOCIETY OF LONDON**—At 26 Portland Place, London, W. Nov 17, 8.15 p.m. *The Value of a Tumour Clinic in a General Hospital* by Professor Ian Aird

**INSTITUTE OF DERMATOLOGY**, 5, Lisle Street, Leicester Square London, W.C.—Nov 17, 5 p.m. *X-ray Technique* by Dr C. W. McKenny

**INSTITUTE OF UROLOGY**—At St Paul's Hospital Endell Street London, W.C. Nov 17 11 a.m., *General Paralysis of the Insane* by Dr J. C. Hawksley at St Peter's Hospital, Henrietta Street, London, W.C., Nov 17, 5 p.m., *A Survey of the Different Methods of Treatment Available in Enlargement of the Prostate* by Mr R. Ogier Ward

**ROYAL COLLEGE OF SURGEONS OF ENGLAND** Lincoln's Inn Fields, London, W.C.—Nov 17 5 p.m. *The Portraiture of William Harvey* Thomas Vicary Lecture by Mr Geoffrey Keynes

**ROYAL INSTITUTE OF PHILOSOPHY**—At Eugenius Theatre, University College, Gower Street, London, W.C., Nov 17, 7.30 p.m. *State and Society* by W. H. Walsh M.A.

**ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE** 28 Portland Place London W.—Nov 17, 3.30 p.m. *Food—and Resistance to Disease* by Dr P. G. H. Gell

**ROYAL MICROSCOPICAL SOCIETY**—At B.M.A. House Tavistock Square, London W.C. Nov 17, 5.30 p.m. *The Royal Microscopical Society's Film Library* Aims and scope to be described by Dr A. F. W. Hughes

### Thursday

**BRITISH INSTITUTE OF RADIOLOGY** 32 Welbeck Street London, W.—Nov 18 8 p.m. *Angiocardiography as an Aid to Diagnosis of Cardiac Abnormalities* by Dr F. Gardner *Cardiac Anatomy as Demonstrated by Angiocardiography* by Dr J. M. Weston Wells

**DREADNOTCH SEAMEN'S HOSPITAL** Greenwich S.E.—Nov 18, 3 p.m. Clinical demonstration by Mr D. M. Cooper and Dr R. L. Mansi

**EDINBURGH CLINICAL CLUB**—At B.M.A. Scottish House 7, Drumsheugh Gardens Edinburgh, Nov 18 8 p.m. *Some Minor Orthopaedic Conditions* by Mr W. V. Anderson

**EDINBURGH ROYAL INFIRMARY**—Nov 18 5 p.m. *Blood Volume in Surgical Disorders* Honyman Gillespie Lecture by Professor W. C. Wilson

**INSTITUTE OF UROLOGY**—At St Paul's Hospital Endell Street London, W.C. Nov 18, 11 a.m., *Neurosyphilis* by Dr A. H. Harkness, 5 p.m., *Transvesical Operations on the Prostate* by Mr W. K. Irwin

**MEDICAL SOCIETY OF LONDON**, 11, Chandos Street, Cavendish Square London W.—Nov 18 5 p.m. Lloyd Roberts Lecture 'Victorian Doctor' by Mr J. Johnston Abraham

**PHARMACEUTICAL SOCIETY OF GREAT BRITAIN** DARTFORD AND DISTRICT BRANCH—At Grammar School West Hill Dartford Nov 18 8 p.m. *d-Tubocurarine Chloride* Wellcome film, including *Sources and Isolation* by Dr T. Dewing Ph.D. *Standardization and Analytical Control* by Dr G. E. Foster Ph.D. and *Pharmacology* by Dr F. Prescott M.R.C.P. All members of B.M.A. and Royal Institute of Chemistry are invited to attend

**ROYAL COLLEGE OF PHYSICIANS OF LONDON** Pall Mall East S.W.—Nov 18 5 p.m. *Tuberculous Enlargement of Intrathoracic Lymph Nodes and its Aftermath* Mitchell Lecture by Dr Robert Coope

**ROYAL MEDICAL SOCIETY**—At Freemasons Hall George Street Edinburgh, Nov 18, 7.15 for 7.30 p.m. Presidents' annual dinner

**ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE**—At School of Tropical Medicine, Pembroke Place, Liverpool, Nov 18 7.30 p.m. Laboratory meeting Various demonstrations will be given

**ST. GEORGE'S HOSPITAL MEDICAL SCHOOL** Hyde Park Corner London, S.W.—Nov 18, 4.30 p.m. *Neurology and Psychiatry* Lecture demonstration by Dr Anthony Feilng

**UNIVERSITY COLLEGE**, Gower Street London, W.C.—Nov 18, 1.15 p.m. *Psychology as a Science—II* by Dr S. J. F. Philpott D.Sc.

### Friday

**BRITISH TUBERCULOSIS ASSOCIATION**—At Royal Empire Society Hall Northumberland Avenue, London, W.C. Nov 19, 3.30 p.m. *Tuberculosis—Some Statistical Problems* by Dr Percy Stocks *Radio sensitive Thoracic Tumours* by Professor B. W. Windeyer

**FACULTY OF RADIOLOGISTS**—At Royal College of Surgeons of England Lincoln's Inn Fields, London, W.C. Nov 19, 2.15 p.m. *Diagnosis Section meeting*, *Angiocardiography in Congenital Heart Disease* by Dr T. H. Hills

**INSTITUTE OF LARYNGOLOGY AND OTOLGY** 330-2 Gray's Inn Road London W.C.—Nov 19, 4.30 p.m. *The End of an Era A Retrospect and a Prospect* annual address by Mr Walter Howarth

**LONDON CHEST HOSPITAL**, Victoria Park, E.—Nov 19, 5 p.m. *Asthma* by Dr J. R. B. Hern

**ROYAL INSTITUTE OF PHILOSOPHY**—At University Hall, 14, Gordon Square, London, W.C., Nov 19, 5.15 p.m. *Morality and Religion* by Dr Kenneth Kirk

**ROYAL MEDICAL SOCIETY**, 7, Melbourne Place Edinburgh—Nov 19, 8 p.m. *Medicine in the New Social Order* by Sir Francis Fraser

### Saturday

**MIDDLESEX COUNTY MEDICAL SOCIETY**—At Napsbury Hospital, near St Albans, Herts Nov 20, 2.15 p.m. Meeting

## APPOINTMENTS

John Burke Ewing, M.D., C.M., F.R.C.S. Ed., F.R.C.S. Can., has been appointed Professor of Clinical Surgery at Ottawa University and Surgeon in Chief to Ottawa General Hospital

Mr Ewing is at present Surgeon to Wigan Royal Infirmary and is in charge of the surgical unit at Warrington General Hospital. He is a Canadian and qualified at Quebec University in 1932 obtaining the fellowship of the Edinburgh College of Surgeons in 1936 and of the Canadian College in 1937

DOWNER E. C., M.B. B.Ch. D.P.H. Medical Officer of Health for Barnsley

JOHNSTON W. M.B. Ch.B. Assistant Medical Officer of Health for Derry

O'BRIEN T. P. M.B. B.Ch. Assistant Medical Officer of Health for St Helens

OVENS GERALD H. C. M.B. F.R.C.S. Professor of Clinical Surgery Farouk I University Alexandria Egypt

## BIRTHS, MARRIAGES, AND DEATHS

### BIRTH

Martin—On Oct. 18 1948 to Dr Audrey Martin (née Dealler) wife of Peter Martin 57 Narborough Road South Leicester a daughter

### MARRIAGES

McLaren—Evans—On Oct. 23 1948 in Edinburgh Donald Stewart McLaren M.B. Ch.B. Ed. to Olga Mair Evans

Filcher—Smedley—On Oct. 30 1948 at St Mary's Church Crich Derbyshire Richard Kendall Filcher M.C. M.R.C.S. L.R.C.P. D.O.M.S. to Elizabeth Margaret Smedley

### DEATHS

Ashe—On Oct. 26 1948 at Ryde House Northenden Road Sale Cheshire Charles Septimus Ashe M.B. Ch.B.

Barton—On Oct. 26 1948 at 26 Willows Avenue Lytham St. Anne's John Barton M.R.C.S. L.R.C.P.

Bell—On Nov. 1 1948 James Adamson Bell M.R.C.S. L.R.C.P. of 11 Higher Tower Road Newquay Cornwall aged 81

Bowie—On Oct. 29 1948 Margaret Campbell Bowie M.R.C.S. L.R.C.P.

Brews—On Oct. 28 1948 at the London Hospital Richard Vincent Brews L.R.C.P.I. J.P. of 10 Pier Road North Woolwich E.

Bullmore—On Oct. 29 1948 in London Edward Augustus Bullmore F.R.C.S. Ed. of 1 Florence Place Falmouth and of North Bank Wisbech aged 73

Cameron—On Oct. 25 1948 at Sheffield Donald Hugh Cameron M.B. Ch.B. D.P.M.

Dudley—On Oct. 28 1948 at Caxton Cambs Edward Percy Hughes Dudley M.R.C.S. L.R.C.P. aged 74

Huckett—On Oct. 31 1948 Alfred Edward Huckett M.B. Ch.B. Ed. of 11 Road Doncaster

Jeffares—On Oct. 26 1948 at Shanvalla Ramsey Isle of Man James Jeffares L.R.C.P. & S. Ed. L.R.F.P.S. Glas. late of Kegworth Leicestershire aged 75

Mackinnon—On Oct. 25 1948 at 43 Hamilton Terrace London N.W. Donald Mackinnon M.B. Ch.B.

Milburn—On Oct. 27 1948 Charles Henry Milburn O.B.E. M.B. J.P. of 1 South Drive Harrogate Yorkshire aged 88

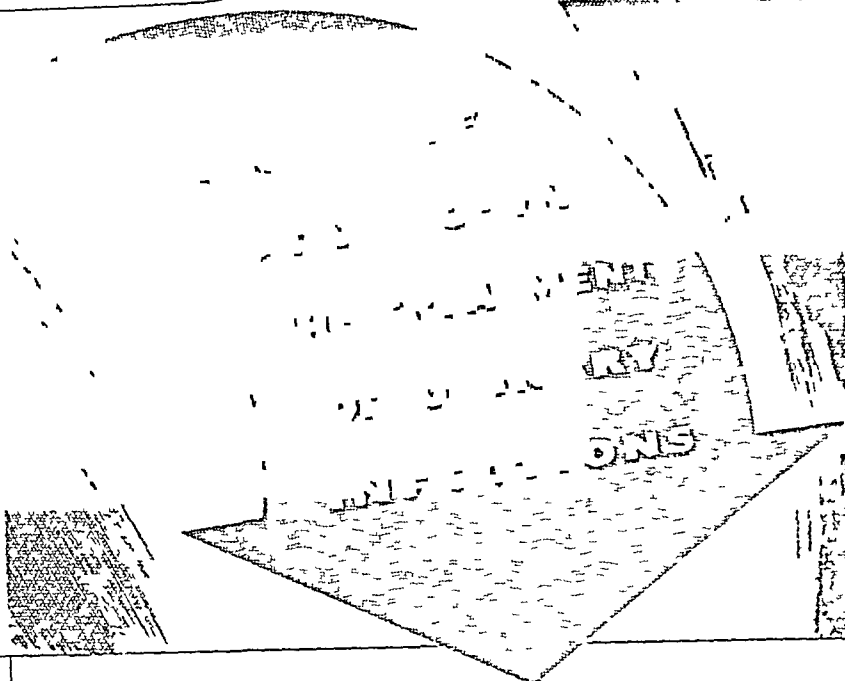
Mitchell—On Oct. 26 1948 at Bexhill Ernest John Drum Mitchell M.B. B.Ch.

Strong—On July 4 1948 in Boston Mass Richard Pearson Strong C.D. M.D. Professor of Tropical Medicine Harvard University 1913 to 1938 aged 76

Thomas—On Nov. 2 1948 at 1 Westend Lilian Mary Phillips Thomas M.R.C.S. L.R.C.P. aged 71

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## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Testing for Blood in Urine

**Q**—What is the best test for blood in urine? Please describe it in detail. Some laboratories use the pyramidon and others the guaiacum tests. Professor Sydney Smith in his *Forensic Medicine* (1945) recommends a solution of benzidine in glacial acetic acid and states that this solution keeps for long periods. I had a supply which changed to a port-wine colour after a few days. Will this affect the benzidine test?

**A**—There is no 'best' test for blood, but there are several excellent tests each useful under appropriate conditions. To detect haematuria, as in following the course of nephritis, it is essential to centrifuge the urine and examine the deposit with a microscope. Hand centrifuges can still be obtained, and a pocket microscope magnifying 200 to 300 diameters is quite satisfactory and costs only a few pounds. To detect haemoglobinuria, on the other hand, it is best to use a hand spectroscope.

The chemical tests are convenient and require no special apparatus, so for that reason they are still used in domiciliary practice, but they are many times less sensitive than microscopical examination and sometimes give false positives. If it is possible to perform a microscopical examination therefore, the chemical tests should not be used, the writer uses them so rarely that he does not keep any of the reagents made up. The benzidine test is about ten times more sensitive than any others, but it gives false positives with pus and iodides and with slight traces of dirt in tubes, so that it cannot be recommended. The pyramidon and guaiac tests are much less sensitive and give false positives only with iodides. The reduced phenolphthalein test is slightly more sensitive than the last two and gives few false positives. For these reasons the writer prefers the last, but uses the other two almost as frequently because they are much more convenient. Details of all three are therefore given.

**Guaiac Test**—Ozone ether, and an alcoholic solution of guaiacum resin prepared at the time of test by shaking a knife point of the resin with 2 to 3 ml of industrial spirit 74% over proof, are required. To 2 to 3 ml of urine is added 2 to 3 drops of the guaiac solution, after mixing, 15 to 20 drops of ozone ether are allowed to fall in and the tube is left to stand for a couple of minutes. A blue ring at the junction of the two liquids indicates blood or iodides. It is most important to use a freshly prepared solution of the resin, after a few days it becomes much less sensitive.

**Pyramidon Test**—Test the urine with litmus paper, and if alkaline render it just acid with acetic acid. Add 1 drop of glacial, or the equivalent of dilute acetic acid to 3 ml of neutral or acid urine in a clean tube, and pour an equal volume of the imidopyrine solution gently down the side of the tube so that it forms a layer above the urine. Holding the tube vertical, allow 5 to 10 drops of 10-volume hydrogen peroxide to fall into it from a height of 6 to 8 in (15 to 20 cm). A blue colour at the junction of the solutions indicates the presence of blood or iodides.

**Reduced Phenolphthalein Test**—The Kastle Meyer reagent used is prepared by dissolving 2 g of phenolphthalein and 20 g of caustic potash in distilled water and boiling with 10 g of zinc dust till the red colour disappears. After cooling, the solution is filtered and a few granules of the zinc dust are added to the filtrate to keep it reduced. This dust should settle to the bottom if it does not, the solution must be filtered before use. To 2 to 3 ml of reagent add 10 drops of hydrogen peroxide and 2 to 3 ml of urine and shake. A red colour indicates blood. The reagent keeps moderately well, though becoming less sensitive. Should it become pink, it can be regenerated by adding a small quantity of zinc dust and boiling.

The writer has never kept benzidine dissolved in glacial acetic acid and always prepares his own solutions from the components at the time of test. It is probable that old, coloured solutions are less sensitive than are fresh solutions though they will still work.

### Are Twins Sterile?

**Q**—There is a widespread idea in this area that if twins are of different sexes they are sterile. I had not heard this theory until a girl put it forward to 'prove' she could not be pregnant. The local veterinary surgeon claims that in twin pregnancies in cattle if the offspring are of different sexes they will be sterile if they have a common placenta. Can you comment on this?

**A**—In twin pregnancies in cattle anastomosis of the foetal circulations occurs seven times out of eight. Should the twin pair be of opposite sex the male hormones circulating in the female pervert the course of its differentiation, leading to a pseudo-intersex, which is sterile. The abnormality is not usually noticeable externally, so what has been observed by many generations of cattle-breeders is that a female born co-twin to a male is sterile seven times out of eight. The abnormal females are called free martins. Of course there is no such mechanism in the human species, yet the occurrence of the phenomenon in cattle is responsible for a highly persistent superstition in regard to man—a superstition that one would have imagined was clearly disproved within the experience of almost everyone.

### Penicillin in the Tropics

**Q**—What is the rate of deterioration of penicillin in the Tropics? Consignments here are exposed to temperatures averaging 80° F (26.6° C) and often running up to 100° F (37.8° C) for part of the day for periods of from five days to three weeks. East African suppliers used to deliver in large vacuum containers, but they now send by parcel post and state that penicillin retains its stability without refrigeration up to the date of expiry in normal storage. Is this correct?

**A**—Penicillin of present-day purity will withstand the conditions described if kept perfectly dry. There need therefore be no anxiety about oil-wax suspensions (one of the most stable of all preparations, because moisture cannot penetrate it), or about powder in sealed tubes, or tablets and lozenges in unopened tubes with waxed corks. Creams, on the other hand, will retain their potency for any length of time only in a refrigerator, and could certainly not be relied on after even one week of tropical heat.

### Cold Feet in Diabetes

**Q**—What is the cause of cold feet in a patient with diabetes mellitus?

**A**—If the complaint of cold feet is recent, atheroma of the arteries to the feet has developed. The diagnosis can be confirmed by feeling for pulsation in the dorsalis pedis and posterior tibial arteries, or by means of an oscillogram if the arteries cannot be felt. Treatment consists in keeping the feet warm by thick socks, or two pairs of well-fitting thin socks or stockings, the boots or shoes should be big enough to take the thick socks in comfort. Tight garters should not be worn. One or two pairs of loose bedsocks should be worn at night. Hot-water bottles should not be used and the patient should not warm his feet in front of a fire. Gentle exercise and massage are useful.

### Baker's Dermatitis

**Q**—What treatment do you recommend for baker's dermatitis? What is your opinion of the use of barrier creams in this connexion?

**A**—The causes of baker's dermatitis vary widely in different cases, and treatment depends on the cause. On the one hand the major factor may be the physiological instability of the skin in an eczema-prone subject, and at the other extreme the cause may be a specific allergic sensitiveness to one particular contact, such as a bleaching agent. The majority of cases arising in those who have been engaged in the trade for some years depend on the repeated injury occasioned by the sticking of dough to the skin and its removal. Barrier creams alone will rarely solve the problem, but where the dermatitis is due to sensitiveness to one or more particular ingredients they may

help provided contact with the agent is reduced to a minimum. Psychological factors often play an important part in the aetiology of industrial dermatoses.

### Transmissibility of Syphilis

**Q**—*In a family of five the father has sero-positive syphilis and is undergoing treatment the eldest child (8 years) has interstitial keratitis joint changes and is sero positive. The mother has not had any treatment and yet is sero negative (three Wassermann and Kahn tests at monthly intervals), and is without clinical evidence of syphilis other than the fact that she gave birth to a congenital syphilitic child. The two youngest children (4 and 2 years) are without clinical evidence of syphilis and are sero negative (three monthly Wassermann and Kahn tests). What treatment (if any) and what follow-up are recommended for the mother and the two apparently healthy children?*

**A**—This is not an uncommon story. It seems certain that the mother had syphilis and communicated it to the eldest child, but as her infection grew older the chances of communicating it decreased and the youngest children apparently escaped, the interval between the births of the first and second child (4 years) might account for this. It is well known that the transmissibility of syphilis decreases with the passage of time and serum reactions sometimes tend to reverse from positive to negative in the absence of treatment. No treatment is indicated for the mother and two youngest children at present, but periodical clinical examinations and serum tests would be a wise precaution, should the mother become pregnant again, treatment would ensure the birth of a non syphilitic baby. It might be advisable to examine the mother's cerebrospinal fluid to exclude the possibility of asymptomatic neurosyphilis.

### Cerebral Diplegia in a Child

**Q**—*How should one treat cerebral diplegia in a child aged 2 years? She is developing a number of athetoid movements and has occasional convulsions.*

**A**—Before planning the treatment it would be advisable in this case to know the extent of co operation of the child. Often these children have a normal mental capacity but are backward because of their physical defect. The attitude of the parents and the possibility of additional training in the home are also important facts to assess. If both are satisfactory, then it is advisable to start treatment in a physiotherapy department where the mother can watch and gain instruction on management in the home. The treatment of athetosis consists essentially in teaching the child to relax his muscles voluntarily and when this aim has been attained in re education in movement. If the home conditions are poor and the parents uncooperative it may be advisable to arrange treatment at a special residential home later. The treatment of the convulsions is the same as for epilepsy.

### Night Terrors

**Q**—*A girl 3½ years old began having night terrors eight months ago. Within a few weeks they became severe and occurred almost nightly. Attempts to prevent them were unsuccessful until it was noticed that when she slept in the afternoon there was no terror that night. She had been accustomed to sleep in the afternoons but the habit had lapsed with a little difficulty it has been regained and night terrors have almost ceased. They occur now very mildly about once a fortnight and then only when she has not slept in the afternoon. She is otherwise well. She has a sister of 9 months but no jealousy had been apparent until the last month since when she has become rather mummyish and a little negative and occasionally seems to resent the baby. Are the terrors due simply to over-fatigue or is there some underlying physical or psychological cause which shows itself in this way only when she is overtired? What can be done to eliminate them entirely?*

**A**—Any disturbing change in the family situation, such as the birth of another child in this case, tends to evoke night terrors during the fourth year of life which usually cease as the new situation becomes accepted. Until this solution is reached increased emotional tension induces physical fatigue which in its turn leads to disturbance of sleep. This cycle of events is clear with this little girl, who repressed all natural

jealousy of her younger sister and whose night terrors ceased when she slept during the day. As she is now showing openly her fear that the baby may absorb all her mother's love she will be able to get reassurance from being given some extra warmth of attention and the outlook is favourable. The afternoon rest should be continued as long as possible. If she is not already at a nursery school it would be well to consider this, so that she may gain confidence through social contacts and the acquiring of skills with others of her own age and in this way become less dependent on the mother-child relationship. If she goes to a nursery during the day, no doubt her mother will make a pleasant fuss of her when she returns in the afternoons so that she will not feel in any sense cast out because of the baby.

### Torn Tympanum

**Q**—*What is the usual rate of healing of an ear drum following traumatic rupture no infection being apparent? The tear which occurred three weeks ago is considerable, nearly a quarter of the infra posterior area being missing. There is no apparent damage to the ossicles. Beyond "rolling of the edges" the tear shows little true healing.*

**A**—A large tear may never heal, or the margin may become adherent to the promontory. Probably this tear will take some months to repair, provided infection does not supervene.

## NOTES AND COMMENTS

**Treatment of "Tennis Elbow"**—Dr J R ROBSON (Edgware, Middlesex) writes: Having had nine successful cases of 'tennis elbow' this season I would like to add one or two comments to the reply under "Any Questions?" (Oct 9, p 699). In my experience physiotherapy is not only useless but in some cases aggravates the symptoms. The above cases had an injection of local anaesthetic in the point of maximum tenderness, followed by vigorous massage for about five minutes. They were then sent on to the courts for about an hour and were able to execute all movements without pain. I consider this last point of the utmost importance, as the patient is able to carry out all strokes without concentrating on any particular one. There was a mild local reaction the same evening which quickly responded to tab codem co and heat. After four or five days they were able to resume normal play. Three other points are worthy of mention: (1) a large "grip" is desirable, thus diminishing the tension on the forearm muscles, (2) the body and shoulder should be brought into play rather than the elbow and wrist, (3) it is important to follow through at all times.

**Insurance Against Sickness**—The London Association for Hospital Services runs a non profit making scheme, which was initiated by the King Edward's Hospital Fund in collaboration with the hospitals and the B.M.A., to enable provision to be made for the expenses of medical and surgical treatment in hospital private wards or nursing homes. The benefits available under the maximum schemes approximate to the hospital charges and fees specified by the Ministry of Health in the regulations on pay bed accommodation. The London Association is sending a pamphlet outlining the scheme to members of the medical profession, and further particulars may be obtained from it at Tavistock House South, Tavistock Square, London, W.C.1.

**Recurrent Parotitis**—Professor R S ILLINGWORTH (Sheffield) writes: In reply to the question concerning recurrent parotitis (Oct 23 p 767), I did not feel that your answer was entirely satisfactory. Many of these cases are due to *St. viridans* or to the pneumococcus and these organisms may be recovered from the duct. In one child whom I have under treatment at present and who has had eighteen to twenty attacks in all I have found that prophylactic sulphur mezzathine (0.5 g per day) completely prevents the attacks. When I stopped the drug the attacks recurred. Penicillin lozenges did not prevent the attacks. The white cell count is done every fortnight.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE EUSTON 2111. TELEGRAMS: ALIQUOT, WESTCENT LONDON. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 13 1948

## National Health Service

### APPEALS FOR BASIC SALARY THE MINISTER DECIDES

The Minister has circulated to executive councils, "for their information and for their assistance in considering future applications," a memorandum setting out the factors considered by him when he recently allowed appeals against decisions of executive councils not to grant applications for the fixed annual payment of £300. Two such cases are described, and the facts, as summarized by the Ministry, are as follows:

(1) Two partners set up in practice in a small seaside town on June 1, 1948. In appealing against the decision to withhold the fixed annual payment they said they had relied on the statement in the Ministry's Memorandum on doctors' remuneration that new entrants to general practice would get a fixed annual payment for the first three years, and they could not continue in practice without the payment. There were 300 patients on their combined lists at the beginning of September.

The executive council and the local medical committee (whose comments on the appeal were invited) contended that there were already enough doctors in the area before the new practice was started, and that the area could not provide a competence for two extra doctors.

In allowing the appeal, the Minister took account of the following factors: (a) The doctors had just started a new practice and would suffer hardship without the £300. (b) The number of doctors in the area is a factor to be taken into account in considering applications made after July 5, 1948, to be placed on the medical list but ought not to affect the granting of the £300.

The appeal was allowed subject to the condition that within such period as may be specified by the Distribution Scheme (when that is available) the doctors have on their lists the minimum number of patients specified by that scheme, and on the understanding that the position will be reviewed annually.

(2) The younger of two doctors was taken into partnership in a different small seaside town in April, 1948. Both doctors applied for the £300. In appealing against the decision of the executive council not to grant the £300, the doctors explained that before July 5 the practice was mainly private and there was adequate income for both partners. There are now 900 N.H.S. patients on the partnership list, with few private patients. There had been a considerable decrease in the income of the practice and it was impossible to continue in practice without the £300 fixed annual payment.

The executive council and local medical committee considered that, as the practice had originally been a one-doctor practice, the younger doctor could be regarded as undergoing a period of introduction with a view to succeeding to the practice, and that there was no question of hardship if the practice was regarded as a single-doctor practice.

In allowing the appeal the Minister took the following factors into consideration: (a) According to the information submitted by the doctors, which had not been contested, there had been a substantial drop in the income of the practice which was involving hardship to both doctors. (b) It seemed reasonable that for a period the younger doctor should have the benefit of the guidance of the elder, and, as in case (1) above, the fact that there were two doctors in the district where previously there had been one did not affect the granting of the £300.

The appeal was allowed on condition that the position was reviewed in a year's time.

If the considerations by which the Minister has been guided in allowing these appeals are to be accepted as the criteria on

which outstanding future applications will be dealt with by local executive bodies, the Minister's proposals for controlling the distribution of the profession—which are already leading to complications in more than one quarter—will become almost farcical. When the profession argued that the elaborate distribution machinery (which includes the Medical Practices Committee, with its invidious task of making a selection where there are more applicants than vacancies) was unnecessary in a 100% or almost a 100% service, the Minister's stock reply was that public money cannot be attracted to practice in areas where the public interest does not warrant it. When the profession demanded that practitioners should enjoy the elementary right to practise in the areas of their choice, his answer was that "this is a question of giving them the right to demand publicly remunerated work where they like—a position which no other profession or occupation enjoys."

### Subsidy to Practise Where not Needed

Consider these utterances in the light of the facts set out above. Two practitioners established themselves a few weeks before the appointed day in a seaside area in which the local executive council thought there were already sufficient doctors and which "could not provide a reasonable competence for two extra doctors." The effect of the Minister's decision is that these practitioners jointly will receive £600 in basic salaries, and capitation fees for 300 patients reduced by one-seventh. This is some £831, or the equivalent of a capitation fee of 55s for their Health Service patients. The Minister has on more than one occasion sought to justify the basic salary "as an assurance for the young beginner and for the older practitioner wishing to ease up in old age, and as a peg on which to hang additional assured payments in doubtful areas." But in a service the cost of which is already some millions beyond the original estimates, and which provides in addition to ordinary remuneration a special inducement fund of £400,000 a year to attract medical men to "under-doctored" areas, it is difficult to appreciate on what hypothesis the Minister authorizes payments from public funds to two practitioners in an area where they are not needed for the public service, and at a rate over three times what their colleagues are receiving in the same and other areas.

Before the days of the National Health Service practitioners who found themselves in the position of the appellants would naturally have transferred to areas where the doctor-population ratio would have given at least a reasonable prospect of earning a living. It is remarkable that a Minister who doubted whether the introduction of a comprehensive service would by itself result in a more even distribution of the profession, and who because of those doubts has introduced elaborate administrative machinery to enable him to discharge his responsibility of securing a reasonable distribution, should within a few months of the inception of the Service subsidize practitioners at the public expense—and at the expense of the other practitioners in the area—to practise in an area where they are not needed.



## THE AMENDING BILL TO BE INTRODUCED THIS SESSION

The Amending Bill promised by the Minister of Health is expected to be introduced during the present session of Parliament. Mr Hugh Linstead has put down a Question asking the Minister whether he has received the report of the Legal Committee on Partnerships, what action he proposes to take on that report and, if legislation is needed when it is likely to be introduced. The Minister has agreed that the Bill shall include the following provisions: clarification of the position of partnerships in the light of the Legal Committee's report and that this clarification shall be made to operate retrospectively to July 5, a provision that a whole time salaried general medical service and also a universal full time consultant service, shall not be introduced by regulations—i.e., would need a further Act of Parliament, a provision that executive councils shall have the right to elect their own chairmen after the term of office of the present chairmen expires next March, and a provision to enable the professional member of the Tribunal to be one of a panel of available members and not a fixed individual (see Letter from Ministry, *Supplement*, June 5 p 155).

On April 8 Mr Bevan announced in Parliament the appointment of the Legal Committee on Partnerships with Mr (now Mr Justice) G O Slade K.C., as chairman, and Mr Colin Pearson Sir Cyril Radcliffe K.C., Mr J H Stamp, and Mr J R Philip, K.C. (of the Scottish Bar), as members. The committee's report is doubtless now in the hands of the Minister, or soon will be, so the introduction of the Amending Bill should not be delayed much longer.

The General Practice Subcommittee of the Negotiating Committee submitted a memorandum to the Legal Committee on Partnerships. Its proposals were listed in the Appendix to the report of the Insurance Acts Committee (*Supplement* Oct 16, p 138). They include the important point that a partner who did not join the Service by the appointed day because of doubt about his position should have the right to join after July 5 if he wishes to do so in the light of the Amending Act, and that compensation shall be payable with retrospective effect from July 5.

The subcommittee has also pressed for the provision of drugs and appliances through the National Health Service for private patients, and has taken up the question of foreign visitors being treated under the N.H.S. without payment while in Britain.

## CONSULTANTS AND SPECIALISTS NEGOTIATIONS WITH THE MINISTRY

At a recent meeting with the Secretary, the Chief Medical Officer, and other senior officials of the Ministry of Health a deputation from the Negotiating Committee led by Lord Webb-Johnson raised a number of points in the hospital and specialist field.

The deputation drew attention to the hardship caused by the maximum imposed on interim payments to part-time specialists and asked that the discretion recently granted to the boards to raise the maximum in certain cases should extend to specialists doing less than the maximum of eight half-days a week. The Ministry promised to examine this suggestion. Lord Webb-Johnson described the serious financial position of many housemen. A house-surgeon whose salary is £10 a month (£120 p.a.) now sacrifices £1 a month in National Insurance contributions and £1 2s a month in superannuation contributions. This cuts his salary by 21% and leaves him with £7 18s a month, out of which he must clothe himself, provide himself with instruments and textbooks, pay his subscription to a medical defence society, and pay examination fees. Some of these young men are trying to support families. The Ministry stated that the answer to this problem was the early introduction of the new scales of remuneration, but if this was likely to be long delayed they would consider some immediate relief for these young practitioners.

The deputation put forward detailed figures to prove that the car mileage allowances for specialists are far from adequate to cover the costs of the journey and, of course, take no account

of the time spent in travelling. Similar representations were made as long ago as July. It is hoped that the case now presented will receive the Ministry's serious attention.

## Goodwill of Specialists' Practices

Lord Webb-Johnson again drew attention to the hardship caused in certain cases by the almost total loss of goodwill of specialist practices. The Ministry stated that it could not agree to pay compensation to these specialists, but reiterated its previous offer, in appropriate cases, to purchase equipment no longer required by specialists (a notice on this subject appears at p 173).

The attention of the Ministry was again drawn to the dislike of specialists for the quarterly maximum imposed on the payment for domiciliary visiting. The Ministry suggested that there might ultimately be a retrospective adjustment of this matter, and they advised specialists to keep a careful record of all domiciliary visits.

A number of other matters were discussed and are to be considered by the Ministry.

## SPECIALISTS' MILEAGE ALLOWANCE INADEQUATE

### COMPARISON WITH RUNNING COSTS

The inadequacy of the Government's mileage allowance paid to consultants and specialists—6d a mile for the first 2,880 miles, and then 3d a mile—was referred to in these columns last week (p 161) and was taken up with the Ministry on Nov 2 (see above). As many specialists have found from their own experience, the figures do not cover the costs of running a car to day. The B.M.A. sought the opinion of the Automobile Association on running costs, and the A.A. kindly provided some information relating to the years 1947-8 which they had prepared for the guidance of their members. The figures are approximate, but they show that a 10 h.p. car doing 5,000 miles a year costs on an average 695d a mile to run (including depreciation), doing 10,000 miles, it costs 445d. Most specialists have larger cars than this, however, and a 20 h.p. car doing 5,000 miles a year costs about 1348d a mile (10,000 miles, 808d). Other figures are in proportion.

## SPECIALISTS' £1,600 "CEILING" A MINISTRY CONCESSION

Last week reference was made to the hardship sometimes caused by the temporary £1,600 "ceiling" on the remuneration of part-time specialists. This point has now been admitted by the Ministry of Health, which announces a concession. The "ceiling" of £1,600 p.a. (apart from any remuneration derived from domiciliary visiting) is a temporary provision, subject to revision in accordance with scales of remuneration which will be drawn up after discussion with the profession in the light of the recommendations of the Spens Committee. But where it is clear that a specialist's remuneration will on adjustment be substantially more than £1,600 for the work which he performs for the board, and where the temporary limitation to £1,600 p.a. may meanwhile involve him in financial hardship, he may ask the regional hospital board or board of governors concerned for an increase in the interim payment.

This concession goes some way towards improving the position, but it does not cover the specialist who is undertaking less than eight sessions. Further representations on this point are accordingly being made.

## MATERNITY MEDICAL SERVICES A MINISTRY VIEW NOT ACCEPTED

What is the position of a doctor called in to attend a miscarriage, no previous arrangement for maternity medical services having been made between the patient and the doctor? The Ministry of Health states that if the patient is on the doctor's own list, a service of this character would come within his ordinary obligations as a general practitioner.

The Ministry adds that if the patient was on another doctor's list he would have no responsibility, unless he were called in when the patient's doctor and his deputy were not available, in which case the emergency arrangements would apply.

The Ministry's view is not accepted, and the matter is down for discussion at an early date.

## PETROL COUPONS

The N and L standard ration coupons, issued in June of this year, are valid for the month marked on them and also for the five succeeding months. For example, while coupons marked 'first month' will cease to be valid after Nov 30 next, those marked 'sixth month' will be valid until April 30, 1949. Similar conditions will apply to the new books valid from Dec 1, 1948.

## COMMITTEE ON REGISTRATION OF OPTICIANS ONE COMMITTEE OR TWO?

The Minister of Health and the Secretary of State for Scotland have decided to set up a committee to consider whether it would be to the public advantage to provide by legislation for the registration of opticians, and, if so, how registration should best be carried out and what qualifications should be required as a condition of registration.

The Ophthalmic Group Committee discussed the matter and thought there were two questions involved: (1) the principle of registration, and (2) how registration should be effected. The committee considers that the former question should be decided first, and has told the Ministry that the members of the single proposed committee might not necessarily be appropriate to the two subjects. It is suggested that the whole subject should first be investigated in general and that the committee to do this should include representatives of the interested parties—medical, optician, and general public. The Faculty of Ophthalmologists and the Royal College of Surgeons have also made the same recommendation to the Ministry.

## STATE MEDICAL SERVICE IN NEW ZEALAND RECOMMENDED ALTERATIONS

Ten years ago a Social Security Act was passed in New Zealand which introduced a system of general and specialist medical service for the whole community. Certain features of the scheme aroused great opposition in the medical profession, and last year the Minister of Health at Wellington set up a committee consisting of three representatives of the New Zealand Branch of the British Medical Association and three representatives of the Department of Health, with a barrister as chairman, to examine the provisions and advise what alterations were necessary to give effect to the Government's policy of making medical services available free or substantially free of cost. The report of the committee has been issued recently and is an agreed document.

The committee recommends in the first place that steps be taken to place upon the medical profession itself as a body a large degree of responsibility for the ethical behaviour of its members and for the general quality of all medical services. This responsibility is to be given to the New Zealand Branch of the Association through advisory and disciplinary committees. A disciplinary committee of members of the Association would be set up, and to it the Minister would refer for investigation and report all complaints against medical practitioners working the scheme. It is suggested that this committee might have jurisdiction to deal with complaints of professional conduct which do not come within the category of 'grave impropriety or infamous conduct in a professional respect, of which the Medical Council takes cognizance'. There would also be local investigating committees consisting of members of the Association with a medical officer of the department to make preliminary inquiries and obtain explanations from the practitioners concerned.

## Remuneration of General Practitioners

Most of the report is about methods of remuneration of general practitioners in a State service. It is agreed that a renewed attempt to introduce the capitation system could not succeed. The capitation system has advantages, but the profession in New Zealand has consistently maintained that it tends to impair the high standard of practice. When the capitation system was optional under the former arrangement, at most 51 doctors entered into an agreement of which it was a part and the number has since dwindled to 23.

A general salaried service is held to offer no solution. Nothing could be devised which would be both administratively possible and acceptable to the general body of the profession, although it is agreed that in remote areas remuneration by salary may be the only means of securing a service. The combination of basic salary with additional payments is a method on which the committee has not sufficient information and therefore makes no recommendation.

The method which it favours, except in areas which it is agreed after consultation with the Association would best be served by salaried medical officers, is a fee-for-service system. Practitioners would be required to claim on the Social Security Fund on behalf of the patient the appropriate amount payable from the fund for the service and to apply that amount in settlement of their charge. It is thought that this would best preserve the doctor-patient relationship. A scheme would be devised for the verification of services, not by the patient's own certification, the method formerly proposed, but by some check by the department, such as postal inquiry of a proportion of patients of each practitioner. In addition the practitioners will be required to maintain proper records in support of their claims, which records, with the daily diary, will be subject to inspection.

The rates of payment proposed are 7s 6d for attendance at surgery, 10s for attendance elsewhere (an advance of 2s 6d on the previous arrangement), 12s 6d for night, Sunday, or holiday attendance, and 5s for every additional quarter-hour beyond the first half-hour of attendance, but no payment is to be made when the only service is to repeat a prescription. There is general agreement that every practitioner shall have the right to charge and recover a fee additional to that payable from the fund when the circumstances require it, but patients have the right to refer any such accounts to the local investigating committee. No limit is set on the number of patients to be seen daily or the amount payable from the fund to an individual practitioner, but it is thought that an average of 30 attendances a day is the maximum.

## Specialist Services

As for specialist medical services, the same method of fee-for-service is proposed, and the criteria for the recognition of specialists are similar to those usually adopted in Britain—adequate training in the specialty, possession of higher qualification, holding of hospital or public appointment, and general recognition by colleagues. Legislation is proposed for enacting these criteria. It is thought that sums payable from the fund in respect of specialist consultations should not exceed 30s and 15s respectively for an initial and for a subsequent consultation, but many problems about specialist services are left for subsequent consideration in detail. The existing shortage of specialists can be met only by immigration as a short-term policy, and then to a very limited extent. As a long-term policy the "open hospital" system, whereby the visiting medical staff are appointed by selection from doctors practising in the district, the encouragement of the full and satisfactory use on hospital staffs of young practitioners, and the institution of additional specialist registrarships are advocated.

The development of health centres is favoured, but there must be full agreement through the British Medical Association with the medical practitioners in the areas concerned. The need for greater contact between general practitioners and the public hospitals is stressed, both by clinical courses for general practitioners of a district and by the exchange of information between hospitals and practitioners on the treatment and progress of patients.

## FACULTY OF OPHTHALMOLOGISTS INCREASED FEES

The Council of the Faculty of Ophthalmologists held a meeting on Oct 8. It was reported that as a result of representations from the Faculty the Ministry of Labour will increase the fee payable to ophthalmic medical practitioners—from 15s to £1 11s 6d—for cases referred to them by chairmen of National Service Medical Boards. The increase will be from July 5, 1948, inclusive.

The Faculty has submitted a memorandum on diplomas in ophthalmology to the examining board in England. It suggests considerable modifications of the present arrangements. Mr F A Juler and Mr Frank W Law (honorary secretary of the Faculty) have been appointed to exercise a watching brief on behalf of the Faculty on the teaching and examinations conducted under the auspices of the Orthoptic Board.

## STATUS OF MEDICAL OFFICERS OF LONDON BOROUGHS

In the administration of the personal health services under the National Health Service Act the London County Council is desirous of drawing upon the knowledge and experience of the borough medical officers of health and at the same time maintaining a link between the personal and the environmental health services, which latter remain the responsibility of the 29 borough councils (including the City Corporation). In a report presented to the Council on Oct 19 it was stated that the discussions which have taken place on this point have been influenced by the consideration that although these officers remain responsible for their present environmental health duties, it is doubtful whether such duties will suffice to enable the borough councils to obtain or even to retain officers of the same professional standing as they have recruited in the past. A scheme has therefore been worked out which will maintain the status of borough medical officers of health by making them part-time officers of the county council, subject to the general responsibility of the county council's nine divisional medical officers.

Under this scheme the borough councils will receive payment from the LCC for the part-time services of their medical officers, who will however, remain officers of their borough councils for the purpose of general conditions of service, superannuation, and compensation. If a borough medical officer does not desire to participate in the scheme or his council does not wish him to do so, the county council will itself, through its own full time staff if necessary undertake the personal health services in the borough. The medical officers who come into the scheme will work primarily in their own boroughs, but the county council will not be precluded from utilizing their services in adjacent boroughs in case of need and subject to the consent of the borough council concerned.

Up to the present 20 metropolitan borough councils have expressed their willingness to adopt the scheme without qualification, and seven have declared themselves, in varying degree, not in favour. The City of London presents a special problem, and separate discussions are in progress with the City Corporation.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments) WallSEND

*Urban District Councils*—Denton, Droylsden, Houghton le Spring, Hutton with Roby, Redditch (restricted to new appointments), Tivdesley

## National Health Service News

### Prescription of Appliances

The appliances that may be prescribed by general practitioners on Form EC 10 for National Health Service patients are listed in the NHS (General Medical and Pharmaceutical Services) Regulations, 1948 (SI No 506), Third Schedule. They are as follows.

### List of Appliances

Animal wool	Eye ointment rods
Atomizers, hand operated	Eye shades
Bandages calico, crêpe, do	Finger stalls
mette, elastic adhesive, elastic	Gauzes surgical, medicated
web, flannel, indiarubber	unmedicated
many tuled, muslin, open	Gauze and cotton wool tissue
wove, plaster of Paris, suspen	medicated, unmedicated
sory, cotton triangular, zinc	Hypodermic syringes, when
paste	required for self administra
Breast relievers	tion of insulin or adrenaline
Brushes, when required for the	Hypodermic needles, when
proper administration of any	required for self administra
drug forming part of general	tion of insulin or adrenaline
medical services	Ice bags check sheeting, india
Catheters urethral gum-elastic,	rubber
soft rubber, and lubricant for	Inhalers
use with these Suprapubic	Irrigators eye (undine), nasal
rubber, and shields for use	Lints surgical, medicated
with it	unmedicated
Cellulose tissue	Pessaries ring Hodge s
Cellulose wadding	Plaster adhesive, spread or on
Chirophydy felt	spool elastic adhesive
Corn and bunion plasters and	Protectives batiste gutta
rings	percha tissue, jaconet oiled
Cotton wool absorbent grey,	cambric oiled silk, including
medicated	oiled artificial silk
Douches, with rectal and vaginal	Rubber tubing
fittings	Splints including Gooch and
Dressings standard dressing	Kramer splinting and poro
BPC, wound dressing, boil	plastic but excluding walking
dressing—the last two as	calliper splints surgical boots
described in the Drug Tariff	and foot supports worn with
Droppers, when required for the	boots and shoes
proper administration of any	Sputum flasks
drug forming part of general	Syringes glass, rubber
medical services	Tampons
Elastic anklets	Test tubes
Elastic knee-caps	Tows carbolized, unmedicated
Elastic stockings	Trusses
Elastic thigh pieces	Vaccination shields and pads
Eye baths	Vaporizers

In addition, repairs and replacements of colostomy belts and cups and of suprapubic belts may be ordered on Form EC 10. Fehling's solution and Benedict's solution (qualitative) may be prescribed for diabetics to help the control of treatment.

### Certificates for Corsets

When writing a medical certificate for the supply of a corset to a patient it was formerly necessary to record on the certificate that the patient suffered from one of the disorders specified on a schedule. The schedule has now been abolished, and it is necessary only to state the diagnosis of the disorder for which the corset is being recommended.

The Chartered Society of Physiotherapy is represented on the Professional and Technical Staffs "A" Council of the Whitley Councils for the Health Service (Great Britain) which also includes representatives of the following professions: Association of Occupational Therapists, Association of Psychiatric Social Workers, Association of Remedial Gymnasts, Association of Scientific Workers, British Dietetic Association, British Orthoptic Society, College of Speech Therapists, Confederation of Health Service Employees, Hospital Physicists Association, Institute of Almoners, National Association of Local Government Officers, National Union of Public Employees, Scottish Association of Occupational Therapists, Society of Chiropractors, Society of Radiographers. The Secretary of the Chartered Society, Miss M J Neilson has been appointed Joint Secretary of Functional Council 'A,' and as such is one of the representatives from the Functional Council to the General Whitley Council (the other two representatives being Mr Ben Smith (Association of Scientific Workers) and Mr F Melville (Society of Radiographers)).

## HEARD AT HEADQUARTERS

### Government Hearing-Aids

The Government hearing-aids found general approval at a meeting of otologists the other day. One well-known specialist said that the criticisms of it were undeserved, and that, especially for old people and for nerve deafness, it was as good as any hearing aid that could be obtained. In America all the emphasis seems to be on smallness of size, but tiny batteries, although they are much more efficient than they used to be, do not last anything like as long. As is always the case with anything freely bestowed, some hearing-aids find themselves in the wrong ears, or, according to a Scotch otologist, no ears at all. He mentioned some recipients who, having obtained a hearing-aid from the Government, including a free battery service, found that the battery worked very well for their radio apparatus. He also mentioned the case of one man who, having already got two pairs of spectacles and a denture from the State, asked for a hearing aid to complete the outfit although he was not deaf. One of the wise things said by the otologists was that what is wanted is not so much a hearing-aid for the deafened as a speaking aid for those who talk to them.

### Don't

Perhaps the worried citizen's first reaction to Mr Gaitskell's injunctions to economize in electricity was one of aversion, distaste, despondency—one of those mild and fugitive emotions that a bouncing child feels when nanny waves a warning finger at him. Perhaps a slight dyspepsia sends him to his State doctor for a free bottle of medicine. "Do more grilling instead of frying," we are told, "Put two saucepans on one hotplate," "Bath at night and not in the morning" and so on. But we remember with a shudder the freeze up of 1947, and on second thoughts feel grateful for these warm waves of mother-love from Whitehall. We may grumble at our governesses, but we must admit that they are preferable to secret police, *Diktate* and all the other paraphernalia of the military State. Obediently, we remain the envy of the world (we like to think) for our ability to govern ourselves without undue commotion.

### Getting It Going

The new Treasurer of the Association, Mr A M A Moore, has been prevented by his acceptance of that office from continuing in the chair of the Central Consultants and Specialists Committee. He has taken a leading part in the organization of consultants and specialists in view of the new Service, first as chairman of the old Association committee, and later as chairman during the initial and not uncontroversial stages of the new Central Committee which, with its 67 or so members, crowds out the Council chamber at Headquarters. In leaving the chair Mr Moore remarked that this was the heaviest and most delicate bit of Association work he had ever undertaken. The new chairman, chosen unanimously, is Mr R L Newell, of Manchester, who did excellent work as chairman of the old Hospitals Committee, the work of which is merged into the new body.

### Not Too Exacting

Much has been said about patients who demand everything they can get under the new Service. But there is another side to the picture, represented to us in a letter from a well known practitioner in a big Yorkshire city. He says that on the whole his patients are understanding and considerate. Their attitude is very well expressed in the remark of one working woman, a typical Leeds housewife. "It doesn't seem right somehow, doctor, that we should get all this for nothing."

### PURCHASE OF SPECIALISTS' UNWANTED EQUIPMENT BY THE MINISTRY OF HEALTH

The Minister of Health has agreed to consider the purchase of any equipment no longer required by specialists—e.g., x-ray equipment. Specialists having equipment which they are prepared to sell to the Ministry should send full details of it to the Controller of Supplies (S1), Ministry of Health, Whitehall SW 1.

## CENTRAL CONSULTANTS AND SPECIALISTS COMMITTEE

### DISCUSSIONS WITH ROYAL COLLEGES

An all-day meeting of the Central Consultants and Specialists Committee was held at B M A House on Nov 4. Mr A M A. Moore was in the chair during the first part of the proceedings.

Sir Lionel Whitby gave an account of the discussions, over which he had presided, with the Royal Colleges and the Scottish Corporations concerning the representation of consultants. Certain proposals had emerged, to be placed before the constituent bodies of the conference, including the Central Committee, for a small joint committee of the bodies concerned, to speak to the Government with one voice on behalf of consultants. The terms of reference of this joint committee, its precise composition, and the procedure to be followed should one of the constituent bodies disagree with its view were included in the proposals. The composition suggested was three members from the Royal College of Physicians, three from the Royal College of Surgeons, smaller numbers from the other Royal Colleges and Corporations, bringing the total up to 11, and six from the Central Consultants and Specialists Committee.

Sir Lionel Whitby emphasized the point that this was an occasion for broad statesmanship. If such a committee were not formed the Government would be dealing with a divided profession and a wedge might be driven between the Colleges and the B M A. He reminded the committee that, after all, the majority of the Fellows of the Colleges were B M A members and he suggested that it was quite possible with dignity and without loss of real power to subscribe to these proposals.

In the course of a long debate the proposals were criticized on the ground that the new Central Committee was as perfectly representative of the consultants in every region of the country and in every branch of practice as could be fashioned, that it was democratically elected unlike the Councils of the Colleges that the method of negotiation by joint committee was an unsatisfactory one, and that the joint committee would be heavily weighted on the teaching side. Others, however, took the view that the representatives of the Colleges were likely to be in accord with the general opinion of consultants, and it was pointed out that in Scotland the feeling of separateness between the Colleges or Corporations and the general body of the profession was much less marked, if it existed at all.

Eventually an amendment against the principle of setting up a joint committee with any overriding functions was lost, and the proposal,

That it is essential in the interests of consultants that a joint committee of the bodies concerned should be established to speak for consultants with one voice

was carried by 42 to 2.

The following terms of reference were agreed to *nem con*.

To represent the views of consultants to the Government on all questions of general policy, and to keep itself informed on all matters affecting consultants, the definition of the field of general policy and any delegation or division of labour to be determined by the Committee in agreement with the constituent bodies.

A further proposal was approved that where a constituent body differed from the joint committee it should be entitled to have its view represented to the Government, provided that, before such representation was made, a conference between representatives of the joint committee and of the constituent body should be held in an endeavour to reach agreement. It was also agreed that joint secretaries should be appointed, one by the Colleges and Corporations together, and the other by the Central Consultants and Specialists Committee. On the question of composition there was some debate, but the original proposal, which provided for the representation set out below, was carried by 39 votes to 9.

Royal College of Physicians, 3, Royal College of Surgeons, 3, Royal College of Obstetricians and Gynaecologists, 2, Royal College of Physicians Edinburgh, 1, Royal College of Surgeons, Edinburgh 1, Royal Faculty of Physicians and Surgeons, Glasgow, 1, British Medical Association, 6.

### Election of Chairman of Committee

This controversial business having been disposed of, the committee proceeded to elect a chairman, Mr Moore having taken

Chair only during the initial stages having been elected. The Secretary of the Association felt himself unable to continue in the other capacity. On the proposition of Mr. Simson Hall, seconded by Dr. R. G. Gordon, Mr. R. L. Newell was unanimously elected. On taking the chair he expressed the thanks of the committee to Mr. Moore for his initiative in forming the committee and guiding its early stages.

### Specialist Spens Report

The committee then turned to the completion of the business which had been left over from the last meeting. The first matter concerned points raised by regional committees in relation to the report of the Spens Committee. The Secretary (Dr. Charles Hill) made a statement on the general question of Whitley machinery, now under consideration with the Ministry. In general, the National Council for the medical profession would work through three committees—for specialists, general practitioners, and public health officers—the recommendations of each committee being subject to approval by the Council with the employing bodies on the one side and the representatives of the profession on the other. The general practitioners had got the Minister to concur in the view that, as soon as the Whitley machinery was established, general practitioners would be free to raise within that machinery the question of the betterment factor, which, if the two sides did not agree, could be referred to arbitration. He suggested that on this point specialists should follow the same course as general practitioners, and that this should be one of the first issues raised within the Whitley machinery negotiations.

The committee endorsed a resolution from the N.W. Metropolitan Regional Committee as to the basis on which the computation of the betterment factor should be made.

Two other matters arising out of the Spens Report were the subject of resolutions. One was that in all cases where a specialist transferred from one hospital appointment to another his remuneration should be fixed in relation to his seniority in the Service. The other was that fees received for medico-legal work, special reports, lectures to and examination of nurses, and the like, which had been regarded in the past as undertaken by the specialist in his personal capacity, should be retained by him, whether he was in full-time or part-time contract with a regional hospital board.

### Interim Terms

Several questions relating to domiciliary visits had come forward in the regions and were referred to the committee. The committee passed a resolution that there should be payment for all domiciliary visits undertaken. This arose out of the general question of limitation upon payment for domiciliary visits. Instructions have been issued by the Ministry of Health to regional boards to use their discretion in applying the overriding payment, but it was not thought that this was a satisfactory arrangement.

The committee felt also that additional fees should be payable where specialists found it necessary to take special equipment to the home of the patient, and that radiologists and anaesthetists providing their own apparatus and materials for domiciliary visits should be suitably reimbursed.

The question of nursing-homes in connexion with domiciliary visits gave rise to some discussion. It was stated that in a maternity case at a nursing-home, if the attendance of a practitioner was necessary this could not be given within the Service because the mother, although a public patient, was in a nursing home and not at her own home, in other words, the arrangement for the payment of fees for domiciliary work did not extend to nursing homes. It was agreed to refer this matter to the regional committees for their opinion.

Further resolutions were that specialists should be paid for every session required of them by regional boards or boards of governors irrespective of the number of sessions in any one week, also that specialists rendering part-time services should be paid an annual salary assessed on the number of half-day sessions required with due regard to liability for emergency visits, annual leave, deputy arrangements with colleagues and so forth, and that the assessment should be made in consultation with the specialist concerned.

The attention of the committee was drawn to the fact that in certain regions the proportion of pay-beds to public beds

was being disturbed, in spite of the offered assurance that during the interim period pay-bed accommodation would remain as at the appointed day. The Ministry had been already reminded of its assurance and had been asked that a direction should be given to regional boards that no rearrangement of pay-bed accommodation should be made before March 1949. It was also decided to ask regional committees for any evidence of change of use of beds—that is to say, change of what had been beds with professional fees charged to patients to another use, amenity or public.

The feeling was expressed that a move should be made to secure the deletion of the Second and Third Schedules to the Regulations dealing with pay-bed accommodation in hospitals. These schedules set out the maximum charges for specialist professional services, and it was pointed out that the schedules were prepared for provident associations having in mind only persons with limited income so that to introduce them on a wider basis was extremely unfair. The possibility of changes in the Amending Act which would render the schedules unnecessary was considered. It was agreed to ask the executive committee to look into this matter before coming to a decision.

An executive committee was set up in the course of the meeting in view of the great amount of work which was before the parent committee. It will meet between the meetings of the main committee, prepare and refine the agenda, and take any action which is urgently necessary, reporting, of course, to its parent. Much other business was before the committee, including a report on discussions between representatives of the Ministry and those members of the Negotiating Committee who are engaged in consultant and specialist practice. This report dealt with cases of hardship caused by the interim terms, the financial position of junior hospital staff, allocation of pay-beds, and various other matters.

## Questions Answered

*We publish here the answers to a selection of questions that seem to be of general interest.*

### Superannuation Scheme and Locums

**Q**—*Is the superannuation scheme applicable to a practitioner doing postgraduate study and undertaking week-end locums and occasional evening surgery work for various doctors?*

**A**—The regulations do not refer specifically to a practitioner acting as a locum. An assistant, however, is defined as the employee of a practitioner on the list of an executive council, such employee being wholly or mainly engaged in assisting his employer in the actual discharge of his duties in that capacity (i.e., in the provision of general medical services). On this analogy a locum in casual employment would not be superannuable under the regulations by virtue of that employment. A locum who is wholly or mainly engaged in assisting practitioners on the lists of executive councils, however, would be well advised to apply to the Health Services Superannuation Division of the Ministry of Health, 28, Princes Gate, London S.W.7 for special arrangements to be made for his inclusion in the superannuation scheme. A practitioner who is a member of the superannuation scheme by virtue of other employment (e.g., hospital appointments), and who combines with post-graduate study occasional work as a locum may preserve his superannuation rights by applying to the Minister under the leave of absence provision.

### Superannuation for House-men

**Q**—*Are practitioners who are doing junior hospital appointments for periods of six months or a year liable to contribute to the superannuation scheme?*

**A**—Yes, and their hospital service will count towards pension and other benefits.

### Superannuation for Elderly Practitioners

**Q**—*In what circumstances can a doctor over 65 years of age participate in the superannuation scheme?*

**A**—A doctor who is over 65 years of age on entering the National Health Service cannot participate in the superannuation

scheme and is therefore not liable to have superannuation contributions deducted from his remuneration. A doctor who is on an executive council list may apply at any time between the ages of 60 and 65 for an extension of pensionable age up to but not beyond the age of 70. If his application is granted he will continue to pay superannuation contributions during the extended period and his extended service will be reckonable in assessing superannuation benefits. For example, the minimum qualifying period for pension is 10 years' service. The extension allows a practitioner of 59 years of age on entry to put in the 10 years' service required to qualify for a pension on retirement at or after age 69. The practitioner is not bound to retire from practice when any benefits to which he may be entitled under the scheme become due, but after pensionable age is attained superannuation contributions will cease and service will cease to be reckonable for the purpose of benefits. In considering an application for extension the Minister will consult the executive council for the area concerned and will ask that body to seek the views of the local medical committee.

#### Partnerships and Superannuation Payments

**Q**—My partner and I have both entered the Service. We each have approximately 3 000 patients on our lists. Is superannuation payable on the basis of the remuneration received from the executive council or on the basis of the partnership shares?

**A**—It is open to doctors practising in partnership to have superannuation deductions made in proportion to their shares in the practice instead of on the remuneration actually paid to them by the executive council, provided particulars of the partnership agreement are disclosed to the executive council.

#### Benefits for 30 Years' Service

**Q**—I entered the Service on the appointed day as a general practitioner aged 35. My wife is the same age. I expect to complete 30 years' service and to retire at 65. Assuming my net remuneration to be £1 200 a year, what benefits shall I receive under the superannuation scheme?

**A**—Assuming this practitioner did not exercise his option to pay a reduced superannuation contribution and to receive a modified pension on account of the National Insurance Retirement Pension he will receive on retirement at 65 a pension of £540 a year (i.e.,  $1\frac{1}{2}\%$  of his total net remuneration of £36,000) and a lump sum retiring allowance of £540 (i.e.,  $1\frac{1}{2}\%$  of £36,000). Should he die at 67 after drawing his pension for two years, his widow would receive a widow's pension of £180 a year (i.e.,  $1/3$  of his own pension of £540 a year). It should be noted that the option to pay a reduced superannuation contribution and to receive a modified pension is open only to those practitioners who were in the Service on July 5. For those who entered after July 5 the reduced contributions and modified pensions are compulsory. The modification is made on account of the fact that the practitioner will be paying 6s 2d a week under the National Insurance Act and will qualify for a pension under that Act of 26s a week on retirement with an additional 16s a week in respect of his wife.

#### Superannuation Contributions of Assistant

**Q**—Can you tell me how as an assistant I go about making my contribution to the superannuation scheme in the National Health Service? Are the contributions made through my principal or are they made direct by myself to the NHS authorities?

**A**—For the purpose of the superannuation regulations the principal is the employing authority in relation to his assistant. The principal is entitled to deduct from the assistant's salary 6% in respect of superannuation contributions. The principal is required to pay as an employing authority a contribution of 8% of the assistant's salary. The assistant's 6% and the principal's 8% must be remitted by the principal to the local executive council. Similarly as an employer, the principal is required to place a 9s 1d stamp on the assistant's national insurance card each week and may deduct the assistant's contribution of 4s 11d weekly from his salary.

## Correspondence

### A Canadian View of the NHS

**SIR**,—For three months I held a house appointment in a comparatively small hospital in this country under the NHS, I have therefore been deeply interested in the developments in medical practice which have occurred in recent months. May I draw a comparison between these developments and the conditions which exist in British Columbia and certain other Canadian Provinces? And may I also offer some criticism of the British medical profession which I hope will not be completely lacking in constructive elements? Needless to add that I write with considerable humility, as befits a recent arrival to Britain.

In British Columbia the Blue Cross Hospital Association together with Medical Services Associated provide that all hospital, investigative, and medical fees of whatever sort are paid on behalf of members and their families. (There is a limit of thirty days hospitalization per year for each insured person.) Membership of these organizations is available to large sections of the population who are regularly employed, membership in them is voluntary, and contributions to support them are about equally divided between the member and his employer. Having joined these organizations, the member and his family are assured of adequate medical care in almost any circumstances.

From the political point of view, the important feature of the MSA is that it is administered by a group which includes only members of the profession. The fact that the MSA itself is directly under the control of the profession has put it in a very strong position—strong both from the point of view of remedying the grievances of individual practitioners, or explaining them when they cannot be remedied, and strong also in dealing with the general public in the matter of publicity and with the various local, provincial, and federal Government agencies. The MSA, together with the provincial medical organization (which is, of course, a branch of the Canadian Medical Association) represents the profession in a very adequate and effective way.

The NHS is in operation, and only the most robust conservative would say that it is not here to stay. But at what cost?

Before the appointed day the Ministry of Health in England had made administrative preparations which, in the event, have proved and are still proving inadequate. Bureaucratic measures have invaded medical practice from every side, and the general practitioner has found himself, *volens nolens*, an administrator and an arbiter of questions which he has no desire to arbitrate, such as the rights of certain individuals to extra petrol. Benefits have been promised which there is no likelihood of fulfilling, non-existent health centres have been used to promote what the Americans would call the "sales appeal" of the Service, some benefits which to the uninitiated Canadian appear frankly ridiculous are freely available. Let me instance spectacles to short-term visitors from other countries and expensive medicines often prescribed for inadequate reasons.

Far from the NHS "pooling the hospital resources of a region for the good of all," its practical result in the area where I worked could rather be described as setting one hospital against another in a bitter rivalry to preserve that most valuable asset—an empty surgical bed to be used for emergencies only.

What is far more serious than these obvious shortcomings, which were expected at least to a certain degree is the passing not only of the administrative responsibility of medical practice but its medical control from the hands of the medical profession acting under the law to those of the Minister of Health—acting under the law, it is true, but guided by directives for which he alone is responsible. And in these directives the Ministry of Health does not appear always to have had the benefit of the best medical advice. How else explain the fact that a general practitioner who has treated a given patient for perhaps 20 years is unable to prescribe a surgical appliance which a house surgeon, qualified six months, can prescribe in 20 seconds? One cannot feel that any man who has spent his active adult life in the arena of party politics, which is the needful prerequisite for attaining Cabinet rank, can at the same time have had the benefit of the years of medical training and experience required to grasp the needs of complex medical problems.



I suggest that unless a central body which truly has the mandate of the profession and its undivided support is willing to fight to regain at least a measure of the administrative control of the scheme as a whole the present unsatisfactory situation will persist. The Negotiating Committee was faced with an almost impossible task—that of representing the interests of a group who in fact had never forcibly and solidly expressed their true desires. One can have nothing but admiration for the democratic methods which were used, but the practical consequences are now here for all to see. The profession as a whole, faced with the almost irresistible pressure of the State, has been forced to give way in every vital point at issue.

I should add that I am not a diehard Conservative and by no means opposed to the professed objectives of the NHS. The contrary is the case: in my view no reasonable person would oppose any measures which promise to improve the general health. But, unless a reservoir of good will exists which will lead to co-operation between the administrators of the scheme and those who actually do the work for which the scheme was set up, there would appear to be little chance of its success. The proper basis for such co-operation would appear to me to be the placing of administrative responsibility and high-level medical decisions where they properly belong—in the hands of those best qualified to make such decisions—I am, etc.

London WC1

DOUGLAS FINDLAY

### Relation with Executive Councils

SIR—Dr Robert Forbes (*Supplement* Oct 23, p 147) oversimplifies the important issues raised by Drs Hugh M. Tucker and D. Gwyn Jones (*Supplement*, Oct 9, p 134). It may have been true to say that, before the passing of the National Insurance Act 1946, we were not in fact workmen but independent contractors. I doubt if that is true to-day. In order to appreciate the position with some degree of clarity it becomes necessary to define certain terms which are employed in both the National Health Service Act and the National Insurance Act. These terms are, (1) workman or servant, (2) employed and employment, (3) contract of service.

(1) A servant or workman is an agent who works under the direct or indirect supervision and under the direction of his employer. He is engaged to obey his employer's orders from time to time. The test which distinguishes the servant from other agents or independent contractors is the fact that the servant is much more under the control of the employer than the latter.

With an independent contractor the employer stipulates for certain results—e.g. to build a house, to write a book, to perform at a concert, etc., and leaves the employee, within limits, to produce the result as seems best to the employee. The independent contractor, in other words, is bound by the contract and not by the orders. In the case of a servant the master retains the right to choose the means and methods as well as the result. This is what the Minister of Health retains by virtue of his powers in the National Health Service Act and Part 1 of the First Schedule of Statutory Instruments, 1948 No 506. I would therefore submit that a medical practitioner employed by the Minister of Health through his agent the local executive council, is now a workman or servant within the meaning of the law of master and servant. The same submission will apply in certain cases to a consultant or specialist who is employed by his direct principal, the regional hospital body.

I do not subscribe to the opinion that our contract is one for services rather than one of service. Although we are now designated in the National Insurance Act as "self-employed," the Minister of Health or the regional body as employer controls us as servants, to a greater or less degree, in the manner in which we do our work. By virtue of the Minister's wide and extensive powers the conditions of employment may be subtly and insidiously altered by Statutory Instruments so that the Minister or regional body may in the future command in full the manner in which we do our work. In the nineteenth century the doctrine of the "implied command of the master prevailed. To-day a servant comes within the theory of 'scope of employment'.

(2) Employed and employment are defined in the National Insurance Act in Section 1(2) and in Section 78 and include trade business profession office or vocation. A person who is gainfully occupied for the purposes of national insurance is one who is engaged in any trade business, profession office or vocation and is wholly or substantially dependent thereon for a livelihood. (The italics are mine.)

Self-employed persons include small traders and all professional persons unless, though qualified, they are paid a salary or other remuneration under a contract of service. Therefore although the Minister of National Insurance designates us "self-employed," we are in fact by the wording of the National Insurance Act servants by virtue of our salaries remuneration and emoluments, on which we are wholly or substantially now dependent for a livelihood.

(3) The distinction between a contract of service and a contract for service or services was given by Lord Justice Fletcher Moulton in *Simmons v Heath Laundry Co* (1910) 1 KB at p 550. The greater the amount of direct control exercised over the person rendering the services by the person contracting for them the stronger the grounds for holding it to be a contract of service, and similarly the greater the degree of independence of such control the greater the probability that the services rendered are of the nature of professional services and that the contract is not one of service.

It would be interesting to hear Dr Forbes's views on the nature of the employment and the type of contract under which assistants will be engaged for training. Will it be a "contract of apprenticeship" which is not defined in the National Insurance Act?—I am, etc.

London W8

J. ARTHUR GORSKY

### Medico-legal Responsibilities

SIR—I hope you will grant me some of your valuable space to reinforce and supplement the views and advice conveyed in Dr Robert Forbes's letter under the heading "Relations with Executive Councils" (*Supplement* Oct 23, p 147). Everything said in that letter concerning the importance of membership of a recognized protection society for general practitioners in contractual relationship with local executive councils applies with equal, if not greater, force to those who are in salaried appointments. This Society has ample experience of the pitfalls into which, for example, Service and municipal medical officers may fall, and the last three months have produced a spate of inquiries from our members concerning the interpretation of regulations issued under the National Health Service Act and their application to individual circumstances. Indeed, many of the recent statutes enacted so speedily and giving wide enabling powers to the Minister concerned have a particular application to the medical profession.

The recognized protection societies will have an ever increasing role to play in providing expert advice on personal problems and protection against bureaucratic injustice as well as defence and indemnity against actions for damages in tort or contract, and advice and defence in criminal prosecutions which have a professional association—I am, etc.

ALISTAIR FRENCH  
Secretary

Medical Protection Society

### Smaller Maximum Lists

SIR,—Since July 5 there has been considerable dissatisfaction among general practitioners owing to excess of work and the necessity of having a large number of patients on one's list in order to obtain a reasonable income. I think it was a great mistake in the Act to allow a doctor to have up to 4,000 patients on his list and I agree with Dr S. T. Pybus (*Supplement* Oct. 16, p 143) that no practitioner can do justice to his patients if he has anything like this number to deal with. However those of us who are compelled to keep big lists for economic purposes know that this creates many of the conditions that the profession, our wives and our patients complain of.

I hope therefore that every step will be taken by the appropriate authorities to limit the maximum number of patients allowed to a general practitioner to 2,000, or at the most 2,500 and to raise the capitation fee to 40s for the

first thousand, a lower rate for the second thousand (and a still lower rate for the remaining five hundred, if 2 500 were allowed) This would then allow each practitioner to give his patients the full time they need if we are to practise real medicine and at the same time would ease the conditions of sweated labour from which doctors and their wives now suffer —I am, etc.,

Slough Berks

H TUDOR EDMUNDS

### NHS Remuneration

SIR,—The circular letter from Dr Charles Hill (*Supplement*, Oct 23, p 145) concerned mainly with general practitioner remuneration makes most depressing reading. Having searched carefully through and sifted all the chaff I found the two grains of wheat—to wit, seventeen shillings and five pence. No doubt there will be additional payment for maternity work and immunization, but why not throw this in with the two grains of wheat? It matters little now—

What I should like to know is what was discussed during the nine months' meeting with the Minister and his henchmen. Was the undignified subject of remuneration discussed? If so was it "the silver in his tongue or the fire in his belly" that frightened them? I would just like to make two forecasts: (1) Any attempts by the profession to have the capitation fee raised will meet with long and stubborn opposition. (2) At the first opportunity steps will be taken to reduce capitation —I am etc.

Exeter

G F MAGURRAN

### Rural Practitioners

SIR—At a recent Divisional meeting the plight of the rural practitioner under the NHS Act was ventilated in the light of three months' experience. It was pointed out that several practitioners were in serious financial difficulties owing to the immediate curtailment of income resulting from the system adopted of "payment on account". The absence of an advance payment for drugs and mileage has resulted in some cases in the doctor being obliged to maintain his current expenses by increasing his overdraft, pending payment by the executive councils, which under the present arrangement may not be completed for twelve to eighteen months.

Furthermore it was considered that the proposed scale of drug and mileage allowance is totally inadequate to permit the rural doctor to meet his domestic and practice commitments. The financial pressure likely to be brought to bear upon some of us in the next few months in the shape of bank charges may well prove overwhelming and one which we should not be expected to bear.

To double the Mileage Fund (£600 000 to £1,300 000) when many rural practices show an increase of three times their registered patients as compared with the NHI is in effect paying less per head, at a time when running costs, repairs, and purchase prices of cars are more than double their 1939 value and illustrates how unrealistic some of our administrators are.

As this letter is based upon facts, the following examples which are by no means isolated cases, are quoted:

(1) Drs A and B (partners) Area of practice, 200 sq miles, NHS patients (including 800 NHI) 2 400, private patients, 200. Mileage 50 000 p.a. no dispensing, no hospital, NHS cheque first quarter £461 practice expenses (accountants' figures excluding mileage policies and purchase of cars), £350 per quarter, surplus, £111.

This means each partner receives £55 10s for three months' work —£4 12s per week out of which he is expected to keep his domestic household, pay life insurance and income tax, save a little for the purchase of a new car and, last but not least, pay 6s 2d per week national insurance.

Even the £300 quarterly mileage allowance which the executive council say will probably be paid is "chicken feed" when one considers that Dr A is a married man with four young children (two at boarding school and in the not very distant future four will be at the same time), Dr B has an outstanding loan account of £800 together with an overdraft of approximately £800.

(2) Dr C (single practice) Area 150 sq miles, NHS patients 1 500, private patients, nil. Mileage 25 000 p.a. dispensing, no hospital. NHS cheque first quarter, £283 expenses per quarter £111.

This doctor has loans, overdrafts and mortgages of £7 000. He is therefore unable to repay of £110 per quarter. He is therefore

left with £48 (£4 per week) to maintain his practice and live. He has three children, two of whom are at boarding school. He is overdrawn at the bank to the limit of his security and his bank charges are mounting daily. He cannot meet his chemist's bills. His position is serious.

There would appear to be only two satisfactory methods of bringing the rural practitioners into line with their urban brethren: (1) Adequate mileage allowance, paid quarterly. (2) If this is insufficient, inducement payments, as recommended by Drs McConaghy and Edgcombe Rowe (*Supplement* Sept 18, p 125).

It does not seem to be sufficiently appreciated either by those who direct our policy or by the various medical committees throughout the country, who are generally composed of a disproportionately large number of urban and industrial practitioners, that the rural doctor is an essential link in any medical service and that he has an exceptionally onerous and responsible job. If some definite steps are not immediately taken to improve his lot it will lead to his inevitable departure to the urban areas where he would be better off as an assistant, with a resultant lack of medical services to a community who in these days are the essential contributors to the nation's larder—I am, etc.,

L R ROUTLEDGE,  
Honorary Secretary Hexham Division

### Remuneration of GPs

SIR,—I am enclosing a cutting from a prominent Northern daily newspaper which publishes part of a letter sent by Mr Bevan's Private Secretary to a local general practitioner. In this letter the secretary states "Mr Bevan asks me to remind you that the remuneration of general medical practitioners in the National Health Service was agreed with the representatives of the medical profession, who stated during the course of the negotiations in connexion with the new Service that they did not quarrel with the financial proposals. The remuneration is, in fact based on the recommendations of the Spens Committee on the Remuneration of General Practitioners and Mr Bevan is satisfied that it does implement those recommendations."

In view of the wide publicity given to this statement I think that the profession is entitled to know how the matter stands. Either we have been kept in the dark by our representatives who have agreed to financial conditions without consulting the profession or the statement by the Minister is untrue. If the latter is the case it is surely high time that the Negotiating Body made it perfectly clear to the Minister and to the public that the doctors are far from satisfied with the financial provisions of the Act. Letters coming from all parts of the country show that the general medical practitioners are facing a financial crisis of the first magnitude. This crisis can only be averted by strong action at once before it becomes a calamity—I am, etc.,

Leeds

M HUTCHINSON

### Employment of Assistants

SIR,—Why does the *Supplement* of Oct 30 omit to point out that the terms now promulgated by the Minister for the employment of assistants differ not at all in their main features from Paragraph 6 of the circular "Remuneration of General Practitioners" sent to us in April? All that is new is a list of conditions under which grants will be paid.

Was I the only nitwit in this country who thought in April, May, and June that if one had to apply for and obtained permission to continue to employ an existing assistant the terms of Paragraph 6 would automatically apply, at least until such times as the Ministry was able or willing to define more precisely what was really intended? Nothing in the paragraph implied that it was to apply only at some undetermined future date or that no existing assistants could be carried forward into the Service, nor in my own case, was there any reason to suppose that anyone in Whitehall knew whether my assistant had been with me three weeks, three months, or three years. My cheques for the first quarter, admittedly "on account" amounted to £442. The services of my assistant and his car expenses cost me some £280.

Dr M K Dorothy Douglas (p 154) writes "Thus the inducements to enter the scheme are being withdrawn now

that we are safely in. How right she is. The trap was most cunningly baited in half a dozen different ways. Some of us were attracted by one illusory lure others by another. More of us probably were moved by fear—fear for our children, our wives and for ourselves. How many of us already wish that we might awake and find that it had all been a nightmare!—I am etc

Launceston Cornwall

DONALD M. O'CONNOR

Paragraph 6 of the circular on remuneration is as follows: 6 Grants for the supervision of the training of assistants will amount to £150 a year, plus the salary of the assistant and boarding expenses (together not exceeding £700 a year) with an allowance not exceeding £150 a year if an additional car is necessary. Further details will be announced later.—ED, B.M.J.

## POINTS FROM LETTERS

### Capitation Fee

Dr M. BRADFORD (Atherstone, Warwickshire) writes: I fully agree with Dr S. T. Pybus (*Supplement*, Oct. 16, p. 143) that the proposed capitation fee is not enough and that the rate per patient should be £2. I strongly disagree that the capitation fee should be less than £2 per head after the first thousand. My list of patients on the National Health Service is considerably in excess of 2,500. General practitioners like myself who have large lists of patients have been attacked both by their own colleagues within the medical profession and by laymen, notably the Minister of Health, Mr. Aneurin Bevan. In this letter I wish to vindicate the man or woman who has a large practice. I believe that a large practice can be made and maintained only by hard work, careful consideration of each patient, continued study of each case, and a willingness to obtain as much information as possible every time from friends and family and by consultation with colleagues in every branch of medicine. I agree with Dr. Pybus's statement that 2,500 patients are sufficient for any doctor. When a doctor has more than that number he must overwork. What is the remedy? Dr. Pybus says that the successful practitioner should be penalized for being successful. The logical sequel is that the brilliant consultant would be paid less for every consultation over a certain number and the excellent surgeon less and less for each operation as he gets better and better at his work. I hope that our profession will refuse to permit reduced capitation fees in any circumstances. The only remedy for overcrowded practices is a better capitation fee, and £2 per patient for 12 months' attention is a reasonable amount. The improved capitation fee would attract more doctors and the best brains into general practice. On the other hand the present capitation fee of 18s. per head will cause annoyance and a miserable existence for a larger number of general practitioners. It will also accelerate the present tendency for medical students to become specialists. The present attitude of making the general practitioner do more and more for less and less will result in fewer and fewer going in for general practice. The Health Minister, after promising all sorts of things to the people, now warns them not to abuse their opportunities. He also warns the general practitioner of his great responsibility and informs him that over-prescribing is as bad as under-prescribing. British general practitioners do not need to be warned of their responsibilities. They have kept up a high standard of work in the past and they will maintain that standard in the future if it is at all possible. I believe it will not be possible unless we are paid much more than at present.

### Victims of Health Act

"M.D." writes: The general practitioner is not the only victim of the Health Act. Two of the senior surgeons at my hospital said last week, (a) 'I have not had a private patient for 12 days,' (b) 'I have earned seven guineas in the last fortnight, and most of my colleagues tell the same tale. The expenses of my own practice used to absorb a third of the fees, now, at £1,200 a year, they considerably exceed the takings. Neither practice nor family expenditure can be altered at a moment's notice. As Lord Catto said recently with taxation at its present level not even a Scotsman can save. Upon what is it supposed that the consultant is to live until next March?

### Employees' Certificates

Dr W. M. WATSON NEWTON (Birmingham) writes: I find in my practice that I am as busy this autumn (usually my slackest time) as I generally am in the spring and I do not altogether blame the patients, many of whom are compelled to waste their time in my waiting room and my time in the surgery because they must have a certificate for some firm or municipal department to prove that they are unfit to work even for a day or have had time off to seek doctor's advice and a second one in many cases to state that they are now fit to resume work. I have had an unfortunate patient travel from Birmingham to Coventry only to be sent back for a

private certificate of fitness before being allowed to start. I wish something could be done to free the working population from this tyranny and incidentally relieve us of many unnecessary consultations.

### Payment of Locumtenent

Dr R. NUTT (Godalming, Surrey) writes: Could not a simple scheme be evolved by which a locumtenent should derive his salary from the State rather than from the unfortunate general practitioner when he is incapacitated through illness, or when he takes his annual holiday for a period of, say, three to four weeks? I would also like to entirely support Dr S. T. Pybus's letter (*Supplement* Oct. 16, p. 143).

## Association Notices

### B.M.A. LIBRARY

The Council has decided that owing to fuel and lighting restrictions the Library hours must coincide with the General Office hours. From Nov. 15 until further notice the Library will be open from 9 a.m. to 5 p.m. on Mondays to Fridays and 9 a.m. to 12.30 p.m. on Saturdays.

### KATHERINE BISHOP HARMAN PRIZE

The Council of the B.M.A. is prepared to consider an award of the Katherine Bishop Harman Prize of the value of £75 in 1949. The purpose of the prize, which was founded in 1926, is to encourage study and research directed to the diminution and avoidance of the risks to health and life that are apt to arise in pregnancy and child bearing. It will be awarded for the best essay submitted in open competition, competitors being left free to select the work they wish to present, provided this falls within the scope of the prize. Any medical practitioner registered in the British Empire is eligible to compete.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1949 but will be offered again in the year next following this decision, and in this event the money value of the prize on the occasion in question will be such proportion of the accumulated income as the Council shall determine.

The decision of the Council will be final.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address. Essays must be forwarded so as to reach the Secretary, to whom all inquiries should be addressed, at B.M.A. House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1948.

### VACANCY IN CENTRAL COUNCIL—GROUP XII (NORTHERN IRELAND) 1948-9

As Dr J. H. P. Giff was the only nomination by Representatives of Constituencies in Group XII to fill the vacancy caused by the resignation of Dr J. M. Hunter, Dr Giff is accordingly elected a member of Council for the year 1948-9.

CHARLES HILL,  
Secretary

### Branch and Division Meetings to be Held

GREENWICH AND DEPTFORD DIVISION—At Miller Hospital, Green High Road, S.E., Wednesday, Nov. 17, 8.30 p.m. B.M.A. Lecture by Mr R. C. Brock: 'The Present Position of Thoracic Surgery.' All medical practitioners in the area of the Division are invited.

HENDON DIVISION—At Hendon Hall Hotel, Monday, Nov. 15, 8.45 p.m. Dr Denis Hutchinson: 'Working of the National Health Service in Particular Relation to the Functions of the L.M.C.'

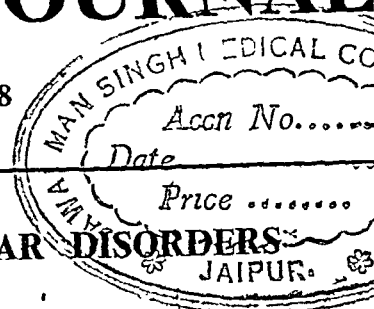
NORTH OF ENGLAND BRANCH—At Royal Victoria Infirmary (New Theatre), Newcastle upon Tyne, Thursday, Nov. 18, 7.15 p.m., clinical demonstration by Professor F. H. Bentley: 'Gastroenterology for Duodenal Ulcer.' 8.45 p.m. address by Professor A. Kennedy: 'The Use of the Mental Health Services.'

ST. PANCRAS DIVISION—At B.M.A. House, Tavistock Square, London, W.C., Friday, Nov. 19, 8.30 p.m. Opening meeting of the session 1948-9. Mr J. C. Gilbert, O.B.E. and Dr Frank Gray will answer questions on the working of the new Health Service.

WESTMINSTER AND HOLBORN DIVISION—Joint meeting with Charing Cross and Fulham and Kensington and Hamstead Divisions at Postgraduate Medical School of the Royal Cancer Hospital, 24, Osney Mead, Fulham, S.W., Wednesday, Nov. 17, 8.30 p.m. Dr C. C. Gardner: 'Worster Drought.' 'Intracranial Tumours.' Open to all medical practitioners in the area of the Divisions.

# BRITISH MEDICAL JOURNAL

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## THE PHYSIOLOGICAL BASIS OF NEUROMUSCULAR DISORDERS

BY

SIR HENRY DALE, OM, GBE, FRCP, FRS

To-day's discussion is to deal with the bearing of recent physiological observations, and of the interpretations which have been applied to them, on clinical studies of neuromuscular disorders. The choice of myself as opener, and of subjects by those who are to follow me as invited contributors, would appear to direct our discussion chiefly to the clinical applications of the large and growing body of evidence for the transmission of effects from the endings of nerve fibres to contiguous responsive cells by the liberation of chemical transmitters.

### Chemical Transmission at the Periphery

We may take for granted, as generally accepted, that the effects of impulses in the efferent post-ganglionic fibres of the autonomic nervous system are so transmitted to involuntary muscle and gland cells by the liberation of one of two known transmitters—adrenaline (sympathin) and acetylcholine. In this case the nature of the transmitter determines also whether the effect produced by the arrival of nerve impulses at the endings will be augmentation or inhibition of a spontaneous activity, and the two transmitters commonly produce opposite effects on the same layer of involuntary muscle. How they do so is one of the fundamental problems of pharmacology, but we might note in passing that it does not seem to have any intelligible relation to the hypothesis, which we shall meet later, according to which conduction of excitation along nerve fibres and from their endings to receptive cells, is one uniform and electrically conducted process, everywhere due to the depolarizing effect of liberated acetylcholine.

For the purpose of the discussion I think that it must be said that these phenomena of chemical transmission from peripheral involuntary nerve endings, though we have been considering them as theoretical possibilities for nearly 45 years and have known them as well-established experimental facts for more than 25 years, have had relatively little influence on the understanding of clinical conditions. Their main effect on clinical practice has been, I think, to clarify understanding of the actions of well-known medicinal agents such as atropine, physostigmine, adrenaline itself, and the ergot alkaloids, and to guide the search for new ones such as carbachol, prostigmin, the fluorophosphonates and simpler organic phosphates, ephedrine, and others. It may be, however, that the application of this more intimate knowledge concerning the mechanism of the

control of such involuntary functions has not yet been exploited to its full value in clinical medicine.

I suspect that it may have been largely forgotten by now that Otto Loewi, many years before his epoch-making experiments on chemical transmission, had described in Graves's disease a supersensitiveness of involuntary muscle to adrenaline of such a kind that the mere instillation of it into the conjunctival sac of the patient produced abnormally a dilatation of the pupil. I wonder whether there may not be other abnormal reactions of involuntary muscle to the transmitters or their analogues yet to be discovered which might be useful in diagnosis or indicative of aetiology. I know, of course, that there has been a voluminous literature on what were called the "vagotonic" and the "sympathicotonic" diatheses, and I am not unaware of the perils to which a sprightly imagination may expose its owner when given the freedom of such clinical borderlands. I only raise the question, then, whether the positive knowledge and the specific reagents which we now possess might not be used to commit some of such conceptions to the crucible of experiment, and to enable us perhaps, with the refined product, to approach nearer to the ideal of that stimulating sceptic among my clinical teachers the late Mr Barrett Lockwood, who used to offer to believe in a diathesis when one of his physician colleagues could show it to him "on a plate".

Before leaving the transmission of nervous effects at the periphery to involuntary effectors we ought to take note of the suggestion that histamine may act as a third transmitter. The evidence, not yet by any means so definite as for the two already mentioned, indicates that histamine may be released by the so-called "antidromic" nerve impulses at the endings of those terminal nerve branches which supply the networks of minute blood vessels to the skin.

### Transmission at Ganglionic and Nerve-to-end-plate Synapses

I have no doubt that to-day's discussion will centre mainly on the interpretation of various defects of nervous and muscular function in the light of the evidence obtained in more recent years for a chemical transmission of the excitatory process from the endings of motor-nerve fibres to the motor end-plates of voluntary muscles, from the endings of preganglionic nerve fibres to the nerve-cells of autonomic ganglia, and perhaps at certain comparable synaptic junctions in the central nervous system. In all the cases concerning which we have clear evidence so far the

transmitter is acetylcholine, and the actions of that substance on the motor end-plates and on the autonomic ganglion cells are those which are grouped together as its nicotine actions, because these structures are sensitive to acetylcholine after atropine has annulled its peripheral effects on the involuntary effectors and are, on the other hand, made insensitive to acetylcholine by excess of nicotine, by curarine, or, as we must bear in mind, by a persistent excess of acetylcholine itself

Before we consider particular clinical abnormalities in relation to this conception we ought to have a clear idea of what it involves, and to note that it cannot yet be regarded as accepted by all who concern themselves with such matters. In the form in which my colleagues and I have advocated it the theory postulates chemical transmission at motor myoneural and ganglionic synapses as a process essentially different from that by which the excitatory process is conducted along either a nerve or a muscle fibre in continuity. It is incompatible, accordingly, with the facts that the excitatory transmission is irreciprocal only at these junctions and that it is blocked only at these by poisons such as curare or modified by such as physostigmine, contrasting sharply in these respects with conduction along continuous fibres, which goes equally well in both directions and is not elicited, stopped, or in any way modified by acetylcholine itself or by the alkaloids mentioned in concentrations even much greater than those which are so effective at the synapses. It may be said, further, that our conception restricts the transmitter function of acetylcholine to the sites where nervous impulses demonstrably liberate it, where it can be shown to act in the manner required, and where its action is annulled or modified by agents which comparably alter the effects of nerve impulses incident there.

We are content, while others seek further evidence, to accept the prevailing view of the momentary process of excitation at a point on a nerve or muscle fibre as due to a biochemical change, possibly the mobilization and reattachment of potassium ions, entailing a momentary loss or reversal of a resting surface-potential at each successive point as the process is conducted in either direction along the fibre by the successive closure of local electrical circuits. When this electrically conducted process reaches the ending of the nerve fibre we suppose that it releases a tiny charge of acetylcholine which during its momentary persistence causes an excitatory depolarization at the surface of ganglion cell or motor end-plate, presumably by a mobilization there of potassium ions, and that the process of excitation is then, as before, electrically propagated along the post-ganglionic nerve fibre or the muscle fibre. It is demonstrable by experiment that when ganglion cells or motor end-plates are treated with curarine they no longer respond to application of acetylcholine or to nerve impulses incident at the synaptic endings but still respond normally to the application of a potassium salt.

This conception, as I said, has not yet won general acceptance. There are those who find it difficult to resign the idea that electrical conduction will suffice to get the excitation across the junctions as well as along the continuous fibres, but they appear thus to become involved in complicated subsidiary hypotheses to account for the special character of transmission at the synapses and for the appearance there, on arrival of nerve impulses, of acetylcholine in a concentration adequate to excite ganglion cells or end-plates. Others, in particular Dr Nachmansohn, have also tried to eliminate the special character of synaptic transmission by supposing that the release and disappearance of acetylcholine provide also the mechanism for the excitatory depolarization at each successive point on nerve

and muscle fibre. They wish to have excitation everywhere cholinergic and everywhere electrically conducted. There is a kind of attraction, especially for some minds, in such comprehensive master-key conceptions. But the proponents of this one have also the formidable task of upholding it against most of the direct evidence. Nobody has been able to show that acetylcholine excites nerve fibres according to the most recent evidence they are as indifferent to it as to cane-sugar, while its excitation of effector and nerve cells first brought it to notice and has become a physiological commonplace. Even the fact that acetylcholine and the enzymes concerned with its formation and destruction are to be found along the course of nerve fibres and are not wholly concentrated at their endings applies only to cholinergic fibres, whereas others conduct impulses by a process not perceptibly different.

I think that it can also be claimed that this theory of the intervention of a special pharmacodynamic phase in the transmission of the excitatory process at these peripheral synapses, and especially from motor nerve endings to muscle end-plates, has already contributed to a better understanding of certain neuromuscular disorders than any which could be offered by the older theory of a uniform electrical mechanism of conduction along fibres and across synapses. On the latter basis we could only discuss whether a particular anomaly was due to abnormal function of nerve or of muscle, and it offered no special explanation for defects at the synapse when excitability and conductivity of both nerve and muscle were normal. There are, of course, conditions affecting nerve fibres or muscle fibres as a whole—the neuritis caused by diphtheria toxin or by other poisons, the nerve degeneration and muscular atrophy following the attack of the poliomyelitis virus on anterior horn cells, or other so called muscular dystrophies. None of these, however, are our concern. It is the functional defects or anomalies affecting transmission from motor nerve to muscle without anomaly of conduction in the fibres of nerve or muscle on which the evidence for a chemical mechanism at the junction throws light. Such anomalies may be produced by vegetable alkaloids or bacterial toxins, or by morbid conditions of obscure aetiology.

#### Action of Some Poisons

Perhaps the way in which the chemical theory can add detail and give a specific character to knowledge concerning transmission at a synapse can be most easily presented by considering first the actions of certain poisons. Since Claude Bernard we have known that curare blocks transmission from motor-nerve ending to muscle end plate, leaving both nerve and muscle fibre normally excitable and conductile. On the electrical theory of synaptic transmission we could go no further, curare might stop conduction in the naked nerve terminals or make the end plate inexcitable. Now we know by specific experiments, including those made by Buchthal with minute direct applications to the isolated unit, that curarine blocks the effect on the end-plate not only of an impulse reaching the nerve endings but also, and simultaneously, of the application of a minute quantity of acetylcholine, but leaves the same end plate normally responsive to direct electrical stimulation and to the application of a small dose of potassium chloride. This enables us to conclude that the effect of curarine is to make the muscle end-plate specifically insensitive to acetylcholine and the same can be shown to hold for the ganglion cell when curarine is appropriately applied to it. At the same time it makes clear the danger of applying such terms as "curarizing" or "curare-like" loosely to any action which interrupts or weakens transmission from motor nerve to voluntary muscle. There are obviously several ways in

which superficially similar effects of this kind could be brought about paralysis of conduction in the naked terminal nerve branches, failure of the adequate liberation of acetylcholine from their actual endings either because the depots normally holding it ready there for release are not adequately replenished or because, though full, they do not yield their store when a nerve impulse reaches them, and excess of cholinesterase in such relation to the depots that acetylcholine, though normally released, is destroyed too quickly to produce its full effect. All these should, if possible, be eliminated by experiment before an action is described as "curare-like". An example has recently been provided by the action of the extremely potent toxin of *Bacillus botulinus*. This interrupts the transmission and leaves both nerve and muscle normally excitable like curarine, but experimental analysis in greater detail has shown that the muscle end-plates remain normally responsive to acetylcholine and that it is the release of acetylcholine by nerve impulses which fails. The action is on the nervous side of the synapse, but whether on conductivity in the ultimate branches of the nerve fibres or on the filling or the stability of the depot for acetylcholine still remains to be discovered.

A more complicated problem is presented by the action of tetanus toxin when administered by injection into a muscle in such manner and dosage as to produce a local persistent tetanus of the muscle. As A. M. Harvey has shown, the condition seems to be accounted for by lowering of the retention-level of acetylcholine in the nerve-ending depots and a concomitant loss of cholinesterase from their neighbourhood so that acetylcholine leaks continuously on to the motor end plates, while the arrival of a nerve impulse at the endings elicits only a weak but repetitive twitch from the muscle. When the tetanus is abolished by curarine the muscle responds normally to direct stimulation. It does not seem possible to account for such a condition by any elaboration of the electrical theory of neuromuscular transmission.

It is instructive to note the kind of explanation the chemical transmission theory offers for the previously obscure apparent antagonism between physostigmine (eserine) and a partially paralytic dose of curarine. There seems to be no reason to suppose that physostigmine directly interferes with the depression by curarine of the sensitiveness of the muscle end-plate to acetylcholine. The position seems rather to be that in partial curarization the amounts of acetylcholine making effective contact with the end plates fall below the stimulation threshold for many of these, and for a greater proportion of them with the smaller though normally still supraliminal, charges of acetylcholine which are released by the later stimuli of a series. When physostigmine is given and depresses the cholinesterase in the neighbourhood of the depots it allows the acetylcholine reaching the end-plates again to rise above the stimulation threshold for a larger proportion of them, and even perhaps by its persistence to cause a repetitive response of some and thus still further to raise the total force of the resulting "twitch" towards the normal.

#### Anticholinesterases in Myasthenia Gravis

Probably the best example of the application of the chemical transmission theory to the elucidation of a morbid neuromuscular defect is afforded by myasthenia gravis. It is shown by Blake Pritchard that the response of a myasthenic muscle to rhythmic stimulation of its nerve was very different to that of one which had been partially paralysed by curare. Some years later Mary Waller was led by observations of the alleviation of such effects of curare by physostigmine to try the latter and its synthetic analogue,

known by the proprietary name "prostigmin," in the treatment of myasthenia. The evidence for the transmitter function of acetylcholine and for the part played therein by cholinesterase was at the time becoming more generally known. It was natural, therefore, to connect the demonstrated relief of the myasthenic condition by physostigmine and its analogues with the action of these substances—their only common and specific action, indeed—in depressing cholinesterase and thus protecting acetylcholine. More recently other substances, such as diisopropyl-fluorophosphate (DFP) and tetramethyl-pyrophosphate, having nothing in common with physostigmine and its more immediate analogues other than a powerful anticholinesterase action, have proved to be similarly effective, and we shall hear more about these later this morning.

It was natural to look for evidence of an abnormal amount of cholinesterase in the blood of the myasthenic, but a number of such attempts failed to produce evidence of significant departure from the normal average in this respect, nor have muscle biopsies given any clearer indication. We seem at present to be left with several possibilities—(1) It is not yet quite excluded that cholinesterase may be abnormally abundant in effective relation to the acetylcholine depots, though failure to find it in excess where it can be measured has rendered this unlikely, (2) there may be a defect of synthesis of acetylcholine and in consequence a defective replenishment of the depots at the nerve endings, (3) the sensitiveness of the muscle end-plates to acetylcholine may be lowered, as in partial poisoning by curarine—it may even be thus reduced by the action of an endogenous curarizing poison.

It will be clear that the remedial effect of the anticholinesterases could be accounted for by any one of these conditions, and thus affords no help in choosing among them. Experiments by Harvey and Lillenthal on the effects on the hand and forearm muscles of injecting acetylcholine directly into the brachial artery at the elbow seemed at first to suggest that the myasthenic muscles had an abnormally high sensitiveness to acetylcholine thus applied, giving a response to it which recalled that of a muscle at an early stage of the degeneration of its motor nerve. If this suggestion had been maintained it would have pointed to a defective storage of acetylcholine at the nerve endings, and thus to the causation of the myasthenia by a defect on the nervous side of the synapse. Later study of these responses has made it doubtful whether the contrast with that of the normal muscle is really of this kind—whether in fact the normal muscle is not more sensitive and in consequence more susceptible to the secondary depressant action of acetylcholine in the large arterial doses in which it was injected. If that were so the condition would be really like a partial paralysis by curare, causing a defect on the muscle side of the synapse, and the provenance of the poison causing it would become a matter of central interest. We could not, of course, overlook the possibility of the production of such a poison by an abnormally persistent thymus, the operative removal of which has been dramatically successful in a good proportion of severe cases of myasthenia though completely ineffective in others. We may hear something on the subject from Dr. Wilson, who has, I know, been examining thymuses removed by operation from myasthenics for the presence of a curarizing poison. Clearly, much more has to be discovered before we can regard the nature of this myasthenic defect as settled, but I do not think I go too far in claiming that the chemical transmission theory has helped to provide a new basis for its investigation.

Another condition, with which Dr. Brown is going to deal, is that of congenital myotonia (Thomsen's disease). I think



that the evidence which Dr Brown will produce will show that the fault in this disease is not so much in the nature of the neuromuscular transmission as in the anomalous response of the muscle fibres to any kind of stimulus, but I do not think it can be doubted that the chemical transmission theory, and the experimental criteria based upon it, assisted a rapid analysis and clear decision in this case also.

Mention should be made also, perhaps, of the recurrent familial paralysis following a large ingestion of carbohydrate, first found by Aitken, Allot, Castleden, and Walker to be associated with a fall in the potassium content of the serum to about one-half its normal value or less and to be promptly relieved by giving potassium chloride. There was no evidence for failure of the excitatory process before it reaches the muscle, which during the paralytic crisis fails to respond to direct electrical stimulation.

### Conclusion

I do not know whether anybody is going to deal in discussion with the recently advocated use of the quaternary tetraethylammonium salts in circulatory hypertension. Many years ago Dr Burn and I pointed out that, whereas the tetramethyl compounds had a powerful nicotine action, their tetraethyl homologues had only a rather weak action of the curare type. Acheson recently confirmed this, emphasizing the fact that, in contrast to curarine, the tetraethylammonium salts depress the responses of the ganglion cells to preganglionic impulses and to acetylcholine more potently than they affect those of the muscle end-plates. If there is reason, then, to attribute a hyperpnea to excessive outflow of preganglionic sympathetic impulses, tetramethylammonium salts might be expected preferentially to weaken their transmission through the ganglia.

Finally, the question which naturally excites a most urgent interest in the mind of anybody working in this field is that of the extent to which the evidence we have for a chemical transmission at the peripheral synapses provides an analogy for the mode of transmission at synapses in the central nervous system. If we are entitled to assume that cholinergic function at the synaptic endings will be marked by the presence of acetylcholine, and of the power to synthesize it, along the whole course of the fibres concerned, we can apparently conclude that the sensory fibres in the dorsal roots and tracts as far as the first synaptic connexions are definitely not cholinergic. Dr Feldberg and Miss Vogt on the other hand, have been finding by the same criterion evidence for a probable cholinergic function of the secondary neurones. Professor Miller is going to produce evidence of a more direct and functional kind for cholinergic transmission in the synapses of the hypoglossal nucleus and its connexions, and Professor Samson Wright is to deal with the action on central nervous functions of cholinesterases of various types. In the background, as it were, we have Professor Harvey's account of the very remarkable psychopathic effects, of the type of an anxiety neurosis produced in man by continued treatment with DFP in addition to the expected symptoms of excessive parasympathetic effects at the periphery. There is obviously a big field of possibilities here to be explored, and a need for great care and scientific discipline to prevent imaginative speculation from running ahead of the evidence. And we must not forget that, if we accept analogy as indicating even as a working hypothesis, the probability of a chemical mode of transmission at all central synapses, then we must be prepared to look for transmitters other than those already recognized at the periphery and to be on the alert for their discovery.

## FLOCCULATION TESTS: CHEMICAL AND CLINICAL SIGNIFICANCE\*

BY

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The application of the electrophoretic technique to pathological sera has led to the recognition of a relative increase in the serum gamma-globulin content as a fairly frequent event in certain diseases. These can be roughly divided into liver diseases—*hepatitis*, *cirrhosis*, *chronic passive congestion*—on the one hand, and *infections* on the other. (Longworth, Shedolsky, and MacInnes, 1939, Kellwick, 1940, Gray and Barron, 1943, Olhagen, 1947, Wuhrmann and Wunderly, 1947).

In the infective group the change is particularly prominent in bacterial endocarditis, malaria, lymphogranuloma, and certain cases of plasmacytoma, and probably reflects an increase of circulating antibody. In hepatic diseases it is thought to result from abnormal protein synthesis in the liver. In many of these conditions the demonstration of gamma-globulin excess could have considerable diagnostic and prognostic importance, as it often occurs without alteration of the total globulin level or of the albumin-globulin ratio. However, for technical reasons it is impracticable to rely on electrophoresis for routine diagnostic purposes and we may profitably inquire whether any technical short cut to the required information is available.

The short cuts proposed are of course the so called flocculation tests, and the large number of these that have been invented is perhaps an indication of the need for a reliable method of demonstrating the change in question. There are now at least nine tests that need to be considered. Listed in chronological order they are:

- Formol Gel (Gaté and Papacostas, 1920)
- Takata-Ara Reaction (Takata and Ara, 1926, Jezler, 1930)
- Weltmann Coagulation Band (Weltmann, 1930)
- Cephalin Cholesterol (Hanger, 1939)
- Colloidal Gold (Gray, 1940, MacLagan, 1944a, 1946)
- Thymol Turbidity (MacLagan, 1944b)
- Thymol Flocculation (Neefe, 1946a, MacLagan, 1947)
- Cadmium Sulphate (Wunderly and Wuhrmann, 1945)
- Sharlach Red (Majzels, 1946)
- Zinc Sulphate (Kunkel, 1947)

Most of these tests were invented on purely empirical grounds some years before their mechanism was understood, and it is only comparatively recently that their common chemical basis has been recognized. Although there are considerable individual variations in the different tests, it is now clear from the work of Gray (1940), Kabat, Hanger, Moore, and Landow (1943), Olhagen (1947), MacLagan and Bunn (1947), and Wuhrmann and Wunderly (1947) that they all become positive in the presence of a sufficient increase in the gamma-globulin fraction, particularly if the albumin is also reduced. The tests are technically simple and rapid in execution, and are capable of yielding results of diagnostic value within a few minutes or hours. In each case the reagent has no pronounced effect on normal serum but produces an easily observable result such as turbidity, flocculation, precipitation, or gel formation with abnormal sera.

\*Based on a paper read to the Section of Physiology included in Biochemistry, at the Annual Meeting of the British Medical Association, Cambridge, 1948.

## Chemical Basis of Tests

The chemical factors underlying the various tests are summarized in Tables I and II. Taking first the nature of

TABLE I

Test	Precipitating Agent	pH	Ionic Strength	Serum Dilution Factor
Takata-Ara	HgCl <sub>2</sub>	c 10	0.15	2-16
Formol gel	HCHO	c 8	0.15	1
Cephalin cholesterol	C.C. emulsion	c 8	0.12	26
CdSO <sub>4</sub>	CdSO <sub>4</sub>	c 8	0.10	1
Sharlach red	Sharlach red	c 8	0.075	2-8
Weltmann	CaCl <sub>2</sub>	c 8	0.02-0.002	51
Colloidal gold	Colloidal gold	7.8	0.01	61
Thymol	Thymol	7.8	0.01	61
ZnSO <sub>4</sub>	ZnSO <sub>4</sub>	7.5	0.002	61

TABLE II

Test	Protein Fractions Active		Correlation with Total Globulin	Diseases in which Most Useful
	Precipitating	Inhibiting		
Thymol Gold	$\gamma$ -globulin $\gamma$	Albumin Albumin $\alpha$ and $\beta$ globulin Albumin	Slight	Hepatitis Hepatitis infections
Cephalin cholesterol	( $\alpha\beta$ ) $\gamma$			Hepatitis
Takata-Ara	( $\alpha\beta$ ) $\gamma$			Liver disease
Formol gel	( $\alpha\beta$ ) $\gamma$		Close	Kala azar
Weltmann short	$\alpha\beta$		?	infections
long	$\gamma$			Lung
CdSO <sub>4</sub>	( $\alpha\beta$ ) $\gamma$		?	infections Infective hepatitis

the precipitating agents, these consist of salts of divalent metals (CaCl<sub>2</sub>, CdSO<sub>4</sub>, HgCl<sub>2</sub>, ZnSO<sub>4</sub>), organic protein precipitants (formaldehyde and thymol), or negatively charged colloidal solutions (gold, cephalin cholesterol, sharlach red). In the first two groups it is noteworthy that very low concentrations of reagent are employed, much lower than those ordinarily used for protein precipitation. In the case of the colloids the negative charge on the colloidal particles is unexpected in view of the similar negative charge on the protein under the conditions of the test. Evidently the reaction here is not merely one of mutual charge neutralization but must depend upon chemical differences in protein structure. As regards ease of preparation, the gold and cephalin-cholesterol reagents have given rise to certain difficulties and occasional discrepancies between the results obtained in different laboratories, but all the other reagents are easy to reproduce. A simplified method for preparation of the gold sol has recently been published (MacLagan, 1946).

The pH and ionic strength of the medium are all-important in these tests, and it will be seen that they all proceed in weakly alkaline solution—pH 7.5 to 10—and at low ionic strength (0.15-0.002). The striking effect of altering these two variables is particularly evident in the gold and thymol tests, which both work best at pH 7.8 and ionic strength 0.01 (MacLagan, 1944a, 1944b). These tests become quite unselective if carried out at, for example, pH 6 or at higher ionic strength, so that it is evidently desirable to exert an accurate control of pH with buffer solutions. This has been done in the gold and thymol tests but not in any of the others. Incidentally it is doubtful whether any buffer of much lower ionic strength than 0.01 would be efficient, and this level appears to be about the lowest compatible with accurate pH regulation. Thus the buffer proposed by Kunkel (1947) with an ionic strength about 0.001, is probably too weak to exert a decisive influence on the pH of the reaction mixture.

The serum dilution factor is important and is intimately connected with the last two variables. It has varied from 1 to 61 in the various tests, but the more successful ones employ a high dilution factor. Considerable dilution is in

any case necessary if the test is to proceed in a buffered solution at low ionic strength, so as to avoid interference from serum electrolytes. Thus the ionic strength of serum is about 0.15 and its bicarbonate content of 0.03 M buffers it to approximately pH 8 when exposed to the atmosphere, a sixtyfold dilution therefore permits reasonably accurate buffering at any desired pH at ionic strength 0.01 if a monovalent buffer such as barbitone is used.

## Electrophoretic Data

I have already mentioned the common factors of gamma-globulin and albumin which are concerned with all the tests. Table II summarizes the facts so far collected about the protein fractions active in the various tests by the workers already mentioned, and it will be seen that there are certain individual differences. Thus certain alpha and beta fractions are concerned with the cephalin-cholesterol, Takata-Ara, and formol-gel tests, while these alpha and beta fractions definitely inhibit the gold test. The thymol test appears to be simplest, since it depends only upon the albumin and gamma fractions. The Weltmann CaCl<sub>2</sub> test is really two separate tests, for according to Olhagen (1947) the shortened band indicates alpha- or beta-globulin excess while the lengthened band indicates gamma-globulin excess. Only the latter is therefore analogous to the other tests considered.

Although the data are scanty at present there are evident indications that qualitative changes in the electrophoretic fractions are important. Thus MacLagan and Bunn (1947) found that only the gamma-globulin separated from hepatitis serum produced flocculation with the thymol reagent, normal gamma-globulin gave a turbidity but no flocculation. Similarly in this work it was shown that only the hepatitis (alpha plus beta) fractions precipitated the cephalin-cholesterol and Takata reagents, normal alpha and beta fractions did not. There were also differences in the albumin fractions, normal albumin inhibiting the thymol turbidity test while hepatitis albumin did not. Similar differences in the inhibitory power of albumin fractions from different patients were noted by Guttman *et al* (1947) and Moore *et al* (1945) in a study of the cephalin-cholesterol test.

In apparent contradiction to the work on the thymol test discussed above are the results of Cohen and Thompson (1947) and Kunkel and Hoagland (1947), showing a fall mainly in the beta-globulin content of sera treated with the thymol reagent. However, since it is generally agreed that isolated beta fractions do not react with thymol, the significance of this observation is open to doubt. It may well be that the thymol removes phospholipid from the beta fraction and so produces an apparent fall in the beta-globulin. It is in fact well known that the presence of phospholipids is essential to the thymol reaction and that they are associated mainly with the beta-globulin fraction. Nevertheless, while isolated gamma-globulin plus phospholipid (or plus beta-globulin) will give a turbidity with thymol, isolated beta-globulin either alone or with added phospholipid has not done so in any experiment so far reported. It would appear therefore that the gamma-globulin is the important fraction and that the beta fraction acts only by contributing phospholipid.

As a corollary to this, occasional sera with grossly excessive lipid content may give "false" positive reactions with thymol. These can be detected by raising the ionic strength of the thymol buffer (Kunkel and Hoagland, 1947). The addition of 5% w/v of NaCl is convenient. This will abolish reactions due to gamma-globulin and will not affect those due to lipaemia.

**Correlation with Total Serum Globulin**

The last two columns of Table II summarize certain features which are further illustrated in Figs 1-6. Since the tests aim at demonstrating excess of a particular type

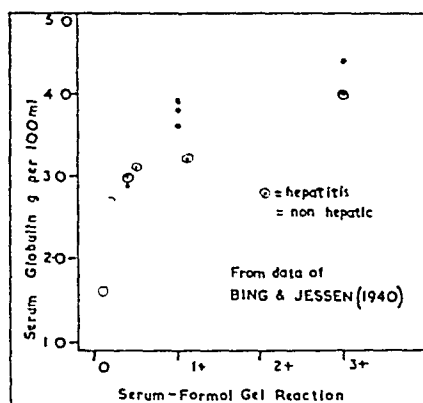


FIG 1

of globulin it is obviously important to compare them with the total globulin estimation. The figures also illustrate the relation of the various tests to liver diseases, the hepatitis cases being shown as dots in circles and the other diseases as dots.

Taking first the formol-gel test (Fig 1), it will be seen that all positive cases have total globulin values over

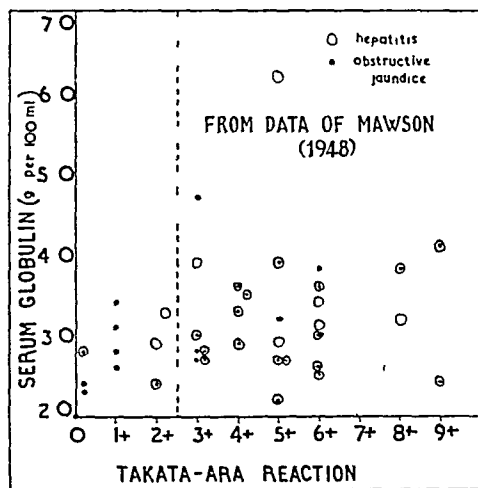


FIG 2

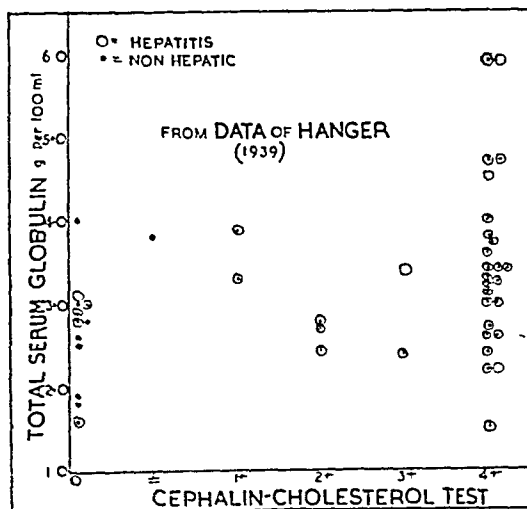


FIG 3

3.1 g per 100 ml, and there is no particular relation to hepatitis. This test therefore has little advantage over the total globulin estimation except that of technical simplicity. It would appear from Kunkel's (1947) report that similar remarks apply to the new ZnSO<sub>4</sub> test, although observations on this test in non-hepatic conditions are not yet available. The other tests on which similar data are available (Figs 2-6), however, show the exact opposite—namely, a predominance of positive results in hepatitis and little correlation with total globulin. Mawson's (1948) figures for

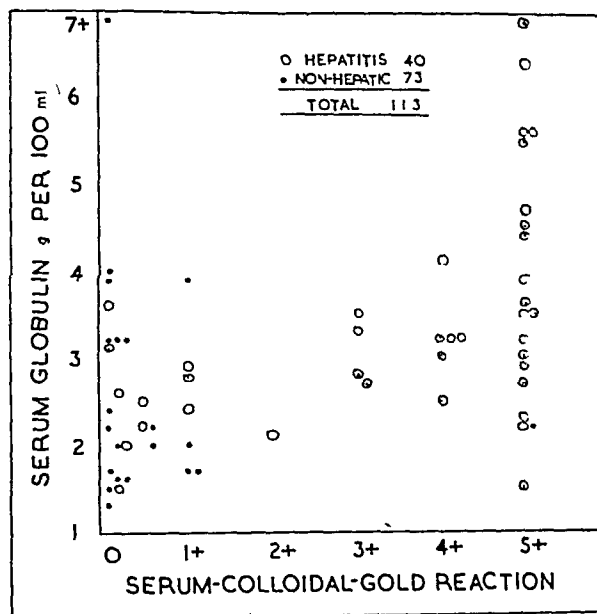


FIG 4

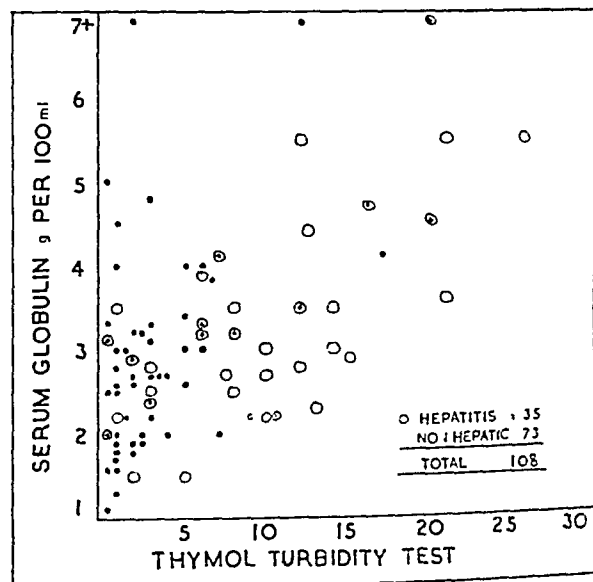


FIG 5

the Takata-Ara reaction (Fig 2) are not quite comparable with the others, as they refer only to jaundiced patients. It is, however, evident that with this test positive results are frequent in obstructive jaundice—i.e., in the absence of hepatitis.

**Value as Liver Function Tests**

The relative merits of the various tests can now be discussed, taking first their value as liver function tests. It is evident from Figs 1-6 that the thymol, gold, and cephalin-cholesterol tests are valuable indicators of hepatitis.

as most of the positive results were recorded in this condition. Some typical reports are summarized in Table III from which it will be seen that the sensitivity

TABLE III—Incidence of Positive Results in Liver Disease (% Positive)

Disease	Thymol	Gold	Cephalin Cholesterol	Takata Ara
Infective hepatitis	91-99 <sup>1</sup>	92 <sup>2</sup>	66-94 <sup>3</sup> 100 <sup>4</sup>	84 <sup>6</sup>
Post arsphenamine jaundice	47- <sup>5</sup>	47- <sup>5</sup>		
Hepatic cirrhosis	87- <sup>5</sup>	87-100 <sup>1</sup>	71-100 <sup>7</sup>	93 <sup>3</sup>
Obstructive jaundice	8 <sup>5</sup>	8 <sup>5</sup>	16-17-78 <sup>7</sup>	41 <sup>6</sup>

<sup>1</sup> Gray (1940) <sup>2</sup> Hanger (1939) <sup>3</sup> Jezler (1930) <sup>4</sup> Kirschner and Glickmann (1943) <sup>5</sup> MacLagan (1944b) <sup>6</sup> Mawson (1948) <sup>7</sup> Pohle and Stewart (1941) <sup>8</sup> Shank and Hoagland (1946)

of these tests in infective hepatitis and hepatic cirrhosis is very high, being in the neighbourhood of 90-100% in most of the series quoted. The proportion of positive results in post arsphenamine jaundice is, however, much lower, being only 47% in the case of the gold and thymol tests (MacLagan, 1944b, 1944c). It seems that a similar preponderance of negative results is found in homologous serum jaundice (Neefe, 1946b), and this difference fits in

The other tests mentioned seem to be less useful in the diagnosis of liver disease, although reports are in some cases conflicting or incomplete. It is claimed that the Sharlach-red test gives results very similar to the gold test (Maizels, 1946; Ducci, 1947), and the CdSO<sub>4</sub> test has found some application in hepatitis (Wuhrmann and Wunderly, 1947). The large literature on the Takata-Ara reaction was reviewed by Magath (1940). The CaCl<sub>2</sub> test has found most application in non-hepatic conditions.

#### Value in Non-hepatic Conditions

All the tests tend to give positive results in infections of the type mentioned above, and such results may often be of diagnostic value. Thus the formol-gel test has been found useful in kala-azar (Napier, 1921), and the Takata-Ara reaction was originally used in pneumonia, in which it was said to help in differentiating lobar pneumonia from bronchopneumonia (Takata, 1925). The Weltmann test is said to indicate "exudative" or "fibrotic" changes, and has been particularly employed in lung infections in a manner rather similar to the sedimentation rate (Gradwohl, 1943). The CdSO<sub>4</sub> test has also been applied in this field.

Results of this type are perhaps less frequent with the gold, thymol, and cephalin-cholesterol tests, but they are by no means absent, and the gold test in particular has given a high percentage of positive results in heart failure, malaria, infective endocarditis, glandular fever, and rheumatoid arthritis (Carter and MacLagan, 1946). The cephalin-cholesterol test is also usually positive in malaria (Fredricks and Hoffbauer, 1945) and the thymol test in glandular fever (Cohn and Lidman, 1946). Such results can be of diagnostic help—for example, in a case of febrile rheumatic carditis with infective endocarditis as a possible complication positive flocculation tests would favour the graver diagnosis. In the infective group as a whole the tests probably depend mainly on antibody production and give easy and rapid evidence of this process. In heart failure, glandular fever, and possibly malaria, on the other hand, they probably reflect a true hepatic involvement in the disease and may have some prognostic value, particularly in heart failure. The unexplained high proportion of positive gold tests in rheumatoid arthritis is entirely different from the mainly negative findings in spondylitis ankylopoietica, and forms a useful point of distinction between these two diseases (Hart *et al.* 1948).

The possible application of the tests in protein chemistry and in immunology has been little explored. If they can detect differences between protein fractions which are electrophoretically identical they must have some contribution to make to the characterization of proteins in general. Thus they have already been able to show differences between all the electrophoretic practices obtained from normal and hepatitis sera respectively. In this sense they may form a useful addition to the electrophoretic method.

#### Discussion

The principal result of the work which has been reviewed here is that this group of tests can now be seen as a whole and an attempt made to assess their value. It would seem that they are now entitled to be lifted from the realm of doubtful and mysterious procedures to the status of practical short cuts to the demonstration of a particular type of protein change in the serum. This may be described as a relative gamma-globulin excess, and the finding is of great diagnostic help in hepatitis and is of theoretical interest in various infective conditions. The possible clinical value in infections needs to be explored by further study. The information obtained from the tests is additional and complementary to the usual serum protein estimations, and the

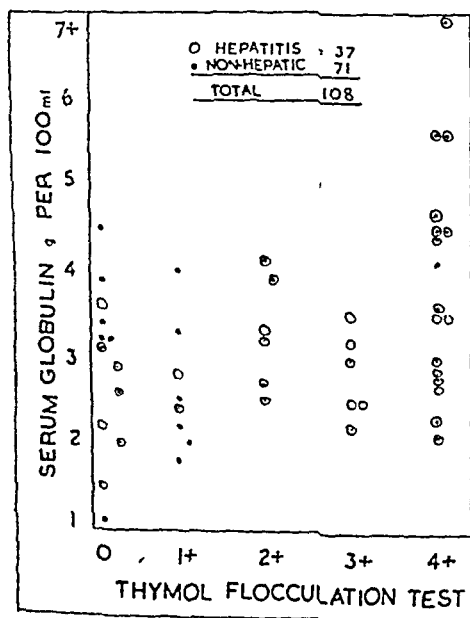


FIG 6

well with the very definite immunological difference that has been demonstrated between infective hepatitis and homologous serum jaundice, which are now thought to be due to different viruses (Neefe, Stokes, and Gellis, 1945). The Takata-Ara reaction gives somewhat similar results to the others in cirrhosis, but has not been so widely used in acute hepatitis.

The results in obstructive jaundice are, however, very different with these four tests, thymol and gold giving mainly negative results, while cephalin cholesterol and Takata-Ara are often positive (16% to 78%). This gives a definite advantage to the thymol and gold tests for the special purpose of investigating jaundice of doubtful origin, in which they have proved very useful (MacLagan, 1944c).

The detection of residual hepatitis after an acute attack is an example of where the thymol test has found particular application as shown particularly in the work of MacLagan (1944c) who found that the thymol flocculation test remained positive for as long as a year after an attack of hepatitis being associated in this case with residual evidence of hepatic damage.

proportion of positive results in the conditions indicated is in general much higher than the incidence of high total globulin values or of changes in the albumin-globulin ratio. On account of the non specific nature of the tests they must always be interpreted with due regard to the general clinical background, a proviso which would of course apply to most laboratory investigations.

As regards the relative merits of the various tests there is room for considerable difference of opinion. However, from the physico-chemical angle it can be said that the conditions are more accurately controlled in the case of the thymol and colloidal-gold tests, in which the pH and ionic strength are kept at optimum levels by means of buffer solutions. Study of purely clinical data suggests that the gold, thymol, and cephalin-cholesterol tests all have certain advantages, but in the study of liver disease the thymol test appears at present to be slightly superior. It also has the advantage that the reagent is easier to prepare than either of the other two. Most of the other tests mentioned are probably not so reliable as "liver function tests" but have found useful applications in the study of certain infections. The position of the shalch-red and zinc-sulphate turbidity tests needs to be elucidated by further study.

There is a certain advantage for routine purposes in using two tests of slightly different character, and my present preference is for the thymol (turbidity and flocculation) and the gold tests. The former is fairly specific for liver disease, the latter gives a greater sensitivity in conditions such as rheumatoid arthritis. However, the gold test might well be replaced by the cephalin-cholesterol test or possibly one of the other tests if difficulty is experienced in making up the gold sol. All the tests are so similar in principle that it is to be hoped that some degree of standardization will be eventually achieved, the ideal would be a single accepted test for demonstrating gamma-globulin excess.

### Summary

The chemical mechanism underlying the various flocculation tests has been considered, and the essential similarity of these tests is emphasized.

All the tests are influenced positively by serum gamma globulin and negatively by albumin. The alpha- and beta-globulin fractions do not influence the thymol test but have a variable effect on the others.

The formol-gel and ZnSO<sub>4</sub> tests are closely correlated with total serum globulin, the others have little correlation with total globulin.

The relative value of the various tests as indicators of hepatic dysfunction and of antibody formation is discussed.

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## THE CONSERVATIVE TREATMENT OF PLACENTA PRAEVA

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In every discussion on the treatment of placenta praevia there are two fundamental questions to be answered—namely, what to do and when to do it. The former has fortunately been simplified with the increasing safety of the lower-segment caesarean operation, and the procedure of choice will usually be either rupture of membranes or abdominal delivery. However, the optimum timing of this intervention remains a matter of opinion on which authorities are at variance. It has long been taught, with considerable emphasis in many schools, that expectant treatment of a diagnosed or suspected placenta praevia can never be countenanced. This principle has been based upon the not unnatural supposition that a patient with a major degree of placenta praevia would in the absence of intervention frequently bleed to death, and that fatal haemorrhage might ensue at any time without warning. Evidence is accumulating, however, to suggest that more tragedies are produced nowadays by overtreatment than by neglect, and that in some cases delay might even benefit mother as well as foetus, for in the borderline case rupture of forewaters can be performed with far more confidence when it has been possible to delay until the uterus is contracting and the cervix open.

An American obstetrician (Johnson, 1946), in an enthusiastic overstatement to prove his case, has promised a reward for records of any case of placenta praevia in which death from haemorrhage has followed strict non intervention in all stages of labour. It has apparently not been claimed, but this does not necessarily prove anything, since no doctor could remain idle in expectation of seeing his patient die from haemorrhage. This helps to emphasize the fact that there are natural ways of arrest of haemorrhage from a placenta praevia. In rare instances the placenta may actually be delivered spontaneously in front of the foetus with remarkably slight blood loss (Lloyd, 1947, reported below). It cannot be denied that some cases of placenta praevia have sudden haemorrhages which may be most alarming and require urgent blood transfusion if the uterus is not emptied as a routine as soon as the condition is suspected. On the other hand, a period of delay might facilitate treatment and decrease the number of caesarean sections, and it assuredly will lower the appalling foetal loss from prematurity.

A brief review will be given of the recent pertinent literature and a series of 100 cases presented in an effort to assess the advantages and risks to mother and child that may be expected with conservative treatment

### Recent Literature

Probably the finest series of cases in which treatment was based strictly on the old principle of immediate intervention was reported from Chicago by Davis and Campbell (1946). Treatment was generally confined to caesarean section or rupture of the membranes according to the position of the placenta as felt on vaginal examination shortly after the patient had been admitted to hospital, maternal mortality was as low as 0.6% (two deaths in 325 cases), which compares extremely favourably with the figure of 5.9% compiled by Professor F. J. Browne (1946) from 3,103 cases in recent records of 11 British teaching hospitals. The caesarean section rate was 40%, and blood transfusion was given to 40% of patients (a high figure). Quoting a foetal mortality of 32%, the authors state that "the most important cause of foetal death was prematurity," and "the premature infant has been considered expendable to ensure the greatest possible safety for the mother." Although this figure for foetal loss is decidedly better than that of 54.2% in Browne's series, it is not nearly low enough, and other authorities claim that judicious conservatism will give equally good maternal results with considerably improved chances for the baby.

Expectant treatment was championed simultaneously on both sides of the Atlantic by Macafee (1945) and Johnson (1945). Both based their treatment on the contention that in the absence of vaginal manipulation the first haemorrhage from a placenta praevia will never be fatal, and subsequent haemorrhages will not be fatal so long as the haemoglobin level of the blood is normal at the onset of bleeding. Macafee reported a personal series of 174 cases with one death and a foetal loss of only 23.5%, yet this figure included six foetal abnormalities and nine other cases in which the low implantation of umbilical cord into placenta made foetal death almost inevitable after a severe haemorrhage. An improved figure for foetal loss of only 6% was achieved in the last 47 cases. This revolutionary conception of foetal risk was attained by extreme conservatism: the principle was laid down that no vaginal examination should be made unless and until it could be followed immediately by whatever treatment was required for delivery (e.g., caesarean section). Thus a patient would be put to bed to wait until the last few weeks of pregnancy, regardless of repeated "warning" haemorrhages so long as there was no undue anaemia, and with increasing experience there was less cause for alarm over any one apparently severe attack of bleeding. Macafee states significantly that "among these patients there has been nothing to confirm the belief that recurrent haemorrhages tend to lead up to one catastrophic haemorrhage." He permitted a period of delay in over half the cases, one patient spending 14 weeks in bed while another had nine attacks of bleeding, yet blood transfusion was required in only 13% of patients, and 22% (not a high figure) were delivered by caesarean section.

Johnson (1945) treated 79 cases of placenta praevia with one maternal death and with loss of 22% of babies. His high (53%) caesarean section rate is an index of his reluctance to interfere vaginally in any way at all, and he states "a non-traumatized placenta praevia will not bleed." Johnson sums up his general attitude as "to check the validity of Macafee and his colleagues." Yepes and Eastman (1946) summarize the results of cases that had been treated during the past

half-century along conventional lines in the Johns Hopkins Hospital. The maternal mortality had been reduced during the period from 13.8% to 0.9%, but the foetal loss had improved only from 78.5% to 46.8%. They found that in no instance had an initial or subsequent haemorrhage been the cause of death except in association with extensive vaginal manipulation, and that the only patient to die undelivered (in 1920) had refused treatment, had become profoundly anaemic from four subsequent attacks of haemorrhage at home, and had finally died after vaginal manipulations.

Daichman and Pomerance (1947) reported a series of 165 cases over an eleven-year period, with one maternal death and a foetal loss of 26%. They attribute their good results to a rather liberal use of caesarean section (59%) and a gradual increase in expectant treatment. They consider that it is safe to temporize "when the infant is near viability," implying that repeated haemorrhage is less likely to occur before the last few weeks of gestation; this may not be altogether true, but it serves to underline their approval of at least a limited conservatism.

Finally, Williams (1948) reported a series of 105 cases with only one maternal death over an eleven-year period, the foetal loss was 28% and the caesarean section rate 42%. However, there were 41 cases (39%) treated expectantly, and of these the foetal mortality was only 12%. He thus endorses the great improvement in foetal chances of survival that may be expected with this treatment.

After such apparent success of varying degrees of conservative treatment it was disappointing to hear reactionary views from Scotland expressed by Sturrock, Stirling, and Tennent (1947). A series of 228 cases was quoted from Edinburgh with only two maternal deaths but a foetal loss of 39%; conservative treatment had been practised in 6%, and the authors express no enthusiasm for it on account of "the close vigilance required and the smooth and speedy application of appropriate treatment essential in the presence of the sudden further haemorrhage." The Glasgow school, quoting 505 cases, in 27% of which there had been at least 24 hours' delay before instituting active treatment, was very discouraging: the overall figures showed 18 maternal deaths, 34% foetal loss, and 55% caesarean sections, while in the delayed group there was a slightly higher foetal loss with considerably greater maternal morbidity. The significance of these results may perhaps be offset by the selection of their group for delayed treatment, so that direct comparison of results between the two groups is not applicable. Another factor that might have affected the expectant group adversely is a variation from the more usual management of this type of case: vaginal examination of the more serious cases was conducted under anaesthesia in only 1 or 2% of patients.

To conclude this summary of available evidence it may be stated that most of the obstetricians who have reported their experiences of the expectant treatment of placenta praevia appear to have been favourably impressed with the results.

### Personal Experience

In the following report a small series of cases has been analysed in an attempt to ascertain how nearly the results of Macafee and Johnson can be equalled in a busy hospital in which responsibility for emergencies devolves upon all members of the honorary staff. It is obvious that the principles of conservative delay (with its worries and disadvantages) are unlikely to be accepted as quickly and comprehensively as when all experience is gained and all responsibility accepted by one man. It is therefore encouraging to record a consecutive series of 100 cases of placenta praevia (95 in 1947 and 5 in 1948) treated at



the Birmingham Maternity Hospital by six members of the staff with no maternal deaths and the loss of only 17 out of 103 babies (stillbirths and neonatal deaths in hospital). There had been no maternal death from placenta praevia in the three years prior to this series.

The principles of treatment were as follows. There was general agreement among the staff that so far as possible no infant should be delivered before about the 37th week of gestation, although, if the foetus appeared to be very well developed and there were other indications, a week or two earlier might be allowed. After the 37th week it was considered that the risks to the foetus of asphyxia following a severe haemorrhage, and the now unnecessary loss of blood to the mother outweighed the advantages of the last few possible weeks *in utero*, consequently a severe haemorrhage in the last three or four weeks was considered an indication to empty the uterus before this it called for conservative treatment. However, there was considerable divergence of opinion among the staff about the wisdom of continued delay in the face of repeated haemorrhage, and inevitably there were occasions on which active intervention was deemed advisable in maternal interests when another surgeon might have advised procrustation still further.

The usual procedure in the case of haemorrhage before the 37th week was to admit the patient to hospital, examine the cervix with a speculum, give morphine as required, and wait for bleeding to stop, the haemoglobin level was checked, the blood grouped and the rhesus test performed, and blood cross matched for transfusion in the more serious cases. After several days without further loss primigravid patients were often sent home to bed and most cases with only a slight loss before the 32nd week were allowed up and sent out with instructions that in the event of further haemorrhage they should go straight to bed and discourage any vaginal examination. No attempt was made at radiographic diagnosis of the placental site. No vaginal examination was to be made in hospital until the formal procedure under an anaesthetic with the theatre set for caesarean section generally after the 36th week. The date of this examination depended on the size of the baby, the recurrence of haemorrhage, and the attitude of the surgeon to repeated blood loss and also on the reaction of the foetal heart to each attack of haemorrhage. As a general rule the procedure adopted was caesarean section for cases in which the placenta was palpated across the cervix or coming up to its margin (the second, third, and fourth degrees of Professor F J Browne) with rupture of membranes for the others. Sometimes a second degree case in a multipara would be treated by rupture of membranes with application of Willett's forceps to the scalp, or bringing down a leg of a flexed breech if this could be done easily through a dilating cervix, thus one would be able to exert traction on the presenting part should the bleeding be uncontrolled. Bipolar version and subsequent breech extraction was employed only twice, on patients whose babies were already dead.

The anaesthetic for the examination was generally thiopentone and it was usually followed by gas-oxygen-ether or 'trilene' for the section a number of severe cases in which the diagnosis appeared self-evident, however were operated on under spinal or local analgesia without any vaginal examination in an effort to avoid further foetal distress. The lower-segment operation was generally used. Blood transfusion was given freely being set up before the vaginal examination in all cases of dangerous haemorrhage. It was used in 21 cases including three occasions for post-partum haemorrhage following vaginal delivery. Statistics are given in Table I.

### Conservative Treatment

Macfee quotes a figure of over 50% for cases of placenta praevia in which conservative treatment was practicable. This was by no means so in the series under consideration. There were two reasons: in the first place the majority of patients had already experienced one or more attacks of bleeding before admission and successful (though often ill advised and hazardous) conservative treatment had been practised by their practitioners; consequently the majority of those admitted were already in the last month of pregnancy. Secondly a distressingly large number of patients had already been examined

vaginally outside hospital, and this misplaced active intervention had often produced serious exacerbation of haemorrhage and sometimes foetal distress. There were in fact only 26 patients (27 babies) admitted with bleeding before the 36th week, and as one patient was already in labour and two babies were dead there were only 24 cases in which it is considered that planned conservative treatment was possible. These are summarized in Table II.

TABLE I—Statistical Summary

Cases of placenta praevia	100
Babies delivered	103
Maternal deaths	0
Foetal and neonatal loss	17 (16.5%)
Types of placenta	
1st degree	43
2nd	28
3rd	25
4th	4
Primigravidae	32
with 1st degree placenta praevia	19 (59%)
Treatment	
Caesarean section (including 2 following A R M)	47
A R M alone	22
A R M Willett's forceps*	5
A R M bringing down leg*	5
Internal version and extraction	2
Non intervention†	14
Forceps delivery†	4
Craniotomy†	1

\* Subsequent traction rarely required

† No treatment needed for haemorrhage

TABLE II—Conservative Treatment

Conservatism possible	24
not used	4 (foetal loss 3)
attempted	20 (3)
abandoned within 7 days	4 (0)
persisted for over 7 days	16 (3)

### Maternal Prognosis

The maternal prognosis under the conservative regime has not apparently deteriorated in any way, and in very few cases was there ever cause for the slightest alarm, this may have been partly due to a natural reluctance to continue procrustation in the face of repeated bleeding, but the morale of the resident staff, as well as the safety of the patients, was certainly maintained by a good supply of readily available blood for transfusion. On several occasions there was a sudden loss of 15–20 oz (425–570 ml) of blood, usually in the middle of the night, but experience soon confirmed Macfee's statement that these haemorrhages are not catastrophic. In fact it can be categorically stated that in no instance was maternal life endangered by conservative treatment: there were no deaths and no near deaths. In the 16 cases in which conservatism was practised for a week or more, in hospital or after discharge home, the maximum period of delay was 8 weeks and the average 17 days. Of the four cases in which active treatment was adopted in less than a week two had recurrent haemorrhage, one had pre-eclamptic toxæmia, and one had spontaneous premature labour.

### Foetal Prognosis

The reduction of foetal loss is the real justification of conservative treatment, and the figure of 16.5% compares favourably with F J Browne's collected figure of 54% and with other series where active intervention has been adopted. That the improvement chiefly affects the premature component of the foetal death rate is shown by the 24 quoted cases in which the patient was admitted before the 36th week and conservatism was possible when it was practised the loss was 15%, and when it was neglected the loss was 75%. The whole subject of foetal death in relation to placenta praevia is so important that an analysis has been made of the cases in this series and an effort has been made to determine how far foetal

TABLE III—Analysis of the 17 Foetal Deaths

Associated with prematurity	6
Possible mismanagement	5
Misfortune	1
Apparently inevitable	5

mortality may be reduced by conservative strategy and skilled tactics and what may be the hard core of inevitable loss. Table III gives a rough classification of the 17 cases.

In any discussion on the inevitability or otherwise of foetal death it is essential that outside practitioners and hospital staff should be considered together as one therapeutic unit. In no

case should loss of a baby be classed as inevitable on the grounds that the damage was done before admission to hospital, and it is only by a consideration of the mistakes of the practitioners, as well as the possible accidents or errors committed inside hospital, that a true estimate of optimum foetal prognosis may be made

There were six foetal deaths associated with prematurity, and four of these patients had had vaginal examinations which had precipitated further bleeding before admission, in one case the foetus was dead on admission and in another the patient was already in labour, though it is difficult to be certain how far these facts are attributable to intervention. In the other two cases which had already been examined it was decided that conservative delay was unlikely to be successful, and both were examined under anaesthesia, followed by section for one and rupture of membranes for the other. Of the two patients who had had no intervention, one was kept in hospital for two weeks (29th to 31st) and then delivered because of repeated minor haemorrhage, the other (at the 34th week) was delivered at once. Both had caesarean sections and both infants died as the result of prematurity. It is probable that if intervention had been longer delayed the chances of survival of these two infants would have been materially increased, with little if any, added maternal risk.

It is unfortunately necessary to record five cases in which foetal death followed mismanagement in some stage of the patient's treatment either by the practitioner outside or by the resident staff in hospital. The first, a 3-gravida with no living children, had four "warning" haemorrhages in the last month of pregnancy before a final severe bleeding for which she was admitted in labour at term, there was profound foetal asphyxia, and despite immediate caesarean section the child failed to survive. At operation it was found that the cord was inserted into the placenta immediately over the internal os. This case serves to emphasize that in the last weeks of pregnancy conservative treatment may not be in the interest of the foetus. The second case illustrates the same lesson. A 2-gravida was admitted following an initial severe haemorrhage at the 38th week. There was no foetal distress, and examination was delayed on account of other supposedly more urgent work, but three hours later the foetal heart rate fell to 104 and caesarean section, though urgently performed failed to save the child, it lived for a few hours, and necropsy showed severe asphyxial changes in the viscera. The third case (reported elsewhere, Mills, 1948) was one of vaginal delivery of a multipara despite a third degree placenta praevia. Premature rupture of membranes without bleeding had led to the erroneous conclusion that the os must be at least partly covered by membranes, and the patient was delivered by traction on Willett's forceps, which controlled bleeding but asphyxiated the baby. Finally, there were two cases in which bad technical errors were made. A baby was lost from cerebral haemorrhage during forceps extraction at the 36th week following two weeks' successful conservative treatment of a primigravida, and a foetus died from asphyxia in the first stage of labour owing to compression of a posterior placenta praevia by the descending head in a primigravida patient in whom placenta praevia had not been suspected. These five cases represent five unnecessary foetal deaths.

The one case of 'misfortune' was an 8-lb (3.63 kg) baby which died from neonatal infection when a fortnight old.

There were five cases in which foetal death appears to have been unavoidable. Two of these were cases of vasa praevia, in one of which only the first of twins was lost, while in the other there was no haemorrhage until the presenting vessel was torn with the rupture of the membranes early in labour. There was one hydrops foetalis. One case appeared to be an association of placenta praevia with accidental retroplacental haemorrhage and rapid foetal asphyxia. The final case (reported elsewhere, Lloyd, 1947) was one in which the placenta became fully separated early in labour with no alarming haemorrhage and was found lying loose in the vagina at examination for an impacted shoulder presentation.

There is thus reason to believe that with good luck, more skilful management and a more resolute adoption of conservative principles the foetal loss in the cases outlined above might have been reduced from 17 to 7 without in any way increasing the maternal dangers.

## Conclusions

The number of cases of placenta praevia in which it is possible and advisable to adopt conservative measures depends upon the stage in pregnancy at which the patient is sent to hospital for advice. If this is sought after the first haemorrhage, and there has been no previous intervention, Macafee's experience shows that deferring of active treatment may be practicable in over 50% of cases, but if, as is shown in this series, there has already been procrastination or examination before admission, then this number may be reduced to about 25%.

Conservative treatment has advantages and disadvantages for the mother, the latter are the more obvious. She must either be confined to hospital or lead a very restricted existence at home for a number of weeks, and she may sometimes be required to suffer further haemorrhage, on the other hand, there is little, if any, increased danger to life, and there is a slightly lower chance of the need for delivery by caesarean section. If, however, caesarean section should eventually become necessary there is a much greater probability that she will get a live baby in compensation.

The advantages to the foetus of conservative delay greatly outweigh the risks, since maturity is the prime requisite for foetal survival. However, it must not be forgotten that any serious haemorrhage may suddenly produce foetal asphyxia and consequently delay of even a few hours is unjustifiable when the foetus has reached a satisfactory stage of development. Since conservative treatment has been adopted for placenta praevia the published reports show for the first time a foetal and neonatal loss below 30%.

Finally, it is considered that the careful adoption of conservative measures in suitable cases is practicable only in a hospital serving an area blessed with reasonably good transport facilities, a good blood-transfusion service, and an adequate standard of general nutrition among its patients, further, it will naturally require a sufficiency of antenatal beds and an experienced resident staff. In these circumstances, given co-operation from the local practitioners, there is every opportunity for the reduction of foetal mortality in placenta praevia to a figure in the region of 10% while the maternal mortality remains at its present minimal figure.

## Summary

Recent literature relative to the conservative treatment of placenta praevia is reviewed.

A series of 100 cases of placenta praevia treated largely along conservative lines is reported, there were no maternal deaths, and the foetal and neonatal loss was 16.5%, which compares favourably with other recently reported figures.

The causes of foetal death in this series are analysed, the majority would appear to have been avoidable.

Conclusions are drawn regarding the present scope of conservative treatment.

My thanks are due to Professor Chassar Moir for helpful criticism and advice, to Miss P. Challons for assistance with hospital records, and to the honorary staff of the Birmingham Maternity Hospital for permission to publish their cases.

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# THE DIAGNOSIS OF LATENT TETANY WITH OBSERVATIONS ON THE EFFECT OF CALCIFEROL

BY

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The object of this publication is to call attention to some pitfalls in the diagnosis of latent tetany and to show that the usual diagnostic methods are inadequate. A more detailed account of a new hyperventilation test which was mentioned in a preliminary communication (O'Donovan, 1945) is included.

The 34 patients studied were adults and adolescents, and almost all had chronic latent tetany. This may be important, as most writers on the subject deal with children and with acute or transient tetany. All the patients in this series had hypocalcaemia—i.e., less than 9 mg per 100 ml of serum calcium. With the method used (Clark and Collip, 1925) the normal serum calcium varied from 9.5 to 11.5 mg per 100 ml, but it is fairly reasonable to presume that figures between 9 and 9.5 mg are not definitely abnormal. Hypocalcaemia is here assumed to be synonymous with latent tetany, as none of the patients had renal disease or any gross abnormality of their serum protein. If the methods of diagnosis of latent tetany in hypocalcaemia are reliable they should also be reliable in other causes of latent tetany.

It will be noted from the Table that the number of observations exceeds the number of individual patients, since patients were usually seen at intervals of six to twelve

*Tests for Latent Tetany on Hypocalcaemic Patients not Receiving Calciferol*

	No of Patients	No of Observations	No of Positive Reactions	Positive	Negative
Chvostek's sign	30	85	23	27%	73%
Trousseau's sign	32	89	59	66%	34%
Combined test	13	27	23	85%	15%
Trousseau's sign and the combined test where necessary	32	58	55	95%	5%

months. Only one observation was recorded when a patient was studied daily for some days and there was no gross change in serum calcium or signs of latent tetany.

The patients' hypocalcaemia was due to surgical hypoparathyroidism (14 cases), apparent idiopathic hypoparathyroidism (2 cases), or calcium deficiency (18 cases). The last-named were mostly cases of idiopathic steatorrhoea, although dietary deficiency may have influenced some. When patients were given calciferol (50,000 to 100,000 units daily) the calcium intake was kept at an approximately normal level by instructing them to take half a pint of milk daily in addition to the usual diet.

## Signs of Latent Tetany without Calciferol Therapy

Erb's sign of electrical excitability is not considered here, as it is not a feasible procedure in ordinary clinical examinations. It is unreliable in minor degrees of latent tetany in which an improved method of diagnosis is needed. It is also not so objective and clear-cut as some descriptions would lead us to believe.

Chvostek's sign is so unreliable that its sole merit is its convenience. In only 27% of observations (see Table)

\*Assisted by a grant in aid from the Medical Research Council of Ireland.

was it found positive. If it has any value it is in recent or acute tetany, as it was observed to be strongly positive in 9 out of 11 cases of hypoparathyroidism within three days after thyroidectomy. It is considered that when the tap on the facial nerve causes contraction around the mouth, nose, and eyes (+ 3 response) there is very satisfactory evidence of latent tetany and biochemical investigation is indicated. A negative or trace reaction involving the upper lip is of no significance, and should not exclude the other clinical tests for tetany.

## Trousseau's Sign

This was found positive in 66% of observations (see Table). It is very dependable, as it is rarely positive in normal subjects. It is, however, sometimes positive in people of a hysterical type or in workers whose hands are held in a semi-tetanic position for some hours daily—e.g., seamstresses, cobblers, and glove or leather stitchers. Another source of error may be avoided if the test is always done on the arm that is more often used, as it is rarely positive on that side only (O'Donovan, 1945).

The technique of Trousseau's sign is seldom described adequately. The tourniquet should be applied at greater than systolic blood pressure so that the radial pulse is obliterated. This should be checked during the test. The tourniquet should be applied without painful nipping of the skin, and a sphygmomanometer is therefore advisable. For a very obese or heavy muscular arm a pressure pad may be applied on the brachial vessels and nerves. The presence of carpal spasm should be checked by feeling the muscles, as an experienced patient may voluntarily assume the position. If no cramp appears after four minutes the test may safely be considered negative.

## The Hyperventilation Test

Various attempts have been made to utilize the response to hyperventilation as a diagnostic aid in latent tetany. Most authors mention the induction of tetany by hyperventilation, stating the time but not the rate. Lachmann (1941) in a detailed study of the subject considered hyperventilation a reliable means of revealing latent tetany, even more reliable than Trousseau's phenomenon, but his report did not mention controls. My first attempt (O'Donovan, 1943, 1945) to use hyperventilation consisted in getting the subject to breathe at the rate of 55 to 60 a minute for three minutes. If no tetanic manifestation appeared by then latent tetany was ruled out. In 72 normal adult controls it was observed that only 9 developed carpal cramp at or before three minutes.

This procedure has little practical value, as patients are likely to develop disturbing generalized signs and symptoms after hyperventilation for two or more minutes. Usually, it is also found positive only when the tourniquet test is already positive, therefore no further information is gained. In only 7 out of 64 instances of hypocalcaemia did it indicate latent tetany when the tourniquet test was negative. Details are given in the previous publications (O'Donovan, 1943, 1945).

## The Combined Test

Hyperventilation was found to be more practical in application if it was used only when the tourniquet test was negative and if begun immediately after release of the tourniquet. It can then very readily produce an isolated cramp in the ischaemic hand. The combination of the two procedures is referred to as the combined test, and the details are as follows.

The tourniquet is applied as described above for four minutes and if no definite carpal cramp appears it is removed and the subject is asked to breathe in and out deeply at 55–60 respirations a minute. He should be sitting upright, with the hands

placed loosely on the knees. The rate may be controlled by using rhythmic pressure on a shoulder with one hand while beating the time with the other. Respirations should flow evenly from expiration into inspiration without pause and should not be unduly forcible. The hyperventilation should be started within 15 seconds after releasing the tourniquet, and the procedure should therefore be explained to the patient before the tourniquet is released. Hyperventilation is stopped at 75 seconds or sooner if carpal cramp appears. In cases of latent tetany the hand previously under the tourniquet becomes spastic before 75 seconds, while there are few or no generalized symptoms of tetany. Rarely the opposite hand becomes cramped also, but not so intensively.

The standard of 75 seconds' hyperventilation is an approximation based upon 68 observations on adults and adolescents of all ages, including 25 female medical students. The same standard is used for both sexes, except that men are asked to hyperventilate more actively. Female medical students are always more sensitive subjects for the demonstration of latent tetany, partly because they tend to carry out the test with excessive enthusiasm and partly because young educated adults are more emotional than the average hospital patient. Hence some normal individuals of this type may reveal tetany even in 60 secs. This variation in the normal control is a disadvantage which is inherent in all tests for mild degrees of latent tetany, and the important characteristic of any test is that it should be positive in a high percentage of hypocalcaemic patients and in only a very small percentage of normal subjects. A positive test then indicates the necessity for a more detailed investigation of the possible causes of tetany.

Four out of the 68 controls developed cramp before or at 75 sec, whilst in 27 observations on 13 patients there were 23 positive reactions. In 58 observations based on Trousseau's sign, and the combined test where necessary, failure to diagnose latent tetany occurred in only three (95% positive) (see Table).

#### Evaluation of the Combined Test

The combined test is a useful procedure to demonstrate the phenomenon of carpal spasm to applied physiology classes. It shows that tetany is often a summation of factors which increase the sensitivity of the nervous system. In this case alkalosis and the hyperexcitability in the arm are augmenting one another. The test is of some practical value in checking the efficacy of treatment in chronic hypocalcaemic patients who have hypoparathyroidism or steatorrhoea, as it obviates repeated blood analysis. In the individual patient on routine examination the error of variable degrees of hyperventilation is negligible, so that one can very readily detect a sudden drop in serum calcium. Finally, by improving bedside diagnosis the test should aid in the diagnosis of various diseases associated with latent tetany.

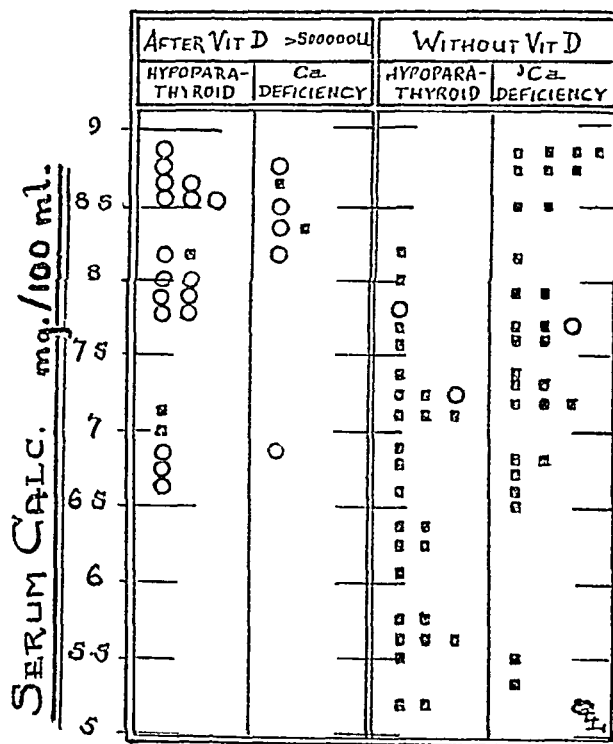
The combined test is an improvement on the simple hyperventilation test because it reduces the period of hyperventilation, eliminates the possibility of an unpleasant generalized tetany, and is more sensitive than either the tourniquet test or the hyperventilation test alone. It also reduces the frequency of the necessity to hyperventilate.

The disadvantages include its failure in cases of respiratory disease such as asthma and emphysema, recurrent laryngeal nerve paralysis after thyroidectomy, and abdominal tumours which prevent the proper movement of the diaphragm. The scope of the test in pregnancy has not yet been investigated. Lastly, in any serious physical or mental disability and in children under 10 years it would be difficult to obtain the necessary co-operation. These points are serious deficiencies in the routine use of the test. There were 4 patients in a total of 34 who were unable

to hyperventilate. In two of these Trousseau's sign was already positive, and therefore hyperventilation was not necessary.

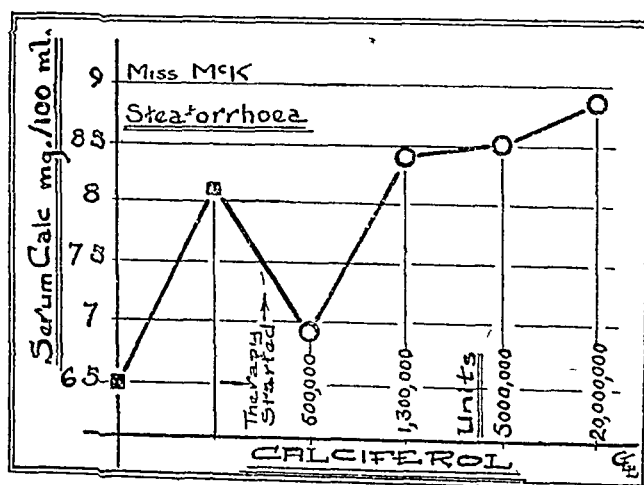
#### Influence of Calciferol

In the initial phase of this investigation it was observed that when hypocalcaemic patients were taking calciferol (50,000 to 150,000 units daily) the tests for latent tetany were



■ Tests for Latent Tetany, Positive.  
○ Do., Negative

FIG 1



■ Tests for Latent Tetany Positive  
○ Do., Negative

FIG 2

frequently negative although the serum calcium was still subnormal. Fig 1 shows that this inhibitory action of calciferol on latent tetany cannot be entirely attributed to its effect on the serum calcium level. The data in Fig 1 were obtained by use of Trousseau's sign followed by hyperventilation when Trousseau's sign was negative. As already stated, in 58 observations on hypocalcaemic patients,

not taking calciferol, latent tetany was demonstrated in all but three instances. In 27 observations on patients who, notwithstanding calciferol treatment, still had hypocalcaemia the state of latent tetany was demonstrated in only five instances. Calciferol seems to have this effect irrespective of whether the patients have hypoparathyroidism or calcium deficiency. Study of individual patients clearly reveals the effect of calciferol (see Fig. 2).

### Discussion

What should be the clinician's criterion of dosage when treating chronic hypocalcaemia with calciferol? The drug appears to influence latent tetany both by raising the serum calcium and by some other independent effect. The doses required to inhibit the signs of latent tetany in the average case of hypoparathyroidism on ordinary diet is between 50,000 and 150,000 units daily. The dose necessary to keep the serum calcium within normal limits may be considerably larger. It would appear more reasonable to base the therapeutic dosage on a biological test than on a purely chemical estimation. The higher dosage necessary to keep the serum calcium around 10 mg per 100 ml may not only be unnecessary but may have a deleterious effect on the patient. It seems well established both in animals and in man that the toxic manifestations of vitamin D are not necessarily accompanied by hypercalcaemia (Reed, Struck, and Steck, 1939), while Eaton (1946) reported a hypoparathyroid patient taking calciferol who notwithstanding a normal serum calcium developed metastatic calcification.

The patients considered here, whose dosage and treatment were based on the signs of latent tetany, have so far shown no ill effect of low blood calcium such as lens opacities. The period of observation, however, is not long enough to permit conclusions.

It is difficult to explain the inhibitory action of calciferol on latent tetany that is not due to increased serum calcium. A relative increase in ionized calcium is at least a theoretical possibility. Unfortunately, complete data on serum protein are not available but in a small number of cases studied there was no appreciable change. Feeny, Sandiland, and Franklin (1947) found no change in the serum protein fractions, except a slight alteration of globulin fractions, in cases of lupus vulgaris receiving large doses of calciferol. Ingram, Anning, and Dawson (1948) recently reported that the high dosage of calciferol used in treatment of lupus vulgaris did not alter the ionized calcium fraction but significantly increased a diffusible calcium complex. It is unlikely that this alteration would have any bearing on the inhibition of latent tetany as described above.

### Summary

The clinical tests for detection of latent tetany in adults and adolescents were investigated, using hypocalcaemia as an index of latent tetany. Almost all the patients observed had chronic latent tetany. It was concluded that the well known tests are unreliable. The tourniquet test was negative in 34% of 89 observations on 32 patients and Chvostek's sign was negative in 73% of observations.

A new test combining the tourniquet test and hyperventilation is described. It is used when the tourniquet test is negative and is more reliable than either of the two procedures used separately. Of 58 observations on 32 patients 95% were positive. Two other patients whose tourniquet test was negative were physically unable to hyperventilate.

Calciferol has an inhibitory effect on the signs of latent tetany which is independent of the increase in serum calcium. In 22 of 27 observations on patients who had received a total of more than 500,000 units the signs of latent tetany were negatived although the serum calcium was still less than 9 mg

per 100 ml. Calciferol therefore inhibits latent tetany in two ways. The significance of this observation in the treatment of chronic latent tetany is discussed.

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## PATHOGENIC STAPHYLOCOCCI

### DETECTION OF $\alpha$ -LYSIN PRODUCTION ON RABBIT- AND SHEEP-BLOOD-AGAR PLATES

BY

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AND

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The coagulase reaction is the simplest and perhaps the most important test for pathogenicity of the staphylococcus. However, the agreement between pathogenicity and this reaction, although close, is not absolute (Christie, North, and Parkin, 1946), and it is sometimes desirable to use confirmatory tests. This is especially the case when detecting carriers of pathogenic staphylococci. Christie and his co-workers (1946), having examined a very large number of strains, conclude that the production of  $\alpha$  lysin is the property most closely associated with pathogenicity. This conclusion is shared by Schwabacher *et al.* (1945).

Until recently it was commonly believed that the lysis of a blood-agar plate was an unreliable guide to pathogenicity. The relatively tedious detection of  $\alpha$  lysin in supernatants from broth cultures is still often recommended (Knott, 1947). However, several workers have used sheep blood-agar plates successfully for this purpose. The changes produced by  $\alpha$ - and  $\beta$ -lysins on this medium can usually be distinguished with ease (Naidu, 1934; Bryce and Rountree, 1936; Kojima and Kodama, 1939; Christie and North, 1941). Christie, North, and Parkin (1946), using spot inoculation of strains on sheep-blood-agar plates, observed that with nearly all haemolytic strains there was no difficulty in deciding whether they produced  $\alpha$  or  $\beta$ -lysin. However, with strains producing only a trace of lysis on blood agar it was difficult to decide whether this was due to  $\alpha$ -lysin or to something else. Williams and Harper (1947) describe a sheep-blood-plate method similar to that of Christie and his co-workers, except that a control plate containing incorporated  $\alpha$  antitoxin is included with each batch of tests, which are incubated in an atmosphere containing 30% CO<sub>2</sub>. They found that the method, although reliable, failed to detect about 2% of  $\alpha$ -toxicogenic strains (positive by broth method) and that  $\beta$ -lysin, when produced, could mask the  $\alpha$  lysin. They recommend that all apparently negative and all evidently  $\beta$ -toxicogenic strains should be tested in a tube before being classed as non- $\alpha$  toxicogenic.

The rabbit-blood-plate method of  $\alpha$  lysin detection described here is simple to perform and gives results which are easily interpreted. Other lysins do not interfere with the test.

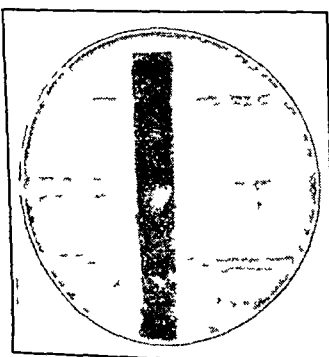
### Method

Two per cent rabbit-blood-agar plates are used. The blood is obtained with reasonable aseptic precautions from an ear vein. The strain to be tested is streaked with a loop across the surface of the plate, previously dried in the incubator. Three or four strains can be tested on one  $3\frac{1}{2}$ -in (8.75-cm) plate. The number may be doubled by inoculating different strains on opposite halves of the plate. A strip of sterilized filter-paper about  $\frac{1}{2}$  in (1.25 cm) wide and containing dried  $\alpha$ -antitoxin is laid on the agar at right angles to the inoculation streaks. These papers are prepared by dipping dry-sterilized strips into  $\alpha$ -antitoxin (Burroughs Wellcome refined staphylococcus antitoxin, 1,250 units per ml). The papers are then dried in a Petri dish containing heated plaster-of-Paris and preserved, sealed in a similar dish, in the freezing chamber of an ordinary refrigerator. The method used is that described by Morley (1945) for penicillin-containing test papers. Sufficient papers for many tests may be prepared at one time. They retain their potency unimpaired for at least two months. We have not tested them after longer periods. Their content of dried serum renders the papers somewhat stiff, but

when applied closely to the agar they quickly absorb moisture and adhere to its surface.

Antitoxin papers may be prepared as required, without drying, by soaking in antitoxin and then blotting briefly. Excess fluid must be avoided, as it may allow the separate strains to run together along the strip when incubated.

The plates are incubated in an atmosphere containing approximately 30% CO<sub>2</sub>. After



Staphylococcus  $\alpha$  toxin production on rabbit blood-agar plate. One negative and two positive strains.

24 hours most of the positive strains give easily read results. If an apparently negative strain is present the plate is incubated similarly for a further 24 hours before the final reading. Strains which do not produce  $\alpha$  toxin give either no lysis or, more often, a sharply bordered zone of lysis the edge of which is parallel to the growth and which extends right up to the edge of the filter paper. On the other hand, an  $\alpha$ -toxigenic strain shows a wide zone of lysis with hazy margins. Near the filter paper this zone tapers in the form of a spear-head pointing towards the paper (see illustration). This spear-head zone of narrowing, diagnostic of  $\alpha$ -toxigenic strains, is sharply defined by remarkably straight borders corresponding to lines of toxin-antitoxin neutralization. In addition, it is often possible to see straight white lines extending outwards at an angle from the filter-paper. These lines correspond closely with the borders of the haemolysed zone, and are apparently formed by toxin-antitoxin precipitation in zones where optimal proportions exist (Elek, 1948). The presence of other lysins in addition to  $\alpha$ -toxin makes no difference to the clarity of the result.

Identical appearances are obtained by spreading antitoxin (4 drops) over half a previously dried plate. The plate is dried again, and strains are then streaked across it at right angles to the dividing line between treated and untreated agar. The necessity for a second drying of the plate renders this technique less convenient than the filter-paper method.

### Results

Using this method we examined 201 unselected pure strains of staphylococcus freshly isolated from routine hospital specimens over a period of eight months. The strains were all tested at the same time for  $\alpha$ -toxin production in broth (Gillespie, Devenish, and Cowan, 1939) and for coagulase production (Gillespie, 1943). The results obtained are shown in the Table.

Table showing Coagulase Reactions and  $\alpha$ -Toxin Production by 201 Strains of Staphylococcus

Rabbit Blood-Plate Test	$\alpha$ Toxin in Broth		Coagulase	
	Positive	Negative	Positive	Negative
162 $\alpha$ toxin positive strains	162	Nil	162	Nil
39 $\alpha$ toxin negative strains	1	38	6	33

On purely clinical grounds it was impossible to be certain of the pathogenicity of the majority of the staphylococci examined. However, 37 strains were certainly pathogenic for man (isolated from pus from previously unopened, non-contaminated abscesses, films of which showed clusters of Gram-positive cocci only and which yielded pure cultures of staphylococcus). Of these 37 certainly pathogenic strains 36 were positive by both plate and broth test and 37 were coagulase-positive. Evidently the correlation between pathogenicity and  $\alpha$ -toxin production on plates is close.

Plate methods of detecting  $\alpha$ -toxin production are much more simple to perform than the broth method. In addition, the interpretation of the results of the latter is sometimes rendered difficult by haemolysis occurring rapidly in the control tube (due to lysins other than  $\alpha$ -toxin).

**Sheep-Blood-Agar Plates**—We have used the filter-paper-strip method on sheep-blood plates in parallel with rabbit-blood plates in testing 33 strains (20  $\alpha$ -toxin-positive and 13 negative). Identical results were obtained in this small series. The specific spear-head zone of lysis is as clear as with rabbit blood, but presumably there is a danger that small amounts of  $\alpha$ -lysin may be obscured by  $\beta$ -lysin if sheep blood is used (Williams and Harper, 1947).

### Summary

A plate method of detecting staphylococcus  $\alpha$ -toxin production is described. Filter-paper strips containing  $\alpha$ -antitoxin are used on 2% rabbit-blood-agar plates incubated in an atmosphere containing 30% CO<sub>2</sub>. The interaction of the toxin and antitoxin diffusing into the agar at right angles to one another causes a sharp tapering of the wide zone of lysis surrounding  $\alpha$ -toxigenic strains. This appearance is specific for such strains.

The test is easy to perform and to interpret, and the results have shown a close correlation with tube  $\alpha$ -toxin tests, coagulase production, and the clinical pathogenicity of the strains examined.

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## A CASE OF DICOUMAROL POISONING

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The following case emphasizes the grave danger of the use of the anticoagulant dicoumarol without adequate laboratory control. It also stresses the importance of the use of fresh blood and not stored blood in the therapeutic control of haemorrhage from dicoumarol overdosage. Vitamin K and stored blood are without effect. There is a definite latent period before therapeutic measures can take effect, and various mechanical factors may have to be dealt with. The reaction to treatment, when it occurs, is dramatic, and no case can be considered hopeless. In this instance, despite the severe and generalized nature of the haemorrhages, complete recovery occurred.

## Case Report

The patient, a man aged 57, was admitted to hospital on account of severe haematuria on Oct 4, 1947. He had read in the daily papers that dicoumarol had been used for coronary thrombosis but it was not known that the cause of the haematuria was dicoumarol until a detailed history was taken and by this time various other severe haemorrhagic symptoms were present. It was revealed that on his own initiative he had taken 100 mg daily for nine or ten days. There was a latent period of seven days before signs and symptoms appeared. This latent period has been previously pointed out by Crawford and Nassim (1944). The first symptom was abdominal pain which preceded sudden gross haematuria by 24 hours.

Within 24 hours of being admitted to hospital the patient's general condition deteriorated rapidly. Multiple petechial haemorrhages occurred in the skin and subcutaneous tissues then melaena and a massive sublingual haematoma developed which increased in size hourly. The initial B.P. was 160/115. The tongue became the size of a tangerine orange and immediately threatened to obstruct his airway. Despite the immediate transfusion of blood the swelling of the tongue increased and a tracheotomy was performed while transfusions were continued. A considerable submandibular haematoma developed and the patient was in extremis. His B.P. was 90/74 on Oct 7. The anaemia was relieved but haemorrhages continued. A pint (570 ml) of stored blood was given with vitamin K injections intramuscularly; the response was not satisfactory, and haemoptyses occurred. X-ray examination with a portable apparatus revealed multiple shadows in the lung fields. Further transfusion of 1 pint of fresh blood was given on Oct 8, but his condition remained precarious. A further 3 pints (1.7 litres) of blood was obtained from the relatives and this was given by slow drip over the next 48 hours. His condition gradually improved and the haematuria and petechial haemorrhages decreased. Whole blood transfusion had a dramatic effect on the prothrombin times. These were Oct 7 47% normal, Oct 8 48% normal, Oct 9 50% normal, Oct 17, 57% normal.

Examination of the blood on Oct 5 showed haemoglobin 82%, red cells 3,600,000, white cells 12,200, reticulocytes 3%, platelets 108,000. On Oct 10 the haemoglobin was 50%. On the 14th the white cells numbered 8,000, reticulocytes 7%, platelets 240,000. On the 17th the haemoglobin was 97%, red cells 4,800,000, white cells 8,600, reticulocytes 5%, platelets 288,000.

## Discussion

Dicoumarol must be considered in the differential diagnosis of all cases of haematuria in which the drug has been taken. This is discussed by Rosenbloom and Crane (1946). It would appear that haematuria is one of the earliest signs

of dicoumarol intoxication and an indication for correct therapy, as more severe symptoms may quickly supervene in a matter of hours. In our case venesection before transfusion was not performed, as was practised by Shlevin and Lederer (1944), although there was a definite danger of left-sided heart failure from a recent coronary thrombosis. Jaundice developed 130 days after the initial transfusion. This was taken to be of the homologous serum type rather than due to any direct toxic action of the dicoumarol on the liver. Jaundice as a manifestation of dicoumarol poisoning has not yet been reported. The present case, we think, illustrates the importance of including dicoumarol in the list of dangerous drugs.

Grateful thanks are due to Sister B. Coys for correlation of clinical details, to Mr F. J. C. Matthews, assistant surgeon, for performing the tracheotomy, to Dr R. C. Hill, pathologist, and to Mr F. J. Howe, Hospital of St Cross.

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## Medical Memoranda

## Auricular Fibrillation after Trichlorethylene Anaesthesia

The following case is unusual enough to merit publication. It is of interest in that although the occurrence of vagal inhibition (Haworth and Duff, 1943), sinus bradycardia, and auricular and ventricular extrasystoles (Hewer, 1942, 1943; Barnes and Ives, 1944) has been noted during anaesthesia with trichlorethylene, there is only one record in the current literature (Lloyd Williams and Hewspear, 1942) describing the onset of auricular fibrillation in association with this form of anaesthesia, although by now innumerable administrations have been given in this country alone.

## CASE HISTORY

A healthy woman aged 50 was admitted to hospital for the repair of a large cystocele and rectocele. She had always been in excellent health, and at the pre-operative examination she appeared to be very fit, with no clinical evidence of cardiovascular disease. The blood pressure was 140/90. She was, however, unduly nervous and apprehensive.

Pre-operative medication consisted of 1/6 gr (11 mg) of morphine and 1/150 gr (0.43 mg) of hyoscine. Anaesthesia was induced with 0.5 g of sodium thiopentone, and this was followed by nitrous oxide, oxygen, and trichlorethylene, using a "semi-closed" technique with the standard Boyle machine. Induction and maintenance were smooth and uneventful. Anoxia was not permitted at any time, and there were none of the usual signs to indicate overdosage of the drug—which was not surprising, as an absolute minimum was used. No irregularities of the pulse were noted during operation, which lasted 55 minutes. At the end of the operation the patient's general condition was good, but the pulse rate was rather slow (65).

Fifteen minutes later we were called to the ward, she was almost conscious, but sweating profusely and rather pale, with a pulse rate of 40. In the absence of other findings it was considered that this might be a vagal effect and 1/100 gr (0.65 mg) of atropine sulphate was given intravenously. Within two minutes the pulse rate had returned to 65–70 and remained so, although from time to time multiple extrasystoles could be detected by palpation and auscultation. Four hours later we were again called to see her and found that she was dyspnoeic and slightly cyanosed, but apart from the dyspnoea she felt quite comfortable. On examination auricular fibrillation was present with a ventricular rate of approximately 165. There were no other abnormal clinical signs. A course of intensive "digoxin" therapy was instituted. The following morning auricular fibrillation was still present but the ventricular rate was down to 100 and the cyanosis and dyspnoea had disappeared. By evening the fibrillation had ceased and the cardiac rhythm was completely regular, the pulse rate being 75. Digoxin was discontinued and the cardiac rhythm remained normal. Further convalescence was uneventful. Unfortunately it was impossible to have an electrocardiogram taken during the period of fibrillation, but clinically the diagnosis was never in

doubt Electrocardiograms taken subsequently showed no abnormality in rhythm or evidence of myocardial disease. There was no evidence of thyrotoxicosis and the blood Wassermann reaction was negative. One month after operation the patient was symptomless and was carrying out her normal household duties.

## COMMENT

The work of Meek, Hathaway, and Orth (1937) and Meek (1940) has provided useful information with regard to the effects of anaesthetic agents on cardiac automaticity. It seems likely that arrhythmias arising below the sino-auricular node are due to vagal stimulation, which causes depression of the sino-auricular node, bradycardia, and the appearance of auricular and ventricular extrasystoles (escape phenomena). Because of this depression of the sino-auricular node the ventricular muscle is rendered more sensitive to stimulation, particularly by adrenaline, and ventricular fibrillation may occur. This is presumably the mechanism of ventricular fibrillation occasionally seen during chloroform anaesthesia. Trichlorethylene is of course very similar to chloroform in chemical composition, and clinical reports bear out this similarity of action, although it is much less toxic and potent. Waters, Orth, and Gillespie (1943), basing their opinion on only a few cases, decided that the drug might have undesirable effects on cardiac automaticity, but up to the present time clinical experience has not really justified this view. In their electrocardiographic investigation of 40 patients undergoing operations under trichlorethylene anaesthesia Barnes and Ives (1944) demonstrated various simple arrhythmias such as sinus bradycardia and auricular and ventricular extrasystoles, but found no evidence of auricular or ventricular fibrillation.

In our case the sequence of events—vagal stimulation with bradycardia, extrasystoles (presumably auricular), and auricular fibrillation—was well demonstrated. Theoretically there would seem to be no reason why auricular fibrillation and not ventricular fibrillation should not follow on multiple auricular extrasystoles in the absence of suitable ventricular stimulation—e.g., excess adrenaline. This case is of further interest in that the cardiac arrhythmias occurred in the immediate post-operative period, when presumably most of the trichlorethylene had been excreted. Adrenaline was not used during operation nor was the patient intubated—factors present in the other recorded case. In view of the patient's state of health both before and after operation it is difficult to dissociate the trichlorethylene anaesthesia and the onset of fibrillation.

It should be noted that the trichlorethylene used in this case was from a newly opened bottle which when subsequently examined conformed to the usual tests of purity. Several patients have since been anaesthetized with trichlorethylene from the same bottle without untoward effect.

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## An Unusual Trophic Ulcer

Numerous papers have been written on lesions of the lumbar intervertebral disks and their relation to sciatic pain since the pathology was described by Love in 1939. In addition to sciatic pain other conditions have been ascribed to disk lesions. Massive extrusions of the lumbar disks are known to produce cauda equina lesions with severe sphincter disturbances (ver Bruggen 1945). Pennybacker (personal communication) has seen trophic ulcers complicating cauda equina lesions due to prolapse of the lumbar disks. Burns and Young (1945) attribute the majority of cases of chronic backache to disk lesions.

Search of the extensive literature has failed to reveal any reference to a trophic ulcer of the foot being produced by an old lesion of a lumbar intervertebral disk, and it is thought that the following case is of sufficient interest and importance to merit publication.

The usual causes of trophic ulcers given in neurological text books are tabes dorsalis, diabetes, spina bifida occulta, leprosy, and syringomyelia (rarely). As trophic ulcers are not uncommon

it is possible that not a few are due to old disk lesions which have been missed because the more usual causes are not common maladies, with the single exception of diabetes. Furthermore, Schmorl (1927) finds prolapse of an intervertebral disk present in 38% of necropsies. Leigh (1947) points out that sensory regeneration may not occur, as compression of the nerve root in disk lesions involves the sensory fibres most of all.

## CASE REPORT

A truck-driver aged 29 was referred from the surgical to the medical out-patient department on account of an absent right ankle-jerk. In March, 1947, he was seen in the surgical out-patient department on account of an excavated and discharging ulcer on the plantar surface of his right heel. It was painless and had been present for about 10 weeks. He denied injuring his heel. Excision was advised. A week later he was admitted to a surgical ward, and two days later the ulcer was excised under a general anaesthetic. The wound was packed with vaselined gauze. He was discharged after a week, a radiograph of the foot taken at this time showed that there was no bony lesion or radio opaque foreign body in the heel. A week later the ulcer was healing satisfactorily. A section of the ulcer showed "capillary thromboses and haemorrhages in dermal papillae in a portion of horny skin from the heel."

He was seen again on Aug. 11, 1947, when he said that the ulcer had broken down some eight weeks previously, but it was still painless. Further inquiry into his history elicited the following information. In March, 1944, he had had pain in the right side of the back, buttock, and down the back of the thigh and leg to the lateral border of the foot and of the heel, the pain had lasted 10 weeks and he had been away from work for six weeks. When the pain had subsided it had been replaced by numbness of the outer side of the right foot and heel. There was no history of trauma. At no time had there been any disturbance of micturition.

On examination he was seen to be a healthy-looking man. The only abnormal neurological signs in the legs were an absent right ankle jerk and marked impairment of pain and touch sensibility over the lateral border of the foot, both dorsal and plantar surfaces of the heel, and of the posterior aspect of the thigh. Flexion of the extended leg at the hip was painless (Lesègue's sign negative). The ulcer measured 1 by 1 cm. and was 0.5 cm. deep, it had a granulated base and undermined edges. The arteries of the right foot were easily palpable. There was some loss of normal lumbar lordosis and flattening between the fifth lumbar spine and the first piece of the sacrum. There was no tenderness anywhere, and movements were full. No other abnormal physical signs were found in the central nervous system. Wassermann and Kahn reactions were negative. Radiographs showed no abnormality of the lumbo-sacral region.

It was not considered justifiable to submit this patient to laminectomy, his disability was slight, he was at work, and the long history suggested damage to the posterior nerve root which was probably permanent. Accordingly local treatment to the ulcer was intensified.

## DISCUSSION

This case well illustrates the following points: (1) The typical sciatic pain in 1944 was replaced by numbness over the lateral side of the foot and heel—a point which is often missed in the history, as the patient pays little attention to numbness compared with the severe pain, the numbness tends to persist. The length of the history and the absence of progression of symptoms almost certainly exclude a very slowly growing tumour compressing the first sacral nerve root. (2) The abnormal neurological physical signs and flattening of the lower lumbar spine suggest a prolapse of the disk between the fifth lumbar and first sacral vertebrae. These signs tend to persist. (3) The ulcer was no doubt due to the impairment of pain sensibility, which corresponds to the sensory division of the first sacral nerve root, it was this root which was compressed by the extruded disk. (4) The relation of the sciatic pain three years previously was not correlated with the ulcer of the foot until the question of the absent ankle jerk presented itself for elucidation.

My thanks are due to Dr S. A. Probert, honorary physician, and Mr Ronald Reid, honorary surgeon, Essex County Hospital, Colchester, for their interest and encouragement in the preparation of this report.

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## Reviews

### JUVENILE DELINQUENCY

*Juvenile Delinquency in an English Middletown* By Hermann Mannheim International Library of Sociology and Social Reconstruction (Pp 131 12s 6d) London Kegan Paul Trench Trubner and Co 1948

The latest addition to the International Library of Sociology and Social Reconstruction is a sociological study of juvenile delinquency on regional lines. The author believes that sociological studies of delinquency afford a promising line of approach, supplementing statistical mass inquiries and prolonged studies of a few individual cases. He describes the nature, causes, and treatment of delinquency in the Borough of Cambridge and in his task has received valuable information from authorities and officials.

Dr Mannheim found that during the five years 1941 to 1945 the average figure for indictable offences committed by juveniles in Cambridge was exactly twice the figure given by Dr E C Rhodes for the borough in 1934 to 1936. But in comparison with other localities the increase was not considered to be particularly high. Among many interesting data the fact that some of the new housing estates showed a considerably higher incidence of juvenile delinquency than the town as a whole has some general interest. The author considers that rehousing in itself is no panacea for social evils unless accompanied by social services such as youth centres and other measures which deal with some of the needs of a youthful community. In the absence of statistical data Dr Mannheim was unable to accept the suggestion that the cause of the delinquency was attributable to a greater number of children in the families than in other wards.

While stressing the need for further research into juvenile delinquency by persons not engaged in the treatment of offenders, Dr Mannheim believes that such studies should be supplemented by those of probation officers, institutions for juvenile delinquents, and child guidance clinics. The data collected are instructive and the recommendations on the administration of juvenile courts are provocative. The book is written with the author's usual lucidity and is a welcome addition to the increasing literature on the subject.

W NORWOOD EAST

### ORAL IMMUNIZATION

*Oral Vaccines and Immunization by Other Unusual Routes* By David Thomson OBE, MB ChB DPH and Robert Thomson, MB ChB. Assisted by James Todd Morrison, MD, DPH (Pp 329, £2 2s) Edinburgh E and S Livingstone 1948

This monograph is in the main a review of the literature, over 1,000 papers being quoted, and in part an account of the authors' own experiences. They begin by declaring their belief that immunity can be obtained by vaccines administered orally, or by inunction spraying into the nose or trachea, or instillation into the conjunctival sac. They grant that the results are less certain and that much more frequent repetition is necessary than when the parenteral route is used but unpleasant reactions are obviated and what may be called needle resistance is circumvented. They review very fully the literature on oral vaccination against enteric fever and dysentery, the most logical and best supported example of this method. They also give a long account of oral BCG, although this form of vaccination differs radically in principle from the others considered in that the vaccine is a living one even so it is noteworthy that the oral administration of BCG has now been superseded. From these and other more or less reasonable subjects the authors descend to discussing with apparent seriousness such unscientific practices as treating diphtheria with oral antitoxin, ulcerative colitis with an oral *Bargens coccus* vaccine, and pyorrhoea with a vaccine-containing toothpaste. If the authors write from too credulous a standpoint for us always to respect their conclusions we must nevertheless be grateful to them for a guide to the literature of an obscure and interesting subject.

L P GARROD

### PEPTIC ULCERATION

*Ulcer of the Stomach, Duodenum and Jejunum* By Ralph C Brown M.D. Edited by Henry A Christian, M.D. Sc.D. F.A.C.P. F.R.C.P.(Can) (Reprinted from the Oxford Loose Leaf Medicine with the same page numbers as in that work.) Oxford Medical Publications (Pp 108, illustrated 12s 6d) New York and London Oxford University Press (Geoffrey Cumberlege)

This small book is a reprint of the chapters on peptic ulceration in the *Oxford Loose Leaf Medicine*. It is a concise but complete account of the modern view of the subject. The author was a pupil of Sippy's, and for many years has himself been in charge of the clinic at the Presbyterian Hospital in Chicago where Sippy worked. The book therefore not only has an authoritative air but is at all times very practical.

To cover the whole subject in a little more than 100 pages considerable condensation has been necessary, and in order to produce a balanced narrative the author draws fully on his own experience. Nevertheless some gaps must occur and the author gives an account of some procedures not in general use but which no doubt are most successful in his hands. Thus he makes the clinical differentiation between peptic ulcer and gall bladder disease and functional dyspepsia sound very simple. Similarly, in the treatment of severe haematemesis when it is thought that bleeding is continuing he advocates gastric lavage with ice cold water followed by 15 ml of adrenaline by mouth. There is a good bibliography and the book is well illustrated by tracings from radiographs.

CHRISTOPHER HARDWICK

### STATE MEDICINE IN ENGLAND

*The History of State Medicine in England* Being the FitzPatrick Lectures of the Royal College of Physicians of London for the years 1946 and 1947. By Sir Arthur S MacNalty, KCB, MA MD, FRCP, FRCS (Pp 82 12s 6d) London Royal Institute of Public Health and Hygiene

Most of this book is occupied by the FitzPatrick Lectures given at the Royal College of Physicians in 1946 and 1947 which deal with the period from the accession of Victoria to the establishment of the Ministry of Health in 1919. But the author has greatly improved the book by including the lecture on the "Evolution of Preventive Medicine in England" given at the Royal Society of Medicine in 1946. Thus he has concisely covered the whole ground. His account is no dry summary for it is lit up by many attractive biographies of the persons chiefly concerned, particularly those who inspired progress in the late nineteenth and in the present century. While paying his due meed of praise to the early pioneers, Sir Arthur claims that Southwood Smith, Arnott, and Kay 'were the medical architects and Edwin Chadwick the actual builder of the edifice'. His sidelights on the personalities of the men with whom he was personally familiar, such as Horsley, Klein, Thorne Thorne, Downes, Monckton Copeman and Newsholme, are illuminating. His generous reference to James Kerr whose pioneer work in school welfare is apt to be forgotten is well deserved. The book is copiously documented written in an easy attractive style and is a useful epitome of how a system grew up in which the author has taken an active part. The publishers deserve commendation for the attractive appearance of the book.

ALFRED COX

### A PSYCHIATRIC SYNTHESIS

*Psychiatry: A Short Treatise* By William A O'Connor L.M.S.S.A. D.P.M. (Pp 380 35s) Bristol John Wright and Sons 1948

This is a short textbook of psychiatry for students of psychiatry, and is not suitable for use as a reference book or as a text for unqualified students. It is interesting for the attempt the author makes to combine psycho-analytic doctrine with a classical nosology. The two do not, unfortunately, combine at all well. The author himself feels that it is 'a far cry from the basement membrane of the testis to the meta-psychological theorizings of the psychoanalysts'. The book is full of such asides. Discussing the sometimes pleasurable tone of very mild anxiety feelings he remarks "Is it then true to say that in the midst of a life giving process we feel the threat of dissolution? Or is it nearer the truth to suppose that in the midst of satisfying a biological need we fear lest the ultimate orgasm fail us?"

There is an unfortunate emphasis on body-mind dualism. The somatic aspects of schizophrenia are to be seen only in its 'strange and inexplicable physical symptoms. Behaviour becomes understandable when described by far-fetched analogies—e.g., he describes psychoses as anaphylactic phenomena sensitization having been produced by repeated psychic shocks. Preclinically, physical disease is an unconscious process. One may expect to find psychic symptoms of the presence of schizophrenia in early childhood. The author's point of view is a highly individual one. Nevertheless there is much of interest. He describes the historical development of psychiatric concepts at greater length than is usual, and though his account will probably not help the student much it will interest the psychiatrist. His discussion of the more important recent advances, including physiological and genetical studies as well as psycho-analytical, is for the most part adequate. Even though it seems quite unsuccessful to the reviewer, a synthesis has been attempted, and the writing is both lucid and fresh.

ELIOT SLATER

### DENTAL DISEASE AND PATHOLOGY

*Oral and Dental Diseases* By Hubert H. Stones, M.D., M.D.S., F.D.S.R.C.S. (Eng.) (Pp. 896, 926 illustrations, 82 in colour £4 10s.) Edinburgh: E and S Livingstone, Ltd.

*Surgical Pathology of the Mouth* By E. Wilfred Fish, C.B.E., M.D., Ch.B., L.D.S. (Munch.), D.D.Sc. (Melb.), D.Sc. (Lond.), F.D.S.R.C.S. (Eng.) (Pp. 463, 236 figures, 50s.) London: Sir Isaac Pitman & Sons, Ltd.

It is a coincidence that two such excellent books should have been produced at the same time, when a want for them has been felt for many years. Both books are very well produced and illustrated, and while Professor Stones covers a wider field Dr. Fish has selected certain aspects of oral and dental pathology which he discusses in detail, the former is more impersonal and the latter more personal. The information in both books is up to date, and the references at the end of each chapter in *Oral and Dental Diseases* make it easy for the reader to find more on any subject. Dr. Fish describes the pathology underlying many surgical procedures, and the book is in fact largely founded on experimental work.

The books are complementary to each other. Professor Stones's should be very useful to both student and practitioner for information and reference. Dr. Fish's is more about the pathology of certain clinical conditions and should equally certainly be read by student and practitioner.

ALEXANDER MACGREGOR

We receive again—perhaps for the last time, but we hope not—*The Hospitals Year Book 1947* edited by J. P. Wetenhall (The British Hospitals Association 21s.). It is a useful directory listing all the hospitals in Great Britain and Ireland local authority as well as voluntary. A new feature this year is a list of hospitals providing rehabilitation services. There are between 300 and 400, though in some cases the organization is still meagre. The editor gives some forecast of hospitals in the new National Health Service, but he points out that the Act, with a frequency unparalleled in former legislation, "relegates every aspect of administration to be dealt with in future regulations and orders. Yet it is the administration, not the Act itself which will determine whether the new Service is good, bad, or indifferent. He points out also the dangers of standardization—a word with a double meaning, connoting perhaps the creation of standards of quality design, and manufacture, or perhaps only a dead level of mediocrity. It might be thought that in a nationally organized hospital service economy and enhanced efficiency are to be expected owing to central buying of supplies and uniformity of equipment, but Mr. Wetenhall shows that these methods while they have their value, will not necessarily do all that is expected of them especially if they are indiscriminately or excessively used. Discussing the medical staff he urges the importance of a medical committee at each hospital in close contact with the house or management committee. The internal administration of the hospital must be such as to ensure professional freedom in the treatment of patients and the prosecution of research. It is hinted that this may be the last issue of the year-book, for it is published under the auspices and at the expense of the British Hospitals Association which can no longer exercise a representative function on behalf of voluntary hospitals once such hospitals have lost their voluntary status. But the new era in hospital administration will be at a disadvantage if it is deprived of what Mr. Bevan himself in a foreword calls "an institution in the hospital world," and it is to be hoped that in some form or other it will be continued.

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*The Surgery of the Stomach and Duodenum* By T. H. Somervell, M.A., M.B., B.Ch., F.R.C.S. (Pp. 546, 45s.) London: Edward Arnold, 1948.

Includes detailed descriptions, with illustrations by the author, of operative methods.

*Biology of Disease* By Eli Moschcowitz, M.D. (Pp. 221, \$4 50.) New York: Grune and Stratton, 1948.

Essays on the aetiology and pathology of a number of diseases.

*The Pathological Physiology of Uremia in Chronic Bright's Disease* By S. E. Bradley, M.D. (Pp. 69, 10s. 6d.) Oxford: Blackwell Scientific Publications, 1948.

The author relates the functional disorders of various organs to the clinical manifestations of uraemia.

*Medical Hypnosis* By L. R. Wolberg, M.D. Vol. 1 (Pp. 449, \$5 50.) Vol. 2 (Pp. 513, \$6 50.) New York: Grune and Stratton, 1948.

The use of hypnosis in psychotherapy.

*Co-operation, Tolerance, and Prejudice* By S. Lowy, M.D. (Pp. 318, 21s.) London: Routledge and Kegan Paul, 1948.

The sociology and psychology of intolerance and prejudice.

*Malleus Maleficarum* Translated by the Rev. Montague Summers. (Pp. 278, 15s.) London: Pushkin, 1948.

The first translation into English of this famous work on the extermination of witches.

*Radiotherapy and Cancer* By A. G. C. Taylor, M.R.C.S., L.R.C.P., D.R., F.F.R., and others. (Pp. 81, 7s. 6d.) London: H. K. Lewis, 1948.

A summarized account based on the authors' experience.

*Essentials of Pathology* By L. W. Smith, M.D., F.C.A.P., and E. S. Gault, M.D., F.C.A.P. 3rd ed. (Pp. 764, \$12 00.) Philadelphia: Blakiston Company, 1948.

A textbook for medical students.

*Kleine Chirurgie* By Hans Kurtzahn, revised by W. Heyn. 12th ed. (Pp. 496, M 17 50.) Berlin: Urban and Schwarzenberg, 1948.

A short textbook of surgery.

*Wetter und Krankheiten* By H. Berg. (Pp. 140, M 6 50.) Bonn: H. Bouvier, 1948.

An account of the relation between climate and disease.

*Die Immunitätsforschung Die Antigene* By R. Doerr. Vol. 3. (Pp. 375, No price.) Vienna: Springer, 1948.

A monograph on research into antigens.

*The Diabetic ABC* By R. D. Lawrence, M.A., M.D., F.R.C.P. 10th ed. (Pp. 80, 4s.) London: H. K. Lewis, 1948.

Instructions for the diabetic patient.

*Le Foie Vasculaire* By M. Favre. (Pp. 98, 220 francs.) Paris: Masson, 1948.

A monograph on hepatic cirrhosis.

*Traité de Médecine* Edited by A. Lémierre, and others. Vol. 7. (Pp. 1063, 2,300 francs.) Paris: Masson, 1948.

This volume is on the alimentary system.

*Modern Trends in Psychological Medicine 1948* Edited by N. G. Harris, M.D., F.R.C.P., D.P.M. (Pp. 450, 50s.) London: Butterworth, 1948.

Contributions by various authorities.

*Conception Physique de la Vie* By D. Clewaert. 2nd ed. (Pp. 234, No price.) Paris: Librairie Maloine, 1948.

The author describes his theory of density and tensions in living organisms.

# BRITISH MEDICAL JOURNAL

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## SPONTANEOUS PNEUMOTHORAX

Since Kjaergaard<sup>1</sup> published his careful studies non-tuberculous spontaneous pneumothorax has been easy to recognize clinically, and it is not usually difficult to distinguish between it and spontaneous pneumothorax occurring as a result of pulmonary tuberculosis. Simple non-tuberculous pneumothorax is characterized by absence of previous symptoms of disease, afebrile course, normal sedimentation rate, absence of pleural exudate, uneventful re-expansion of the lung in most cases, and failure to find radiological evidence of pulmonary disease in the re-expanded lung. Cases are relatively rare in which doubt remains whether the condition is tuberculous or non-tuberculous after consideration of all these factors, and the treatment of the majority of cases of simple spontaneous pneumothorax presents no difficulty. Some patients are liable to recurrent attacks, and the occasional case in which the lung fails to re-expand and the pneumothorax becomes chronic presents a special, though rare, problem.

The mechanism responsible for simple spontaneous pneumothorax, especially the chronic and recurrent types, has not been thoroughly investigated, though isolated cases showing cystic and bullous emphysematous changes of various sorts have been reported and valvular mechanisms have been demonstrated histologically.<sup>2,3</sup> The publication by R. C. Brock<sup>4</sup> of his observations on 71 cases of recurrent and chronic spontaneous pneumothorax is therefore most informative and welcome. He defines chronic pneumothorax as one which has failed to re-expand after three months; there were 45 of these cases, 17 of which became chronic after recurrent attacks. The average duration was 15 months and the longest 9½ years. The recurrent group consisted of 25 cases (excluding the 17 which became chronic). Fifteen of the recurrent cases had alternating bilateral attacks, and in 8 both lungs became collapsed simultaneously. The teaching of Kjaergaard and others about non-tuberculous spontaneous pneumothorax does not yet seem to be widely enough known, since Brock remarks that many of his patients had wasted time undergoing sanatorium treatment. The ages of his patients ranged from 1½ years to 64 years. The age distribution within this range differed from that in the series of 358 cases of simple pneumothorax collected by Perry,<sup>5</sup> since in his series the condition developed most frequently in the third decade, whereas in Brock's series of recurrent and chronic cases the greatest incidence was spread over the third, fourth, and fifth decades. This difference was probably due to the greater number of cases with gross emphysematous changes in Brock's series.

In only one of Brock's cases was tuberculosis found to be the cause. In one case the pneumothorax had produced

no symptoms and was discovered accidentally, and in others a small pneumothorax was found on the opposite side to that which was being investigated. In the severe cases of chronic pneumothorax there was often great loss of weight, which was regained after the lung had been induced to re-expand. Ordinary radiographic examination may show nothing more than the pneumothorax, though emphysema may be seen in the opposite lung. It may be difficult to distinguish between pneumothorax and a giant cyst or bulla, but it is of practical importance, since needling a bulla in the mistaken belief that it is a pneumothorax may result in a tension pneumothorax if the pleura is free, and this can produce severe symptoms or even be fatal. Tomography or bronchography may help to differentiate the two conditions. If it is thought advisable to needle a patient before it is known for certain whether the condition is a bulla under tension or a pneumothorax preparations should be made for the treatment of tension pneumothorax if necessary, or even for the performance of thoracotomy. Intrapleural pressure readings are valuable in demonstrating conclusively the presence of a fistula, which is shown by a rapid return of the pressure to the previous reading after withdrawal of air. Thoracoscopy is the most valuable examination and should never be omitted.

Brock was able to find the probable cause of the condition in all except six of his seventy-one cases; in these six no cause was discovered even after the most exhaustive investigation. Emphysema was present in 25 cases, in 13 of which it was classified as bullous; 8 patients also had asthma and bronchitis. In 11 cases there were large solitary bullae or cysts, in three diffuse polycystic disease, in 15 small bullae, mostly apical, and in six an apical scar. The actual leak or tear was seen through the thoracoscope in four cases. An interesting observation is the appearance of areas resembling "cuckoo spit" in three of the patients in whom it was found emphysema was also present, but in the fourth there was no other evidence of abnormality in the lungs. The area is made up of a number of scattered foci on the pleura consisting of a few tiny air bubbles each less than a millimetre in diameter. When the patient was instructed to make expiratory efforts with the nose held these clusters of air bubbles became larger and the number of bubbles increased. Brock suggests that these foci can probably disappear and reappear in different places, and this would explain why no abnormality has been found at post-mortem examination in the lungs of some patients dying with spontaneous pneumothorax. He considers that in these cases there is a defect of quality, presumably congenital but possibly acquired, which makes the pleura liable to leak or rupture easily. In one case he observed rupture of the pleura during a thoracoscopy when a swab holder slipped and fell gently on to the lung. Brock's conclusion is that there are several conditions which may cause chronic and recurrent spontaneous pneumothorax. It may arise in the pleura from tearing at the site of an adhesion or from defective quality of the pleura itself; it may be subpleural from bullae, either in connexion with old scars or with

<sup>1</sup> *Acta med scand Suppl* 1932, 43

<sup>2</sup> Hayashi J *Frankfurt Z Path* 1915 16 1

<sup>3</sup> Fischer B *Z klin Med* 1922 95 1

<sup>4</sup> *Thorax* 1948 3 88

<sup>5</sup> *Quart J Med* 1939 8 1

<sup>6</sup> *J thorac Surg* 1935 4 251

emphysema, and possibly from congenital maldevelopment of alveoli, it may lie in generalized changes in the alveoli in the form of emphysema, or it may be in the bronchioles or bronchi as in congenital or acquired cystic conditions.

Treatment depends on the cause. If the condition is due to large localized cysts or bullae (such cases are in the minority) the correct treatment is excision, either by lobectomy or local resection. Brock treated eight of his patients in this way. If a localized cystic condition is not present treatment in most of the remaining cases should be by obliteration of the pleura (pleurodesis) by a chemical pleurisy. Brock prefers silver nitrate solution for this purpose, a 20% solution may be swabbed on to the pleura at thoracoscopy or 5-10 minims (0.3-0.6 ml) of a 10% solution can be injected with an all-glass syringe. In either case it is important to aspirate air immediately after the treatment in order to get the pleural surfaces into apposition while they are inflamed. More than one injection may be required. This procedure gives rise to a reaction which may be severe, with pain and fever up to 100° F (37.8° C) or 101° F (38.3° C) for a few days. If a satisfactory pleural reaction is produced effusion will develop. Fifty-three patients in Brock's series were treated by pleurodesis, in three cases he used poudrage with talc by the method of Bethune,<sup>6</sup> but he found that silver nitrate was less disturbing and simpler to repeat after the initial thoracoscopy. Other substances, such as "gomenol" in olive oil, hypertonic glucose solutions, or blood, have been used by some workers. The principle of pleurodesis by chemical irritation in these cases seems well established, even though there is as yet no agreement about the most suitable agent for this purpose.

### RADIATION SICKNESS

Some of the immediate effects of radiation on the human organism are inhibition of enzyme action, death of dividing cells, changes in cell permeability, and reduced flow of saliva. To the patient the most unpleasant feature of radiotherapy is often the sickness which may make life miserable and interfere with treatment. The symptoms are nausea, with or without vomiting, and lassitude. The vomiting reflex is set in motion by abnormal stimuli to the afferent nerve endings, abnormal sensitivity of the reflex pathway at some point, or abnormal irritability of the muscles which are involved in vomiting. With nausea the same abnormalities are presumably present but below the necessary threshold to produce vomiting. Psychic factors have been suggested as the cause, but, while they may have an influence, no one with experience can consider that sickness due to the effects of radiation is not a real entity. The somatic changes must be chemical or nervous. There is no evidence, however, of a direct effect of radiation on the conduction of a nervous impulse. The possibility of inhaled toxic gases can be excluded with modern apparatus, and, since the vomiting frequently occurs when no radiation is given to the stomach or to any part of the reflex arc involved in vomiting it seems likely that endogenous chemical changes are responsible. Whether the chemical abnormalities in the blood reaching non-irradiated parts of the body are due to irradiation of the serum, changes

in cell permeability, actual breakdown of cells, or to the effects of irradiation on endocrine function is not known. The last is not a likely primary effect, since sickness can occur after irradiation of any part except the limbs, but it is possible that the chemical changes brought about by radiation might cause some hormonal disturbance.

The cause can probably be found in changes in the metabolism of cells which are sensitive to radiation. Sickness occurs most frequently after high doses to parts of the body which are very vascular, such as the neck, thorax, and abdomen. It has been noticed that quite small doses produce sickness in patients with lymphatic leukaemia and, to a less extent, myelogenous leukaemia, this suggests that the breakdown of blood cells, probably lymphocytes, may set free substances in the circulation which produce the vomiting. It is commonly held that histamine-like substances are primarily responsible for x-ray sickness, since tissue damage brings about their release. Indeed, histaminase has been used with moderate success as a remedy,<sup>1</sup> and "benadryl" has been reported as efficacious.<sup>2</sup> Kullander,<sup>3</sup> however, holds a contrary view. He found that the vomit of patients with radiation sickness is usually hypochlorhydric, though test meals showed normal gastric hydrochloric acid after the sickness had passed off. He also found that the administration of 20-40 minims (1.2-4 ml) of 7% hydrochloric acid in water before meals and after x-ray treatment gave prompt relief. On the assumption that histamine would increase the secretion of hydrochloric acid he injected 0.125 mg of histamine before meals, this also relieved the symptoms. If the effects of radiation were due to histamine-like substances, presumably the symptoms would have been aggravated by the injections. Brick<sup>4</sup> has recently shown that large doses of radiation to the stomach (2,500-6,000 r) may cause damage leading to ulceration and perforation, necessitating partial gastrectomy in some cases. This complication did not develop until 2-3 months after the radiation, and it was not associated with any lowering of gastric acidity. X rays have been advocated by some authors for depressing gastric acidity during the treatment of peptic ulcer. Brick's work has demonstrated the danger of this procedure, and in any case, as Kullander has shown, acidity very quickly returns to normal after radiation. Any estimate of the value of remedies for radiation sickness must take account of the influence of secondary effects due to sepsis, loss of taste, interference with nutrition, and intestinal hyperactivity.

It has been claimed that many other remedies besides those already mentioned have given good results. Among these are sodium chloride, magnesium chloride, high carbohydrate diet, large amounts of fluid, vitamin C, vitamin B, and amphetamine. They have all had relatively short periods of popularity. A recent report<sup>5</sup> on the value of pancreatin again suggests that the mechanism of digestion is disturbed. Pyridoxin, given by mouth or intravenously, is at present the most popular and successful drug used.

<sup>1</sup> Ellis F. *Brit J Radiol* 1942 15 174 and 194

<sup>2</sup> Lofstrom J E and Nurnberger C E, *Amer J Roentgenol* 1946, 56 211

<sup>3</sup> *Acta radiol Stockh* 1947 28 221

<sup>4</sup> *New Engl J Med* 1947 237 48

<sup>5</sup> Quimby W A, *Br J Med* 1947, 43 80

<sup>6</sup> *Radiology* 1943 41 383

<sup>7</sup> Shorvon L M, *Brit J Radiol* 1946 19 369

<sup>8</sup> Van Haltern H L, *Radiology* 1946 47 377



for radiation sickness in this country Maxfield<sup>6</sup> and his colleagues in the U.S.A. first used it for this purpose, and its value was confirmed later by others.<sup>7,8</sup> It counteracts the reduction in the white cells caused by radiation—vitamin C appears to have a similar action. Exactly how pyridoxin relieves radiation sickness is a mystery the solution of which may be of great biological importance. If hydrochloric acid can produce the same good results, however, its cheapness and ease of administration should be in its favour.

### NYSTAGMUS IN PELLAGRA

Doctors who underwent the grim ordeal of caring for their fellow prisoners in Japanese prison camps were able to collect much interesting information on the effects of chronic malnutrition. Disabilities were observed which had not hitherto been recognized as due to dietary deficiency, these included retrobulbar neuritis and the painful condition described as "electric" feet. There has also been some evidence that malnutrition caused a number of other strangely assorted symptoms, including such oddities as troublesome nocturnal diuresis and the appearance of violet hallucinations when the prisoners attempted to read.

Some observations by Raadt<sup>1</sup> on prisoners of war in camps at Bandoeng, Batavia, and Pakan Barol suggest that a group of oto-neurological disturbances, presumably associated with the early stages of pellagra, should now be added to the other signs of malnutrition seen in these tropical camps. The symptom complex included vertigo, tinnitus, subjective deafness, headaches, nystagmus, and weakness of lateral gaze and convergence, but not all affected prisoners had all these symptoms. Apparently the most noticeable objective symptom was the nystagmus, which occurred in typical cases as a rhythmical to-and-fro movement of the eyeballs in a horizontal direction. In some prisoners the nystagmus was constant, but in others there were intermittent attacks which were often precipitated by attempts to look sideways or by changes in the position of the head. Such attacks were usually accompanied by vertigo and sometimes by vomiting. The vestibular system was tested by pouring ice cold water into the ears of prisoners with latent nystagmus or with active nystagmus which was checked by directing the eyes on a point beyond the range of oscillation. This procedure induced temporary nystagmus in normal subjects, but the irritability of the prisoners was abnormally high and the test often caused vertigo, sweating, vomiting, headaches, and even diarrhoea and fainting. Further tests in which the subject was turned round on a stool led to such unpleasant consequences that the prisoners became unwilling to co-operate. Less disturbing, however, were walking and pointing tests and these often revealed abnormalities.

It might at first sight appear that the nystagmus was due to a peripheral nerve lesion, but the fact that some prisoners had nystagmus without defective hearing was taken as evidence against this view. A disturbance in the central nervous system, presumably involving the vasomotor reactions of the brain stem, seemed a more probable explanation of the symptoms. Raadt was unable to examine the composition of the diet or to test the curative action of nutrients suspected of being deficient, but he points out that vertigo is well recognized as a frequent and early feature of pellagra while American workers<sup>2,3</sup>

have also mentioned nystagmus as an occasional symptom. It seems probable that the early stages of pellagra are often overlooked or mistaken for neurasthenia. In the fully developed disease the attention of the clinician is so occupied in treating the familiar dermatitis, diarrhoea, and delirium that vestibular abnormalities would be of minor interest even if the patient was in a fit state to be examined. It is perhaps understandable, therefore, that early oto-neurological abnormalities should hitherto have attracted little attention.

### PULMONARY ARTERIOVENOUS FISTULA

Pulmonary arteriovenous fistula, in which there is a shunt of blood from pulmonary arteries to veins, is a congenital condition which has been recognized during life only a few times. In a recent paper Barnes<sup>1</sup> and his co-workers mention that they have found reports of 23 cases and they add two of their own, but wider knowledge of the existence of the condition may show it to be much more common than this figure suggests. The conspicuous outward signs are cyanosis, polycythaemia, and finger clubbing, with the result that congenital heart disease or polycythaemia rubra vera might be mistakenly diagnosed. The ascertainment of a pulmonary arteriovenous fistula is not merely of academic interest but practically important, since pneumonectomy can restore the patient to normal health. Burchell and Claggett<sup>2</sup> have described a successfully treated case and reviewed eight others recognized clinically, four of which were also cured by surgical excision.

An analysis of these reports shows a stereotyped syndrome, with dyspnoea, dizziness, and haemoptysis as the commonest symptoms and cyanosis, clubbing, and polycythaemia the typical signs. The heart is usually not enlarged, but on radioscopic examination one or more nodular pulsating shadows will be seen in the lung field with increased hilar pulsation on the side of the lesion. Most of the patients have had small capillary haemangiomas of the skin or mucous membranes, and these should provide a valuable clue to the existence of the pulmonary lesion. A murmur either systolic or continuous as in patent ductus arteriosus is sometimes heard on the chest wall. The red cell count is 6 to 9 million with a haematocrit finding of 60 to 80% erythrocytes and an increase in blood volume. The arterial haemoglobin-oxygen saturation in the four cases in which this was determined was the same in all—namely, about 70%.

Such unvarying results are regarded by Burchell and Claggett not as a chance occurrence but rather suggesting a compensatory mechanism which by an increase of cardiac output holds the arterial oxygen tension at a certain necessary level. However, they do not report any estimation of cardiac output in their patient, and, as Taussig and Blalock<sup>3</sup> have pointed out, very low arterial oxygen saturation shows the absence of any such mechanism in the tetralogy of Fallot. After pneumonectomy the polycythaemia quickly disappeared in Burchell and Claggett's case and in the case successfully treated by Barnes and his colleagues. In the latter the red cells numbered 9.5 million per cmm before operation, a week after operation the figure had fallen to 6.4 million, and ten days later it was 5.4 million. There should be no difficulty in correctly diagnosing this condition if it is borne in mind when the conspicuous symptoms are those which at first sight suggest congenital heart disease, polycythaemia rubra vera, or chronic lung lesions accompanied by cyanosis.

<sup>1</sup> *Acta oto-l.* Stockholm 1947 35 251

<sup>2</sup> Kinnear-Wilson S. A. *Neurology* 1940 London

<sup>3</sup> Lewis F. H., Spies, T. D. and Arning C. D. *Amer. J. med. Sci.* 1940 199 840

<sup>1</sup> *Thorax* 1948 3 148

<sup>2</sup> *Amer. Heart J.* 1947 34 151

<sup>3</sup> *Ibid.* 1947 33 413

## THE ORIGINS OF CARDIAC PAIN

Fifty years ago Huchard<sup>1</sup> drew up a list of eighty theories which might account for cardiac pain, facts have since disproved most of them. It is now the general opinion that both cardiac effort pain and the pain of myocardial infarction are the result of myocardial ischaemia. There is extensive evidence, conveniently summarized by Fishberg,<sup>2</sup> to support this theory. Thus, induced anoxaemia tends to provoke anginal pain, and the transitory changes in the electrocardiograph are of the same type in coronary thrombosis, coronary arteriosclerosis, experimental coronary obstruction, and induced anoxaemia. Sutton and Lueth<sup>3</sup> concluded from animal experiments that the pain of coronary occlusion was due to myocardial ischaemia, though there is also a possibility that pain can arise from direct stimulation of the nerve plexus surrounding the coronary arteries.<sup>4</sup> Further support is given to the anoxaemic theory by the well-known fact that obstruction of the blood supply to skeletal muscle during exercise produces severe pain, relieved by rest or removal of the obstruction.

Recently there have been suggestions that cardiac pain can have other origins. Hirsch and Orme<sup>5</sup> take anatomical facts into consideration, and Wyburn-Mason<sup>6</sup> in this *Journal* argued mainly on clinical grounds. The former suggest that cardiac pain arises in and about the coronary arteries rather than in the muscle tissues in the same way as pain occurs with sudden thrombosis of a peripheral artery. They draw attention to the many myelinated nerve fibres which are distributed in the fibrous tissues along the coronary arteries and which terminate in the walls of these arteries. They believe these nerves are sensory, and they refer to a similar pattern of sensory innervation which has frequently been described in peripheral systemic vessels. To support their theory they mention the conclusion of Katz and his colleagues<sup>4</sup> that in experimentally induced coronary artery pain the sensory response was due not to occlusion of the coronary artery but to direct stimulation of afferent fibres around the coronary vessels. These anatomical observations can hardly be used as evidence against the theory that cardiac pain is due to anoxaemia, at the most they indicate other possible mechanisms. All non muscular tissues of the heart have a rich sensory innervation, and in animal experiments cardiac pain appears to arise both from direct stimulation of coronary nerve plexuses and from local anoxaemia. It seems reasonable to suppose that in man the nerve plexuses can act either as a path for pain or as a starting-point.

In putting forward what he called "a new conception" of angina pectoris Wyburn-Mason described a number of cases in which anginal pain occurred without any abnormality of the heart. He added a list of conditions in which angina and vasodilatation, local or general, are said to coincide, and, interpreting this coincidence as a causal relationship, he suggested that the common factor which gives rise to anginal pain in coronary artery disease and in disease of neighbouring tissues is vasodilatation. Unlike Hirsch and Orme, he considered that the fibres which conduct the protopathic pain impulses are the unmyelinated vasodilator fibres which run by way of D1-5 posterior nerve roots, fibres which supply the mediastinal tissues including the heart. Any excess of vasodilator impulses in these nerves might lead to abnormal nervous activity and therefore pain impulses. Discussing angina of cardiac origin, Wyburn-Mason suggested that during increased

cardiac activity the afferent nerve endings are stimulated by metabolites which collect because coronary sclerosis prevents vasodilatation. The presence of these metabolites causes abnormal reflex impulses in the coronary vasodilator pain fibres, and the immoderate attempt at vasodilatation gives rise to pain.

Although the concept of frustrated vasodilatation being painful in this manner is a novel one there seems little else to recommend it. To the same category belongs the theory that although accumulated metabolites stimulate the nerve endings of pain yet they cause pain only through the excess of reflex antidromic impulses. Many problems connected with angina remain unsolved, no doubt it may develop in the absence of cardiac disease or be absent in the presence of gross myocardial ischaemia, but it still does not seem possible to approach nearer to the truth of the matter than Fishberg's summing up, that angina pectoris is the cry of the heart for more oxygen.

## THE NATURE OF SEBUM

It is about 300 years since Malpighi first described the sebaceous glands. Boerhaave added to this description, but it was not until the latter half of the nineteenth century that much interest was taken in their function. In our own time some authorities have suggested that nervous and endocrine factors influence the secretion of sebum, but few quantitative observations have been made. Schur and Goldfarb<sup>1</sup> in 1927 estimated the quantity of sebum secreted on the forehead by wiping with small cotton wads the area of skin to be tested. They found that the layer of sebum on the surface of the skin reappeared very rapidly, often within 15 minutes of its removal, but did not exceed the original amount even after an interval of two hours. They therefore concluded that the amount of sebum over a given area of skin was constant and that secretion stopped when a certain level was reached and started again when the amount fell below that level. Emanuel<sup>2</sup> confirmed this observation and found that isolation of the area for one week produced no increase in the thickness of the layer. This was not constant but varied from day to day within a range characteristic for a given area. He concluded that the thickness was regulated by an interaction between two opposing factors: the resistance of the sebaceous layer and the functional capacity of the glands. The former was proportional to the thickness of the layer and the consistency of the sebum and the latter depended upon the size of the glands. The rate of reproduction of the layer appeared to be dependent upon the number of glands in the area in question. Dunner<sup>3</sup> also concluded that the sebum level was dependent on the viscosity of the sebum. He showed that a rise in external temperature raised the productive capacity of the glands and the thickness of the sebum layer.

Recently Butcher and Parnell<sup>4</sup> have made some interesting observations on the quantity and composition of sebum secreted on the heads of three individuals of different type. In one man with a dry scalp and dandruff there was an average of 0.168 mg of fat and 0.0171 mg of cholesterol per sq cm when specimens were taken once a week over an eight-week period, the cholesterol being 9.4% of the total sebum. In another man with an oily scalp and sparse hair there was an average of 0.219 mg of fat and 0.0149 mg of cholesterol per sq cm over the same period, 6.3% of the total sebum being cholesterol. In the third man, with good hair and little dandruff, there was an

<sup>1</sup> *Tr. et Clin. des Maladies du Cœur et de l'Aorte* 1899, 2, 77. Paris.

<sup>2</sup> *Acta Derm. Venereol. Stockh.* 1938, 19, 1.

<sup>3</sup> *Acta Derm. Venereol. Stockh.* 1938, 19, 1.

<sup>4</sup> *Acta Derm. Venereol. Stockh.* 1938, 19, 1.

<sup>5</sup> *Acta Derm. Venereol. Stockh.* 1938, 19, 1.

<sup>6</sup> *Acta Derm. Venereol. Stockh.* 1938, 19, 1.

<sup>1</sup> Schur H. and Goldfarb L., *Wien klin. Wschr.*, 1927, 40, 1255.

<sup>2</sup> *Acta Derm. Venereol. Stockh.* 1938, 19, 1.

<sup>3</sup> *Dermatologica Basel* 1946, 93, 249.

<sup>4</sup> *J. Invest. Derm.* 1947, 8, 67.

<sup>5</sup> *The Hair and Scalp* 1944, London.

average of 0.160 mg of fat and 0.0119 mg of cholesterol per sq cm the cholesterol being 7% of the total sebum. When collected daily there was only slightly less sebum for a given period than when collected weekly, and frequent removal of the sebum did not cause increased oiliness of the scalp.

In the past there has been some doubt whether sebum contains cholesterol, though Savill<sup>5</sup> mentions it as being present. In Butcher and Parnell's cases the highest content of cholesterol occurred in the individual with the greatest desquamation of the scalp. Had the cholesterol originated in the desquamating cells, then the collection made weekly should have contained the greatest proportion of cholesterol, but this was not the case. Butcher and Parnell also investigated the effects of resistance on the secretion of sebaceous glands. They found in the rat that when the skin was covered, or a resistance created, the gland did not become smaller but enlarged from accumulation of cells and sebum within it. This accumulation is similar to that present in sebaceous cysts.

### THE COURSE OF RHEUMATOID ARTHRITIS

In few diseases is it more difficult to form an unbiased opinion about the value of different methods of treatment than in rheumatoid arthritis. Its onset may be acute or gradual, and remissions or exacerbations occur for no obvious reason, remedies which have proved helpful in one case are perhaps ineffective or even harmful in another. In some cases the condition becomes quiescent for months or years and then relapses, while in a proportion variously estimated at 50% to 70% the disease is permanently arrested, though often severe crippling deformities remain. Two hundred and fifty patients who received only simple medical or orthopaedic treatment for rheumatoid arthritis have been studied by Short and Bauer<sup>1</sup> at the Massachusetts General Hospital over a long period of years. They point out that in nearly all similar investigations the details given have been insufficient to make comparisons practicable. They have therefore evolved a system of observation and record which might be used as a standard. The course of the disease must be followed in many more cases before definite conclusions can be reached, and general practitioners could well undertake some of the necessary research, since they have their patients under constant observation and it would not make excessive demands on their time or require special training or equipment.

The results of Short and Bauer's observations confirmed certain general impressions. Their patients were admitted to hospital between 1930 and 1936, in all of them the usual physical signs of rheumatoid arthritis were present. They generally remained in hospital for three or four weeks for investigation and for instruction in simple remedial measures which could be carried out at home, including appropriate diet and physiotherapy. Thereafter they reported back to the hospital once or twice a year if practicable or they were interviewed by trained observers and their condition noted. When necessary they were readmitted to hospital for special treatment. The average duration of observation was 9½ years, with a range from six months to 16 years. In slightly over 50% improvement took place, and complete recovery in 15%. Fifty-two patients were given fever therapy and 16 had blood transfusions but in neither of these groups were results better than in the cases which had no special treatment. Of those who improved within two years 37% later relapsed compared with 28% of recorded relapses in a combined series taken from the literature, of 768 patients who originally improved with gold therapy.

Investigations of this type will always be complicated by the fact that in the course of rheumatoid arthritis outside influences may turn the scale one way or the other. The mere fact of being under regular observation has an encouraging effect, and the suggestion that therapeutic resources have been exhausted does much to weaken the patient's power to fight the disease. One American authority with wide experience has said that though he is doubtful if vaccines have any specific effect he uses them in small doses in order to keep the patient under continual observation and thus control the general line of treatment.

### ARSENIC AS A CAUSE OF CANCER

Prolonged arsenical therapy can cause cancer of the skin and other organs, and there is a risk of occupational cancer among workers making arsenical compounds. Sir Jonathan Hutchinson in 1887 was the first to draw attention to the development of cancerous ulceration on keratoses following the use of arsenic in the treatment of psoriasis. Though arsenic was used widely to treat skin diseases, syphilis, and many other general diseases it would seem that in psoriasis there is some particular predisposition to this grave complication of treatment. Apart from the more obvious forms of cancerous ulceration, superficial scaling and keratotic lesions and multiple small intra epidermal carcinomata of a benign type are often seen, more particularly on covered parts. The lesions may remain stationary, or involute, or they may progress to more malignant forms.

These changes may appear within a few years of the beginning of treatment or exposure, or they may be delayed up to 40 years. In a comprehensive review of the subject Neubauer<sup>2</sup> states that an average interval is 18 years. Arsenic is a normal constituent of body tissues, and small amounts may be found in skin, hair and nails, and urine, the quantities vary slightly with the geographical situation, the character of the drinking-water, and other factors. The finding of arsenic in the tissues, therefore, is not necessarily significant when the cause of a cancer is being considered. Neubauer states that the results of chemical investigation are disappointing, definite conclusions cannot be drawn either from the absence of arsenic from the tissues or from its presence in small amounts. Animal experiments have produced only doubtful results, and further knowledge of the pathogenesis of arsenical cancer may not be obtained until the pharmacology of arsenic is better understood. Barry, Bunbury, and Kennaway<sup>3</sup> have suggested that arsenic may induce cancer not by direct action but by causing accumulation in the tissues of organic (carcinogenic) compounds which would normally be oxidized or reduced to other forms. Occupational cancer of the skin and lungs has been reported in workers engaged in factories producing sheep dip and insecticides, and in rare instances cancer of the skin in gardeners and in metal-miners and smelters has been attributed to arsenic.

Sir Reginald Watson-Jones will deliver the Robert Jones Lecture on "The Reactions of Bone to Metal" before the Royal College of Surgeons of England (Lincoln's Inn Fields, London W.C.) on Thursday, Dec 9, at 5 p.m.

Dr W. H. Wynn, F.R.C.P., will deliver the FitzPatrick Lectures on "The Pestilences of War" before the Royal College of Physicians of London (Pall Mall East S.W.) on Tuesday and Thursday, Dec 7 and 9, at 5 p.m. In the first lecture Dr Wynn will speak on "The Early Civilizations and Greece," and in the second on "The Roman Republic and Empire."

<sup>1</sup> *New Engl. J. Med.*, 1948, 238, 1-2.

<sup>2</sup> *Brit. J. Cancer*, 1947, 1, 192.

<sup>3</sup> *Biochem. J.* 1928, 22, 1109.

## THE INSTITUTE OF OPHTHALMOLOGY

The Institute of Ophthalmology one of the federated institutes of the British Postgraduate Medical Federation in the University of London, was opened formally on Nov 4. The buildings of the Central Eye Hospital in Judd Street, King's Cross, have been largely reconstructed internally to serve the Institute. The Institute has grown out of the medical schools of the three amalgamated hospitals—the Central Eye Hospital itself Moorfields and Westminster. These schools have been in existence for many years, the one at Moorfields dating back as far as 1810.

The work to be carried out at the Institute will be twofold—postgraduate teaching and research both in laboratory work and on clinical material. Teaching will be available to qualified students from all over the world who wish to train as specialists in ophthalmic medicine and surgery. It was stated that at the present time students from seven countries, not including the British Isles, are taking courses at the Institute. For the present term 126 students are enrolled. Three main research teams of the Medical Research Council are carrying on work there. They are an ophthalmological research unit working under Sir Stewart Duke Elder on the physiology of the eye and ocular diseases, a vision research unit under Professor H. Hartnidge, and an industrial illumination unit working under Mr. Weston on the practical aspects of lighting. In addition the Institute may be made available for individual research. There are also a pathological department, which carries out all the routine bacteriological and histological work of the hospital and conducts research in these fields, and a department of medical illustration, which includes a well-equipped photographic studio with dark-rooms, photomicrographic apparatus, and printing facilities. The ophthalmological library and museum are said to be the most complete of their kind in any country. Great skill has been shown in adapting the old hospital buildings to this new function.

The Earl of Rothes, chairman of the committee of management who presided over the opening ceremony, referred to the help of the British Postgraduate Medical Federation in sponsoring this enterprise. Sir John Herbert Parsons spoke of the high reputation of the three hospitals as teaching schools and said that in the new Institute this tradition would be enhanced because the teaching would be carried out under much more favourable circumstances. The large amount of research already done by the staffs of the hospitals would be continued on a wider basis. The Institute would be under the supervision of Sir Stewart Duke-Elder and this fact alone would ensure its success.

### Greetings from America

Professor Alan Woods, director of the Wilmer Institute, Johns Hopkins University School of Medicine brought the congratulations of American ophthalmology, and said that the founding of such an Institute was the rational outcome of long and industrious work in ophthalmology in Great Britain. The independent or semi-independent hospitals in Europe and America had provided a good basis for present and future service, but a new type of institution was needed for research and the advancement of the frontiers of knowledge. Most of the obvious things had been done and modern ophthalmic research must include the application of biophysics, bacteriology and related sciences to the study of the normal and the abnormal eye. But advances along these lines could not be made unless the scientists undertaking the work were specially trained, and the help of biochemists, biophysicists and others was needed. In short new types of investigators were required.

The type of institute now being dedicated afforded the answer to this quest. Ophthalmological research must be a university undertaking, so that the investigation could be co-ordinated access made possible to clinical material and fellowship offered with colleagues in other branches of medicine. In a university school of medicine an ophthalmological institute must be regarded as an integral unit. It was typical of British courage to undertake this task in the midst of so much other reconstruction. Anything which his own school of medicine could do to assist would be only a small acknowledgment of the debt it owed to British ophthalmology. He extended to the new enterprise good wishes for success and high achievement.

Greetings were also given by Professor H. J. M. Weve of Utrecht who said that this was a great day not only for ophthalmology in London but throughout the world. Ophthalmology could not be looked upon as a science apart from the rest of medicine, all parts were interlocked, and the fact that the Institute was part of the University of London showed that that was recognized in this country. England had contributed much to the study of this specialty through many of its distinguished workers, notable among whom was Sir John Parsons.

It was stated that the amalgamated hospital is the largest specialist eye hospital in the world and the Institute the first of its kind in Europe. The practice of the hospital, drawing as it does patients from the entire London area and indeed from all over the United Kingdom, provides material for teaching and research which is unrivalled in any country.

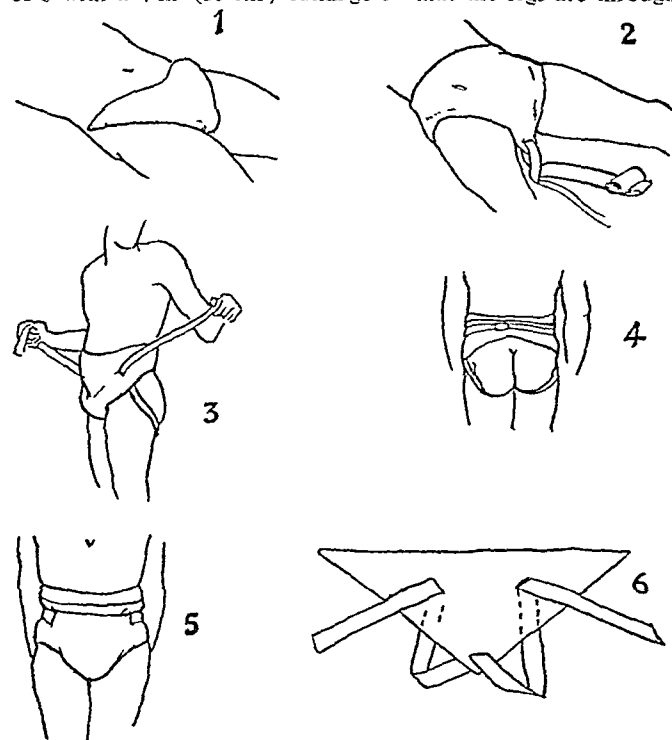
Later in the day Professor Alan Woods delivered the inaugural lecture on experimental studies on the pathogenesis and therapy of ocular tuberculosis.

## Preparations and Appliances

### A SCROTAL BANDAGE

Mr B. JOHN MAXWELL, a student at the Liverpool University Medical School, writes. Several excellent methods of bandaging the scrotum are already in everyday use. Prominent among them are the roll bandage, the T bandage, and the Bellevue adhesive plaster methods.

The roll bandage method is simply the winding of a figure-of-8 with a 4 in (10 cm) bandage so that the legs are through



1—Wool pad shown in position with rolled apex supporting the scrotum. 2—Roll bandage threaded through apical hole. 3—Roll bandage brought to and threaded through the basal holes. 4—Bandaging completed, showing bandage following fold of buttock upward and forward. 5—Complete. 6—Showing position of holes and direction of bandage.

the loops the loops are held up to waist level by alternate complete turns round the abdomen. In applying a T bandage the joint should be at the back, the stem of the T coming between the legs from the back and up to the front to give support to the scrotum. In the Bellevue method a piece of 'elastoplast' 36 in by 4 in (90 by 10 cm) has two mid-width slits cut from each end, but not to meet at the centre. This gives an H-shaped piece, the bar of which is padded with gauze and applied to the scrotum in such a way that the two upper limbs of the H are passed either side of the penis.

and applied to the abdominal wall and the two lower ones curve laterally following the folds of the buttock. The outpatient who requires daily scrotal dressings is however, still a problem as the roll bandage and the T bandage methods need great skill and take a certain amount of time if slipping rolling and rubbing are to be avoided, while the Bellevue plaster is extremely painful to take down each day.

The method described below has the advantages that not only does it give comfort, support and security, but it is easy to put on taking little time, and it need not be removed for defaecation. All that is required is a triangular bandage a 3 in (7.5 cm) bandage, cotton wool, and some 1-in (2.5 cm) adhesive tape.

The patient lies on his back and the dressing is applied to the scrotum. A triangle of wool has its apex rolled up into a firm pad which is placed underneath the scrotum acting as a support, and the rest of the triangle of wool covers the scrotum so that the base of the triangle reaches the peno scrotal junction (Fig 1).

The triangular bandage has a piece of 1-in adhesive tape stuck on to it about 2 in or 3 in inside the apex and a slit cut into it (the plaster is only to reinforce the edges of the hole in the bandage). The triangular bandage is now placed over the wool, again base upwards, so that the apical hole lies in the crotch posterior to the wool pad. Two more pieces of adhesive plaster are stuck on to the triangular bandage 1 in above and medial to the anterior superior iliac spines and slits cut into them (Figs 3, 5, and 6).

The basal corners are now tied round the back and 2 ft (60 cm) or more (depending on the obesity of the patient) of the roll bandage is threaded through the apical hole (Fig 2). The bandage is drawn back between the legs and laterally, following the folds of the buttock upward and forward (Fig 4), deep to the triangular bandage, to the basal holes, through which it is threaded (Fig 3). The roll bandage is now taken across the back and wound round the body over the triangular bandage (Fig 5). The end is strapped down with adhesive tape. To complete the bandage a hole is made through which the patient can micturate.

Important points are (1) Before tightening the bandage by traction on the apex the scrotum should be drawn upwards. This, together with support from the wool pad, gives 'lift' to the scrotum. (2) The basal holes should not be made until they have been tried for position. (3) The lines of pressure lie between the three holes, therefore it is essential that the wool should extend beyond the pressure lines to prevent rubbing. (4) The patient should be allowed to decide where he wants the hole through which he will micturate.

The completed bandage is neat and comfortable and needs little skill in its reapplication.

I would like to thank Professor C. A. Wells for his advice and criticism and for the services of his artist.

The Nurses and Midwives Whitley Council have agreed on new training allowances, which will take effect from Sept 1, for student nurses employed in the National Health Service. They are regarded as the basis on which true student status can be built up, bringing mental nurse training more closely into line with training in other professions. The responsibilities resting upon student mental nurses and the exacting nature of the work in mental institutions are recognized in the allowances payable to them. Men and women will receive the same training allowances. Additional dependants' allowances will be paid to help those with family responsibilities. For students recruited on or after Jan 1, 1949, the first-, second- and third-year allowances will be £230, £240, and £255 respectively. Students will also receive proficiency allowances of £20 and £30 respectively on completing the second and third years of training if they pass the appropriate examinations. Students who live in accommodation provided by the employing authority will pay £100 a year for board and lodging. For existing female and resident male students or such students recruited before Jan 1, 1949, the allowances with effect from Sept 1 1948, are £130 in the first year, £140 in the second year and £155 in the third year, the emoluments being valued at £100. These students will also continue to receive proficiency allowances. Uniform will continue to be provided and laundered without charge for all students. Non resident students will also receive free meals on duty. Where in exceptional cases existing salaries are higher than the new allowances students will be entitled to retain them. These scales represent an increase of £30 £40 and £50 per annum respectively on the previous basic rates for female students. The additional annual cost to the National Health Service will be in the neighbourhood of £65,000. The settlement has been accepted by the nurses' representatives on the understanding that a special committee of the Council will be set up to consider the working conditions in mental hospitals and to recommend measures necessary to achieve full student nurse status as soon as possible. The management side have agreed to take all measures in their power to put into force any recommendations on the matter adopted by the Council.

## Correspondence

### The Training of a Doctor

SIR—The comments in this letter are inspired by Professor J. A. Ryle's letter (June 12 p 1153). In this he rightly deplores the lack of attention given to psychosomatic medicine in the curriculum. Herein I believe lies the pointer to the future development of general practice as we understand the term. All thinking members of our profession must be depressed when we consider the future of the general practitioner. We are all conscious of the development of the type of practitioner who takes progressively less and less clinical responsibility who spends his day prescribing medicine, and promptly refers all sick patients for either indoor or outdoor hospital supervision. I greatly fear that the general practitioner of the future is menaced by this degradation of his professional function into a signer of forms and a director of patients to an appropriate hospital department.

There is, however, a dignified and academically honourable alternative. I feel strongly that the general practitioner as we know him should develop into a sound psychosomatic physician. He must certainly retain his character of family physician. This tie will in fact be tightened rather than slackened as a result of his training in psychosomatic medicine. He will be equipped as few general practitioners are at present to explore that vague hinterland of medicine where the organic and the functional join hands to play such havoc with his patients. A more intimate knowledge of organic medicine will be necessary than that of the present general practitioner, perhaps a standard intermediate between that of the present practitioner and the standard required for membership of the Royal College of Physicians.

Such a standard is by no means beyond the capacity of the average medical graduate, since he will be relieved of the obligation of being in addition surgeon, gynaecologist, and obstetrician to his patients. These functions must be left in the hands of more capable performers than the average general practitioner. It has been well said that no operator should open an abdomen to remove a simple appendix unless he is prepared to remove a foot of bowel if necessary. The general practitioner must face up to the ultimate loss of surgery, gynaecology, and obstetrics. However, I see his status increased rather than diminished by the development outlined above.

This professional keystone to the arch of medical service must be vested with great authority and responsibility. With apologies for mixing my metaphors, he must be the captain of his patient's ship of health, deserting or sharing the bridge for brief interludes only while the surgical or other specialist pilot negotiates his own highly localized reefs and channels. From his ranks will be drawn the most able, to become the consulting and teaching physicians as we know them to day, but with this difference that they will have graduated from the ranks of psychosomatic family physicians rather than from the medical registrars of teaching hospitals, a consummation devoutly to be desired.

It may be objected that there will always be a need for the all rounder type of doctor in the outlying country areas. This will be true only to a very limited extent. I feel sure that, with the aerialization of transport, surgery, gynaecology, and obstetrics will increasingly be relegated to institutions even for country patients.

To summarize, I feel that the present trend in medical practice is on the one hand the production of specialists with a much too academic background, and on the other hand the professional degradation of the general practitioner to a glorified medical clerk. This general trend is most deplorable and I suggest the development outlined as a logical and dignified alternative—I am etc.,

Sydney, Australia

LANCE HEWITT

### Surgical Treatment of Ménière's Disease

SIR—In an annotation on the surgical treatment of Ménière's disease (Nov. 6 p 829) you kindly referred to the operation I employ for the relief of vertigo in suitable cases, saying, 'This cures the vertigo without affecting the hearing.' I have always found<sup>2</sup> that this operation which consists in removing all or part of the membranous external semicircular canal, is followed

by total and irreversible loss of cochlear as well as vestibular function on the operated side

For this reason it is reserved for cases in which the disease appears to be unilateral and the hearing on the affected side is seriously impaired and, as a rule, distorted. Such distortion is a characteristic and common feature of the deafness in Ménière's disease, it is particularly noticeable for musical and high pitched sounds, and when present adds to the distress of the disease.

I have found that the loss of a distorted remnant of hearing in one ear, far from diminishing the general capacity for hearing, often leads a patient after an operation to say that his hearing is better because once again he can enjoy listening to music, and loud sounds no longer distress him. Thus whilst it is often true to say that the hearing capacity of patients subjected to my operation is altered, sometimes for the better, I would like to make it quite clear that the hearing in the operated ear is always lost, though for reasons already given such a loss often proves to be a gain—I am, etc.,

London W 1

TERENCE CAWTHORNE

#### REFERENCES

- <sup>1</sup> *J Laryng* 1943 58 363  
<sup>2</sup> *Ann Otol etc St Louis* 1947 56 18

SIR,—In the annotation (Nov 6, p 829) on surgical treatment of Ménière's disease you state that Cawthorne's operation cures the vertigo without affecting the hearing. In one or two cases Day has succeeded in coagulating the labyrinth with retention of some of the hearing, but destruction of the labyrinth by any other method devised up to the present has involved destruction of the cochlea also.

The object of the operations devised to deal with the labyrinth itself was to avoid an intracranial operation but the neurosurgeons, until Ray's recent paper, had claimed that the destruction of the vestibular portion only of the eighth nerve left satisfactory hearing. It is now generally recognized that the hearing remaining after Dandy's operation on the vestibular nerve is not satisfactory in most cases, and the risks involved are not merited by the results achieved—I am, etc.,

Lth dln

M SPENCER HARRISON

SIR,—The paper on Ménière's syndrome by Mr E R Garnett Pisse and Dr J S Seymour (Nov 6, p 812) prompts me to raise two points. The first relates to the case Ménière described in 1861. "It would seem," the authors state, "that acute haemorrhagic labyrinthitis was the cause of the syndrome. So far so good—but it is in my view essential to add that in the original and fatal case Ménière's syndrome has to be interpreted as a haemorrhagic symptom of acute leukaemia."

This leads to my second point. The organ of hearing (inner ear) and the organ of equilibrium (labyrinth) live in a semi-detached dwelling. These and their two cranial nerves (the cochlear and the labyrinthine nerve) are affected by a great variety of causes with the common feature that all can produce Ménière's syndrome. The outlook in Ménière's disease accordingly varies from death within a few days to complete recovery.

The term "Ménière's disease" is at present one of the vaguest in medical terminology and to replace it by "Ménière's syndrome" has not helped to reduce the muddle. I believe that we should either discard the term altogether or agree that we mean something entirely different by it than Ménière meant to describe—namely, a haemorrhagic labyrinthine symptom.

Before recommending sweeping therapeutic measures we must try to group these greatly differing cases according to their proved or probable aetiologies and in this respect we are all very much at the beginning. Ménière's so Pisse and Seymour complain "had inadequate knowledge of the true aetiology. Alas so have we. Surgical suggestions for the relief of symptoms of varying and obscure aetiology are at best initially successful. In the case of Ménière's disease they have included many different procedures among them operations on the antra. So far they have all had one thing in common—they have not come to stay—I am, etc.

1-2-48

A B ALEXANDER

### Intussusception Due to Carcinoma of Colon

SIR,—Intussusception of the gut at either extreme of life is a fascinating lesion, and Mr R A C Owen's account of two cases of colonic intussusception due to a carcinoma (Oct 30, p 786) will be of interest to all surgeons. He raises three points of some academic importance with which I am not in entire agreement. In the first place I do not think that the condition is so rare as the published figures would indicate. In a limited surgical experience I have come across three cases of this type, and I think that most surgeons meet with at least one or two examples during their career. Moreover, it is not uncommon to find that a growth felt on rectal examination in the out-patient department proves to be in the lower pelvic colon when seen at operation, these are undoubtedly examples of recurrent intussusception of minor degree.

Then Mr Owen suggests that colonic intussusception in adults is not necessarily associated with a carcinoma, but surely any other cause must be a rarity. In dealing with a colonic intussusception one looks for and expects to find a carcinoma, or at any rate a growth of some kind. I agree that occasionally a tumour is absent, and in one of my patients, who was a British soldier serving in India, no abnormality was found in the transverse colon, which had intussuscepted and was subsequently resected. Possibly his intussusception was due to the uncommonly active gastro-colic reflex from which most newcomers to the Tropics suffer and akin to the spate of intussusceptions which are said to afflict those of Mohammedan faith during the fasting season.

Finally, it is not strictly accurate to say that this condition is of necessity associated with a long and mobile pelvic colon. The essential feature is a mobile colon, and whilst the fulfilment of this requirement is usually confined to the transverse and pelvic portions of the large bowel it occasionally happens that the ascending colon also has a mesentery owing to faulty fixation of the gut to the abdominal wall during development, in the presence of an exciting factor this may result in an ileo-caecal intussusception. In a remarkable case at present in Mr W J Ferguson's wards at the West Middlesex County Hospital a woman of 75 was subjected to laparotomy on account of symptoms of acute upon chronic intestinal obstruction. An intussusception of the colon was found lying below the spleen. It reduced with ease and proved to be of the ileo-caecal type. The whole colon from caecum to rectum was attached to the abdominal wall by a long mesentery, making a hemicolectomy a matter of extreme ease. The exciting factor producing the intussusception was a small papillary carcinoma encircling the ileo-caecal valve—I am, etc.,

Islworth, Middlesex

LOUIS A IVES

SIR,—Mr R A C Owen in his paper on the subject of intussusception in adults due to carcinoma of the colon (Oct 30, p 786) states that only two such cases have been reported in the literature in the last ten years. The following case would therefore seem worth recording.

A woman aged 74 was admitted to hospital in the evening of June 6, 1948, complaining that something had "come down" when she was straining at stool that afternoon. Her previous history was that after being constipated all her life she had had diarrhoea with three or four motions every twenty-four hours for two months before admission. No blood or slime was noticed in the stools. She had had a ruptured perineum in childbirth forty years ago. On examination she was a thin old lady. Examination of her abdomen was negative. A large intussusception was projecting five to six inches from the anus, with an annular papilliferous carcinoma at its apex. The intussusception was reduced to within the rectum, with the patient in the left lateral position, without an anaesthetic. The buttocks were strapped together and the patient was placed on her face with the foot of the bed raised to complete the reduction. On June 21 a laparotomy was performed through a right lower paramedian incision under a general anaesthetic. The growth was found to be in the sigmoid colon, and as there was no evidence of secondary deposits the sigmoid colon was resected with end-to-end anastomosis. After operation she did well and was discharged from hospital on July 19. When last seen, on Oct 17, she was very well, with no symptoms at all.

The pathological report on the specimen was as follows: "The specimen consists of large bowel, 20 cm in length. In the centre is a flattened papilliferous growth, 7 cm in diameter, which com-



the end of the bowel wall it appears to be confined to the mucosal coat. Microscopic structure of the tumour is a well differentiated adenocarcinoma.

My thanks are due to Mr Donald Barlow, who performed the operation and has given permission for me to report the case—I am etc

Luton

H BERNARD JUBY

### Purpura Fulminans Complicating Scarlet Fever

SIR—I have read with great interest the article by Drs T Anderson, M S Ferguson, and J B Landsman in the *Journal* of Sept 18 (p 549) entitled 'Purpura Fulminans Complicating Scarlet Fever'. This work poses clearly the problem of pathogenesis of the haemorrhagic forms at the onset and of the haemorrhagic complications either generalized or localized, in infectious diseases.

It is difficult to explain the aetiology of these haemorrhagic complications. It cannot be explained on the grounds of special virulence of the organisms, because in time of epidemics only a small number of patients are affected by these grave forms. The same can be said of the organisms responsible for reinfection or cross infection so frequent in hospital environment and which very fortunately give rise to haemorrhagic manifestations only occasionally. We have therefore to admit that the affected subject responds in some peculiar way to the causative organism.

It has been frequently said that these haemorrhagic manifestations are of allergic nature. This interpretation is very unlikely, whether it be concerned with allergy towards the responsible organism of the primary disease or with hetero allergy—viz. purpura allergy as defined by Moro and Keller—to a different organism. Allergic manifestations usually do not show these dramatic features of the haemorrhagic complications in specific fevers, they do not cause such intense vascular lesions, they are in general not so serious, and lastly, tests for allergy to the organisms incriminated have been uniformly negative.

It is my belief that the haemorrhagic syndrome observed by Drs Anderson, Ferguson, and Landsman can be compared to the Sarnelli-Shwartzman phenomenon. A given infection can give rise in certain individuals to a transitory alteration of bodily response (*alteration reactionnelle transitoire*) analogous to the response in the rabbit which has received a preparatory injection of a filtrate of organisms in the experiments of Sarnelli and Shwartzman. If at that precise moment the precipitating factor comes into play (this being either a persistent primary infection or a cross infection or even chemotherapy) the result may be a haemorrhagic manifestation either generalized or localized unrelated to the intensity, gravity, or nature of the precipitating factor.

The haemorrhagic phenomenon has indeed nothing specific in itself and can be produced by various agents, a fact which is responsible for the belief that the real cause is sometimes chemotherapy, in others the persistence of an infection or septic focus or in others a cross infection. Moreover, two facts in the case of Dr Anderson and his co-workers are of special interest. (1) Marked hypothermia—Sarnelli has produced experimentally in the animal a syndrome with hypothermia and haemorrhagic signs. (2) The spectacular action of penicillin can be compared to the specific immunization which neutralizes the toxin from the filtrate of bacilli as shown in the Shwartzman phenomenon, the toxin having been rapidly neutralized haemorrhagic manifestations do not occur.

In a series of papers, partly yet unpublished I have shown the importance of the Sarnelli-Shwartzman phenomenon in human pathology with special reference to infection and chemotherapy. I have included all these facts under the general denomination of *sanergy* ('*sanergie*') and I believe that this new interpretation of a great number of facts of, until now obscure significance will lead to search for rational treatment—I am etc

Hopital Rothschild Paris

S LEWIS

### Bornholm Disease

SIR—On Oct 4 a little girl aged 16 months was brought to me. She groaned with each expiration, inspiration was short and shallow, she looked anxious, the temperature was 100 F (37.8 C), the upper abdomen was rigid and I could find

no abnormal signs in the chest. Her mother reported she had been quite well the previous day and until suddenly attacked with pain at 5 p.m. on that day, but that she had had a similar attack on Oct 2 from 11 a.m. till 6 p.m.

This child was sent to hospital as a matter of interest with a tentative diagnosis of Bornholm disease. In hospital she was to my mind unfortunately given sulphamezathine and penicillin for a supposed pneumonia, the report stating there was a 'slight increase in opacity in the right mid zone'. She returned home on Nov 6 quite well and with no clinical signs of pulmonary disease.

In another village three miles from the home of the child referred to above a small boy aged 2 years was seized with a similar pain at 6 a.m. on Nov 3, this continued, though lessening till 6 a.m. on Nov 4 after which he was well till 5 p.m. the next day, when the pain returned and continued till the late evening. He then slept well, and, apart from some guarding of his upper abdominal muscles which wore off in 24 hours, he remained well.

A child aged 4 years in the same village, who had been in contact with the small boy on Nov 1 commenced with pain at 4 p.m. on Nov 4 and it continued through the night but she was well on the two following days. The pain recurred on Nov 7 at 9 a.m., but eased by 12 noon, since then she has been well.

When first seen these patients all showed obvious pain and anxiety, short and suddenly checked inspiration, longer expiration (not an expiratory grunt), rigid upper abdomen, slight fever, and a preference to sit up rather than lie down. Onset had been sudden, with a definite time stated by the respective parents. Remission of symptoms was more gradual and followed as suddenly as before by a further attack.

All three were, to my mind, cases of Bornholm disease, which I think may possibly be more common than is generally suspected, and they illustrate the advisability of refraining from the blunderbuss use of "sulpha" drugs in cases of apparent respiratory disorder, if only that more precise diagnosis may be made possible—I am, etc

Richmond York

A F T ORD

### Fibrositis

SIR,—Before finally parting with a disease I thought I had suffered from for forty years may I put one question to those who have decided to abolish it? If, as they assert, all such troubles are due to articular lesions how comes it that the distressing pains radiating from the supposedly fibrotic nodules can be so definitely relieved by massage of them, as I know from grateful experience that they can?—I am, etc,

Eisted Sussex

ERNEST JONES

### Vegetable Marrow Poisoning

SIR,—The following case of poisoning by a vegetable marrow may be of interest to some of your readers.

A retired professional gardener planted a seed in the soil of his allotment and in due time three normal looking marrows were produced. The ground was clean and had not been manured previously, nor had any manure been used while the plant was growing. The first marrow was prepared in the normal way and served with meat and potatoes but the taste was so bitter that the man and his wife and daughter spit out their mouthfuls and discarded their helpings without swallowing either marrow or juice. The second marrow was quite normal in taste.

The third was prepared some time later and served with mince-meat, beans, and potatoes. The daughter and husband noticed that this was again bitter and discarded their helpings without swallowing marrow or juice, but the wife although discarding her helping of marrow, mixed the juice with the beans and potatoes and finished the meal. About five hours later she had a sudden attack of colicky abdominal pain followed by intense vomiting and diarrhoea. She was prostrated, and her symptoms lasted through the night. The attack then decreased in severity till the following evening, when she was well enough to get up. She has been well since then.

The man sought advice from the local health authority, and investigation failed to show evidence of extraneous infection of any kind. It was felt that the answer lay perhaps in the strain of the seed from which these marrows had grown. Samples of the last marrow were therefore sent to the nurseries

from which the seed had been obtained, but they could throw no light on the problem. A third sample was sent to the county agricultural education department, who asked the public analyst to analyse it. He has kindly allowed me to quote his report, which is as follows:

Some members of this family of plants are intensely bitter and are used medicinally for this purpose. Occasionally plants do revert and have this very bitter taste. The reason for this instability is obscure and does not appear to be due to soil conditions, as normal fruit and bitter fruit are intermingled. In a similar instance we have shown the bitter principle to be a glucoside. Many of the glucosides are intensely poisonous and would certainly give rise to the symptoms described, although the danger in this case is mitigated by the fact that the taste is so nauseating that it is unlikely anyone would eat any appreciable quantity. Bitter fruits are generally smaller and rougher in appearance compared with normal fruit."

All three marrows in this case appeared normal in size, shape, colour and consistency—I am, etc.,

Abandon Berks

T. T. BAIRD

### Medicine as a Planned Economy

SIR—Dr O. L. Wade (Oct 16, p. 721) complains that far too much reliance is placed on laboratory tests in diagnosing illness. This may be true of the younger members of hospital staffs, but I do not think it is true of the senior members, who have the tests made to complete the picture, the jigsaw puzzle they strive to put together. The result of the test may prove to be the important piece they have been seeking. For my part as a pathologist I have always stressed the importance of clinical observation. The fault of the clinician is that he so often does not consult the pathologist about the most suitable test to be undertaken.

If there are too many unnecessary tests demanded by the consultant this is certainly not true of the general practitioner whose neglect of helpful pathological investigation is much to be regretted, even the simple tests Dr Wade lists are asked for far too seldom, to the disadvantage of both doctor and patient—I am, etc.,

London W. 8

HAROLD H. SANGUINETTI

### H 11 in Malignant Disease

SIR—The condemnation of H 11 (Oct 16, pp. 701 and 716) is in my opinion much too sweeping. I have treated seven cases of malignant disease with H 11 and feel that the results justify further use of this extract.

The first case suffered from carcinoma of the cervix which had been treated with radium unsuccessfully and was in a pitiable condition with wasting and pain requiring frequent injections of morphine. Under H 11 the pain steadily improved, appetite returned, and a secondary palpable mass in the pelvis disappeared. She appears to have made a perfect recovery, and is now in excellent health.

The second case was a man with carcinoma of the mamma with multiple secondaries, including one in the humerus, causing gross oedema of the arm with severe pain. He improved for a time. The growth in the humerus became smaller and the oedema very much reduced. His relief was so great that he was indignant that he had not been given H 11 sooner. After three or four months the secondary growths began to increase rapidly, he developed severe anaemia and died a fortnight later. Although a fatal termination was prevented the relief of pain and the increased feeling of well-being amply justified the treatment. He also had been previously treated with radium.

The third case suffered from gastric carcinoma with secondaries. It was confirmed by laparotomy. Under H 11 his appetite improved, he gained some gain in weight, and he felt so much better that he returned to his business. But after a stormy interview with his business he had a stroke and died suddenly.

The fourth case is a man with an inoperable suprasellar tumour. He had progressive loss of sight, severe headaches, and pain in one arm. Under H 11 and gradually the pain in his arm has disappeared. The headaches are now not severe enough to bother him, and his sight is slowly improving. Whatever the ultimate result of the treatment H 11 has proved well worth while for the relief of his symptoms.

The fifth case had epithelioma of the jaw with secondary glands. In this case H 11 did not appear to have any effect. The patient was treated with radium. The sixth case had recurrent carcinoma of the breast after surgical removal. Here again no effect was seen. The use of H 11 and she died.

The seventh case had carcinoma of the cervix and rectum. The pelvis was full of growth, causing retention of urine, and nothing but flatus was being passed from the bowel when she came under my care. H 11 was immediately started, and in two weeks faeces began to be passed and the bladder began to act regularly. Catheterization has not been required since. The abdominal pain she was suffering has all gone, her appetite is moderate, she feels well, but she is not gaining weight and the outlook is very doubtful, but the relief given by H 11 has been great.

All the cases had been seen by experienced surgeons and radiologists, and the correctness of the diagnoses is above question. I feel that there is something in H 11 and regret that it is only in those cases in which surgery and irradiation have failed that one can feel justified in using it at present—I am, etc.,

Rossall Lancs

A. H. PENISTAN

### Delayed Diagnosis of Phthisis

SIR—It was with great interest that I read Dr Peter Stradling's analysis (Nov 6, p. 832) on the delays which ensue in the diagnosis of phthisis. There are few chest physicians who will cavil with his general observations and recommendations. Most workers in this field agree that the manifestations of pulmonary tuberculosis are protean in character, and it would therefore be valuable to learn what precise criteria the author accepted as being suggestive symptoms (in all his cases) which should have reasonably commended themselves to the attention of the general practitioner. There may be a very real danger otherwise that his analysis scarcely does justice to the harassed and overworked practitioner. Again, it is difficult to appreciate what Dr Stradling means when he states, "The general practitioner in particular does not at present fully utilize his unique opportunities of raising the Tuberculosis Service from its present mediocrity (my italics) to the highly efficient organization that it might and should be." This is a very serious charge that is being levelled against the entire service, and it would be revealing to learn the source and authorship of this information. Is this to be taken as the overall picture of the metropolis, of Willesden or is this the fruit of Dr Stradling's experience of the bulk of chest clinics from Land's End to John o' Groats?

Finally, I must take the author to task when he misinterprets or misquotes a paper of mine which appeared in an issue of this *Journal* (1943, 1, 283). In this he states that my findings and his were not strictly comparable, as his "refer to a chest clinic, Mann's to a sanatorium." In fact, I gave no indication that such was the case, and they, like his own, were extracted from several chest clinics in the West Riding of Yorkshire. However, the two groups of statistics are for an entirely different reason in no sense comparable. Whereas Dr Stradling's are those of a clinic in the heart of the metropolis mine were those of an extensive rural area where indifferent transport facilities and wartime difficulties were no doubt contributory factors in giving a much longer hiatus before the general practitioner was consulted—I am, etc.,

Halifax Yorks

BERTRAM MANN

### Self-administered Pneumothorax Refills

SIR—Dr Philip Ellman's letter (Oct 16, p. 723) reminds me that in 1910 my old friend Claude Lillicington gave himself a refill on his arrival in England from Norway. This was the first that had ever been given in England. A week or two later I gave him his next refill, at which time we put together the apparatus named after us.

I am also reminded of a one-time patient of mine whose APT I started in November, 1913, when he was 28. He was a TB-positive case who had been originally slightly ill and in the Mundesley Sanatorium when 21. In 1913 he had signs over the upper half of the left lung and did not improve appreciably after four months conservative treatment. Recovery proceeded quickly after the APT. I did not see him again for ten years, when he astonished me by telling me that he was continuing to keep his APT going by self-administered rather large refills at five-weekly intervals. He was keeping perfectly fit, following his profession, that of an artist and had not visited a doctor.

In 1934 he wrote me that he was keeping very well and still continuing refills—self-administered—about 250 ml every five weeks. These he continued for several more years maintaining excellent health. But later his health broke down I believe badly and from pulmonary tuberculosis (querv in the other lung). I fancy the patient is now dead. The A.P. had been kept up for not less than 25 years. In 1924, when I made a sketch from a screening I did, he had a well collapsed left lung without displacement of the heart but with some adhesions low down laterally.

One or two more of my ex-patients used to give themselves self administered refills, and one of these at least was not a doctor. But their cases were not so exceptional as the two I have mentioned above—I am, etc.,

Mundesley Norfolk

S VERE PEARSON

### Breath Sounds in Spontaneous Pneumothorax

SIR,—Recently, while preparing a lecture on spontaneous pneumothorax, I was struck by the inadequacy and inaccuracy of the descriptions of the stethoscopic findings in this condition in the textbooks I had to hand. I think it is important that the attention of students be drawn to these omissions and inexactitudes, because the sound caused by air escaping from the punctured lung into a pneumothorax cavity is one of the most characteristic and easily memorized sounds heard on auscultation, and it is a sound which often enables a confident diagnosis to be made. It is correct to say that this sound has a metallic or amphoric quality. It begins later than the inspiratory breath sound is often interrupted or cog wheel in type and may be heard during inspiration and expiration. It can be so distant and faint that it can easily be overlooked. A similar sound can be produced by sucking air rapidly from an open pneumothorax through an aspiration needle. In a closed pneumothorax this sound is, of course, not heard.

Textbooks describe amphoric breath sounds in a pneumothorax. Amphoric breathing is never heard in a pneumothorax. The sound caused by air escaping into the pleural cavity is not a true breath sound, whereas breath sounds in a closed pneumothorax if audible, have not an amphoric quality.

Every spontaneous pneumothorax is open at the onset—how long it remains open varies from hours to months, but there is always a stage when the escaping air can be heard if the patient is examined early enough. It is sometimes possible to diagnose a pneumothorax by auscultation in a case where it has never been suspected—e.g., in a case without pain and dyspnoea and without obvious cardiac displacement—I am, etc.

Beilast

R FAWCETT STRONGE

### Resuscitation by Rocking

SIR,—We were interested in the article by Dr F C Eve and the late Dr N C Forsyth (Sept 18, p 554) and the reply by Dr W N Leak (Oct 30, p 797) regarding the resuscitation of the asphyxiated newborn. For many years we have given nikethamide intracardially to the newborn babe which does not breathe. We use one ampoule of 17 ml "coramine" giving half into the left ventricle and the other half intramuscularly. The dose is split in this way because we find that the whole 17 ml given into the heart causes severe spasm and rigidity of all muscles including those of respiration and thereby defeats its own object.

If the baby does not breathe at once we proceed to mouth-to-mouth insufflation through a layer of gauze. An important practical point is to have a 2-ml hypodermic syringe and needle ampoule and file, spirit and swab, ready before the birth of every baby and to make these a routine part of the immediate pre-natal preparations.

We feel that if these measures fail Dr Eve's mechanical methods should be used but that the latter should not precede and should not replace the former. Nikethamide and insufflation can be used immediately they involve no loss of time, and their effect is almost instantaneous, whereas the mechanical methods do need time. Needless to say nikethamide and insufflation must be used before the heart stops beating—I am, etc.,

E LEWIS BUTLER  
SARAH BUTLER

Birmingham 23

### Post-gastrectomy Syndrome

SIR—Your annotation (Sept 11 p 524) and articles by others on this subject in particular that by Dr W T Irvine (p 514) are of considerable interest and importance. The syndrome is a distressing post operative complication of what otherwise is a very successful surgical procedure. My own observations based on an experience of thirteen years of the treatment of peptic ulcer and neoplasm of the stomach by partial gastrectomy may be of value.

I have seen a number of cases of the syndrome all presenting similar symptoms varying only in degree. Fullness and discomfort after food, generally accompanied by dizziness, sweating and a feeling of nausea, are the most common complaints. It is by no means always caused by the taking of a bulky meal but can follow a modest intake of food in many cases. Vomiting, when it occurs is of two types—an early-morning regurgitation of almost pure bile which I believe to be due to the loss of the pyloric sphincter control, and vomiting between meals not of actual food but of bile strained froth.

From a study of my cases certain facts have become apparent.

- 1 The syndrome appears to be becoming more common. I do not recollect seeing any cases in the follow up clinic of the late Mr Cecil Toll prior to the second world war.
- 2 I have never seen it after gastrectomy for carcinoma.
- 3 It is less common after gastrectomy for gastric ulcer.
- 4 It is by no means so common in the older age group of patients—beyond the age of 45.
- 5 It does not tend to occur while a patient is in hospital, often not appearing until a week or two or even longer after discharge.
- 6 It is most common after gastrectomy for duodenal ulcer in younger male patients.
- 7 The type of gastrectomy performed would seem to be of little importance, and I have not seen it as a complication in my very small series of successful total gastrectomies.
- 8 The majority of the patients in my series were of the introspective type given to excessive worry, and those who have been passed over to my psychiatric colleagues for treatment were said to possess an "inadequate personality".
- 9 Not a few have responded to ordinary reassurance and sedatives.

10 It would appear to be a self limiting condition. Most cases have cleared up in a matter of six months after operation whether treated or not. They themselves and what remained of their stomachs appear to have become adjusted to the altered conditions.

11 The more intractable cases have responded well to a course of narcosis and psychotherapy.

My deductions from the above make me believe that there is a strong psychological element as a background to the syndrome (duodenal ulcer itself is held to be a psychosomatic disorder). Coupled with the altered mechanics of the upper intestinal tract brought about by operation, hypoglycaemia certainly is present, but would now appear to be of only secondary importance as a causal factor. Neither can overdistension be blamed, as it is so easily avoided by eating "little and often" rather than taking three bulky meals. There is no truth in the so called dumping theory, if by such is meant the logging of food in the proximal loop. X rays following a barium meal have never revealed such to be the case in my experience. The onset of the syndrome usually coincides with the patient's discharge, when he has to go back to face the world and its vicissitudes once again—that is, when he is removed from the shelter of the hospital and medical attention. The worst thing possible after gastrectomy is to allow the patient to go on thinking that he is still an invalid. All my post gastrectomy cases are encouraged to return to work as soon as possible, to forget that they ever had indigestion, to eat what they like and to enjoy life, with an injunction to observe all the virtues and in moderation some of the vices.

As to the treatment of the syndrome itself, reassurance and suitable sedation are oftentimes successful, together with adjustment of the intake of food and of meal times until what remains of the stomach and the proximal jejunum can adequately compensate for the altered conditions. The most intractable cases have been submitted to narcosis and psychotherapy with great success by my colleague, Dr A A Martin of the Bucks County Mental Hospital, and we hope to publish a series of these cases in the not far-distant future. I have no personal experience of vagotomy, as I have not yet adopted it as a therapeutic procedure in the treatment of ulcer.

Finally, Dr F Lindsay Dickson's letter (Oct 23 p 759) in which he enumerates his unfortunate personal experience of

he syndrome and his comments thereon, coincides with my own findings. I trust that his complacency since July 5 (which I, unfortunately, am unable to share) will have completed his cure—I am, etc.,

Aylesbury Bucks

RALPH H GARDINER

### Use and Abuse of Tonsillectomy

SIR—The whole question of the success or otherwise of the operation for the removal of enlarged tonsils and adenoids depends on a proper selection of cases. After a large number of years as a general practitioner and assistant medical officer of schools I came to the following conclusions

1 It is one of the most successful operations when performed in suitable cases

2 It is often performed in unsuitable cases

3 The habit of bracketing tonsils and adenoids together is a mistake. Enlarged adenoids are infinitely more often the cause of trouble than enlarged tonsils, because they quickly obstruct nasal breathing and give rise to mouth breathing. Enlarged tonsils alone very seldom do this.

4 Tonsils should not be removed just because they are enlarged or because purulent looking material can be expressed from them. Tonsillectomy should only be performed when there is a history of recurrent attacks of tonsillitis with persistent enlargement of the tonsillar glands of the neck.

5 Adenoids, however, should be removed if causing slight nasal obstruction, deafness, or earache, and should always be followed by deep-breathing exercises through the nose to re-establish nasal breathing. If nasal breathing is not re-established the condition will recur.

I believe that in children the tonsils are part of the mechanism for the manufacture of the antibodies of various infections, particularly streptococcal ones, and should be preserved if carrying out those functions properly. Persistent enlargement of the tonsillar glands is evidence that they have failed and have become a permanent source of infection and should therefore be removed. Selection of cases on the above lines would, I believe, give better results and go a long way to relieve the present shortage of beds—I am, etc.,

St Mawes Cornwall

N C PENROSE

### POINTS FROM LETTERS

#### Partridge Bone in Anal Canal

LIEUT J S HAPPEL, R A M C (B A O R), writes. The following case may be of interest and must be rather unusual. The patient was a stout woman, aged 37, who complained of excruciating pain in the anus. Pain dated from three hours earlier, when she had defaecated—a normal motion. Inspection of the anus revealed several small thrombosed external haemorrhoids. The anal sphincter was in extreme spasm, and a finger could not be introduced into the rectum. A presumptive diagnosis of strangulated internal haemorrhoid was made. 16 mg morphine given, and heat applied to the rectum. Seven eight hours later spasm had subsided considerably, and digital examination of the rectum was carried out. A thin sliver of bone two inches (51 cm) long was found lying obliquely in the rectum with its proximal end embedded fairly firmly in the posterior wall of the anal canal at the junction of the superficial and deep pouches of the sphincter. It was removed without much difficulty. I was surprised that the patient had eaten partridge 48 hours before. It is rather astonishing that many feet of bowel should be traversed successfully only for a hold up to take place in the last inch and a half.

#### Breast-feeding

D. JAMES S HALL (Waimere Kent) writes. Your correspondent Dr F. A. Bidder (Nov 6, p 838) ends her plea for breast feeding by saying that not to persevere with it is 'depriving the baby of its best food for health'. This is an admirable sentiment, but is it true? I am finding that fewer and fewer mothers are now giving satisfactory breast feeds, yet their children remain healthy. With more than twenty five years experience and four children of my own all bottle-fed, I cannot determine that breast feeding has any deterrent effect whatsoever. On the other hand there is a bad history of breast-feeding with the children of my friends. To persevere again with the breast is asking for trouble. I am of course open to persuasion, and I will concede the point that on general grounds in the modern world it may be a good thing to make breast feeding harder for the mother.

## Obituary

JOSEPH BLOMFIELD, OBE, MD

Joseph Blomfield, consulting anaesthetist to St George's Hospital, died in the West Middlesex Hospital, Isleworth, on Nov 9, the hospital at which he did his E M S work during the war. He was born in London on March 1, 1870, and was educated at University College School and Cambridge University. He entered St George's Hospital in 1891, and graduated MB, BCh in 1894, he proceeded MD in 1897. After minor appointments early in his medical career he took up anaesthetics as a specialty, but it was some years before he finally settled down at St George's. For periods he was anaesthetist to many hospitals, including the Metropolitan, St Mary's, St John and St Elizabeth, the National Dental, and the Grosvenor Hospital for Women and Children. He was senior anaesthetist at St George's from 1906 until he retired in 1931.

In 1900 he was elected to the select, but small, Society of Anaesthetists, and of this body he became senior secretary in 1905. He was one of the outstanding members of the Society, and it was to a great degree his influence which induced the Society against the strong opposition of many of the older members to form a Section of Anaesthetics at the Royal Society of Medicine. This argument split the old Society of Anaesthetists into two almost equal parts: the members of the Society who were in favour of the proposal became the original members of the Section. Blomfield was one of these, and before many years had passed he became president. He held this office with dignity, being as excellent a president as he always was a chairman of the many societies and committees to which he belonged.

He was a founder of the Association of Anaesthetists, was the first vice-president and the second president, and for a short time after the tragic death of Howard Jones, who was the honorary secretary, he undertook secretarial duties. He was chairman of the Anaesthetists Committee of the Medical Research Council, for which he did yeoman service in dealing with the innumerable new drugs. In the first world war he held a commission in the R A M C and was attached to St George's Hospital, which became part of one of the London general hospitals. This entailed very heavy work, but Blomfield found time to give his services at many officers' hospitals, the chief of which was the King Edward VII Hospital, Grosvenor Gardens, where Sister Agnes, a well-known Edwardian figure, was in charge, with whom he became great friends. He was given the OBE in 1919.

For many years Blomfield was a pioneer in anaesthesia, and no anaesthetic group or society was complete without his name. In his younger days he was an able and fluent speaker. He was popular with those colleagues who knew him well enough to appreciate his worth, but he never pushed himself in any way and he appeared rather retiring and almost shy to those who did not understand him. As an anaesthetist he was one of the old school. He was conservative in outlook and inclined to regard some of the modern innovations as but passing phases, for he had seen many new methods started, forgotten, and then again brought forward as something new.

Some of his best work was done when 'avertin' was first introduced into this country, he was chairman of the Anaesthetic Committee of the Medical Research Council at the time. His work at St George's did much to popularize his method of rectal anaesthesia, which soon became a fashion, if not a craze. Blomfield was the first to point out the limitations of the method and also the danger of using morphine in conjunction with avertin.



Blomfield and Fry

He was a good writer and will be best remembered as such for years Blomfield was editor of the *British Journal of Anaesthesia* and of the section of anaesthetics in the *Medical Annual*. He was author of a popular book entitled *Anaesthetics* which ran through many editions. In 1922 he published another book *Anaesthetics in Practice and Theory*. He wrote many articles in medical journals and in surgical textbooks. He was also author of a history of St George's Hospital written to commemorate the bicentenary of the hospital.

He was a most regular attendant at the university cricket match at Lord's, and nothing would prevent his annual appearance at this function. In 1945 he was very seriously ill, and, although he made a good recovery, he never regained his full vigour. He still attended many of the meetings of societies, and his presence among the senior members will be much missed. In 1948 he was elected a Fellow of the Faculty of Anaesthetics, Royal College of Surgeons. Without doubt he was a pioneer in anaesthesia, and he has left his mark upon the history and literature of that branch of medicine.—Z M

### J P HELLIWELL, CBE, MRCS, LDS

John Percival Helliwell, consulting dental surgeon to the London County Council and formerly Director Army Dental Service, died on Nov 7 at the age of 64. He received his professional education at Manchester University and at St Mary's Hospital, London, and he qualified as a dental surgeon in 1908. In 1910 he was one of the three civilian dentists selected by the War Office to look after the teeth of soldiers serving in India. This was the beginning of the Army Dental Service. He was commissioned in the RAMC in 1915 when Army dental officers were first admitted to the Corps. He became Inspector of Dental Services at the War Office in 1918, and when the Army Dental Corps was established in 1921 he was chosen to organize it. He believed that dentistry was a branch of medicine and feeling the necessity for a medical qualification he qualified in 1926 at the age of 42. In the same year he was appointed Assistant Director-General, Army Medical Services, with the rank of colonel. He was appointed the first director of the Army Dental Corps in 1935 and was promoted to the rank of major general—the first dental surgeon to attain this rank. He retired from the Army in 1936 and became consulting dental surgeon to the London County Council, which was then reorganizing its hospital and school dental services. He was an able administrator and organized with great success both Army and civilian dental services. He was chairman of the Army advisory committee on maxillo facial injuries and a member of the Interdepartmental Committee on Dentistry. He was made a CBE in 1919 and was Colonel Commandant of the Army Dental Corps from 1932 to 1947. He is survived by his widow and a son and daughter.

W R Y writes. With the death of Major General Helliwell the dental profession has lost one of its most outstanding personalities, and many of his colleagues have lost a true and valued friend. Throughout his professional career he strove consistently for those high ideals which would increase the dignity and appreciation of the dental profession, and the many advances in Service and civil dental organization for which he was responsible will remain a lasting tribute to his memory and to his sound judgment. He expressed pronounced and well-considered views to which he held courageously, sometimes in the face of considerable opposition and his opponents would readily concede the sincerity and selflessness of his aims and ideals. No one who knew him intimately could escape the kindly influence of his charming and gracious personality, and to many he endeared himself in a measure not often given to those who hold high and responsible office. It was a matter of great concern to his friends that his last two years were clouded with ill health but his strength of character and sterling qualities were exemplified in the fortitude and courage with which he withstood his affliction.

Dr EDWARD PERCY HUGHES DUDLEY died suddenly on Oct 28 at his home at Caxton Cambridgeshire at the age of 74. Dr Dudley who was a student at St Bartholomew's Hospital, qualified in 1904 and joined the late Dr White in partnership at Caxton in 1908. For 40 years he carried on a scattered rural practice conducting his own family medical clubs with a simple form of administration suited to his needs and to those of his

patients who were chiefly farmers and their workers. Dr Dudley had been a keen member of the BMA since 1908 and he was chairman of the Cambridge and Huntingdon Division in 1924-5. He was also for some time a member of the Cambridge Local Medical and Panel Committee. He is survived by his widow and one son and one daughter.

L B S writes. By the tragic death of Dr E P H Dudley the countryside has lost more than a trusted doctor and familiar figure of the Cambridgeshire by ways. It is as though one of the last remaining strongholds against the mechanized advance of bureaucratic medicine has fallen. Dr Dudley enjoyed a high reputation in the county mansions, but it was in the cottage that he was seen at his best. A somewhat diffident manner disguised an inflexible resolution, a profound knowledge of the human animal was combined with a boyish curiosity as to the new, and his ear contained in ever increasing profusion the latest therapeutic agents and instruments of minor surgery. His alacrity to seek assistance was perhaps partly due to a skill in prognosis which amounted almost to instinct and any little service was repaid a hundredfold. He was kindness itself and never spared himself, carrying on his arduous practice with great courage throughout the war years, and turning when it was over, to face the appointed day for the National Health Service Act with full knowledge of what it would mean to him and all he represented.

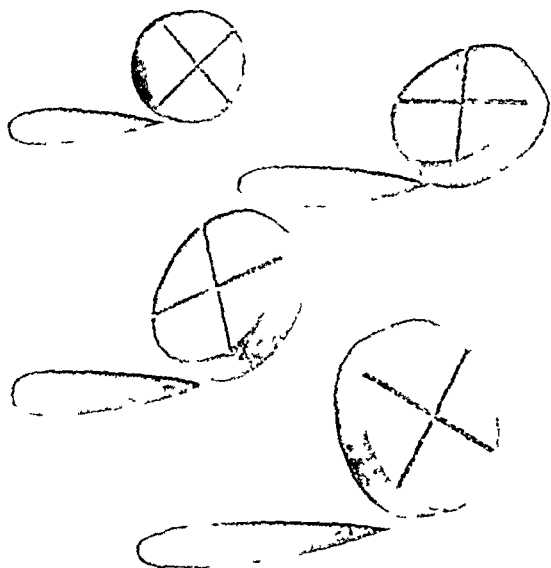
J M T writes. Dr Dudley succeeded his father in law, a bearded majestic figure, who did his rounds on horseback and often combined them with riding to hounds. The motor-cycle and car did little to alter the work except to increase it greatly especially was this so in wartime. The area of the practice is immense, and it was quite usual for the doctor and his assistant each to do nearly a hundred miles in the day. The writer spent two happy years there and learnt to admire the courage and generosity of a man who, no longer young, always went out no matter what the weather. Even deep snowdrifts would not deter him. Every day was a field day. There was first an unhurried, leisurely preparation of medicines and discussion of cases in the surgery and dispensary, with its open fireplace, the old tap room of the Crown House, Caxton, where Dick Turpin and his mare Black Bess once lodged. At most three or four patients would attend with forms to be filled in or with requests for visits. Then everything would be packed into the cars, the great doors of the yard would be opened, and off we went perhaps not to return until 10 at night. Dr Dudley had a deep sense of the worth of his calling and an amused and shrewd perception of the peculiar social position of the medical practitioner in the country. His greatest pleasure was in good natured co-operation with his colleagues, and it was his regret if ever a spirit of rivalry and competition came in to spoil such good relationships. He belonged to a generous age and knew it.

## Medico-Legal

### FATAL DERMATITIS FROM PYELECTAN

[FROM OUR MEDICO LEGAL CORRESPONDENT]

A married woman of 47 was admitted to the Minehead and West Somerset Hospital for investigation. She was given an injection of "pyelectan," and developed acute dermatitis and toxæmia from which she died in about two weeks. The pathologist who conducted the necropsy, Dr Crichton MacGaffey, said that he had found no undoubted evidence of tuberculosis (the patient had recently been treated in a sanatorium), he took it that she had been discharged as cured and it was a very good cure. The cause of death was first subacute haemorrhagic glomerular nephritis and secondly dermatitis venenata due to the dye. The point was raised that the injection had been given before the report on the urine had come back from the laboratory at Exeter, and he was asked whether it had been reasonable to inject pylectan before the result of the analysis was known. He answered that this was perhaps a matter of opinion. He himself would have suggested that the microscopic findings should be viewed first of all. There was no urgent necessity to give the injection but the hospital staff were out to do a thorough job. They might have been short of time or bed space and have wanted to get it done, but he thought it would have been wiser "to have done the thing one stage at a time. There was no antidote to the dermatitis and it was a very unusual thing



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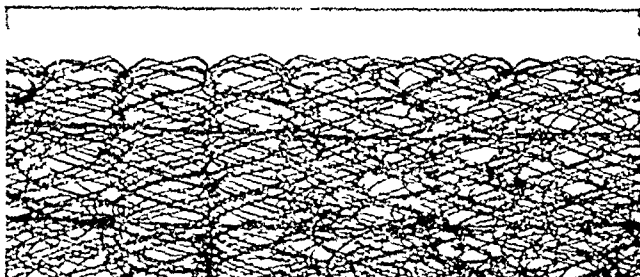


S23



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Bellafoline	0.25 mg
Phenobarbitone	0.05 Gm

The components of Belladenal act synergistically with each other so that a powerful antispasmodic and sedative effect is obtained with comparatively small doses.

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to have happened. He did not think it would happen more easily in a person who had had tuberculosis than in one who had not.

The coroner said he thought the hospital authorities had been acting reasonably in the sense that they wanted to make a thorough investigation. The case had been quite rightly reported to him. He recorded a formal verdict of death by misadventure.

## Medical Notes in Parliament

### Artificial Limbs

Mr MARQUAND told Mr Morley on Nov 9 that a research unit at Rochampton worked under the direction of the Standing Advisory Committee on Artificial Limbs, of which Sir Charles Darwin was chairman. The second report of the committee, issued in April this year, showed the lines on which research is developing. He circulated in the official report a note on the practical results and the improvements to be expected in the near future. This note ran: *Research work on artificial limbs—(1) A number of new arm appliances have been added to the existing list and others are being re-designed and improved. (2) A new artificial arm of improved design has been developed. Six trial orders have been placed, and should these prove satisfactory in all respects the arm will go into general production. (3) A new method of suspension of an artificial leg by suction socket has been developed and is under trial by patients, the trials are most encouraging. (4) A socket of new design for above-knee amputation has been produced and is under trial by over 100 patients. (5) Two new mechanical hands have been submitted by the contractors to the Ministry and are under trial. (6) An apparatus has been designed and is under experimental test for measuring comparatively the thrust which walking imposes on both the artificial and the sound limb. By means of this apparatus it is hoped that much valuable information will be obtained. (7) Work is proceeding on the improvement of crutches, new ideas for which have recently been received by the research department.*

### Pneumoconiosis

Mr JAMES GRIFFITHS told Dr Barnett Stross on Nov 9 that in 1947, 48 miners in North Staffordshire were certified as suffering from pneumoconiosis as compared with 61 in 1946 and 99 in 1945. He said that although these figures showed a steady reduction it was too early to draw any conclusions from them. The figures include cases of silicosis, as separate figures for silicosis were not available.

### Trial of German Field-Marshal

Asked by Mr WARD on Nov 9 why his Department's doctors did not accompany the Home Office doctors when they examined the German field-marshal in April, 1948, Mr SHINWELL said it had been considered that the two examinations should be independent. The Army medical board expressed agreement with the findings of the Home Office doctors on the question of fitness to stand trial.

Mr NICHOLSON on the same date inquired if the medical officers who visited the German field-marshal in January had any instructions other than to determine whether trial would adversely affect their health.

Mr SHINWELL replied that the Army medical board was instructed to submit a general report on the health of the officers and an opinion on whether it would adversely affect their health to be tried as war criminals. The board gave a full medical report on the condition of the officers and stated that in its opinion it would adversely affect their health to be tried as war criminals. Later, in April, after the officers had been independently examined by the Home Office medical officers, the Army medical board agreed with the Home Office medical officers that three of the accused were fit to stand trial but that the fourth was not.

### Medicines for Private Patients

Sir WAVELL WAKEFIELD on Nov 11 asked the Minister of Health, in view of his refusal to permit private patients to obtain pharmaceutical services free of charge, to withdraw the pamphlet 'The New National Health Service,' in which it was stated that any person could use the whole or any part of the Service.

Mr BEVAN was unwilling to do this. He said people were perfectly free to use any part of the Service, but there must be a limit to the extent to which parts could be subdivided. He would not feel justified in supplying medicines or appliances ordered by doctors who were not taking part in the Service and were under no obligation to observe its rules.

### Hearing-aids

Mr BEVAN announced on Nov 11 that the following Hearing-Aid Distribution Centres were in operation: Sunderland Royal Infirmary, Cumberland Infirmary, Carlisle, Bradford Royal Ear and Eye Hospital, Royal Sheffield Hospital, Nottingham General Hospital, Norfolk and Norwich Hospital, Royal National Throat, Nose and Ear Hospital, London, King's College Hospital, Metropolitan Ear, Nose and Throat Hospital, London, Radcliffe Infirmary, Oxford, Northampton General Hospital, Prince of Wales Hospital, Plymouth, Bristol Royal Infirmary, Birmingham and Midland Ear and Throat Hospital, North Staffs Royal Infirmary, Stoke-on-Trent, Manchester Hospital for Consumption and Diseases of the Throat and Chest, Queen Victoria Royal Infirmary, Preston, Liverpool Eye, Ear and Throat Infirmary. Additional centres would open in the next few weeks at Hull Royal Infirmary, Addenbrooke's, Cambridge, London Hospital, Kent and Canterbury Hospital, Canterbury Royal South Hants Hospital, Southampton, Cardiff Royal Infirmary, War Memorial Hospital, Wrexham. There were also a much larger number of hospitals where patients might be examined by otologists before obtaining an aid from one of the above distribution centres.

### Claims for Compensation

Sir ERNEST GRAHAM-LITTLE on Nov 11 asked whether Mr Bevan knew of the uncertainty among general practitioners about the amount of compensation to which each practitioner would be entitled under the National Health Service Act, 1946, and, as the list of applications had been closed, whether he would give the total number of practitioners between whom the global sum available would be divided and the total of their claims.

Mr BEVAN answered that under the National Health Service (Medical Practice Compensation) Regulations, 1948, claims were to be submitted by Oct 31, but late claims if there were satisfactory reasons for the delay, could be admitted to April 30, 1949. A final determination of the total amount of compensation would not therefore be possible until after that date. Up to date 13,661 claims had been received from medical practitioners in England and Wales.

### School Dentists

Mr GEORGE TOMLINSON stated on Nov 11 that a good many school dentists were resigning to set up in practice under the National Health Service. Recruits were not coming forward to fill their place. In consultation with the Minister of Health he was considering the salaries of full-time dentists in the employment of local authorities.

**Pensions**—The disability pension payable to a pensioner who suffers from a tropical disease will not necessarily be affected by the fact that pathological tests become negative, since pension is assessed on loss of functional capacity, which may persist after the negative test.

**Clean Food**—On Nov 8 Mr HARRISON asked the Minister of Food, whether in view of recent prosecutions for preparing food in filthy conditions, he would review his regulations and their enforcement in food preparation depots. Mr STRACHEY replied that the conditions under which food was prepared for sale for human consumption were governed by the Food and Drugs Act, 1938 which was enforced by local authorities. Recent cases had not disclosed defects in this Act, but they underlined the importance of rigorous enforcement. Officers of the Ministry of Food had instructions to co-operate to the fullest extent with officers of the local authorities with a view to bringing to justice those who for personal gain disregard the public welfare in this way.

**Partnerships**—Mr BEVAN received on Nov 8 the Report of the Legal Committee on Medical Partnerships and is considering it.

**Unsplinterable Lenses**—Mr BEVAN is considering whether it is possible to supply unsplinterable lenses under the National Health Service.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

On Oct 30 the degree of M.D. was conferred on \*R. A. D. Crawford, J. N. Milnes, J. S. Heller, and P. D. Sammin.

\*By proxy.

### UNIVERSITY OF GLASGOW

On Nov 6 the degree of M.D. was conferred on T. McEwan and the degree of Ph.D. on I. C. Michaelson, F.R.F.P.S., D.O.M.S.

### UNIVERSITY OF ABERDEEN

At a graduation ceremony held on Oct 27 the degree of M.D. (with commendation) was conferred on H. McL. Raffan.

### UNIVERSITY OF LONDON

Dr J. W. Trevan, F.R.S., will deliver two lectures on Statistics from the Standpoint of a Pharmacologist in the Physiology Theatre of University College, Gower Street, W.C., on Wednesdays, Dec 1 and 8 at 5.15 p.m. The lectures are open to members of the public without fee or ticket.

The University Court has elected Sir Henry Dole as its Deputy Chairman for 1948-9.

Dr Charles Reid has resigned the post of Reader in Physiology at London Hospital Medical College, from Sept 30.

### ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Mr A. Dickson Wright will deliver the Dr John Burns Lecture in the Hall of the Faculty (242 St Vincent Street, Glasgow) on Wednesday, Nov 24 at 5 p.m. His subject is "Vascular Surgery." All medical practitioners are invited to attend the lecture.

## EPIDEMIOLOGICAL NOTES

### Discussion of Table

In England and Wales the increase of 908 in the notifications of measles was the only rise in the incidence of infectious diseases. There were falls in the incidence of whooping cough 103, dysentery 31 and diphtheria 24.

The largest rises in the notifications of measles were Lancashire 221, Essex 114, Monmouthshire 107, Derbyshire 104 and Southampton 90; the largest fall was 66 in Lincolnshire. Only small changes occurred in the returns for whooping-cough, the largest were a decrease of 43 in Cornwall and an increase of 32 in Yorkshire West Riding. No large variations were recorded in the local trends of scarlet fever. The largest fluctuations in the returns of diphtheria were a decrease of 10 in Lancashire and a rise of 8 in both London and Essex.

Three more cases of typhoid were notified from the outbreak in Shropshire, Oswestry R.D. The only large return for dysentery was 20 in Lancashire. A fall of 10 in the total notifications of poliomyelitis resulted in the smallest number of notifications since the middle of August. The largest returns of poliomyelitis were London 9, Lancashire 5, Kent 4, Norfolk 4, Yorkshire West Riding 4, and Glamorganshire 4.

In Scotland decreases occurred in the notifications of measles 53 and whooping cough 20 while rises were reported for scarlet fever 43 and diphtheria 24. A small rise in the incidence of diphtheria occurred throughout the country. The increase in cases of scarlet fever was confined to the western area. In Edinburgh a rise of 12 was reported in the number of notifications of dysentery but elsewhere in the country a slight fall was recorded. An outbreak of paratyphoid fever has been reported from the city of Aberdeen, and up to Nov 9 there were 11 cases (3 in one family). The origin of the outbreak is at present unknown.

In Eire rises were recorded for measles 90, diarrhoea and enteritis 37 and whooping cough 14, a fall was reported for scarlet fever 20. The notifications of measles in Laoighis Athy No. 2 R.D. rose from 15 to 71. In Dublin C.B. the notifications of diarrhoea and enteritis increased from 17 to 47.

In Northern Ireland a decrease of 59 in the number of cases of measles notified in Belfast C.B. was the chief feature of the returns.

### Week Ending November 6

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1471, whooping-cough 2240, diphtheria 171, measles 6177, acute pneumonia 496, cerebrospinal fever 21, acute poliomyelitis 73, dysentery 55, paratyphoid 3 and typhoid 4.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct 30.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included), (b) London (administrative county), (c) Scotland, (d) Eire, (e) Northern Ireland. Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London), (b) London (administrative county), (c) The 16 principal towns in Scotland, (d) The 13 principal towns in Eire, (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	22	2	18	1	—	39	—	25	2	—
Diphtheria Deaths	129	24	53	7	1	178	19	63	12	5
Dysentery Deaths	68	7	63	1	3	126	5	20	—	—
Encephalitis lethargica acute Deaths	2	—	1	—	—	—	—	—	—	—
Erysipelas Deaths	—	—	44	8	4	—	—	29	9	5
Infective enteritis or diarrhoea under 2 years Deaths	32	1	9	61	4	51	3	15	53	10
Measles* Deaths†	6211	119	47	127	65	2052	67	131	207	6
Ophthalmia neonatorum Deaths	45	5	12	1	—	41	3	11	—	—
Paratyphoid fever Deaths	7	2	—	1(B)	—	15	1	—	—	—
Pneumonia influenzal Deaths (from influenza)‡	418	22	4	3	1	502	39	2	2	3
Pneumonia primary Deaths	11	1	1	—	1	16	2	2	—	—
Pneumonia primary Deaths	155	19	153	19	11	—	32	215	13	4
Polio-encephalitis acute Deaths	4	1	—	—	—	22	3	1	—	—
Poliomyelitis acute Deaths§	66	9	3	3	1	221	20	46	6	4
Puerperal fever Deaths	—	—	9	—	—	—	10	—	—	—
Puerperal pyrexia   Deaths	107	10	6	—	—	100	4	8	2	3
Relapsing fever Deaths	—	—	—	—	—	1	—	—	—	—
Scarlet fever Deaths†	1374	82	320	169	49	1529	104	286	73	48
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	10	—	1	1	—	4	—	—	11	—
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2060	127	75	66	16	1037	59	41	45	6
Deaths (0-1 year) Infant mortality rate (per 1000 live births)	259	30	43	13	13	336	38	64	29	22
D-aths (excluding still births) Annual death rate (per 1000 persons living)	4491	723	547	166	118	4415	739	590	172	118
Live births Annual rate per 1000 persons living	7419	1184	870	406	226	7626	1240	954	364	209
Stillbirths Rate per 1000 total births (including stillborn)	176	27	36	40	—	203	34	35	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales (London (administrative county)) will no longer be published.

‡ Includes primary form for England and Wales (London (administrative county)) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London (administrative county)) are combined.

|| Includes puerperal fever for England and Wales and Eire.

## Medical News

### Birth of a Prince

A son was born to Princess Elizabeth at Buckingham Palace on Nov 14, and was attended by the following medical men: Sir William Gilliat, Mr John H Peel, Dr V F Hall, Sir John Weir.

Sir William Gilliat, President of the Royal College of Obstetricians and Gynaecologists, received his medical training at the Middlesex Hospital, qualifying in 1908. He obtained the MB, BS (London) in the same year, proceeded M D (with gold medal) in 1910, and took the MS and FRCS in 1912. He was elected FRCOG in 1929 and President of the Royal College in 1946. The Royal College of Physicians elected him to its Fellowship in 1947. He is Consultant in Obstetrics and Gynaecology at King's College Hospital and an examiner in the University of Cambridge. The knighthood was conferred on him in the Birthday Honours this year.

Mr Peel qualified at King's College Hospital in 1930 and graduated with the Oxford degree of BM, BCh in 1932, obtaining the FRCS a year later. He was elected FRCOG in 1944. He is Obstetric and Gynaecological Surgeon at King's College Hospital and the Princess Beatrix Hospital, Consultant Gynaecologist for Puerperal Pyrexia to the Borough of Lambeth, and examiner in the University of London and for the Royal College of Obstetricians and Gynaecologists.

Dr Hall qualified in 1927 at King's College Hospital, taking the D.A. in 1939, he was elected to the Fellowship of the Faculty of Anaesthetics of the Royal College of Surgeons this year. He is Anaesthetist at King's College Hospital.

Sir John Weir was appointed Physician in Ordinary to the King in 1937. He graduated MB, ChB at Glasgow University in 1907. In 1932 he was created KCVO and in 1939 GCVO. Sir John is Consulting Physician to the London Homoeopathic Hospital.

### British Council Conference Grants

The British Council has a small fund to enable overseas delegates to attend national or international conferences held in the United Kingdom on scientific subjects, including medicine. Grants are paid to overseas delegates in person and cover subsistence in the United Kingdom for the duration of the conference up to a period of two weeks. Fares to and from the United Kingdom can be paid only in exceptional circumstances. No payment can be made to the convening body to cover their secretarial or other organizing expenses. Grants are made only to delegates who cannot otherwise arrange to come to this country. Conveners of conferences to be held from April 1, 1949, to March 31, 1950, should apply to the Director, Visitors Department, British Council, 3, Hanover Street, W1, by Jan 15, 1949, giving particulars of their conference and the number of delegates (and their nationalities) who they think will require assistance. Where it is impossible for conveners to apply by Jan 15 they may apply later on the understanding that funds may no longer be available. Applications will be considered by the relevant British Council Advisory Panel of scientific experts, and conference conveners will receive a reply by the end of February, 1949.

### Commonwealth Fund Fellowships

The Commonwealth Fund of New York has established for British subjects a number of Fellowships tenable in the United States. There are three categories of Fellowships, namely, Ordinary, Home Civil Service, and Overseas Civil Service, and all categories are now open to women. Conditions of appointment and tenure and the emoluments attached to the Fellowships may be obtained from the secretary of the Committee of Award, Commonwealth Fund Fellowships, 35 Portman Square, London, W1, applications for Fellowships to be awarded in 1949 must reach this address by Feb 1, 1949.

### Guild of St Luke SS Cosmas and Damian

At the annual general meeting of the Guild of St Luke, SS Cosmas and Damian, held at the Hospital of St John and St Elizabeth on Oct 31, the following officers were elected for the forthcoming year: *Master* Dr W B J Pemberton, *Honorary Secretary* Dr W J O'Donovan, OBE (130, Harley Street, London, W1), *Honorary Treasurer*, Dr P Corridan (114, Harley Street, London, W1).

### Chief Medical Officer at Colonial Office

D. E. D. Pridie has been appointed adviser to the Secretary of State for the Colonies in succession to the late Dr W H Kauntze. The title of the post is now Chief Medical Officer. After serving as Director of Medical Services in the Sudan and in the R.A.M.C. with the Middle East Forces during the war, Dr Pridie was appointed Health Counsellor to the British Embassy in Egypt in 1945.

### Liverpool School of Tropical Medicine

The Liverpool School of Tropical Medicine has been given £10,000 by John Holt and Company (Liverpool) Limited as a birthday gift in honour of the School's inauguration fifty years ago. The generosity of local subscribers and particularly Mr (later Sir) Alfred Jones, a Liverpool ship-owner, made possible the foundation of the School in 1898. It was formally opened by Lord Lister on April 22, 1899. A special ward was set aside for patients in the Royal Southern Hospital, named the Samuel Henry Thompson Ward, it contained twelve beds and it is recorded (*Journal*, April 29, 1899, p 1036) that at the opening ceremony the nationalities of the twelve occupants represented China, India, the United States, Norway, Sweden, Russia, Finland, England, and Ireland. Major (later Sir) Ronald Ross was appointed Medical Officer.

### Prize for Essay on Colonial Tuberculosis

A prize of 100 guineas will be awarded by the Council of the N.A.P.T. for an essay on "The Control of Tuberculosis in a British Colony". The competition is open to doctors of either sex who are in the service of the Colonial Governments and who are of not more than ten years' or less than five years' medical standing, of which at least three years have been spent overseas in a medical capacity. Competitors should describe their own proposals for a practical scheme for the clinical, social, and administrative control of tuberculosis, either in the British Colonies as a whole or in one or more of them separately. Writers should give their own opinions based on personal experience of public health and anti tuberculosis work. Essays should be sent to Dr Harley Williams, Secretary-General, National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C.1, to arrive not later than May 1, 1949. The award of the prize will be notified at the N.A.P.T. Commonwealth and Empire Health and Tuberculosis Conference in London in July, 1949. Essays sent in shall become the property of the N.A.P.T., and any of them may be published at its discretion in the author's name.

### The Napier Shaw Premium

The Council of the Institution of Heating and Ventilating Engineers has accepted an offer from Mr C G Vokes, M.I.Mech.E., to provide a sum of money to be used to further the science and art of air conditioning and has decided to establish a fund from which it is proposed to make annual awards during the next few years, to be known as the Napier Shaw Premium. The Council announces that Dr T Bedford, D.Sc., Ph.D., Hon. M.I.H.V.E., of the London School of Hygiene and Tropical Medicine, has consented to prepare the first Napier Shaw Premium paper, which it is hoped will be presented at the April, 1949, sessional meeting. The award for 1949 will be made after open competition, and the closing date for submission of papers is March 31, 1949. It is not restricted to members of the Institution. Copies of the regulations will be sent to anyone making application to the secretary, the Institution of Heating and Ventilating Engineers, 75, Eaton Place, London, S.W.1.

## COMING EVENTS

### Congress of Comparative Pathology

The International Congress of Comparative Pathology will hold its fifth meeting in Istanbul from May 17 to 20, 1949. The Congress covers all aspects of human, plant, and veterinary pathology, and considerable latitude is permitted in the choice of subjects for discussion. The British National Committee (chairman Mr T Dalling, CVO, Ministry of Agriculture) will be glad to receive as soon as possible the titles of communications which members in this country who hope to attend the Congress wish to submit for transmission to the Secrétaire Général of the Permanent Committee. Arrangements for travelling and hotel accommodation are in the hands of Thos Cook & Son, Ltd. Further information can be obtained from Mr R E Glover (Hon Sec, British National Committee), Royal Veterinary College, London, N.W.1, or from Pr N R Belger, Taksim, Sirserviler 75/3, Istanbul.

### Leeds University Medical School

The annual dinner for past and present students of the Leeds University Medical School will be held at the Great Northern Hotel, Leeds, on Friday, Nov 26, at 7 for 7.30 p.m., when Dr J T Ingram will preside and the principal speaker will be Lord Moran.

### Aberdeen University Club, London

The Aberdeen University Club, London, will hold a reunion supper and dance at Hyde Park Hotel, Knightsbridge, London, S.W., on Friday, Dec 3 from 7.30 to 11.45 p.m., when Dr W A Milligan will preside. Dinner jackets will be worn, and the price of tickets (including gratuities) is £1 1s each. All Aberdeen graduates and alumni, whether or not members of the club, will be welcome and may bring guests. Arrangements will be made for non dancers. Tickets may be had from the secretary, Aberdeen University Club Southern Hospital, Dartford, Kent, on or before Nov 26.

## SOCIETIES AND LECTURES

## Monday

MEDICAL SOCIETY OF LONDON, 11 Chandos Street Cavendish Square  
W—Nov 22 8.30 p.m. *Gastroscopy*. Discussion to be introduced by Dr Avery Jones and Mr Hermon Taylor

## Tuesday

CHADWICK TRUST—At Royal Sanitary Institute, 90, Buckingham Palace Road London, SW Nov 23, 2.30 p.m. *Bossmom Gift Lecture The Influence of Hygiene on the Shape of Buildings* by Mr A MacDonald

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Edinburgh Royal Infirmary (West Medical Lecture Theatre) Nov 23 5 p.m. *Renal Failure* by Professor R Platt

INSTITUTE OF DERMATOLOGY 5 Lisle Street, Leicester Square London, WC—Nov 23, 5 p.m. *Abnormalities of the Cutaneous Circulation in the Lower Limb* by Mr A K Monro

INSTITUTE OF UROLOGY—At St Paul's Hospital Endell Street London, WC, Nov 23, 11 a.m. *Tuberculous Dorsalis* by Dr J C Hawksley, at St Peter's Hospital Henrietta Street London, WC Nov 23, 5 p.m. *Retropubic Operations on the Prostate* by Mr A W Badenoch

ROYAL COLLEGE OF PHYSICIANS OF LONDON Pall Mall East, SW—Nov 23, 5 p.m. *Victorian Medical Administrators and Their Significance for Today* Bradshaw Lecture by Dr J A Charles

## Wednesday

INSTITUTE OF UROLOGY—At St Paul's Hospital Endell Street London, WC, Nov 24 11 a.m. *Syphilis of Skeletal System* by Dr W N Mascall at St Peter's Hospital Henrietta Street London, WC, Nov 24, 5 p.m. *Endoscopic Resection of the Prostate* by Mr R Ogier Ward

PLANNING FORUM—At Planning Centre Hall, 28 King Street, Covent Garden, London, WC, Nov 24 6.15 p.m. *Work and Health* discussion to be opened by Dr R S F Schilling, Mr Brian Punch, and Dr John Burton

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW, 242 St Vincent Street Glasgow—Nov 24, 5 p.m. *Vascular Surgery* Dr John Burns Lecture by Mr A Dickson Wright

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE 28 Portland Place, London W—Nov 24 3.30 p.m. *The Care and Correction of Dental Defects in Children* by Miss Lilah M Clinch LDS RCS

WAKEFIELD GENERAL HOSPITAL—Nov 24 8 p.m. Clinical meeting *Recent Advances in the Surgical Treatment of Peptic Ulcer* by Mr George Armutage All practitioners in the area are invited

## Thursday

DEWSBURY STAINCLIFFE GENERAL HOSPITAL—Nov 25 8 p.m. *Dysfunctional Uterine Bleeding* by Mr T N MacGregor

EDINBURGH ROYAL INFIRMARY—Nov 25 5 p.m. *Pneumonia—A Survey—Past and Present* Honyman Gillespie Lecture by Dr Thomas Anderson

INSTITUTE OF UROLOGY—At St Paul's Hospital Endell Street London, WC, Nov 25 11 a.m., *Relapse Reinfection and Super infection in Syphilis* by Dr W N Mascall at St Peter's Hospital, Henrietta Street London WC, Nov 25, 5 p.m., *Malignant Disease of the Prostate* by Mr J G Sandrey

MEDICO LEGAL SOCIETY—At 26 Portland Place, London W Nov 25 8.15 p.m. *The Colchester Taxi Cab Murder (1943)* by Dr F E Camps

ST GEORGE'S HOSPITAL MEDICAL SCHOOL Hyde Park Corner London, SW—Nov 25, 4.30 p.m. *Neurology and Psychiatry* Lecture demonstration by Dr Desmond Curran

UNIVERSITY COLLEGE GOWER STREET London, WC—Nov 25, 1.15 p.m. *Posture* by Dr J T Aitken

## Friday

KENT PAEDIATRIC SOCIETY—At Lingfield Epileptic Colony, The Homestead, Lingfield Surrey, Nov 26 2.30 p.m. Meeting including visit to Special School attached to Colony

LONDON CHEST HOSPITAL Victoria Park E—Nov 26, 5 p.m. *X-ray Kymograph of the Heart and Lungs* by Dr Franklin Wood

LONDON UNIVERSITY—At Westminster Medical School Horseferry Road London SW—Nov 26 5.30 p.m. *Social Factors in Obstetrics* Special University Lecture by Professor D Baird (Edinburgh)

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES 11 Chandos Street London W—Nov 26 8 p.m. *The Teaching and Education of the Venereal Diseases* discussion to be opened by Dr Robert Lees

ROYAL INSTITUTE OF PHILOSOPHY—At University Hall 14 Gordon Square London, WC—Nov 26 5.15 p.m. *Morality and Politics* by A C Ewing Litt D

ROYAL MEDICAL SOCIETY 7, Melbourne Place, Edinburgh—Nov 26 5 p.m. *Patent Ductus Arteriosus* by Mr A Taylor

ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN SCIENTIFIC AND TECHNICAL GROUP 16 Princes Gate London SW—Nov 26 7 p.m. *The Reproduction of Radiographs* by Messrs H S Tasker and K H Gaseltime Joint meeting with Industrial Radiology Group of Institute of Physics

SOCIETY OF CHEMICAL INDUSTRY FINE CHEMICALS GROUP—At London School of Hygiene and Tropical Medicine Keppel Street WC, Nov 26, 7 p.m. *Some Aspects of the Relationship Between Chemical Constitution and Physiological Activity* by Dr F Bergel, D Phil Discussion

SURREY COUNTY MEDICAL SOCIETY—At Dorking County Hospital Nov 26, 7 p.m. Clinical meeting

## Saturday

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY (University of London)—Nov 27, Annual clinical 'At Home' at the hospital. The annual dinner will be held in the evening at the Savoy Hotel

## APPOINTMENTS

BLAKE H ELLIOTT FRCS Plastic Surgeon St George's Hospital London SW

DAVIES IDRIS MD MRCP DPH Medical Adviser for Wales in connection with resettlement in employment of men and women disabled through war service or industrial diseases

GUMLEY G A H MD MRCPed DPH Group Physician West Fife Hospitals Group South East Regional Hospitals Board for Scotland

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London WC—Assistant Medical Registrar to the enteritis Unit J A Black  
Hospital Gastro Physician S J Macoun MB BCh MRCP, T R Savage BM BCh MRCP House Surgeon to Orthopaedic Department R J Cowan MD Assistant Resident Medical Officer (Tadworth Court) Pamela A Davies MB ChB

HUTCHINSON W J MB BCh DPH Deputy Medical Officer of Health Great Yarmouth

JOHNSTON W R MB BCh DPH Assistant Medical Officer of Health for Londonderry Northern Ireland

LESSLIE ABIGAIL J M MB ChB DPH Senior Medical Officer for Maternity and Child Welfare in Wolverhampton

LONDON COUNTY COUNCIL—Divisional Medical Officer G O Mitchell MD MRCP DPH  
MB ChB DPH Eve  
A M White MRCS  
Officers Elsie J Madeley  
1B ChB DPH Evelyn Russell MD

MICHE MCG MB ChB DPH Medical Superintendent for Aberdeen General Hospitals

OWEN G D MD Physician (part time) to Northallerton Hospitals

ST ANDREW'S HOSPITAL, Bow London E—Senior Resident Anaesthetist J Hamilton MB ChB DA Assistant Medical Officer Class I J T Bolger MB BCh

TAYLOR M OBE MD DPH Medical Officer of Mental Health for the North East Region Aberdeen

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

Carey—On Nov 3 1948 at Liverpool Maternity Hospital to Margaret wife of Dr A S Carey a son—Michael Stuart

Jackson—On Nov 9 1948 at Middlesex Hospital London W to Lesley (née Bellamy) wife of Mr Ian Jackson FRCS a son—Patrick

## DEATHS

Alexander—On Nov 3 1948 at Bowmont Villa Kelso Stuart Maxwell Alexander MB ChB Ed

Blomfield—On Nov 9 1948 at West Middlesex Hospital Isleworth Joseph Blomfield OBE MD aged 78

Bodger—On Nov 3 1948 at Ridgemount Astwood Bank Redditch Septimus Bodger MD aged 80

Dalyell—On Nov 1 1948 at Greenwich Sydney NSW Elsie Jean Dalyell OBE MB

Deane—On Nov 8 1948 at Meadowland Old Road Headington Oxford Archibald Deane MD

Dickey—On Oct 28 1948 at Huigra Ecuador Herbert Spencer Dickey MD aged 72

Ferrar—On Nov 8 1948 at 103 Anglesca Road Dublin Benjamin Banks Ferrar MD MRIA formerly Superintendent of the Zoological Gardens Dublin

Gillespie—On Nov 9 1948 at Barrowmore Ml nthort David Gillespie MC MD late of 29 Rosslyn Hill Hampstead NW

Griffiths—On Nov 3 1948 at Derwydd Cross Hands Llanelli Carmarthen shire David Henry Griffiths MRCS LRCP

Healey—On Nov 4 1948 at Carrobreck Lower Hellesdon Frederick Henry Healey MD DPM aged 48

Hinde—On Nov 8 1948 Francis Richard Berthon Hinde MDEd

McGregor—On Nov 7 1948 at 298a Earls Court Road London SW James McGregor LRCP & SEd and LM late of Portsmouth aged 89

McLeman—Recently John McLeman MB ChBEd of Greenock Renfrew shire

Mather—On Nov 6 1948 Norman James Urquhart Mather MB BCh BAO

Spurr—On Nov 5 1948 at 28 Mount Pleasant Norwich James Spurr MRCS formerly of Lyme Regis and Winchester aged 90

Tighe—Recently Vincent Paul Tighe LRCP & SI and LM of Dublin

Williams—Recently at Vauxhall House Llanelli Carmarthenshire Sydney Williams MRCS LRCP aged 68

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Lactation in Virgins

**Q**—In her book *Sex and Temperament* (1935 Routledge p 193), Margaret Mead the American ethnologist describes how one of the savage tribes in New Guinea adopts babies who are then breast fed by women who have never had children of their own. She claims to have compared two such cases in which adopted children suckled by mothers in whom lactation had been artificially stimulated grew just as well as their twin brothers or sisters. This observation if correct would seem to contradict all our knowledge of lactation. What is the explanation?

**A**—The occurrence of lactation in virgins has been described from time to time, and several cases are mentioned by D C L Fitzwilliams in his book *On the Breast* (1924, London, Heinemann). In all these cases lactation was induced by suckling, and the phenomenon is recorded even at 8 years of age (in a virgin negress). He also notes similar occurrences in men and in extremely aged parous women. Full details are not given, but there is nothing to suggest that these individuals had any disease of the pituitary or other endocrine organs. Our present knowledge of the physiology of lactation is not so complete as to rule out the possibility of the events described in the question. Indeed, the more that is learned of this function and its control, the more complicated it becomes. Although it is fairly well established that the onset of lactation in the human being is brought about by a hormone of the anterior pituitary acting on breasts already primed by oestrogens and progesterone (and possibly by other anterior pituitary factors), it also seems clear that the maintenance of lactation is essentially the result of suckling. There is some difference of opinion about the mechanism whereby suckling acts. Some believe that it is purely local, that the regular emptying of the breasts favours further secretion, others consider that there is a nervous reflex and that suckling stimulates the anterior pituitary to release more prolactin, and also that it stimulates the posterior pituitary to liberate a factor which causes contraction of the muscular tissue around the lacteal ducts. Emotional factors also possibly play a part, and a well-developed maternal solicitude for the child may influence the lactogenic function of the pituitary. If the latter views are correct, it seems feasible that, in certain susceptible women with an overwhelming desire to look after a newborn child, regular suckling might prove a sufficient stimulus to the pituitary to initiate lactation.

### Faecal Incontinence in the Aged

**Q**—What is the treatment for lack of control of the sphincter in old people without any obvious local cause?

**A**—Both urinary and faecal incontinence are common penalties of old age. Some interesting observations by Wilson (*Lancet* 1948, 2 374) have recently shown the former to depend largely on an overactivity of the neuromuscular mechanism of the bladder. He found that weakness of the sphincter was a rare cause. In some the disturbance depended on local irritative factors, and the common reason was loss of cortical control. The bladder and the rectum are so similar in function that it seems probable that his observations can be applied to the faecal incontinence of the aged, although general experience suggests that loss of tone of the sphincter is likely to play a more important part in the latter. Treatment is not satisfactory. Improvement will normally follow measures to inculcate the regular bowel habits from which frequently the patient has lapsed. It is wise to avoid purgation and to ensure a well-formed stool by means of a diet containing adequate roughage. The aim is to secure a complete evacuation at a fixed hour each day, and the patient should be instructed to go to stool after breakfast even in the absence of the normal urge. If

there is no spontaneous evacuation resort must be made to enemata, which have the effect of re-educating the bowel. Impaction of faeces in the rectum is a cause of apparent incontinence and may demand digital evacuation.

### Rubella in Pregnancy

**Q**—Are any statistics available regarding the incidence of blindness partial or complete in the newborn infant of a mother infected with rubella? What is the pathology of the condition?

**A**—It is generally accepted now that an attack of rubella in the mother during the early months of pregnancy leads to ocular and other congenital anomalies in the offspring. The frequency of these occurrences has not been established, and it is obviously impossible that they should be until a large number of expectant mothers with rubella have been followed up systematically. As the time factor is important (rubella late in pregnancy appears to be harmless) the difficulty in giving statistics is still further increased. In general terms, it is probably correct to say that rubella in the mother is of little significance for pregnancy as a whole. It is of considerable significance in the second and third months of pregnancy, and it is possible that an attack of rubella even before conception may also be of importance, as the persistence of the virus after the acute attack has passed off may still influence the developing embryo. Whether rubella in the early months of pregnancy must inevitably lead to congenital malformations in the offspring is not known, such evidence as is available suggests that they are the exception rather than the rule. It is known from experimental embryology that disturbances in the chemical and physical environment of a growing embryo have serious results and may lead to the death of the embryo. It is presumed that the mechanism in rubella is the passage of the virus through the placenta (which normally acts as a barrier against most noxious agents) so that the embryo is exposed to the action of this virus. When organs are fully formed the effects are slight, or there may be none at all. With organs still in the stage of active formation the outcome may be disastrous. This conforms to the findings in experimental embryology that the effect of noxious agents is more pronounced during the early stages of development than later.

### Calciferol in Hilar Adenitis

**Q**—It is believed that calciferol in daily doses of 100 000 to 150 000 units produces shrinkage and calcification in tuberculous cervical adenitis, can the same be said for the enlarged hilar glands in primary tuberculosis? If so is calciferol to be recommended? Can safety in its use be presumed when careful clinical observation is maintained and the administration promptly stopped on the appearance of any indication of toxicity? Can any therapeutic effect be expected where the dosage is well below the tolerated maximum?

**A**—Whereas there is no doubt of the value of calciferol in cutaneous tuberculosis, its effectiveness in other forms of the disease has not yet been fully estimated. However, there have been encouraging reports of its use for glandular lesions. There would appear to be no contraindication to the use of this drug in tuberculous hilar adenitis provided proper precautions are observed. Judging by experience in the treatment of cutaneous tuberculosis, it is most unlikely that small doses would be of any value.

### Toxic Effects of Amphetamine

**Q**—In prescribing amphetamine for chronic states of depression in a woman of 40 are there any toxic effects of a prohibitive nature that might develop on prolonged administration—say four months? Over such a relatively long period has the drug any permanent effects on the central nervous system which would lower the mental capacity for, say shorthand-typing?

**A**—Prolonged administration of amphetamine in the patient described may be accompanied by (1) a growing feeling of irritability and nervousness, (2) aggravation of sleeplessness if this is present, (3) increased depression as the effect of each dose wears off, and (4) a liability to fainting attacks. There will be a loss of appetite, which will be a good thing if the



patient is obese but bad if she is thin. None of these effects are reasons against trying this drug but a watch must be kept on the patient. There is no evidence that amphetamine produces permanent effects on the central nervous system or any lowering of mental capacity.

#### Residual Pelvic Abscess

**Q**—About a year ago a woman of 35 was operated on for a perforated appendix; she developed a pelvic abscess a week later which burst into the rectum. After a long convalescence she is now fairly fit but still has occasional looseness of the bowels with discharge of pus. She was recently free from symptoms for a whole week. Is the condition likely to recover spontaneously? Is radiological investigation by barium enema free from risk? Is further surgery necessary?

**A**—A pelvic abscess discharging spontaneously into the rectum should heal automatically within a few weeks. The year that has elapsed in this case would seem to make some investigation imperative, and a barium enema should be perfectly safe. Presumably the residual abscess cavity is completely walled off by fibrous tissue. This same fact indicates the line of treatment, which should be a wider opening of the residual cavity into the rectum if the region concerned is reasonably accessible. It might be presumed that failure of resolution has been due to inadequate natural drainage and that possibly further and more adequate opening of the existing communication with the bowel may achieve the required result.

#### Persistent Nasal Catarrh

**Q**—For the past year a child of 6 has had moderate nasal catarrh, shown by snoring at intervals and by mucus being blown from one nostril perhaps two or three times a day. The child mouth-breathes by day but sleeps with the mouth closed and there is no snoring or cough. What treatment should be given and particularly is adenoidectomy advisable?

**A**—The symptoms suggest chronic sinusitis, probably associated with adenoids, but it should be possible to make a definite diagnosis by skiagrams and by mirror examination of the nasopharynx. If there is sinusitis only, instillation of 0.5% solution of ephedrine in normal saline night and morning should suffice. If adenoids are present or suspected they should be removed and the antra punctured and washed out under short general anaesthesia.

#### Vitamin K and Menstruation

**Q**—An unmarried woman aged 37 took normal doses of vitamin K last winter for chilblains. It proved highly successful and she is anxious to take it again this winter. Since January however she has had only one menstrual period—in April. There is no other apparent cause for the amenorrhoea. Is there likely to be any connexion between the vitamin K and the amenorrhoea and if so is this a contraindication to its use?

**A**—In the doses in which vitamin K is used it has no effect whatsoever on the menstrual cycle. In fact large doses have been given experimentally to suppress menstruation and to treat menorrhagia, but without effect.

#### Treatment of Peripheral Vascular Disease

**Q**—A male aged 76 suffers from severe pain in his left leg due to atheroma of the arteries. He has no pain when in bed but suffers acutely when sitting or walking. On rising from a chair he has to stand for a few moments before he can move. Apart from the local condition his general health is excellent and his heart sound. Can you suggest any drug which I could prescribe?

**A**—It is not common for peripheral vascular disease to cause pain when sitting in a chair but not when lying unless erythromelalgia—in which pain is aggravated when the limb is dependent—is present. The medicinal treatment is twofold: by means of simple analgesics and by reputed vasodilators. The effect of the drugs of the second group is unpredictable, although usually disappointing; they should always be given a trial. Papaverine hydrochloride 4 to 1 gr (32 to 65 mg) subcutaneously or by mouth, acetyl 8-methylcholine 0.1 to 0.5 g. orally, theobromine sodium salicylate 10 to 15 gr (0.65 to 1 g) and nicotinic acid

50 mg have all been recommended and may be used in these doses three to four times daily. Dried thyroid is sometimes useful. More patients are helped perhaps, by physical methods such as intermittent venous occlusion.

## NOTES AND COMMENTS

**Lactating Baby**—Dr J C VALENTINE (Lecturer in Pathology in the University of Bristol) writes: In reply to a question regarding the treatment of lactation in an infant (Oct 23, p 768) you suggest the administration of testosterone. While on theoretical grounds this might be of value—since it is known to be effective in inhibiting milk secretion in women—there is some evidence that it may not be effective in the newborn infant. Slobozanu<sup>1</sup> injected testosterone intramuscularly into male and female newborn infants and found that the incidence of enlargement and milk secretion was thereby increased. He did, however, find that with large doses there was some inhibition of milk secretion but even with 25 mg doses 12% of the boys secreted milk.

Another method commonly used to inhibit lactation in women is the administration of oestrogens natural or synthetic. Dr Margaret Robinson<sup>2</sup> has found that in the newborn the application to the breasts of lint soaked in a 5% solution of stilboestrol in arachis oil followed by gentle expression of the milk, soon relieves the engorgement. On the other hand Slobozanu injected oestrone intramuscularly into newborn infants and found that this resulted in an increased incidence of mammary enlargement and milk secretion. It would be of interest to know the effect of oral or parenteral administration of stilboestrol. There is additional support for Slobozanu's work in the papers of Abraham<sup>3</sup> and Dobszay<sup>4</sup>. Abraham found that by the injection of oestrin he was able to cause mammary enlargement and secretion in the newborn to return after they had ceased, and Dobszay was able to induce mammary enlargement in the newborn by the injection of oestrin, and then by the injection of pituitary mammotropic hormone, was able to induce colostrum secretion.

#### REFERENCES

- <sup>1</sup> *Schweiz. med. Wschr.* 1946 78 203
- <sup>2</sup> *Brit. med. Bull.* 1947 5 164
- <sup>3</sup> *Med. Klinik* 1930 26 164
- <sup>4</sup> *Dtsch. med. Wschr.* 1935 61 1314

**Calcium Iodide for Cataract**—Mr SYDNEY TIBBLES (London, W 1) writes: In "Any Questions?" (Oct 2, p 667) the question and answer given were pretty much the same as those to which I gave a fairly full explanation of my own experience in the *Journal* of Sept 6, 1947 (p 404). This provoked no protests but produced many medical men with cataract, one of whom was a well known eye surgeon, while another, in the late forties, put the commencement of his troubles down to convulsive treatment given for some mental breakdown. In thirty odd years of using iodides for early lens changes I can only think of four that had to be operated on in the end, and many of my cases have attended and have come back regularly, some for as long as twenty five years. Two patients with early changes in both eyes have, as test cases, been told to use the treatment for one eye only for the past four or five years, but in each case the eye that had no treatment became worse than its fellow. In the end treatment was commenced for the second eye. This iodide treatment does not profess to cure cataract, but apparently in a very large number of early cases the degenerative changes can be controlled for a large number of years. Before July 5, 1948, a very much larger number of cataract patients in an advanced stage were seen in hospital as compared with private practice. Patients who have to travel a long way to hospital wasting half a day off from work often put off their troubles till one eye is blind and the other beginning to fail before they seek advice. The great advantage of eye clinics such as those sponsored by the B.M.A. (National Eye Service prior to the new N.H.S. scheme) was that the patient could make an appointment to suit himself and seek advice somewhere near where he lived.

**Correction**—Mr E W RICHES (London W 1) points out that in our report of the meeting of the Medical Society of London held on Oct 25 (Nov 6, p 831) it was wrongly stated that he spoke on the use of streptomycin in tuberculous infections of the urinary tract. His paper was concerned with non tuberculous infections.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: Ailology Western London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1 on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London, W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: Britmedads Western London. MEMBERS SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. TELEGRAMS: Medisecra Western London. B.M.A. SCOTTISH OFFICE: 7 Drumshough Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 20 1948

## National Health Service

### DOCTORS' FALL IN INCOME DISCUSSION WITH MINISTRY

Members of the Insurance Acts Committee met the Secretary and other officials of the Ministry of Health on Nov 17 and discussed reports which have reached the Association from all parts of the country that doctors, particularly in small towns and semi-rural areas where conditions are such that it is impossible to acquire a large list of public patients, are suffering a severe fall in income as a result of the new Service.

The profession's representatives urged steps to relieve the position of badly hit practitioners, making a number of suggestions for immediate action pending the review of remuneration now being undertaken by the Committee and likely to be completed in the next few weeks.

A fuller report of the representations made will be published in these columns next week.

### G.P.s' MILEAGE FUND "WEIGHTING" SCHEME PROPOSED

At present the annual mileage fund is £1,300,000, which is deducted from the £40,000,000 in the central pool. Before the war the fund in the N.H.I. Service was £250,000, and before the National Health Service began it was £600,000.

The International Distribution Committee will decide what proportion of the fund goes to England and Wales on the one hand and to Scotland on the other; the National Distribution Committees will then allocate the proportions to be paid to each executive council, and the executive council will pay the individual general practitioner in accordance with the number of units of mileage or walking he claims. It is not possible to say what the value of this unit will be until all the claims are known.

Mileage payment is a method of compensating a rural practitioner for his being unable to take on his list as many patients as his urban colleague can, and for his having greater difficulty in getting to his patients—apart from such special difficulties as are to be covered by the Special Inducements Fund. It has therefore been recommended to the Ministry that the mileage units claimed by practitioners should be weighted so that they bear the following values: for the urban practitioner 1, for the semi-rural practitioner,  $1\frac{1}{2}$ , and for the rural practitioner, 2. The classification of practices for this purpose would be the task of the local medical committees.

### VISITS TO OUTLYING HOSPITALS INTERIM RATES OF PAY

There seems to be some diversity of policy in the various practices about payment in cases where specialists are asked to visit patients at hospitals of which they are not members of staff. In the permanent arrangements it is probable that

the liability to undertake such calls will be taken into account in assessing the specialist's remuneration. For the time being, however, payment should be made as for an additional session—i.e., at the rate of £4 4s a visit, whatever the services rendered.

### ALLOCATION OF PAY-BEDS ALTERED PROPORTIONS REPORTED

It appears that in certain regions hospital boards are disturbing the proportion of pay-beds to public beds, and representations have been made to the Ministry regarding this apparent breach of the Minister's assurance that the distribution of pay-beds will be allowed to lie as at the appointed day during the interim period. The Ministry has pointed out that in cases where there is a waiting-list for public beds a regional board has an obligation to use any vacant private beds, but that any proposals for the permanent reallocation of pay-beds must be submitted for the approval of the Ministry. An assurance has been given by the Ministry that no such proposals have as yet been received or approved by the department.

### REPORT OF COMMITTEE ON PARTNERSHIPS

Mr Bevan stated in a written answer on Nov 11 to Mr Linstead's question about the report of the Legal Committee on Partnerships (*Supplement* Nov 13, p 170) "I received this report on Nov 8 and am considering it."

### DOMICILIARY VISITS TO PRIVATE NURSING-HOMES

The Ministry has ruled that the domiciliary arrangements are not available to patients in private nursing-homes. The Central Consultants and Specialists Committee, whilst appreciating the possible repercussions on specialist private practice if domiciliary visits to private nursing-homes are permitted under the public service, had in mind cases where treatment in a private nursing-home is recommended because the patient's home surroundings are unsatisfactory. Many maternity cases would come into this category, which would also include the elderly invalid patient who permanently resides in a private nursing-home. This matter is being examined and will be discussed by the Committee.

### MIDWIVES

The position of midwives in relation to doctors giving maternity services under the National Health Service has been clarified by the Ministry (Circular Letter 173/48). If a practitioner has been engaged to deliver the patient, has been notified of the onset of labour, and continues to be in charge throughout the lying-in period, then the midwife is deemed to be acting as a maternity nurse. (Details are given under "Local Administration," p 181.)

## FELLOWSHIP FOR FREEDOM IN MEDICINE CAXTON HALL MEETING

A Fellowship for Freedom in Medicine was formed at a very largely attended meeting of members of the medical profession held at Caxton Hall Westminster on Saturday afternoon, Nov 13. The number of those present was well over 700 and during the two hours discussion, except on the choice of name for the new body, there was no division of opinion. On the proposition of Dr R Hale-White Lord HORDER was unanimously acclaimed to the Chair.

### Chairman's Statement

Lord HORDER began with a reminder of the origin of the meeting—a letter above his signature in the *British Medical Journal* of June 19. The response to the invitation contained in that letter was prompt and unexpectedly large. The earlier letters came from men and women who had not joined the Service, later, in increasing numbers, from those in the Service. To date some 1,750 letters had been received and they were still arriving at the rate of 15 to 20 a day. Hundreds of the letters contained constructive ideas. To help in their analysis he nominated six colleagues, later extended to twelve, who formed an interim committee.

That day he hoped they would not spend much time on a post mortem. The Special Representative Meeting of May 28 gave the profession its last chance of resisting dragooning by politicians, and the chance was thrown away, he had called it "the triumph of the machine." Some of the dominant factors that entered into the tragic situation "which developed between January, when we marched so unitedly and effectively, and May, when, more like a rabble, we surrendered," could be stated. Among them were

"a secretariat swollen in numbers and influence, much going and coming between it and Whitehall, too strong a tail wagging too weak a dog, machinations, thought by many to be both meddlesome and mischievous, on the part of men holding key positions outside the [British Medical] Association"—(applause)—"and, if I may plagiarize Milton, 'blind mouths' at the centre and at the periphery hungry sheep looking up but not being fed."

He felt that from the very start, much earlier than the recent collapse, the medical profession had lacked a due appreciation of its value in society. "We let ourselves be used as pawns in the game instead of being master pieces. We scarcely dissented when the Minister called his *ipse dixit* a 'consultation'." Their own weakness was partly responsible for the fact that the National Health Service was "born in dishonour," for they allowed themselves to be a party in the mad precipitancy of the Government whereby the public was made to contract for health benefits which did not exist.

### The Result of It All

The living power of medicine, Lord Horder continued, resides as it must always be in the personnel of the profession, had passed out of its hands to be lost, for a time, in the dead machinery of the bureau.

Medicine has indeed become, what we pledged ourselves it never should become a branch of the Civil Service. The fruit which was not yet ripe has become very ripe by hothouse treatment and the Minister has plucked it. We are no longer experts. We sit and sign forms. With no time to diagnose their diseases we pass our patients to other persons and to institutions knowing full well that these cannot dispense the health benefits which may or may not be needed. In the economic field doctors have been manoeuvred into surprising positions. Some are faced with serious financial insecurity. Others are making bigger incomes than they formerly did but are doing less doctoring in return. And the galling thing is that it is Dr Peter who is paying Dr Paul."

What to do about it? The proper thing to do was to pull themselves together and consider how best as doctors and in the public interest they could recapture their freedom and safeguard it in the future. Had the standard of medicine fallen and was it likely to continue to fall? The large correspondence which had come their way suggested that the answer was yes. He did not see how it could be otherwise. The essence of good doctoring was diagnosis and diagnosis called for time and a close-up with the patient, denied at the moment to

thousands of practitioners. Good doctoring called also for a feeling of satisfaction on the part of the doctor in the work he was doing and a sense of economic security. For many doctors now the savour had gone out of their work and their sense of security also had been rudely shaken.

It had seemed therefore desirable to form some sort of body through which the purpose of those concerned to recover and maintain the freedom of medicine might be canalized. Should it be a trade union? God forbid! A guild? That he felt was the idea, but there might be legal difficulties. But, whatever the name the object was to keep the standard of British medicine and doctoring at a high level and to assist the State in making the best that was in medicine available to the whole community.

The relation of our new body to existing organizations will come up for discussion. My own views are very simple. Our hand should be against no man. We are a break-away from no other body. If and when we are confident that the B.M.A., whether by reorganization or otherwise, and/or the Royal Colleges accept, and carry out, the obligation to the public for which we ourselves stand, we can dissolve into thin air. But that time is not yet."

In conclusion Lord Horder averred himself still an optimist. That meeting had reinspired him. As he had said in an address to the Cardiff Medical Society four years ago, he still saw hope for themselves as doctors. "We have not yet forfeited the trust of our patients, we have not yet bartered our spirit of adventure for a mere hope of security." They were there as the custodians of medicine for their patients. But let them look to their charge. To day it needed all their vigilance and all their care.

The address was punctuated by expressions of approval from the large audience, and there was loud cheering at the close.

It was proposed and seconded from the body of the meeting that a body should be formed whose aim would be to safeguard the freedom of medicine, and although one speaker wished to enlarge the conception beyond medicine, to embrace freedom as a general philosophy and ethic, so that the new body would be an association of medical men standing for the protection of freedom in all spheres, the narrower conception of the freedom of medicine was accepted by the meeting. Lord Horder pointed out that their contribution was to medicine and by enlarging their target they might hit nothing of importance.

### Naming the Child

Several names were suggested for the new body. One suggestion was 'Association to Safeguard Medical Independence', another was 'British Medical Guild,' but it was pointed out that this would require a legal charter, another was "Society for the Protection of the Freedom of Doctors", yet another 'The Fellowship of Medical Freedom' and one more, 'Medical Freedom League'.

Dr E C WARNER said that the interim committee had spent some time over this subject and had arrived at the compromise title of 'Association for Freedom in Medicine'. Dr S F L DABNE seconded the adoption of this term, which was very generally supported. Dr H H D SUTHERLAND hoped that "Association" would not enter into the name of the new body, and proposed the more intimate word "Fellowship," and this amendment was carried, so that the name chosen was 'Fellowship for Freedom in Medicine'.

### Membership

Lord HORDER suggested that all medical men and women should be eligible for membership, and this was accepted.

Dr TAYLOR (Purley) thought that those who were not in the Service should form the inner core of the new Fellowship. He was not suggesting that those who were working in the new Service should be excluded, but they should on joining be required to make a declaration that they were only in the Service because of economic or other pressure and under protest, and that they did not agree with the nationalization of doctors.

The CHAIRMAN. The essence of this body is a forum in which various views can find expression. Of the thirty letters which came in to-day more than half are from men and women in the Service. As to the core, I was hoping 'there wasn't going to be no core'.

Dr Taylor's suggestion did not commend itself to the meeting.

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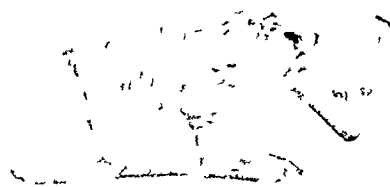
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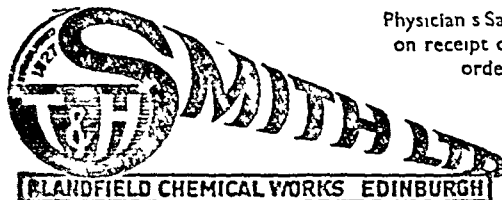
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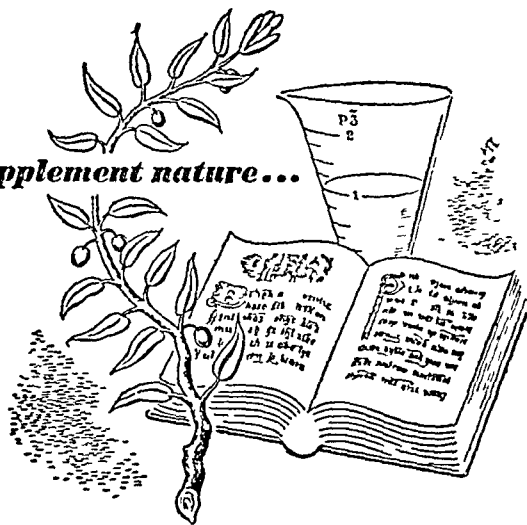
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One speaker proposed that medical students be admitted, but the proposal was not pressed, the Chairman pointing out that any medical student who thought for himself would keep an eye on what they were doing and be ready to join on qualification

### Relations with Other Organizations

In introducing this question the Chairman said he had already suggested that their symbol should be the open hand, not the closed fist. They were ready to welcome all who shared their views. He hoped that the spirit of the meeting itself would go some way to correct a number of statements to the effect that they were antagonistic to existing bodies, meaning in particular the B.M.A. Already four members of the B.M.A. Council had addressed the meeting that afternoon.

Dr J. A. GORSKY said there were reasons why the new Fellowship should not go out to the world as a breakaway body from the B.M.A. ("Hear, hear") A committee had been set up by the B.M.A. Council, following a debate which he himself initiated at Cambridge, for the purpose of considering the constitution of the Association. He was proceeding to develop this point, when the Chairman intervened to say that the reconstitution of the B.M.A. was a matter for the B.M.A. itself.

Dr GORSKY: I am not attempting a post mortem, I am attempting—(The Chairman: "A resurrection") (Laughter)

Dr A. V. RUSSELL proposed

That this Fellowship is not in opposition to any other existing medical organization, but is ready to strengthen their hands in so far as they are prepared to work for the maintenance of medical freedom.

This was seconded and, on the understanding that the Executive Committee presently to be appointed would explore the phrase "strengthen their hands," was carried.

Dr L. W. BATTEN moved briefly, and Dr A. C. E. BREACH seconded without a speech.

"That as this body is deeply disturbed by the way outside influences may affect the quality of medicine in this country, it is determined to do everything in its power to render the highest standards of practice possible in the future."

This was immediately carried unanimously.

### Officers and Committee

Dr JOHN COWAN (Manchester) moved the election of Lord Horder to the chairmanship of the Fellowship. He said that they all owed a great debt of gratitude to him. He had been the inspiration and guiding force of the whole of this movement. Not only those assembled there that afternoon and their colleagues who had been unable to attend that meeting, but the future practitioners of medicine in this country, had occasion to be profoundly grateful for what he had done.

The proposal was unanimously adopted.

Lord HORDER then suggested the names of Dr R. Hale-White for the Vice-Chair, Mr Reginald T. Payne for the Honorary Treasurership and Dr E. C. Warner and Dr G. H. Rosedale as Joint Honorary Secretaries. These names were agreed to.

For the Executive Committee, he stated that it had been thought that a membership of 20, over and above the five officers who were *ex-officio* members, would make it possible to secure adequate representation both of the different parts of the country and of the different branches of medicine.

It was agreed to fill only half the Executive seats at the moment, leaving the other half to be nominated by the Executive with a view to getting an all round representation. Those nominated and elected at the meeting were the following:

Dr Barbara Abercrombie (Liverpool), Dr A. C. E. Breach (Orkney), Dr S. F. L. Dahne (Reading), Dr D. R. Goodfellow (Manchester), Dr G. M. Goodwill (Attleborough), Dr Frank Gray (London), Dr A. V. Russell (Wolverhampton), Dr Campbell Shaw (Bournemouth), Dr J. G. Thwaites (Bristol), Dr K. D. Wilkinson (Birmingham).

The meeting further agreed that the minimum annual subscription should be one guinea so as not to exclude any on account of expense but it was hoped that as many as were possible would subscribe more.

Dr D. R. GOODFELLOW proposed the final resolution.

"That the Executive Committee be asked to consider ways in which freedom in medical matters can be best preserved by the profession."

He said that he had always felt that the Law, the Church and Medicine should be beyond the reach of contamination by political control. The Health Service had come to stay, but it was the wrong sort of Health Service, it was all cock-eyed at the moment and had to be straightened out.

The resolution was seconded by Mr E. H. RICHARDS and carried unanimously.

It was agreed that a draft constitution of the new body should be prepared by the Executive, with legal help, and brought before the next meeting.

The CHAIRMAN said that the date of the next meeting could not at the moment be given. As for the place, he thought it might be desirable to meet in a provincial centre as so many of the supporters of the movement were from the provinces. Indeed, an analysis of the geographical distribution of the forms returned showed that the sympathizers with and potential members of the Fellowship were to be found as far north as the Hebrides and as far south as the Lizard. It was left to the Executive Committee to make the necessary arrangements.

The assembly gave Lord Horder an ovation at the end of the proceedings, and the gathering dispersed to the strains of "He's a jolly good fellow."

\*\* We understand that some of those nominated and elected as members of the Executive Committee have not yet decided to serve. Dr Frank Gray and Dr J. G. Thwaites, for example, ask us to state that they have not accepted membership of the Committee.—Ed., B.M.J.

## Local Administration

*We publish below information from some of the Ministry circulars sent to local bodies working under the N.H.S.*

### Midwives

The Minister's Circular 173/48 to local health authorities and executive councils states: "Maternity medical services under Part IV of the National Health Service Act were intended to supplement—not to replace or detract from—the midwives service provided by the local health authorities. It has, however, come to the Minister's notice that there is uncertainty in some areas whether a midwife booked by an expectant mother who has arranged for a doctor to give her maternity medical services under Part IV attends the mother as a practising midwife or as a maternity nurse. The local health authority will now have received the letter sent to them, as local supervising authority under the Midwives Acts, on Oct 29 by the Central Midwives Board, in which the following statement on this question is made for the guidance of domiciliary midwives:

"The Board regards the midwife as acting as a midwife unless all the conditions laid down in Rule E 20 are fulfilled. If they are all fulfilled then she is deemed to be acting as a maternity nurse. Hence the acceptance by the medical practitioner of responsibility for the provision of maternity medical services and the carrying out of ante-natal care by him does not affect the position of the midwife who is acting as such, but if the doctor has stated specifically that he wishes to be summoned at the onset of labour and that he proposes to deliver the woman himself she is in that case acting as a maternity nurse."

"The Minister wishes to express his full concurrence in the Board's statement."

Rule E 20 of the Central Midwives Board is as follows:

In this Part of this Section of the Rules, unless a contrary intention appears, the following expressions have the meaning hereby respectively assigned to them: "midwife" means a woman whose name is on the Roll of Midwives, "maternity nurse" means a midwife who, in any maternity case, is acting under the direction and personal supervision of a registered medical practitioner who (i) has been engaged to deliver the patient, (ii) has been notified of the onset of labour, (iii) continues to be in charge of and responsible for the case throughout the lying-in period.

Note—Unless all the foregoing conditions are fulfilled, the midwife is deemed to be acting as a practising midwife, and as such



ject to the Rules set out in Part II of this Section of the Rules the midwife is in any doubt, she should regard herself as acting as a practising midwife and not as a maternity nurse

Living in period means a period being not less than 14 days nor more than 28 days after the end of labour during which the continued attendance of the midwife on the mother and child is requisite

### Disciplinary Investigations

If the secretary or other officer of a local medical committee assists a doctor in presenting his case under the Service Committees and Tribunal Regulations 1948, he is entitled to have copies of all the relevant documents. Provided that all the doctors concerned in the allegations agree, he should also be supplied with copies if he is present—as he is entitled to be—when the Medical Service Committee hears a case (Ministry of Health, ECL 101). A summary of these regulations appeared in the *Journal* of April 3 (p 653)

### Ambulance Service

Since local authorities generally have bulk supplies of petrol for running ambulances, they have no coupons for this purpose. On long journeys it may be necessary for the ambulances to refuel and local authorities are therefore asked (Ministry of Health Circular 165/48) to issue petrol in such cases from supplies controlled by them in connexion with any of their services, particularly from depots providing a 24 hour service—e.g. fire stations. Ambulances should, wherever possible, be supplied with commercial (red) petrol, but cars for sitting cases are private motor vehicles and should be fuelled with private petrol. The Minister of Fuel and Power has agreed that E coupons may be issued to all local authorities to facilitate the refuelling of sitting case cars on long journeys where there is not separate storage available for private petrol.

### Filling Vacancies

There should be no delay in consulting local medical committees about the selection of applicants (who must have completed form EC 16) to fill a vacancy, the Ministry of Health points out (ECL 100) to local executive councils. Delay might be minimized by each appointing a subcommittee. All application forms (Form EC 16) must be transmitted to the Medical Practices Committee (with relevant details and references) but where there has been more than one application to fill a particular vacancy the local executive council may, after consultation with the local medical committee, either (a) send with the forms a short list of those applicants thought to deserve special consideration or (b) arrange to interview a short list of candidates and make a specific recommendation to the Medical Practices Committee. The Medical Practices Committee prefers procedure (a). Reasons that have led the council and the local medical committee to support or not to support an application should be given for each candidate (on a form similar to Appendix 4 of ECL 14). The council should also give information about the district covered by the practice in so far as it has not already done so.

If a practice of a retired or deceased practitioner extended into more than one executive council area, the council area where the doctor resided should normally report the need for filling the vacancy but the councils for the other areas should also notify the Medical Practices Committee of the resignation or death. A successful applicant can apply for inclusion in the medical lists of any of those areas.

### Certificates under Education Act

A practitioner is required to issue to his NHS patients certain certificates free of charge. The provisional list issued by the Ministry includes certificates issued under the Education Act 1944 as evidence that a child was prevented from attending school by reason of sickness. In a recent circular to executive councils (ECL 101) the Minister states that he is advised that certificates can be regarded as required for this purpose only where a parent is summoned or is in risk of being summoned by the local education authority for failure to see that his child attends school. The matter will be reconsidered when the Inter Departmental Committee on Medical Certificates has reported.

## INSURANCE ACTS COMMITTEE

### CALL FOR REVISION OF REMUNERATION

A meeting of the Insurance Acts Committee was held on Nov 11, with Dr E A Gregg in the chair. The committee in a special resolution conveyed its thanks to Dr J W Bone for his long and outstanding services as treasurer of the National Insurance Defence Fund, an office which he has recently resigned.

Dr Dain, who had been nominated by the committee as a member of the Tribunal under Sect. 42 of the Act, explained that it had been intimated to him that it was undesirable that members of this Tribunal, on one side or the other, should be persons who had been prominently associated with the controversy relating to the Service. Moreover, cases which had been before the Tribunal might subsequently come before the General Medical Council, of which he was a member. Therefore he desired to withdraw his name. The committee appointed Dr A S Winstanley in Dr Dain's place.

Some critical discussion took place on the function of the Medical Practices Committee in regard to open and closed areas and the employment of assistants. These points will be raised with the Medical Practices Committee at the first opportunity.

### The Work and Income of Doctors

The committee received a report from the Remuneration Subcommittee which was appointed at its last meeting. This report stated that the principal grievance in the field of remuneration, apart from the apprehension arising from the first quarterly payment, came from doctors in small towns and semi rural areas where conditions were such that it was almost impossible to acquire a large list of public patients. Private practice had diminished to very small proportions, and this together with the increase in the volume of work and the prospect of worse conditions in the coming winter, had contributed to the unrest. A statement on the subject was issued to the Press on Oct 28 announcing that a report on the whole subject was being prepared for presentation to the Ministry.

Questions were raised as to Whitley Council machinery. The Secretary (Dr Charles Hill) stated that the point that the Whitley Council for the medical profession should be autonomous had been met. He thought the detailed proposals when they came forward would be found to be satisfactory as far as they went. It was likely that such matters as were now under discussion—namely, a review of remuneration in general—would still remain for direct discussion with the Ministry as a matter of major policy instead of coming within the routine of the Whitley machinery. What actually came within the scope of such machinery was a matter for discussion with the Ministry.

The view of the committee was that the position of practitioners with smaller lists who were not able to obtain adequate income was the first line of approach to be made and as a first step it should be pointed out that in so far as the number of general practitioners joining the Service was in excess of the figure of 17 900 (the figure of 19 400 was mentioned) upon which the calculation of the Central Practitioners Fund was based, a proportionate increase in that fund was necessary to implement the Spens Committee's recommendation. Other points for discussion were the adequacy of the Special Inducements Fund and the need for early and generous payment for mileage.

The question of basic salary entered into the discussion. The system under which the Minister decides appeals was criticized because it means that the Minister, who is not paying the additional moneys involved, is in the position of finally deciding the issue. It was decided to recommend that the appropriate regulations be amended so as to provide that the Medical Practices Committee or some central professional body is consulted by the Minister in all cases of appeal against decisions on basic salary.

### Maternity Medical Services

Among many other matters on the agenda of the committee were several concerning maternity medical services. It was

greed to take no action at the present stage to raise with the Ministry the general question of the fees for maternity medical services. The whole matter will be reviewed later in the light of experience. Practitioners who have been refused admission to the local obstetric list and seek advice as to their position are to be advised to reapply for admission to the list.

The committee could not accept the view, which the Minister had put forward, that treatment for a miscarriage should be regarded as part of the ordinary obligation of a general practitioner under his terms of service. On the subject of administration of anaesthetics in midwifery, it was agreed that the fee or the services of a second practitioner for this purpose, together with mileage when claimed, should be paid direct to that practitioner, also that representations should be made to the Ministry that there be provision for the payment of mileage for each visit at the rate of 1s a mile each way beyond the two mile radius.

Other decisions taken referred to the fees for administration of anaesthetics in dental cases where the patient is in the National Health Service (from 30s per administration, depending upon the length of the operation and the anaesthetic used, is the present B.M.A. policy), and the question of vaccination and immunization, which, it was agreed, formed no part of the practitioner's duty under his terms of service but was a statutory obligation on the local authority, for which the practitioner should be entitled to a separate fee. It was agreed to make representations to the Ministry to this effect.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley

## Questions Answered

We publish here the answers to a selection of questions that seem to be of general interest.

### Consultants Cannot Opt Out

**Q**—On what conditions can a consultant who has already made adequate provision for retirement by private insurance opt out of the Health Service superannuation scheme?

**A**—The option is not available to consultants but is limited to those doctors whose names were on the list of an executive council on July 5, 1948. Representations have been made to the Ministry that the option should be extended to consultants.

### Drugs and Appliances Required in Special Circumstances

**Q**—I have read the section in the Supplement headed "Prescribing in N.H.S. (Aug 21 p. 89) referring to supply of practitioners of drugs and appliances required in special circumstances. I should be glad to know whether the procedure now followed applies in England as well as Scotland and whether Form EC 10A is now obtainable from local executive councils as an alternative to the payment of the fee of 2s 6d per year per 100 patients for emergency drugs?

**A**—The statement in the Supplement relates to Scotland only. In Scotland a practitioner in the Service may order on Form EC 10A for stock purposes such drugs and appliances as he requires to supply "on the spot"—i.e., those required for immediate administration or application or for use before a prescription can be conveniently obtained by the patient on an ordinary prescription. In England and Wales a practitioner receives 2s 6d per annum for every 100 persons on his

list excluding those to whom he has arranged or is required to supply all necessary drugs and prescribed appliances. Additional payment may be claimed where specially expensive drugs on the official list are used in emergencies. Form EC 10A cannot be used in England and Wales, the practitioner in this case obtains his emergency "stock" by direct purchase.

### Specialists and National Insurance

**Q**—I am a specialist in contract with two regional hospital boards for a total of eight sessions per week but am told that, for the purpose of National Insurance contributions, I am considered as a self-employed person. Why is this?

**A**—The regulations at the moment lay down that a specialist must be in contract with one authority (i.e., regional hospital board or board of governors of a teaching hospital) for at least six sessions per week if he or she is to be considered as an "employed person". Representations are being made to the Ministry on this point. Amendment of the regulations will be necessary to adjust the matter.

### Medical Practices Committee Expenses

**Q**—Is part of the capitation fee deducted for payment of the expenses of the Medical Practices Committee?

**A**—No part of the capitation fee is deducted for the expenses of the Medical Practices Committee. All expenses incurred by or in respect of this committee are paid by the Government.

## HEARD AT HEADQUARTERS

### Lord Horder's Meeting

The Caxton Hall meeting fully came up to expectations. Six hundred doctors were expected, and one count gave 673 attending, but many came late and had to stand during the proceedings or even invade the platform, and the number must have been well over 700. Lord Horder described himself as a realist. The Minister of Health, speaking to a common friend, had described him as an incontinent romanticist; he accepted the adjective but not the noun. The meeting was free from attacks on the B.M.A., and indeed among those who spoke during the afternoon were five members of the Association Council, while three of these five and two other members of the Council were elected as officers or committee men. One speaker wanted to divide the sheep from the goats; he was prepared to receive into the Fellowship those working in the Service, but only on condition that they donned the white sheet, but the meeting would have none of such distinctions. The word "Fellowship" as the title of the new organization is not entirely happy. It suggests something academic or social, whereas the new body is a crusade or at least a garrison. But "Association" was evidently considered to have a rivalry aspect about it, "Guild," which Lord Horder favoured, would have required a legal charter to make it effective, and "Council" suggested a closed body.

### Students in Assembly

The President of the Association gave a charming little address in presenting the Association's student prizes at the annual conference of the B.M.S.A. last week. Sir Lionel Whitby took occasion to remind the students that the B.M.A. is not a trade union dressed up as something else, nor is it wholly a political organization charged with wringing the best contracts for doctors out of an unwilling Government. It has other activities whose value must not be measured by the space they occupy in the news. He said that the Association had probably the finest medical publishing service in the world, its journals and abstracts were some of the greatest contributions to scientific medicine, and its Divisions, with their scientific meetings, were a splendid means of encouraging such an outlook among men in practice. At the same meeting the students had the privilege of listening to Dr W. N. Pickles, who spoke of the opportunities of general practice. Dr Pickles is famous as a clinical observer, and he gave a number of his experiences as a country doctor, but what was most inspiring

the talk was his description of the way he encountered patients and looked after them in the good old tradition of a family doctor

### The Patient's Consent

The e has recently been another instance of a doctor examining a patient without the patient's consent. An injured workman employed by a firm was being attended by his own doctor in a hospital. The employers' solicitor asked the doctor to examine the patient on the employers' behalf and report on his condition. The doctor did so without explaining to the patient the significance of the examination or obtaining his consent to send a report. The patient probably regarded the examination as a routine one in the course of treatment. Subsequently an organization acting on behalf of the patient also asked the doctor for a report on his injury, and the doctor replied that he was unable to do it because he had already given a report to the other side. The legal traps in medical practice are numerous and intricate, and this is one that should always be borne in mind. No report should ever be given without the consent of the patient. Where there is any possibility of doubt consent should be obtained in writing in the presence of disinterested witnesses. The problem was discussed in an article in the *Journal* of April 24 (p. 801). Where an examination is required, as in this case, for the other side, the injured man or his solicitor should have the opportunity of arranging for a medical man to be present at the examination for the express purpose of representing the patient's interests.

### COUNCIL ON WELFARE OF HANDICAPPED PERSONS

The Secretary of State for Scotland has appointed a Council of nineteen members to advise him on matters pertaining to the welfare of handicapped persons with particular reference to the provisions of the National Assistance Act. The Act gives local authorities power to make arrangements for promoting the welfare of persons who are blind, deaf, or dumb, and other persons who are substantially and permanently handicapped by illness, injury or congenital deformity.

Local authorities have for long had a duty to provide for the welfare of the blind, but they have not had specific statutory powers to provide for the general welfare of other severely disabled persons. A new field of local authority endeavour has therefore to be opened up, and it will be the main function of the new Council to give the Secretary of State such advice as will enable him to guide local authorities in the preparation of satisfactory schemes.

The Council consists of the following: The Hon. Lord Stevenson, K.C. (Chairman), Mr. Charles H. W. G. Anderson, Head Master, Royal Blind School, Edinburgh; Mr. W. Veitch Anderson, F.R.C.S.D., Edinburgh; Mr. David S. Brown, Councillor, Glasgow Corporation; Miss C. D. Hamilton Bruce Warden, Trefoil School for Handicapped Children, Whitburn; Mr. James Cormack, Superintendent, Edinburgh and South East of Scotland Society for the Blind; Professor T. Ferguson, Professor of Hygiene, Glasgow University; the Reverend J. A. Fisher, Convener, Kirkcudbright County Council; Mr. James Forde, J.P., Councillor, Ayr County Council; Mr. D. Kennedy Fraser, Psychologist and Master of Method, Jordonhill College, Glasgow; Dr. J. G. M. Hamilton, Edinburgh; Mr. James Hutcheon, J.P., Town Clerk, Dumfries; Mr. D. L. McIntosh, late Superintendent, Glasgow School for the Deaf; Mrs. David Mackenzie, Honorary Secretary to the Scottish Orthopaedic Council; Mr. Duncan R. Matheson, Councillor, Edinburgh Town Council; Mr. T. R. Millar, Councillor, Clackmannan County Council; Lord Provost J. Ure Primrose, Perth; Mr. John Robertson, Welfare Services Officer, Stirling; the Reverend W. H. Wood, Honorary Secretary of the Scottish Association for the Deaf; Mr. R. I. Hulle, Department of Health for Scotland (Secretary).

The Minister of Health has made the following appointments to regional hospital boards—*North West Metropolitan*: Dr. W. J. T. Kimber, Medical Superintendent of Hill End Hospital, St. Albans, in succession to Dr. J. R. Rees; *Welsh*: Mr. E. K. Roy Thomas, Senior Ophthalmic Surgeon to the Swansea General and Eye Hospital, in succession to Dr. J. Lloyd Davies; *Welsh*: Mr. J. T. Morrison, Dean of the Faculty of Medicine, University of Liverpool, in succession to Professor Davis; Mr. Morrison is also a member of the Liverpool Regional Hospital Board.

## Correspondence

### The Distinction Awards

SIR—The idea of distinction awards for consultants is advocated by the Spens Committee has had an unfavourable reception in the profession. Now that the Government has decided to set up a committee to advise them on the disposal of these awards the whole question merits more public discussion than it has yet had. The arguments against these awards are easy to see. The task of the Selection Committee will be so difficult that errors and omissions must necessarily occur. There is a risk that notoriety will be rewarded rather than distinction; that industry may be overlooked in the quest of brilliance; that the back-room boys will be forgotten at the prize giving; and the provincial consultant long accustomed to his mute inglorious state must now expect impoverishment as well. Resentment and envy, it is said, will be created among hospital staffs where happy harmony hitherto existed. The work of the disappointed man will be depressed by his exclusion while the successful aspirant, having reached the haven will rest on his oars.

There are, however, other aspects of these glittering prizes which should be considered. They provide at the same time both a reward and an incentive which it may be difficult to supply in any other way. They permit an escape from the flat rate of pay which means the permanent establishment of mediocrity. Without them salary increases would be dependent only on seniority, for the individualistic nature of the clinician's work makes a pyramidal system of promotion undesirable and indeed impracticable. They make it possible to assess the rewards of individual specialists without making invidious regulations concerning, for example, the relative values of the neurosurgeon and his anaesthetist.

They declare, and this is a notable admission, that even a Socialist Government believes in the necessity for an unequalitarian society. They provide for the professional man the antecedent golden carrot of which the employer and employed have been largely dispossessed. They declare that important as idealism, unselfishness, sense of duty, pride of craftsmanship and creative enthusiasm are, they cannot be counted on to stimulate all the people all the time to their optimum performance.

It is probable that the obvious difficulties in application of these awards may be mitigated by reason and good will. Those who continue to oppose them have the duty to provide an answer to two questions: (1) How else, in a profession whose remuneration is largely to be determined by fixed annual increments, are you to provide incentive for effort and reward for performance? (2) How else are you to discriminate in financial terms between the value of the different specialties?—I am, etc.,

Derby

DOUGLAS HUBBLE

### Basic Salary

SIR—I am in practice in a small market town 14 miles from Oxford and have applied for the basic salary to tide over these difficult times. I have received a letter from the local Local Medical Committee saying that they had received instructions from the Oxford Local Medical Committee 'to assess my claim for the basic salary and pass on any evidence to the Oxford Local Medical Committee that they get from me during the inquisition in support of my claim'. In other words my professional neighbours down the road or up the road, are to poke into my private affairs and—it just won't do. I take a very poor view of all this and in what an invidious position to place the local Local Medical Committee! Stuff, that is their headache. I suppose that even the satisfaction derived from exercising the most local of authorities must have some qualifications—I am, etc.

Thame, Oxon.

E. GRANGER

SIR—Now that the political implications of the universal basic salary have been removed it is disturbing to find that in some quarters, including the B.M.A., a stigma still attaches to its legitimate use by the lower-income groups. While it is true that the result of successfully claiming the £300 is a lowering

of the capitation fee for those doctors who are able—and willing—to take on big numbers, it might have been more fitting for the B.M.A. to have urged those less unfortunate doctors to accept without murmuring a deduction which helps those who have been hardest hit than to discourage those unfortunates from improving their lot by the agreed method of claiming the basic salary.

I have not seen it urged that doctors should refrain from making the most of their practice incomes for compensation purposes because by so doing they were lowering the average payment from the fixed pool, though this is equally true. Surely a doctor with less than 2,000 State patients has a duty on behalf of his family, his creditors, and his guarantors to claim the £300 to help to minimize his losses. Let those with lists of 2,000+ be stimulated to protest against the inadequacy of the proposed capitation fee rather than blame their colleagues for their efforts at survival—I am, etc.,

C. M. B. Cornwall

R. H. BLAIR

### Locumtenents and Successors

SIR—May I bring to your notice two important points which appear to have been overlooked up till now in the discussions on the new Health Service—viz., the position of doctors doing locumtenent work, and the methods employed in the selection by the various executive committees of the doctors to succeed to practices becoming vacant either by death or retirement.

(1) *Locumtenents*—The position of these individuals does not appear to have been given any consideration whatsoever so far yet the provision of locums for holidays, sickness, death vacancies and postgraduate work must surely be considered a very important cog in a smooth running service. In the past they were provided, often somewhat unsatisfactorily from both points of view, either by one of the various medical agencies or through one of the large drug houses. If the new service is not to belie its name something much more serviceable and satisfactory must be evolved. The doctor in practice should be entitled to expect that, at a moment's notice, he can be provided with a reasonably efficient and experienced locum, and the public the same. Locums should no longer be recruited mainly from the ranks of recently qualified, comparatively inexperienced doctors. There is surely a very definite scope for a National Health locum service, staffed by doctors who are willing to do this type of work and qualified by both hospital and general practice experience to do so. Only doctors who can satisfy the above desiderata should be enrolled on such a list, and they would be expected to accept any post within a reasonably wide radius from their headquarters.

As they are expected to undertake the work of doctors considered capable of running large practices, this class of locum should be selected and paid accordingly, preferably a fairly high salary with, possibly, pension rights, which would encourage recruitment to such a service and the desire to remain in it for a reasonable spell. Alternatively, a basic salary could be paid to cover out-of-work periods plus fees while actually working. Admission to such a roll would have to involve signing on for a minimum period and agreement to undertake any such work allotted.

Obviously such a locum would have to be paid even when not working though workless periods would probably be short. The remuneration offered would have to include car allowance. The State could at least partially reimburse itself from fees paid by the doctor requiring the locum, such fees to depend on the income and location of the practice, and not a standard fee as in the past. In the absence of the amount of work involved or the desirability or otherwise of the locality. Incidentally, the current locum fee of 10 guineas weekly, plus board and lodging should be viewed in a proper perspective. It seems to the doctor paying it a reasonable fee but does not take into consideration the workless periods between locums sometimes of weeks duration, but almost invariably a few days with often one day's travelling unpaid for if the locum is away, and if a car is required an allowance of only two guineas weekly to cover tax, insurance, upkeep, and depreciation. A deduction of 5% agency fees and incidental expenses such as telephone and telegraph fees, postages, etc.

It is necessary to have a somewhat sketchy outline but I think some ideas will have to be very seriously considered especially if a new type of medical personnel develops which appears not

(2) *Successors to Practices*—The retiring doctor is now no longer faced with the choice of his successor, or but little. The public is not so obviously the most important, and if any lay person is asked the choice no doubt common sense would make him choose the best qualified to serve him. Unfortunately, as there is no such guarantee can be given. Applicants are expected to be expected to make tentative arrangements

for housing and surgery accommodation before they know even whether they are short-listed for the post. In their application they have to fill in the address from which they propose to practise and their hours of consultation, which seems to be expecting a good deal. Obviously a candidate with local knowledge or influence is in a much more favourable position than his competitor living at a distance. Also one with capital at command sufficient to satisfy the present inflated cost of housing will no doubt be considered more favourably by a selection committee than one less well endowed, as the housing question is so important and a fairly quick choice must be made.

Such considerations as the above, however, are surely not the likeliest to give the aforesaid layman and potential patient the doctor of his choice, yet I venture to suggest that, as in the old "bad" days of buying and selling practices, they will be paramount unless some means can be adopted whereby all candidates are placed on the same footing. In this connexion, financial help for the purchase of premises, or actual purchase by the State itself, suggest themselves. Final selection should be purely on merit. Only thus can our future G.P.s feel that they are getting a fair deal, and the public, through their representatives, be given a fair choice.

—I am, etc.,

Abergavenny Mon

E. A. DAVISON

### Supply of Nitrous Oxide Gas

SIR—The attention of the National Birthday Trust Fund has been drawn to the confusion which appears to exist about the supply to general practitioners of cylinders of nitrous oxide gas for analgesic purposes in maternity cases under the National Health Service. As the Trust is particularly interested in the provision of analgesia to women confined in their own homes, approach was made to the Ministry of Health for official guidance in the matter. I quote from the reply received from an official of the Ministry in case this authoritative statement may be of interest.

"The position is that, if a doctor is engaged by the patient to give maternity medical service under Part IV of the Act, he is in the same position as any doctor giving general medical service under Part IV. He may write prescriptions or may himself supply any drug 'personally administered'—e.g., nitrous oxide. For drugs so supplied he will receive payment from the executive council on presentation of a claim on E.C. 10 to the executive council."

"If the doctor is called in by a midwife in emergency, he is not giving maternity medical service under Part IV of the National Health Service Act, but is giving services under the Midwives Act, 1918. He receives a fee which includes the supply of necessary drugs and dressings, except that he gets extra payment for certain expensive drugs named in Part 2 of the Schedule to S.I. 1453 of 1948. In such cases the patient would have a midwife in attendance, and, as you know, midwives are supplied by the local health authority with cylinders of nitrous oxide. Many, but not all, doctors have cylinders, but some may not have realized that when giving maternity service under Part IV they can be paid for any nitrous oxide they supply themselves."

—I am, etc.

National Birthday Trust Fund

D. V. RIDDICK,  
Secretary

### Basic Salary for All Principals

SIR—The latest arrangement for the payment of basic salaries to general practitioners is so thoroughly bad that I am astonished at the profession acquiescing without vigorous protest and even without general discussion. Presumably bowing to B.M.A. pressure, the Minister of Health, so often accused of intransigence, has reduced the basic salary to a mere charitable contribution paid by the profession after scrutiny of the applicants' private affairs. One can well understand the bitterness and dissension which are already felt and which are likely to be perpetuated. Many who were strongly opposed to the conception of basic salary are now advocating an alternative system of payment by sliding scale, such as suggested by Dr. M. K. Dorothy Douglas (*Supplement* Oct 30 p. 154). With either method the large practices must inevitably subsidize the small ones, but I contend the sliding-scale system would involve a most inequitable division of the local pool.

Surely the heat of political controversy has blinded our representatives to the merits of the original proposal of a universal basic salary. There are many cogent arguments in favour of using this method in the division of the local pool.

is were done voluntarily in each executive council area  
ere need be no fear of the control or manipulation of the  
sary which caused opposition to the idea of a salary from  
the Government. In a community of 288 000  $\frac{1}{2}$ d per person  
would give £300 and thus if all the principals in the area  
say 120, took the £300 basic salary it would amount to a first  
charge on the local pool equivalent to 2s 6d of the capitation  
fee. The remainder, of course, would be distributed according  
to the numbers on each doctor's list. The only reservation  
necessary would be that the salary could be withheld from  
any doctor who in the judgment of his colleagues was not  
taking an active and fair share of the medical work in the area.

The advantages of such a scheme might be summarized as  
follows: (1) It is the most equitable method of subsidizing  
the small practices by the large. (2) It would promote that  
professional unity which is more than ever necessary. (3) It  
would encourage group practice. (4) It would mitigate that  
type of competition for patients in which clinical ability plays  
no part. (5) By giving a measure of independence it would  
facilitate more impartial and therefore more accurate certifi-  
cation. (6) It reconciles as far as may be the two conflicting  
needs of helping the small practices on one hand and providing  
equal pay for equal work on the other. I am absolutely  
opposed to the present scheme and equally so to that of a  
sliding scale. My suggestion is that there should be a basic  
salary for every active principal, if not, then for no one.—  
I am, etc

Thornton Fife

JAMES B FLEMING

### Flagrant Abuses

SIR,—Certain flagrant abuses of the National Health Service  
should be brought to the public notice. On several occasions  
patients, having arrived at the surgery to find a considerable  
number ahead of them, have returned home to telephone for a  
visit. Later they have actually confessed that they could not  
face the long queue, and thus saw nothing wrong in their  
subsequent action. One patient—incredibly—reported that he  
had a high temperature in order to get a visit, he admitted on  
opening his front door that his temperature was normal and  
that his message was a ruse to save himself the trouble of  
waiting in the surgery. Again, another patient who sent in a  
message after 1 p.m. had to be visited three times before she  
was at home to receive her doctor. Her complaint was trivial.

We strongly urge that the public should be warned against  
these abuses of the Health Service if they wish for its success.  
They must accept the inconveniences as well as the advantages  
of the service. Let the public treat us fairly and with common  
sense and we in turn will do our best for them.—We are, etc.,

G C B ROBINSON  
E H D PHILLIPS  
P H WOODCOCK

Worcester Park, Surrey

### NHS Remuneration

SIR—I wish to thank Dr Charles Hill for his circular letter  
(*Supplement*, Oct 23, p 145) which explains why we were  
underpaid on Oct 1. It should, however, be pointed out to  
the Minister that doctors, like postmen or miners or any other  
working men do not live from year to year but from day to  
day. This is more especially the case since the advent of this  
Government, which has taxed almost every conceivable com-  
modity in daily use—e.g., beer, tobacco and filing cabinets for  
medical cards. It is therefore more than ever desirable that  
our quarterly remuneration should approximately be the  
amount which we rightly expect.

Even if the correct estimated payment had been made, it would  
appear that the medical profession has been sold a particularly  
unpleasant mongrel pup, for we have been—if we are not to bandy  
words—forced to yield our right to buy or sell our own practice  
goodwill. We have been forced to cede our inherent right to practise  
wherever we may wish and have thus become the puppets of the  
Medical Practices Committee. We must stay put or starve or put  
in interminable applications for practices with so little knowledge of  
the pertinent facts that by comparison a gamble on the "pools"  
seems a certainty.

Our work has without question increased and our pay diminished  
in proportion to the 'enthusiastic co-operation' we have shown in  
entering the scheme. For example, we are to be paid on the  
assumption of a 95% population risk. This assumes a 5% income  
from private practice. In my case the proportion of public patients

to private is 99.95% to 0.05%. (Prior to July 5 this proportion was  
60/40 and income 50/50.) Thus, largely due to my enthusiasm  
asked for by the Minister, I am losing on both the swings and the  
roundabouts, and I know that my lot is not singular. But there  
does not appear to be any undue haste on the part of the Minister to  
reciprocate the 'enthusiastic co-operation'. In my view something  
will have to be done and done quickly by the profession, the General  
Medical Services Committee (who are avowedly acting on our behalf)  
and the Minister to ameliorate our pay and conditions of service in  
order to bring some sense of proportion into the scheme of things.

First the Spens Report must be implemented retrospectively  
from July 5. Secondly, if no other means is available, a  
fee will have to be charged per attendance to check abuses.  
In any case, it seems clear to me that we general practitioners  
cannot continue to honour the Minister's blank cheques on our  
services unless the Minister for his part hastens to honour his  
promises in the manner suggested and so make the reward  
more nearly fitting to the work than that received in October  
—I am, etc

Tyldesley, Manchester

PEPCK J GONSALVES

### Inadequate Remuneration

SIR,—The fact that the basic salary is to become a subsidy  
on the practitioners of the area has come as a great surprise  
to many of us, and we are beginning to wonder where the  
deductions from the already inadequate capitation will end.  
The document recently circulated giving an explanation of  
how the Practitioners' Fund is distributed may be a very clever  
treatise in higher mathematics, but it cuts no ice with practi-  
tioners who are attempting to carry out their obligations con-  
scientiously. It is time the B.M.A. gave up chasing the shadows  
and got down to the job of seeing that its members are ade-  
quately remunerated. The Negotiating Committee was I  
believe, elected for this purpose, they should waste no more  
time and get on with it.—I am, etc.,

London N 3

J GRIMSON

SIR,—At a meeting of all the practising doctors of the  
Wilmslow area it was unanimously decided to send the follow-  
ing resolution to the Secretary of the B.M.A. for his urgent  
attention.

We, the undersigned members of the B.M.A., express our entire  
dissatisfaction at the inadequacy of our remuneration in the N.H.S.  
We view the future with anxiety owing to the marked diminution  
in our incomes and the heavy increases in our work and expenses.

We urge you to press for the immediate revision of our terms of  
service.

—We are, etc.,

ROBERT BRUCE  
MARGARET CRUICKSHANK  
ANDREW M DICKSON  
A E FINNEY  
CHARLES D ROFF

MARGARET DYSON ROFF  
W D SHELDRAKE  
W ROSS MARTIN  
R J WALSH

Wilmslow, Cheshire

### Salaried Service

SIR,—The gross inadequacy of the present capitation fee  
for those with lists under 2000 must be pressed upon the  
committee which is about to negotiate permanent terms of  
service. It should be pointed out that the number on one's  
list is determined by no voluntary act but entirely by an almost  
compulsory recruitment of the medical profession into this  
Service. Conditions of, for example, density of population will  
determine that one man will have 4,000 and another only 1,000.  
Such gross inequalities of income cannot be ignored.

Sliding scales of remuneration may help to smooth out  
some of these anomalies, but it would seem that the only  
satisfactory solution is the old *bête noire* of the Association—  
viz a salaried service. Only by this plan can numbers be  
distributed more equably and, similarly, hours modified in  
accordance with modern practices so that the medical profession  
may be brought into line with all other workers in the matter  
of a 40-hour week and payment for overtime.

It is futile to suggest that under the present inadequately  
paid Service we retain any of the privileges which so called  
freedom of service was claimed to preserve. We are servants  
of the State, and it is only just and fair that we should receive  
all the advantages enjoyed by our fellow members of a trade.

union This must also refer to the so called betterment factor now assessed at the ridiculous sum of 20%, when everyone knows that there is no article or service or wages of any trade which has not jumped 100%, 200% 300%, 400%, and even 500% It is for the British Medical Association to shoulder the primary duty of any trade union—viz, to better the conditions and wages of its members—I am, etc

London N 6

W LEES TEMPLETON

### Capitation Fee

SIR—Throughout the numerous meetings that were held during the many months before July 5 remuneration was never on the agenda Nevertheless, it was generally understood that the Minister of Health had agreed to implement the Spens Report Now, Sir, is this so? Now we receive a letter from Dr Hill telling us that the capitation fee will be 17s 5d No one who lived here in 1939 and lives here now can possibly pretend that 15s 6d in 1939 is represented by 17s 5d now Surely, Sir, the present-day figure is nearer 31s? There should be no difficulty about preparing a case for revision of remuneration This is a simple issue We have a just demand Implement the Spens Report or we resign—I am etc

Bury St Edmunds

P G LEVICK

SIR—I am in full agreement with Drs S T Pybus (Oct 16, p 143) and Constance F Ross (Nov 6, p 166) It is opportune that this vexed question should be discussed as early as possible with the Minister of Health How could the Government expect a State medical service to work satisfactorily if there are such disparities in earnings by various auxiliary members of the Service? The dentists and the opticians have no right to their large incomes in comparison with the average medical practitioner The medical men are the backbone of the Service and comparatively have a prior right by qualifications and learning to a fair share of the income This apparently has been overlooked by Mr Bevan I am not requesting for preferential treatment for the doctors, but as a right Could the Health Service be carried on without any doctors? Perhaps the answer is only too plain The present derogatory position of the doctors is obvious It will not be to the advantage of the Service if present conditions are permitted to continue

Capitation fee of £2 per head is a just claim, with a limitation of 2,500 patients The present financial position of many medical men is far lower than the average chemist or dentist Some are not able to meet their commitments since the initiation of the State Service The limitation of patients to 2,500 will undoubtedly help the younger and ambitious members of the profession to procure practices at an earlier date More doctors will be needed for congested areas and medical attention of patients will be of a higher standard as more time can be allotted to each patient for proper investigation

The more highly qualified members of the profession in general practice should be given the opportunity of obtaining part time hospital appointments on a reasonably paid basis This will encourage the younger members to take postgraduate qualifications with the prospect of increasing their incomes in the near future

Basic salary as it stands at the moment is no better than the means test £500 a year should be granted to all doctors (without any investigation) who have begun general practice and have less than 1,000 patients on their lists, with the proviso that each member has had two years of hospital work prior to entering in general practice This will prevent depletion of the junior or hospital staff

Come on the B.M.A. Take the matter up with the Minister and see that medical men get a square deal—I am etc,

SYDNEY J BELLGARD

SIR—I was interested to get a letter from Dr Charles Hill in the low hard had been and still is the work of those who represent the profession I think we all appreciate this and are grateful but the bird's-eye view he gives of the remuneration position seems very bleak and unsatisfactory I am surprised that the *Supplement* of Oct 30 includes a Capitation Fee letters only from Drs C N Cohen and J Hill (p 153) Although Dr Hill tells us that the question of the remuneration is still being considered,

a less complacent acceptance of things as they are might be advisable How are the country doctors going to live?

It is all right for Dr Hill to cite 18s or part thereof but we were led by Mr Bevan and the pundits of the B.M.A. to expect that the Spens Committee's recommended capitation fee, in terms of 1939 values would be paid Most people know what £1 won't buy to-day compared with 1939—I am etc,

Wolverhampton

W GOLDIE

### Civil Service Medical Officers

SIR—Further to my letter in the *Supplement* of Oct 9 (p 134) on representation of Civil Service medical officers and Mr Stanley Maynes reply (*Supplement* Nov 6, p 164) on behalf of the I.P.C.S., I am indeed grateful for the assurance that something is being done by this body to bring the salary scales of the Civil Service M.O.s into line with the Spens Report There are, however, other points besides salary which concern these medical officers and with which the I.P.C.S. cannot deal for personally I did not take up medicine for the money I could get out of it any more than I joined the Services for that reason Regrettably, though the financial aspect is becoming more important to us all for very obvious reasons

I referred more particularly to those points which concern the medical profession, alone—viz, ethics and the personal management of M.O.s in the Civil Service, a subject which is considered to be surely worth serious thought if one is able to judge by the day-to-day happenings of the particular branch of the Civil Service which employs me

Finally, the mechanism of complaint of a patient with a sense of injustice the much publicized machinery of the Ministry of Health's "Complaint Department" certainly does not apply to us of the Civil Service for directly a patient feels that he has not been given exactly the treatment he himself wants he approaches his M.P., who in turn speaks to the Minister of the department concerned and an investigation is started by the Minister, thus subjecting the M.O.s of the Civil Service to a form of political oppression which can hardly be regarded as conducive to good treatment or advice I do not feel that many will disagree with me on this point, but, if the I.P.C.S. can do anything about it, it would indeed be a step forward Personally, though, like "Another Civil Service M.O." (*Supplement*, Nov 6), I feel it is more a matter for the B.M.A.—I am, etc,

CIVIL SERVICE M.O.

### Independence of Government

SIR,—The concession wrested from the Minister of Health which overnight caused such a change of heart among our representatives that they recommended a further plebiscite and acceptance, can now be seen for the hollow and worthless thing it is Apart from the fact that it made no attempt to ensure a fair income for doctors, it was an arrangement whereby the logical claimants of the basic salary may be conceded their rights only if the recipients of larger incomes are willing to sacrifice a proportion of their earnings

Going one better than the British Medical Association and the Minister, the local executive councils on their own initiative introduce as a condition to qualify for the basic salary that the claimant's professional income *plus his income from other sources* must show a diminution Vichy and its satellites did not do better for Hitler Once we ourselves introduce the principle that our professional income may be reduced if we have any other source of income there will be no limit to what others will impose upon us Can anyone conceive this Government daring to apply this principle to the consideration of the minimum wage of dockers and mine-workers—as for example the income from the wife's charring, subletting of the back room sale of eggs etc?

We can never expect a Government to pay us adequately This one will not—the Prime Minister himself broadcast that we were now adequately paid—and no Government has paid well in the past This counting of heads is an evil method reacting badly on doctor and patients particularly in the largest panels, where either a doctor attempts the impossible and ruins his health or he preserves his sanity and health by insufficient attention to his patients



We can and we must achieve complete independence of the Government as in socialist France and New Zealand. The public will be our private patients and a necessitous section who will make a weekly contribution will be partially reimbursed by the Government for their doctors' fees. It is essential that the patient pays something to prevent unjustified cills on the doctor and mounting national drug bills. Those who sit back saying 'You can't put the clock back' etc. but nevertheless remain in a state of chronic irritation deserve to stew in their own juice. Those representatives who are suffering from such a rigidity of mind that they cannot conceive an alternative to the present system or are too defeatist to fight for one should give way to others more vigorous.

Within two years there will be a general election. We know that the Socialists are out to crush us as members of a privileged professional class while the Minister regards us with lifelong venom. If we wish for the support of the Opposition to reform the situation we must enlist it now by enlightenment and active approach. The Opposition has demonstrated its intention to unscramble the egg if the Steel Bill becomes law, and modifications such as those above mentioned can be made in the National Health Service. Not one of us has had a pennyworth of compensation yet nor knows what he will get. We have the ear of the public if we bestir ourselves, and the Opposition can and should be made to realize the value of our support—I am etc.

Bournemouth

A R THATCHER

### Superannuation

SIR—The paragraph (*Supplement* Oct 23 p 146) of Dr Charles Hill's letter dealing with superannuation brings cold comfort to any doctor over 55 years of age. It is quite clear that no doctor over that age can get 10 years contributions in before he is 65 so that none in this category can qualify for a pension. This is an aspect of the matter that should again receive the urgent consideration of the Association when the remuneration of doctors over the entire field covered by the Act comes under review, as it surely must in the near future.

The present Health Act is merely an extension of the old National Health Insurance Act, under which many had worked since 1912. A considerable number of patients came under these old Acts. These people are receiving precisely the same medical attention certificates etc., as under the new Act. Surely it is common justice that doctors should be allowed to count for superannuation purposes that proportion of these patients who have always been panel patients. In most practices this is rather more than half that of the entire practice, so that they should be allowed to count at least half, and probably more, of their years of service given to this class of patient towards a pension. This period, or whatever is considered to be an equitable one, should be added to any years of service given under the new Act. I hope all doctors over 55 years of age who are personally concerned with this matter will take it up with the Association and the Ministry with vigour—I am etc.

ROBERT ELLIS

Chairman Cambs Local Medical Committee

\* \* A doctor who is on an executive council list may apply at any time between the age of 60 and 65 for an extension of pensionable age up to but not beyond the age of 70. The extension allows a practitioner of 59 years of age on entry to put in the 10 years service required to qualify for a pension on retirement at or after age 69—ED B.M.J.

### The Winchester Memorandum

SIR—In connexion with the recent publication of the Winchester Division's Memorandum on the Reorganization of the B.M.A. it will be of interest to other Divisions to know that two representatives from this Division have been asked to attend the Organization Committee's meeting on Dec 21.

Although we in this Division know that our Memorandum has been discussed at a recent meeting of the Organization Committee, and that it is on the agenda for the meeting of Council on Oct 27, we have been disturbed to note that to date no indication whatever has been given to our colleagues that the Memorandum has even been noticed by Council. Since one of the points we make is that much goes on behind

the scenes' of which the profession as a whole is kept in ignorance we should like to make use of your column to request that publication should be given to each stage of Council's consideration of this Memorandum containing as it does matters vitally important to all members of the profession and being as it has proved to be a subject of great interest to Divisions—I am, etc.

RONALD GIBSON  
Hon. Secretary Winchester Division

\* \* The Memorandum was referred to in the report of the Proceedings of Council (Nov 5 p 157)—ED B.M.J.

### Delayed Payment

SIR—May I add another two protests to the growing number that appear in your columns weekly *re* the finance of the National Health Service? My first protest is about the compulsory loan to the Government that is levied on every doctor under the present quarterly method of payment. Let us assume for simplicity of calculation that Dr Jones receives £300 per quarter from his executive council. This represents £100 per month for work completed. Thus at present he lends the following sums to the Government: £100 for two months and £100 for one month. Take the interest on these amounts at 2½% per annum, and we find he has lost £133 × 2½% = 3½ plus 2½ = 6 per quarter = 2½ per annum = £2 10s. Multiply this figure according to the multiples of £300 per quarter received by all practitioners taking part, and one finds that the medical profession is lending the Government some figure between £30,000 and £60,000 per annum free of interest.

Even the War Office managed to pay monthly after deduction of income tax and credit of all sorts of special allowances. In addition, one could always draw a certain proportion of one's pay when required. I can see no reason for this time lag in payment being perpetuated and consider that the medical profession should press for prompt payment for work done.

My second protest is on similar lines. Like several thousand other practitioners I have done some midwifery since July 5. I have sent in claims two months ago and am now calmly informed by my executive council that 'these claims are acknowledged and payment will be made in due course'. If I treated my butcher in the same way I should go very hungry next week end.

In the old days of private practice I adjusted my fees to cover a certain delay in payment. If for so called 'difficulties of administration' it is stated to be impossible to pay promptly which view I do not support, let us at least receive interest to compensate for these delays—I am etc.,

Harrow, Middlesex

J F S STEPHENS

### Justification for Basic Salary

SIR—It is very discouraging at the beginning of the Health Service to find a great change of attitude occurring within a few months. Originally the basic salary was to be for every one, the B.M.A. opposed this on the grounds that it was making doctors Civil Servants. Following negotiations the Minister granted a concession to the profession that if a doctor wished he need not accept the £300 basic salary, and he so arranged the remuneration that those with more than 2,200 on their list were better off without it. Most of the profession were quite satisfied with this decision—the B.M.A. had won their point. Most doctors with less than 2,200 on their list applied for the basic salary, and were regarding their application as being quite just. If the basic salary is granted to an applicant the doctors in the 2,200 plus class are slightly less well off than if the basic salary is refused to as many as possible. 80% of the applicants in my particular county were refused, and judging from the Press reports similar decisions were taken by executive councils throughout the country.

At present the directions published through this *Journal* seem to conflict with its quotations of the Minister's interpretation of the Act. He states that consent *ought* to be given where there is reasonable justification which he follows by five examples, the only regulation that exists is that if a person after two years has less than the minimum number of patients on his list he is not entitled to the £300 basic salary, but even then he may receive some basic salary being less than £300 in amount. There is no mention of having to prove extreme hardship in the Minister's interpretation.

The amount of money a person gains by being given the £300 salary may amount to 20% of his income, and the amount a person above 2 200 loses by his colleagues' getting the £300 is unlikely to exceed 5% of his income. Therefore the person that stands to lose most is the person in the lower-income group. This is very unjust, and a great split in the profession is bound to arise from the present confusion.

The B.M.A. has made a great stand for the freedom of the profession. In future it is likely that another great stand will have to be made for an adequate remuneration for its members. I therefore feel that it is important that the rent caused in our ranks should be closed so that once more we are united. The only way this can be done is for the Minister to be more explicit on the way basic salary should be distributed. Are the poor going to receive from the rich or the rich from the poor?—I am, etc

Llangefni, Anglesey

J. H. HUGHES

## POINTS FROM LETTERS

### Ludicrous Situation

Dr JOHN V. MAINPRISE (Holcombe Rogus, Somerset) writes: The new Health Service has been in force now for four months, and one can now begin to see the shape of things to come. As a profession we have shown a most unfortunate lack of political and business instinct, our vital "principles" have been thrown away and no policy seems to have taken their place. On all hands we are asking, *Quo vadis?* As the Act is now a *fait accompli* and is in full operation it is useless to bemoan our lost opportunities. We now face the ludicrous situation that we have been working a service for months and have not yet been told what pay we shall finally have, let alone the amount of compensation for our practices that we shall receive. The plain truth is that the astute politicians have put one over us.

Doctors in congested industrial districts will find a perfectly adequate income, but under what conditions? I have just returned from a holiday in the North and find evidence of grave unrest among my colleagues. They dread the winter and fear that many of the older men will not survive the strain. This is no far-fetched idea. It is obvious that many doctors will either give a rushed inefficient service or else will collapse under the strain. The public are already showing a marked alacrity to avail themselves of the facilities offered, and surgeries are now far busier than ever before the Act. The rural doctors are in a much worse plight, as their very standard of living is threatened. Practices in scattered areas that previously produced a reasonable income are now producing a net income, after deducting expenses, that would not thrill a good bricklayer. While there is yet time I would appeal to the Minister to remove from us all the strain of financial worries and give an adequate capitation fee with limitation of lists so that the quality of our work may be kept up. Locums should be provided for holidays, and country partnerships should be allowed mileage reckoned on the distance of the patients from the doctor of their choice, not from the nearest partner.

### Immediate Cash Advance

Dr J. L. McCALLUM (London, W.C.1) writes: The purpose of the Association and its officers at the moment is to secure the best conditions of service for those of its members who have been foolish enough to entrust themselves to the tender mercies of the Minister of Health and his satellites without adequate legal safeguards. It is no good telling a general practitioner with a list of 2 000 patients to carry on his business and provide adequate medical care for these patients for six months to a year on capital which he may or may not possess (but which would have to be in the region of £600-£1,000 to cover all his running expenses) on the promise of getting his year's income already reduced, by next July. Most of us having left the Services and being heavily committed with repayment of loans, rent, families, equipment, etc., have no capital with which to support ourselves till our new masters care to pay us. The position is desperate and neither the B.M.A. nor the Ministry has foreseen the contingency. The Secretary of the B.M.A. has sent a circular letter to the profession in which he counsels patience and seemingly supports the Ministry. May we ask, Sir, what we are to be patient on? The bank? We must have an immediate advance, cash down, equal in value at the least to the basic salary. Adjustments can be made later at Government expense, not ours. Previous to July 5, 1948, we could manage during the difficult early days because a large portion of the money in any practice was either paid in cash at the time or in easily collected amounts. If we were now being paid by piece rates we should all be earning double owing to the increased number of attendances but as things stand we are worse off in every direction, and we shall never get clear if we are to continue to be paid advances on account three months in arrears.

## H.M. Forces Appointments

### REGULAR ARMY EMERGENCY COMMISSIONS

#### ROYAL ARMY MEDICAL CORPS

War Substantive Major A. R. Madden has relinquished his commission and has been granted the honorary rank of Lieutenant Colonel.

War Substantive Captain E. T. Anderton has relinquished his commission and has been granted the honorary rank of Major.

War Substantive Captain N. V. Sapier has relinquished his commission on account of disability and has been granted the honorary rank of Captain.

Lieutenants P. Baer, G. B. Brown, C. F. Bunting, W. W. Campbell, A. A. Chazan, G. G. Dodge, K. C. Grigor, J. Guthrie, H. G. Hanley, L. A. Humphrey, H. G. Mather, J. McCreadie, C. Nolan, A. E. Preston, D. R. V. Prys Jones, R. Randall, B. O. Scott, K. S. Shaw, B. Steinberg, A. B. Watson, J. C. Walker, T. G. E. White and E. Woolf to be Captains.

### WOMEN'S FORCES

#### EMPLOYED WITH THE R.A.M.C.

War Substantive Captain C. L. Hess has relinquished her commission and has been granted the honorary rank of Captain.

## Association Notices

### NATHANIEL BISHOP HARMAN PRIZE

The Council of the British Medical Association is prepared to consider the award of the Nathaniel Bishop Harman Prize in the year 1949. The value of the prize is approximately £100. The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has been previously published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1949 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

The writer of the prize-winning essay may be required to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association. Each essay must be typewritten or printed in the English language, and must be distinguished by a title and a motto. The essay must not bear the name of the writer, which should be sent with the essay in a sealed envelope bearing only the motto on the outside.

Essays must be forwarded to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, not later than March 31, 1949. The title of the proposed essay and the motto should also be notified in writing to the Secretary by Dec. 1, 1948, and should not be accompanied by the writer's name. The prize will be awarded at the Annual Meeting of the Association to be held in 1949. Inquiries relative to the prize should be addressed to the Secretary.

### SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for research scholarships as follows: An Ernest Hart Memorial Scholarship of the value of £200 per annum, a Walter Dixon Scholarship of the value of £200 per annum, and four Research Scholarships each of the value of £150 per annum. These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given other things being equal, to members of the medical profession.

Each scholarship is tenable for one year starting on Oct. 1, 1949. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole

of his or her time to the work of research but may hold an appointment at a university medical school, or hospital, provided the duties of such an appointment do not interfere with his or her work as a scholar.

In addition applications are invited for the award of the Insole Scholarship of the value of £250 for research into the causes and cure of venereal disease.

Applications for scholarships must be made not later than March 31, 1949, on the prescribed form a copy of which will be supplied on application to the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants will be required to furnish the names of three referees who are competent to speak of their capacity for the research contemplated.

### PRIZES FOR MEDICAL STUDENTS

The Council of the British Medical Association is prepared to consider the award in 1949 of prizes to medical students for essays submitted in open competition. The subject of the essays for 1949 shall be "The Value of Observation in the Training of the Medical Student." The purpose of these prizes is the promotion of systematic observation among medical students. In awarding the prizes *due regard will be given to evidence of personal observation*. No study or essay that has previously been published in the medical press or elsewhere will be considered eligible for a prize.

The following prizes are offered

**National Prizes**—six, each of the value of £25.

**Regional Prizes**—as detailed below, based on the four Regions of the British Medical Students Association

London Region, 6 prizes (1 of the value of £15, 5 of the value of £7)

Midland Region, 3 prizes (1 of the value of £15, 2 of the value of £7)

Northern Region, 3 prizes (1 of the value of £15, 2 of the value of £7)

Scottish Region, 5 prizes (1 of the value of £15, 4 of the value of £7)

Any medical student who is a registered member of a medical school in Great Britain or Northern Ireland at the time of submission of the essay is eligible to compete for the prizes. The winners of the National Prizes will be ineligible for the award of a Regional Prize. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay, the decision of the Council shall be final. Should the Council of the Association decide that no essay entered is of sufficient merit, no awards shall be made.

Each essay must be typewritten or written legibly in the English language, and must be unsigned and accompanied by a detachable sheet giving the name of the candidate, his medical school, and his B.M.S.A. Region. Essays must be forwarded so as to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, not later than March 31, 1949.

### PRIZES FOR NURSES

The Council of the British Medical Association is prepared to consider the award in 1949 of three prizes each of the value of 20 guineas for the best essay and three prizes each of the value of 10 guineas for the second best essay submitted in open competition by each of the following categories of nurses: (i) Pupil nurses; (ii) State registered nurses working in a hospital; (iii) State registered nurses not working in a hospital—i.e., district nurses, private nurses, etc.

The subjects of the essays for 1949 shall be: category (i), "What discipline do you think necessary in the training of nurses?"; category (ii), "What part of nursing duties can be delegated to others with safety?"; category (iii), "The care of old people in their own homes."

The purpose of these prizes is the promotion of systematic observation among nurses. In awarding the prizes *due regard will be given to evidence of personal observation*. No essay that has previously appeared in the medical press or elsewhere will be considered eligible for a prize. Nurses who are undergoing training at a hospital are eligible to compete under category (i), nurses registered by the General Nursing Council are eligible to compete under categories (ii) and (iii). If any question arises in reference to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. Should the Council decide that no essay entered is of sufficient merit, no award shall be made. Each essay must be typewritten or legibly written must be unsigned and must have attached to it a sealed envelope containing the name and address of the candidate and the category into which he or she falls. Essays must reach the Secretary of the British Medical Association not later than March 31, 1949. Inquiries about the prize should be addressed to the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1.

## NOTICE TO SHIP SURGEONS

### BRITISH MEDICAL ASSOCIATION SHIP SURGEONS SUBCOMMITTEE

The General Practice Committee of the British Medical Association has reappointed for the current session a subcommittee to consider matters affecting the interests of ship surgeons.

The Subcommittee will hold its first meeting of the session at B.M.A. House, Tavistock Square, W.C.1, on Tuesday Nov. 23 at 11 a.m., and any doctors in active practice as ship surgeons who find it convenient to attend are invited to do so if possible giving notice by letter or telephone of their intention to come.

CHARLES HILL  
Secretary

### A PROPOSED SUTTON COLDFIELD DIVISION

Notice is hereby given by the Council of a proposal to form a Sutton Coldfield Division of the Birmingham Branch, the area of the new Division to comprise the Municipal Borough of Sutton Coldfield.

Any member affected by this proposal and objecting thereto should write to the Secretary of the Association not later than Dec. 18, 1948.

CHARLES HILL  
Secretary

### Diary of Central Meetings

DECEMBER

3 Fri Publishing Subcommittee 11 a.m.

### Branch and Division Meetings to be Held

**DARTFORD DIVISION**—At West Hill Hospital, Dartford, Thursday Nov. 25, 8.45 p.m. Programme: Film on Post partum Haemorrhage, followed by lecture and discussion. Lecturer: Mr. Keith Vartan.

**EAST HERTS DIVISION**—At County Hospital, Hertford, Thursday Nov. 25, 9 p.m. Address by Mr. O. S. Tubbs "The Advances in Thoracic Surgery During the Last Decade."

**LEWISHAM DIVISION**—At Lewisham Hospital, 390, High Street, London, S.E., Sunday, Nov. 21, 10.30 a.m. Clinical meeting.

**OXFORD DIVISION**—At Radcliffe Infirmary, Oxford, Wednesday, Nov. 24, Annual general meeting. Election of Officers 1948-9 etc.

**SALISBURY DIVISION**—At Cathedral Hotel, Salisbury, Wednesday, Nov. 24, 8 p.m. Discussion "Treatment of Peptic Ulcers with Special Reference to Haematemesis." To be opened by Dr. R. G. M. Longridge.

**SUNDERLAND DIVISION**—At Sunderland Royal Infirmary, Thursday, Nov. 25, 3 p.m. Annual address by Mr. A. Dickson Wright (London) "Surgery of the Blood Vessels." 7.30 p.m. Annual dinner.

**WEST MIDDLESEX DIVISION**—At Town Hall, Ealing, Friday, Nov. 26, 9 p.m. Frank Stephan, Ph.D. "Atomic Energy."

**WINCHESTER DIVISION**—At Royal Hants County Hospital, Winchester, Saturday, Nov. 20, 2.30 p.m. Agenda: Consideration of Resolutions from Huddersfield and West Sussex Divisions; Capitation Fee; Consideration of Winchester Memorandum etc.

### Meetings of Branches and Divisions

#### PRESTON DIVISION

The annual B.M.A. lecture was delivered at Preston Royal Infirmary on Nov. 9 by Professor R. McWhirter. The chair was occupied by Dr. A. R. Grant, chairman of the Division and the was a large and appreciative audience. The subject was "Some Observations on the Spread of Malignant Disease" and Professor McWhirter discussed the modes of spread of all the principal types of malignant disease. One interesting observation was the increase in incidence of early metastases where movement or handling of the primary growth occurred. This has been shown experimentally in mice and a parallel was drawn between incidence of malignancy in the hard and soft palate. His lecture was illustrated by many excellent slides. A number of questions were asked and in replying Professor McWhirter dealt with other aspects of his subject. A vote of thanks, moved by Dr. A. Gibb, was seconded by Dr. A. E. Rayner, former radiologist to the Preston Royal Infirmary, was passed with acclamation.

#### TUNBRIDGE WELLS DIVISION

A B.M.A. Week end Refresher Course was held at Tunbridge Wells on Oct. 23-24 when the following lectures were given: Mr. J. Yates Bell, "The General Practitioner and the Kidney Tract"; I. R. D. Lawrence, "Diabetes"; Sir Herbert Eason, "What the Doctor Should Not Do"; Dr. Waller, "Modern Approach to Breast Feeding"; Mr. A. Dickson Wright, "Varicose Veins and their Treatment"; Sir Robert Young, "The Chest"; Sir Harry Sanders, "The After effects of Tropical Diseases."

## "TOWARDS A LOWER PAEDIATRIC MORTALITY"

BY

WILFRID GAISFORD, MD, FRCP

*Professor of Child Health University of Manchester*

Although much progress has been made in paediatrics in the past thirty years a great deal yet remains to be done. Repeated reference has been made to the divergence of the curves showing the fall in infant and neonatal mortality rates respectively. There is no doubt about the improvement in the infant mortality rate—a drop from 105 per 1,000 in 1910 to 45.5 per 1,000 in 1944 is certainly significant. Yet for neonates (i.e., in the first month of life) the lag is pronounced—from 38 in 1910 only to 24.5 in 1944. This is partly to be explained by the number of congenital abnormalities which cannot at present be prevented, but also by a big loss of premature infants which could be reduced by stricter attention to antenatal diet and by better immediate post-natal care.

In childhood generally improvement has been steady. Increased interest in paediatrics and especially in prophylactic paediatrics, better nursing care, more health education, smaller families, priorities in food and milk, and the Government issue of free vitamins have all helped. In addition certain specific factors have also helped—for example, the chemotherapeutic drugs and antibiotics, intensive immunization campaigns, and a natural decrease in virulence in certain organisms, notably the scarlet fever streptococcus. Extensions of the immunization programmes may still further improve matters in the future.

Methods of lowering the mortality rate during infancy and childhood may be considered from three aspects—antenatal, neonatal, and post-natal.

### Antenatal Paediatrics

The term antenatal paediatrics was introduced by Sir Leonard Parsons in his Blair Bell Lecture to the Royal College of Obstetricians and Gynaecologists in 1945. This lecture provided an immense stimulus to paediatricians throughout the country.

The significance of virus infections in early pregnancy and their relationship to congenital malformations seem now definitely confirmed. The work on the rhesus factor is another example of modern research. From the region supplied by the North-Western Blood Transfusion Service there are approximately 150 Rh-negative pregnant women (with anomalous agglutinins in the serum) every year, and it is hoped to devote a ward specially to the immediate post-natal care of the infants born of these women. The problem may, however, be tackled antenatally—assuming a routine testing to be, as it should, universal. Every female should be tested early in life and careful note taken of those found to be Rh-negative—lest a blood transfusion

should ever be necessary and sensitization result from the use of Rh-positive blood, with consequent danger of producing an affected infant from pregnancy in later life. Diamond has shown that such infants are the most severely affected.

Two possible methods of attack have been suggested, both in the experimental stage at present: (1) chemical prevention of the antigen-antibody reaction, and (2) immunological inhibition of antibody formation. T.A.B. injections have been employed for the latter—without success so far; neutralization of maternal antibody has been attempted by Kariher and Miller (1947) using ethylene disulphonate, giving weekly injections during the last half of pregnancy, with suggestively satisfactory results in their first few cases.

There is no doubt that research on these prophylactic lines offers more hope than the present methods of treating the infants after birth, even with replacement transfusions, for nothing can be more disheartening than hours of work spent in transfusing a yellow baby only to find subsequently that a kernicterus already present but unsuspected at birth results ultimately in a mentally defective child. Nevertheless improvement in the prognosis generally has undoubtedly occurred following adequate treatment. The mortality was formerly something over 50%, since the introduction of Rh-negative blood transfusion it has dropped to something like 30%, and with improvements in the technique of replacement transfusions immediately after birth it may be expected to show a further fall.

### The Neonatal Period

Prematurity is still one of the major causes of neonatal death, and, although the cause of prematurity is still undiscovered in something like 50% of cases, it is known that diet is a matter of outstanding importance in preventing it. Antonov (1947) found that 50% of the births in Leningrad during the siege in 1941 were premature, and that the mothers produced less breast milk and that it lasted for a shorter time. He also noted that mastitis neonatorum—the swelling of the breasts in the newborn that is so common and usually betokens a plentiful milk supply—occurred in only 2% of the infants.

The Australian discovery, reported by Gregg in 1941, of the relationship of German measles in early pregnancy to congenital abnormalities has opened up a large field of inquiry into a hitherto completely obscure subject. The possibility that other infections than rubella—e.g., mumps, influenza, and herpes—may be aetiological is probable, and other deformities than malformation of the heart and eyes may subsequently prove to be related to such infections. If

\*Abridged from a lecture given to the Halifax Division of the British Medical Association on March 24, 1948.

allowance be made for the incubation period and for the time taken by the virus to penetrate the placental barrier the actual maternal infection may be placed earlier than the fifth week.

The logical sequel to this knowledge is, of course, that every precaution should be taken to prevent such infections in pregnancy, either by ensuring that they have already taken place earlier in life—e.g., by deliberate exposure in childhood, due care being taken that the child's general condition is satisfactory—or by the rigorous avoidance of exposure during the first three months of pregnancy, or by the administration of gamma globulin if exposure has occurred at this time. Unfortunately the efficacy of gamma globulin in preventing rubella is by no means certain.

### The Post-natal Period

It has been generally accepted that newborn infants and infants under three months of age are poor antibody producers and that there is no great point, therefore, in attempts at early active immunization. Recent work by Sako *et al* (1945) has cast doubts on the truth of the accepted findings, and early immunization may prove to be effective to some extent at any rate. For example, Waddell and L Engle (1946) immunized 129 infants with pertussis vaccine at one week, one month, and two months after birth, and 70% showed an adequate response. Controls showed no carry-over from the mother.

The site of antibody formation is still a matter of dispute, but if, as Harris and his co-workers (1945) hold, one of the chief sites is the lymphocyte then there is no reason why newborn infants should not produce antibodies, as they normally have 66% of their total white cells in the form of lymphocytes after the first week of life, and gamma globulin is one of the constituents of the lymphocyte. Nevertheless, such immunity takes time to develop. For example, whooping-cough immunity certainly requires two months. Whooping-cough is not common in the first few months of life, yet when it does occur it is fatal in a large percentage of cases (686 infants under a year old died from whooping-cough in 1944 in England and Wales). Diphtheria is also a fatal illness in infants but it is much rarer.

The idea of immunizing the mother during the later months of pregnancy so that the immunity may be carried over to the infant to last him until such time as active immunization may be capable of carrying on the immunity is well worth considering. It has already been done on a small scale in America by Cohen and Scadron (1943) and was found to be harmless to the mother and child and to result in a reasonable titre in the infant's blood in the first months of life. Similarly, immunization of Schick-positive pregnant women might be a worthwhile procedure. Schick-negative women produce Schick-negative infants, who would not need immunizing immediately.

Cohen (1947) has drawn attention to the altered immunity in adult populations as a result of mass inoculations. 85% of adults were immune to diphtheria in 1920—only 50% are now, owing to the loss of artificially acquired immunity from the lessened chances of exposure. This affects the newborn also, who in 50% of cases may thus get no carry-over from the mother. Similarly, a high proportion of adults are not immune to whooping-cough and therefore their babies are susceptible.

Close collaboration between obstetricians and paediatricians is the first requisite in reducing neonatal mortality. We all realize that not every infant can be born at full term, and one of the most important problems is how to deal with premature infants.

### Nursing

The most important factor in saving the lives of the infants is nursing. A good gamp in a humble cottage is better than a poor nurse in the most up-to-date prematorium. As is well known, most premature infants who die do so in the first 48 hours, and very often death occurs shortly after a feed. There is a tendency to atelectasis, the swallowing reflex is poorly developed and feeds are easily regurgitated and inhaled. Clement Smith of Boston, gives no fluids at all to premature infants for two to four days after birth. By that time they have got over the shock of birth, their lungs are expanding, and their swallowing reflex is less immature. I have tried this technique for the past six months and the results have been most satisfactory. It is little short of amazing to find that a 2½-lb (1.13 kg) baby will go for between 70 and 80 hours without fluids of any sort and yet do very well. Weight loss is not excessive. Feeding, when it is started, is a less precarious procedure, and subsequent progress is most satisfactory. Oedema is lost more quickly. The infants are kept warm, given oxygen, and left completely alone except for changing until they indicate by their cry that they are hungry, this crying also expands their lungs. Jaffe (1948) has reported on the progress of infants so treated in the premature station at St Mary's Hospital.

The question of the advisability of giving vitamin K in all cases, either to the mothers just before labour commences or to the infants at birth, is still debated. Some give it as a routine, others only in cases of difficult delivery where cerebral haemorrhage may be expected, while others reserve it solely for infants who have already bled (i.e., cases of melaena neonatorum). As it is perfectly harmless and it is difficult to judge in any given case whether there will be a hypoprothrombinaemia of pathological intensity or not, it should always be given. Another reason is the possibility of preventing a subdural haematoma from slowly accumulating—giving rise to convulsions later and involving, if diagnosed, surgical evacuation of the clot. Such haematomata are often found at necropsy, and have undoubtedly been the cause of death.

Kerpel-Fronius (1948) has suggested that vitamin P should be given as well, that there are two factors concerned with the diathesis—one the hypoprothrombin aemia and the other an increased capillary fragility—both resulting from vitamin deficiency in the mother's diet. The seasonal incidence has of course been known for a long time, which adds some weight to this theory.

Another frequent cause of death is infection. This too is often unrecognized, being rapid both in onset and in spread, and terminating fatally perhaps within 24 hours. Because of the frequency of *Bact coli* and other Gram-negative organisms—some not generally pathogenic in later life—streptomycin may well come to be the drug of choice in treating such cases. Short intensive treatment is all that is needed, so there should be no question of drug fastness as in the treatment of tuberculosis.

As the tendency is for more and more women to go into hospital to have their babies the question of nurseries in maternity wards is an interesting and still undecided problem. The advantages of having mother and infant together are obvious, yet comparatively few hospitals make such arrangements. I have made a point of asking mothers in the maternity wards I have visited whether they would like their babies in a cot within reachable distance all the time or whether they would prefer them in a nursery and just brought in for feeds. Their replies have been fairly consistent: the primiparae would like their infants with them, the multiparae prefer a nursery. This is just what is wanted really—the primipara to be taught how to feed and change

and wash her infant, and instructed in the various difficulties to be overcome in breast-feeding, and the multipara to have a well earned rest. In other words, our new maternity hospitals might well provide special wards for primiparae, each bed having a cot attached, with only a small nursery for the occasional use of a fractious infant who would need to be put out for a night or two, and wards for multiparae as at present, associated with a regular nursery for all their infants.

There is a great need for accommodation for infants born of tuberculous mothers so that they may be removed from "open" contact. The provision of tuberculosis-free foster-homes is the ideal solution: there is less risk of cross-infection than in an institution for babies. Even when BCG vaccination is undertaken on a large scale such accommodation will still be necessary, though for a shorter period of time.

The infant of a diabetic mother may have an urgent need of glucose immediately after birth, and preparations should be on hand to meet this need. Although newborn infants are comparatively insusceptible to hypoglycaemia (blood-sugar levels of 50 mg per 100 ml are common in normal infants) the hypertrophy of the islets brought about by the foetal hyperglycaemia may occasionally cause severe symptoms. The very sudden drop in blood sugar which these infants may undergo may easily result in death from hypoglycaemia, yet they may all be saved by prompt treatment. As the infants who manifest these changes are usually large—indeed, over large—the glucose can be given quite adequately by mouth, but if necessary gavage should be used, either intermittently or by continuous drip through a catheter passed into and left in the stomach, or in extreme urgency intravenous injection may be necessary. An essential prophylactic measure is the careful control of the mother's blood sugar during pregnancy.

After the neonatal period the reduction in mortality becomes more and more a preventive programme, the stress being on child health rather than on curative paediatrics. For, though research into curative methods—especially new chemotherapeutic agents and antibiotics—goes on, a distressingly large number of infant and child deaths are due to preventable conditions.

### Preventable Diseases

As Davison (1934) has pointed out, of the 100 important diseases which may attack a child 37 are preventable, and these 37 cause more than half the deaths in childhood.

Active immunization has been responsible for a considerable reduction in the death rate in childhood, especially from diphtheria. Every child should have adequate immunization against diphtheria, smallpox, and whooping-cough, and, if he lives in the country, typhoid and tetanus as well. Furthermore, boosting doses should be given at intervals: the rise in antibody titre is both prompt and high after even minute doses—e.g., 0.1 ml given intradermally. The fact that two or three antigens may be combined with advantage is helpful and reduces the total number of injections necessary: diphtheria and pertussis go well together, so do typhoid and tetanus. When gamma globulin becomes generally available we may have another potent agent against infection.

Deaths from tuberculosis in infancy are still far too numerous. They may be prevented by (a) prevention of exposure as, for example, by the use of foster-homes for infants born into homes where there is "open" tuberculosis; (b) by setting up "preventoria" where children entering from primary infection may be watched till the first three months after their primary infection, which are vital prognostically, have been successfully passed,

(c) by BCG or Wells's vole-bacillus vaccination, or (d) by not allowing milk that can possibly contain tubercle bacilli to be given to any infant or young child—a point of practical importance which could and should be tackled immediately.

The percentage of cases of tuberculous meningitis which is bovine in origin doubtless varies geographically, but it is by no means negligible—and all could and should be prevented. The Animals' Bill is a big step forward. The Minister of Agriculture reported (*BMJ*, 1948, 1, 371) that even to-day nearly seven-eighths of the cattle population in Great Britain were not attested and that it would take from ten to fifteen years to clear the country of bovine tuberculosis. Till then compulsory adequate pasteurization would help enormously with our problem.

Rickets was a disease which indirectly caused many deaths every year. The fact that a case of florid rickets is now hard to find is a triumph of preventive paediatrics largely due to public-health work and education. The full value of this improvement will not be appreciated till the next generation of infants is born—of women without rachitic pelvises.

### Advances in Surgery

The amazing advances in cardiac and thoracic surgery provide a contrast: here curative treatment has indeed advanced by leaps and bounds. The names of Blalock and Ladd and Gross have added lustre to the list of brilliant pioneer surgeons. No recovery from oesophageal atresia or tracheo-oesophageal fistula had ever occurred before 1939, now there are several such reported. Swenson (1948) has recorded 57 survivals out of 113 operations. The mortality in congenital diaphragmatic hernia has dropped by 60% in the last fifteen years, and the prognosis in certain types of congenital heart disease and in bronchiectasis has been materially improved. As Ladd (1948) says, the treatment of congenital anomalies may be expected to advance even more rapidly during the next few decades.

Appendicitis—or, rather, peritonitis resulting from delayed diagnosis of acute appendicitis—is still responsible for a formidable number of deaths every year. It occurs at all ages, and unfortunately with the most equivocal signs and symptoms in the youngest infants, when the diagnosis indeed is often not considered. The differential diagnosis of the acute abdomen is a matter calling for clinical acumen of the highest degree, but I am quite sure that in any case of doubt the correct thing is to play for safety by doing a laparotomy.

And what can one say about deaths from road accidents? Though hardly a paediatric problem, it certainly has repercussions that sadden paediatricians as much as everyone else. In 1945, 1,540 school-children were killed in accidents in England and Wales—651 of them on the road. It is a depressing thought, and one that should come home to doctors who are allowed adequate petrol to keep their cars on the road, that one of the advantages of the abolition of the basic petrol ration has been a lowering of the death rate among children from motor accidents.

### Conclusion

Research is constantly proceeding all over the world: in the wards of hospitals, in laboratories, and in the field, workers of all sorts are engaged on curative and prophylactic problems alike, and many of their puzzles will be solved in due course—doubtless to be replaced by others again in their turn to be solved. As soon as we get an effective bactericidal agent up crops the resistant strain; as soon as we immunize infants we get a susceptible adult population; as soon as we find the cause of a group of diseases and their specific treatment a new organism



pp. r—g the virus, still awaiting a virucide Nature evidently abhors not only a vacuum but stasis also. In paediatrics particularly is it necessary to avoid stasis, for example, the static infant soon becomes marantic and the marantic infant dies. That is what we have to prevent. There should be no such thing as marantic infants needing cure—they should be so cared for that the causes are prevented. Prophylactic and curative paediatrics must advance together hand in hand if real child health is to be achieved.

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## TEMPERATURE RECORDING IN SICK CHILDREN

BY

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The temperature curve of a sick child is regarded as an essential observation in estimating, for example, the presence or persistence of infection, and a rise above normal in healthy children may be the earliest sign of an infectious malady such as measles or poliomyelitis. This being so, the means of estimating the temperature is obviously of great importance and the definition of "normal" requires careful consideration. Several curious and anomalous temperature curves prompted the small inquiry reported here, which, although it possibly raises more problems than it solves, may serve to stimulate others to larger surveys.

The standard methods of temperature-taking in children in Great Britain involve placing the thermometer in the mouth, the rectum, the axilla, or the groin. It does not seem to be sufficiently realized that considerable differences in the temperature recorded in these four situations may be encountered, and the readings are by no means comparable. For example, in a letter following an article by Green and Penfold (1947) on clinical thermometers as a possible source of cross-infection in hospital, Albury (1947) concludes that the best plan would be to take temperatures in the axilla rather than in the mouth, as if readings in these two situations were the same. Fig. 1 from the series to be here reported shows a definite pyrexia for mouth readings which would have largely been missed over a period of ten days if the axillary temperature had been accepted against the usual "normal" as shown on a standard temperature chart. Fig. 2 shows a comparison between rectal and axillary readings which equally in the earlier part, demonstrates a pyrexia by rectal readings which the axillary readings fail to record.

#### Present Investigation

The investigation consisted of observations on 32 children taken at random in a general medical ward unit. The readings were taken at 6 a.m. and 6 p.m. over a period of six

consecutive days giving twelve readings in each child from which the differences were calculated. A standard 'half-minute' thermometer was used and, unless otherwise stated, was left in the chosen site for three minutes before the

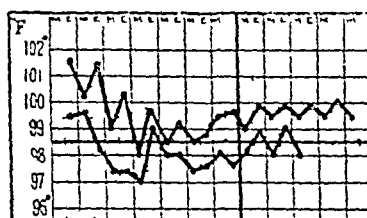


Fig. 1—Chart of child aged 9 years, in bed with purpura. Upper line=mouth temperature, lower line=axillary temperature.

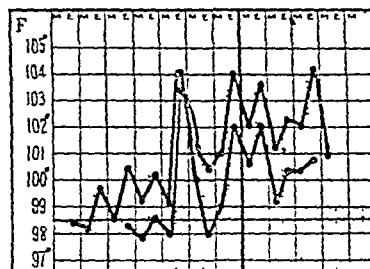


Fig. 2—Chart of child aged 15 months in bed with anaemia. Upper line=rectal temperature, lower line=axillary temperature.

temperature was recorded. When two sites are mentioned two thermometers were used simultaneously. The following results were obtained (all figures are the mean of twelve readings).

- A. Comparison of groin and rectum  
1 Age 1 month rectal reading 1.05° F (0.58° C) higher than groin  
2 2 months 0.92° F (0.51° C)  
3 2 years 1.16° F (0.64° C)  
4 2 1.18° F (0.655° C)
- B. Comparison of groin and mouth  
1 Age 9 years mouth reading 0.78° F (0.43° C) higher than groin  
2 7 0.3° F (0.166° C)
- C. Comparison of groin and axilla  
1 Age 4 years groin reading 0.4° F (0.22° C) higher than axilla  
2 9 0.7° F (0.39° C)  
3 4 months 0.4° F (0.22° C)  
4 14 axilla 0.16° F (0.089° C) groin
- D. Comparison of mouth and rectum  
1 Age 10 years rectal reading 0.16° F (0.089° C) higher than mouth  
2 10 0.35° F (0.194° C)  
3 5 0.15° F (0.083° C)  
4 5 0° F (0.166° C)
- E. Comparison of mouth and axilla  
1 Age 8 years mouth reading 1.38° F (0.766° C) higher than axilla  
2 9 0.88° F (0.49° C)  
3 5 0.9° F (0.5° C)
- Comparison of rectum and axilla  
1 Age 9 months rectal reading 1.08° F (0.6° C) higher than axilla  
2 15 1.6° F (0.9° C)  
3 4 years 1° F (0.61° C)
- Case 1 was running a high swinging temperature whereas in Cases 2 and 3 the temperatures were between 97° and 100° F.

In the next two groups the temperatures were recorded (with "half-minute" thermometers) after two minutes and after five minutes.

- G. Axilla  
1 Age 6 weeks 5 min. reading 0.75° F (0.42° C) higher than 2 min. reading  
2 9 years 0.96° F (0.53° C)  
3 5 0.9° F (0.5° C)  
4 6 0.45° F (0.25° C)  
5 10 0.4° F (0.22° C)
- H. Groin  
1 Age 2 months 5 min. reading 0.85° F (0.47° C) higher than 2 min. reading  
2 2 years 1.4° F (0.78° C)  
3 6 0.4° F (0.22° C)  
4 4 0.6° F (0.33° C)  
5 1 week 0.5° F (0.267° C)
- Case 2 in this series was that of an abnormally obese child.

Certain other observations were made which serve to confirm what others have recorded, and it would be tedious to give details. For example, the child who is in bed shows a closer correlation between readings in groin and axilla than the child who is up and about the ward. The notorious

'normal' temperature recorded in the out-patient department (usually axillary recording) which became 'febrile' when the child was warmed up in bed was seen so often as to be regarded as a routine phenomenon—dangerous as it may be

Too much must not be deduced from the small number of children observed, but from nearly four hundred recorded temperatures it is justifiable to conclude (1) that the highest temperature recorded is in the rectum, which is approximately  $1^{\circ}\text{F}$  ( $0.55^{\circ}\text{C}$ ) higher than in the groin,  $0.2^{\circ}\text{F}$  ( $0.11^{\circ}\text{C}$ ) higher than in the mouth, and  $1.3^{\circ}\text{F}$  ( $0.72^{\circ}\text{C}$ ) higher than in the axilla, (2) that the lowest recording is that in the axilla, which is approximately  $0.4^{\circ}\text{F}$  ( $0.22^{\circ}\text{C}$ ) lower than in the groin and considerably lower than in the mouth and rectum, (3) that the average ('half-minute') clinical thermometer does not attain a maximum reading until at least five minutes when the skin temperature is being recorded in the axilla and in the groin

No doubt some of these discrepancies could have been avoided with more accurate thermometers and perhaps with more expert observers, but they represent the ordinary everyday methods employed in a hospital ward with ordinary instruments and the observations of competent nurses in training, supervised for the purpose of this investigation by the senior nursing staff

### Discussion

It may be argued that the slight differences discovered are of little significance. It is true that with a case of pneumonia it does not matter greatly whether the temperature recorded is  $104^{\circ}\text{F}$  ( $40^{\circ}\text{C}$ ) rectal or  $102^{\circ}\text{F}$  ( $38.9^{\circ}\text{C}$ ) axillary. But in cases of rheumatic carditis, for example, or primary tuberculosis, a temperature curve never rising above the 'normal' marked on the chart as recorded in the axilla or groin may quite mask a low-grade pyrexia revealed by recordings in the mouth or rectum

These facts have long been known even if in clinical work they are sometimes forgotten. Wright (1945) may be taken as typical of standard teaching. He quotes the normal temperature range (presumably in adults) as  $96.7\text{--}99^{\circ}\text{F}$  ( $36\text{--}37.2^{\circ}\text{C}$ ) in the mouth and  $97.2\text{--}99.5^{\circ}\text{F}$  ( $36.2\text{--}37.5^{\circ}\text{C}$ ) in the rectum. He states that the rectal temperature is the highest of the various routes—averaging  $0.5^{\circ}$  to  $0.75^{\circ}\text{F}$  ( $0.267\text{--}0.42^{\circ}\text{C}$ ) higher than the mouth. In warm surroundings (i.e., in bed) he thinks the buccal temperature about equals the rectal. Temperature-recording in the axilla or groin he condemns as 'inaccurate in thin subjects' (but note the fat child mentioned above) 'and otherwise approximates to buccal'. For the purpose of clinical paediatrics children may generally be regarded as 'thin subjects,' and this condemnation may be viewed in glaring contrast to the usual standing orders to nursing staff in children's hospitals to use the axillary or groin situations. Inquiries made during the present investigation suggest that not all children's physicians are aware of the methods of temperature recording used for patients under their care. It would appear that the rectal site is best for babies under 1 year and presents little difficulty. For children over 5 years and certainly over 8 the mouth can be used, especially if the tougher type of 'rectal' thermometer is employed to avoid the small danger of breakage. Between these ages, in the toddler, the choice is not so easy.

Psychological objections to the rectal site have been urged, but the evidence seems more theoretical than practical. It may be stated in reply that the rectal route at all ages is viable if not exclusively, used on the continent of Europe, and the incidence of grave psychological trauma has not been seriously advanced for this large section of the world's population. Secondly, as with so many procedures in chil-

dren, it all depends on the attitude of the nurse dealing with the child. If this is 'matter-of-fact' and kindly, and if children are aware of others undergoing the same investigation, it is extremely doubtful if harm is done by the insertion of a thermometer into the rectum. The time factor may be a more serious consideration, for it is generally conceded that the nurse should stand by the child during the rectal reading, whereas skin-recording, and even mouth-recording in older children, can be done for a group at once. What is needed is an instrument which not only claims to be a 'half-minute' thermometer but actually records its maximum during this period.

The question of infection is obviously of great theoretical importance, as Green and Penfold (1947) have indicated, an especially when the mouth or rectum is used. The only solution is to have a separate thermometer for each child, kept permanently in a suitable disinfectant between readings. This is, in fact, the practice at many children's hospitals.

For accurate readings the rectal site should be chosen for all children under 5 years and the mouth after this age in most cases. Axillary and groin readings should be given up as inaccurate. Temperature charts should always record which situation has been used.

### Summary

Simultaneous temperature recordings in various situations—mouth, rectum, groin, and axilla—in an unselected series of 32 children show differences of some practical importance. It is argued that the axilla and groin should be discarded as sites for temperature readings. Possible difficulties from the point of view of psychological trauma and infection are discussed.

Thanks are due to the nursing staff of the Hospital for Sick Children, Great Ormond Street, for their careful collaboration.

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## INFANTILE DIARRHOEA AND VOMITING

### A REVIEW OF 456 INFANTS TREATED IN A HOSPITAL UNIT FOR ENTERITIS

BY

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Units for the treatment of enteritis of infants were established at most of the infectious diseases hospitals administered by the London County Council. The unit at the North-Eastern Hospital came under my care in January, 1945. The cases recorded in this paper were admitted during the years 1945 and 1946. Early in 1947 the unit was moved to more suitable accommodation in single-cell wards. The experience of that year is not comparable with that of previous years and has therefore been excluded.

The object of this paper is to describe the organization and working of the unit, to discuss the type of case treated, and to analyse the results of treatment.

### Organization

**Accommodation and Equipment.**—Throughout the period 1945–6 the unit was contained in two wards of the composite, or 'Horns', type (Harriss and Mitman, 1947). Each ward was designed to provide accommodation for 31 patients, distributed as follows: 5 in single cells, 6 in double cells, and 20 in groups of 4 in the five bays of the

in in ward. In practice it was found desirable to limit the number of cots in the main ward to 12, with a maximum of 14. The total number of patients in each ward therefore did not exceed 25. Each ward was fully equipped for barrier-nursing. Each bay of the main ward and each cell contained a fixed hand basin with elbow taps. Two steam sterilizers were available—one for instruments and one for crockery. The ward kitchen contained a refrigerator. In addition each ward was equipped with the instruments and apparatus required for intravenous therapy in infants. A set of sterilized instruments and other necessary apparatus were kept on a trolley, ready for immediate use in urgent cases. Sterile fluids for intravenous administration were supplied from a central laboratory in 500-ml bottles with screw caps.

**Staff**—Both wards were under the direction of the same resident medical officer throughout the two-year period. Off-duty and holiday relief was provided by resident medical officers who had become familiar with the established routine. Uniformity of treatment was thus maintained. Routine medical ward rounds were made three times a day, and the medical officer was available at any time. Each ward was in the charge of a sister who had had general hospital and fever hospital training. So far as was possible, transfers of ward sisters were avoided. The nursing staff comprised fever-trained nurses, general-trained and probationer nurses in training for fever certificates, assistant nurses and ward orderlies. Frequent changes of nursing staff were unavoidable. The number of nurses allocated to the wards varied widely. At first 11 staff by day and 4 by night were available for each ward of 23 to 25 patients allowing a ratio of one nurse on duty to every six infants. As the shortage of nurses became more acute the total allocation for each ward (including sister, nurses, and ward orderlies) was reduced to 6 or 7 by day and 2 by night. Consequently, there were generally three, and often only two, nurses on duty in the ward at any one period of the 24 hours. All nurses were familiar with the technique of barrier-nursing and the general management of infants. In the unit they were taught the indications for the institution and termination of intravenous therapy and the methods of maintaining intravenous drip infusions in small infants.

**General Management**—Few breast-fed infants were admitted with enteritis. The mothers of these were accommodated with their infants in the cells off the main ward. Maintenance or re-establishment of breast-feeding was usually all that was required for their recovery. The majority of infants with enteritis, and almost all the severe cases, had been artificially fed before admission. For these, feeds were prepared in the kitchen of each ward. All dried-milk feeds were freshly made up as required. Benger's modified milk was prepared twice a day and stored in the refrigerator in the ward kitchen. Hartmann's Ringer-lactate solution (*Extra Pharmacopoeia* 22nd edition 1941) was available, sterilized, in 500-ml bottles.

**Prevention of Cross-infection**—The cots were widely spaced in the bays of the main ward, and bed isolation and barrier-nursing techniques were employed throughout the unit. Infants with parenteral infections associated with diarrhoea and vomiting were, so far as was possible, nursed in complete isolation in the cells off the main ward. The system of "clean" and "dirty" nurses could not always be employed owing to the shortage of staff. Napkin-changing rounds were made two-hourly, and were so arranged as to be completed before the times of feeds. Individual rectal thermometers were supplied for each infant. Separate gowns were worn when attending to each baby. Soiled linen and napkins were placed in closed bins containing "white disinfectant fluid" and sent to the

laundry twice daily. No sluicing of nappies or other articles was permitted in the wards. Feeding bottles, teats and valves, measuring-jugs and other articles required for preparing feeds were sterilized after each feed and stored in covered containers.

**Laboratory Investigations**—The routine investigations were cultures of faeces and rectal swabs for known pathogens, red blood cell counts, and haemoglobin estimations. White cell counts were made in all cases at first, but were found of limited value and were later confined to selected cases. Other laboratory investigations were made, as required, but biochemical investigations other than total serum-protein estimations were not made. Specimens of fluids for intravenous administration were taken at the beginning and the end of all intravenous infusions and cultured for contaminating organisms.

### Treatment

The methods of treatment were based on previously reported experience (Alexander and Eiser, 1944). The underlying principles are of sufficient importance in practice to merit restatement.

1. Careful assessment of the infant's condition on and after admission, with particular reference to (a) clinical evidence of dehydration, (b) its degree and duration, (c) the presence of parenteral infection.

2. (a) Prevention of dehydration by ensuring a sufficient fluid intake, or (b) its prompt correction by the administration of adequate fluids by the appropriate route.

3. A short initial period of starvation followed by an early return to milk feeding.

4. Adequate treatment of parenteral infections.

The methods employed were made as simple and as uniform as possible consistent with the varying needs of the individual case. The classification of cases with regard to treatment was into two broad groups—namely, those without clinical evidence of dehydration (non-dehydrates), and those with clinical evidence of dehydration (dehydrates). The dehydrates were further subdivided into two groups: (a) mild or moderate cases which might be expected to respond to oral rehydration, and (b) severe cases for which intravenous therapy was essential. Details of the methods of treatment of artificially fed infants are given below.

### Non-dehydrates

An infant who was not dehydrated on admission was given half-strength Hartmann's solution by mouth (two hourly for 18 to 24 hours, in the usual allowance of 24 oz per lb (156 ml per kg) body weight per day. No milk feeds were given during this period and no purgatives were permitted.

After 18 to 24 hours dilute milk feeds were given in the form of one-third-strength Benger's modified milk, 2½ oz per lb per day. If this was well tolerated the feeds were increased to half-strength Benger's the next day, to two-thirds strength on the day following and then to three-quarters-strength. The size of the feeds was increased and the intervals between feeds lengthened after the first or second day.

As soon as the stools became normal the feeds were changed to the milk on which the infant had been fed before admission, beginning with a third-strength dilution of the half-cream mixture and working up gradually by daily increases to the full-strength feeds—half-cream in the case of smaller infants and full-cream for infants over 3 months of age or 10 lb (4.5 kg) in weight. Those of 6 months and over were given a weaning diet. The infant was discharged as soon as he was able to take an adequate diet with no return of diarrhoea or vomiting and was gaining weight.

If at any time the diarrhoea or vomiting recurred the infant was again given half-strength Hartmann's by mouth or 12 hours and then dilute feeds as before. If, however, diarrhoea was excessive or vomiting was persistent, or if the infant refused feeds or became dehydrated, feeds were stopped and intravenous therapy instituted.

#### Dehydrates

An infant who was mildly or moderately dehydrated on admission but who was in good general condition and able to take sufficient fluid by mouth was treated on the same lines as those who were not dehydrated. The usual allowance of fluid was given by mouth, plus 5 to 10 oz (140–280 ml) per day with the object of restoring the fluid deficit. If dehydration was not readily corrected by this means, or if the general condition deteriorated, oral replacement of fluid was abandoned and intravenous therapy begun without delay.

If on admission dehydration was severe or the infant in a collapsed state intravenous therapy was immediately instituted. These infants were given enough fluid intravenously to satisfy their daily requirements, with a supplementary allowance to replace the fluid lost—usually 10 to 20% of body weight in the more severe cases.

The technique of intravenous fluid administration was in accordance with accepted methods (cf Garrod, Batten, and Thursfield, 1947). Strict attention was paid to the prevention of local sepsis and contamination of intravenous fluids. Therapy was begun with 300 ml of half-strength Hartmann's plus 5% glucose given by a slow drip adjusted to deliver the amount required by each infant in the 24 hours. This was followed by 400 ml of human serum or plasma diluted with 150 ml of half-strength Hartmann's. For infants weighing less than 7 lb (3.2 kg) the initial quantities were halved—i.e., 150 ml of half-strength Hartmann's plus 5% glucose, followed by 200 ml of serum diluted with 100 ml of half-strength Hartmann's.

For the first 18 to 24 hours no feeds were given, but the infant was allowed  $\frac{1}{2}$  oz (14 ml) of half-strength Hartmann's two hourly to keep the mouth moist. Small feeds—1 oz (28 ml) of half-strength Hartmann's and then of one-third strength Benger's—were started after this period, the rate of drip being gradually reduced and the amount of feeds slowly increased. The drip was continued, giving alternate Hartmann's and serum, until the infant was fully rehydrated and able to take enough fluid and food by mouth for the daily requirement. If severe diarrhoea, vomiting, or dehydration recurred feeds were stopped and a new intravenous infusion begun. When intravenous therapy was completed the subsequent treatment was as described for non dehydrates.

If signs of anaemia, such as cyanosis or pallor, were present oxygen was administered, using an oxygen tent. Many of the severe cases showed a degree of pallor, and oxygen was freely used on the assumption that this was a sign of incipient circulatory failure. The marked clinical improvement frequently observed would seem to justify this precaution.

Infants with red blood cell counts of less than 2.1 millions or haemoglobin readings below 50% were given whole blood intravenously, but only after haemoconcentration had been corrected.

#### Additional Therapy

If a parenteral infection was found or suspected the infant was treated with one of the sulphonamides. The choice was sulphadiazine given in doses of 0.5 g hourly (3 g per day) for five days to an infant under 2 years of age. Penicillin, when indicated, was given in doses of 20,000 to 40,000 units intramuscularly at four-

hourly intervals for 5 to 7 days. A combination of sulphadiazine and penicillin was thought generally to be more effective than penicillin alone. Sulphadiazine was usually well tolerated and was given orally even to those infants receiving intravenous alimentation. The relatively unabsorbed sulphonamides, such as sulphaguanidine, were not found to be effective in the control of diarrhoea.

The only other drug used was iron, in the form of a ferrous sulphate mixture, for the treatment of some cases of anaemia. Vitamins A, C, and D were given to all infants, and Vitamin K and the B complex when indicated.

### General Analysis of Cases

#### Method of Admission

Administrative procedure had an important bearing on the type of case admitted to an enteritis unit, and must be taken into account before any critical analysis of results is attempted. Admission was arranged centrally by the Public Health Department of the London County Council at the request of medical practitioners. So far as was possible, a patient was sent to the unit nearest to his home, but if no bed was available there he was sent to any unit which had a vacancy. Each unit therefore admitted cases from all parts of the London County Council area.

The criteria for admission accepted by the Public Health Department were: (1) Residence within the County Council area, (2) an age limit of two years, (3) a medical certificate that the case was one of "enteritis" or "gastro-enteritis" and required admission to hospital.

Infants arriving at an infectious diseases hospital in an LCC ambulance and certified as suffering from enteritis had to be admitted. The medical staff could exercise no selection in the matter of admission to the hospital. Admissions therefore included cases of diarrhoea and vomiting of all types and of all degrees of severity. Admission of the case to the enteritis unit, however, was at the discretion of the admitting officer, and infants with diarrhoea incidental to some specific infectious disease could usually be accommodated in other wards of the hospital.

#### Admissions to Enteritis Unit

During the two-year period 1945–6 the number of infants admitted to the enteritis unit of the North-Eastern Hospital was 686, of whom 541 were under the age of 1 year and 145 were between 1 and 2 years of age. These infants came from all parts of the LCC area. Some were admitted from their homes, some from residential nurseries, and some from general hospitals. The numbers of infants in each of these age groups admitted during each year are shown in Table I. In 53 cases no evidence of disease could

TABLE I—All Cases Admitted to Unit 1945–6 Age and Diagnosis

Year	Age in Years	Total Cases Admitted	Diagnosis		
			No Obvious Disease	Diseases Other than Enteritis	Enteritis
1945	0–1	261	8	24	229
	1–2	97	20	36	41
Total		358	28	60	270
1946	0–1	280	20	33	227
	1–2	48	5	19	24
Total		328	25	52	251
Grand total		686	53	112	521

be found, 112 infants had other diseases, including bacillary dysentery (36), other specific infections (17), respiratory infections (39), and miscellaneous illnesses (20). All have been excluded from this series.

During 1946 an effort was made to limit the number of admissions of infants over 1 year of age. Of the 65 infants over 1 year old who had enteritis only two were sufficiently dehydrated to require intravenous therapy and none died. This group will therefore not be considered further in this series. The subsequent analysis deals only with the 456 infants under 1 year of age treated in the unit for diarrhoea and vomiting.

#### Analysis of Enteritis Cases 0-1 year

Table II gives an analysis of these 456 cases showing the number of cases in each 3-months age group, the number of infants who were dehydrated on or after admission, and the number of deaths. Comparison of the dehydration rates with those quoted in previous series (Campbell and Cunningham, 1941, Alexander and Eiser, 1944) shows that

TABLE II—Enteritis Cases under 1 year Dehydration and Mortality

Age Groups	No of Enteritis Cases	Dehydrated on Admission	No Dehydrated after Admission Only	Total Dehydrated on or after Admission	Per cent Dehydrated	No of Deaths	Fatality Rate % All Cases	Fatality Rate % among Dehydrates
I 0-2 months	149	54	27	81	54.4	11	7.4	13.6
II 3-5	171	84	26	110	64.3	6	3.5	5.5
III 6-8	77	41	6	47	61.0	3	3.9	6.4
IV 9-11	59	16	4	20	33.9	2	3.4	10.0
Total	456	195	63	258	56.6	22	4.8	8.5

the cases were as severe as any likely to be encountered in a representative sample of infants with enteritis and comparable with any other such sample.

The majority of the infants (320) were under the age of 6 months on admission, and 17 of the 22 deaths occurred in this group. There were 15 infants under the age of 28 days, and of these two died.

The fatality rates are shown for all cases and for infants who were dehydrated. All the deaths occurred among infants who were dehydrated on or after admission. The usual fall in fatality rate with increasing age is shown, but, owing to the small number of deaths and the small number of cases in age groups III and IV, the differences between age groups do not reach statistical significance in this series.

A total of 258 infants were dehydrated during the course of their illness. Of these, 146 were dehydrated on admission only, 10 (6.8%) of them dying. Forty-nine of the infants dehydrated on admission responded to treatment, but became dehydrated again more than seven days after admission, in this group there were six deaths (12.2%). Sixty-three infants became dehydrated for the first time more than seven days after admission, and of these six died (9.5%). Thus 112 infants relapsed with dehydration, with 12 deaths (10.7%).

TABLE III—Cases of Enteritis Treated during each 6 Months Period of 1945-6 with Dehydration and Fatality Rates

6-Monthly Periods	No of Enteritis Cases	Dehydration		Deaths		
		No	%	No	Fatality Rate % All Cases	Fatality Rate % among Dehydrates
Jan-June '45	106	69	65.1	12	11.3	17.0
July-Dec '45	123	62	50.4	3	2.4	4.8
Jan-June '46	85	53	62.4	2	2.4	3.7
July-Dec '46	142	74	52.1	5	3.5	6.7
Total 1945-6	456	258	56.6	22	4.8	8.5

Of the 236 infants who were dehydrated and recovered 73 were rehydrated by oral administration of fluid. The remaining 163 required intravenous therapy for correction of their dehydration. In all, 244 separate infusions were given.

Table III shows the number of infants treated in the enteritis unit during each of the four six-months periods of 1945 and 1946, the number who were dehydrated and the number of deaths. The number of admissions and the dehydration rates were fairly constant for each year. There was a sharp fall in the case mortality from 11.3% in the first six-months period to 2.4% in the second period, and this latter rate was maintained for the succeeding two periods. The differences between the first and subsequent periods are statistically significant in each case an exact probability test gives  $P < 0.02$ .

#### Parenteral Infections

Among the 456 infants of this series a parenteral infection was found on admission in 238 cases (52.2%). In a further 46 cases a parenteral infection became apparent for the first time after admission. In the remaining 172 cases no evidence of parenteral infection was found throughout

TABLE IV—Incidence of Parenteral Infections on Admission and after Admission

Age Groups I-IV	No of Enteritis Cases	Parenteral Infections on Admission		Parenteral Infections on and after Admission	Parenteral Infections after Admission Only	Total Parenteral Infections	
		No	%			No	%
I 0-2 months	149	74	49.7	29	18	92	61.7
II 3-5	171	89	52.0	40	18	107	62.6
III 6-8	77	37	48.0	9	6	43	55.8
IV 9-11	59	38	64.4	3	4	42	71.2
Total	456	238	52.2	81	46	284	62.3

the stay in hospital. Table IV shows the number of infants in each age group who had parenteral infections on or after admission.

The type of parenteral infection found on admission in each age group is given in Table V. It will be seen that

TABLE V—Showing Types of Parenteral Infections Found on Admission in Each Age Group

Parenteral Infections on Admission	II III IV I-IV				
	0-2 Months	3-5 Months	6-8 Months	9-11 Months	Total
Upper respiratory infections excluding O.M.	27	18	13	19	77
Suppurative otitis media alone	7	10	2	1	20
Suppurative otitis media + other conditions	4	10	4	6	24
Bronchitis	8	14	6	6	34
Bronchopneumonia	11	23	7	2	43
Skin infections	8	5	2	1	16
Miscellaneous	9	9	3	3	24
Total parenteral infections on admission	74	89	37	38	238
Total cases of enteritis	149	171	77	59	456

the majority were infections of the respiratory tract—the miscellaneous group includes urinary infections, stomatitis, etc.

It is of interest to note that only 44 infants showed evidence of suppurative otitis media on admission. In 32 infants this condition developed during the course of their illness. Thus only 76 of the 456 infants in this series had suppurative otitis media. Nine others had 'red drums' associated with upper respiratory infections—these have been classified under the heading of 'coryza'. In all cases the ears were inspected on admission and when ever a pyrexia or any relapse of the diarrhoea or vomiting occurred. Myringotomies were performed in 49 cases. Mastoidectomy was carried out in only four cases. Post-mortem examinations were made of all but five of the 22 infants who died, and in only one case was pus found in the middle ears at necropsy.

Table VI is an analysis of the association of dehydration with parenteral infection found on admission. Of the total of 456 infants, 238 (52.2%) showed evidence of parenteral infection on admission, and in 218 (47.8%) no parenteral

TABLE VI—*Relationship of Parenteral Infection to Dehydration on Admission*

Dehydration on Admission	Parenteral Infection on Admission		No Parenteral Infection on Admission		Total
	No	%	No	%	
Dehydration + Not dehydrated	112 126	57.4 48.3	83 135	42.6 51.7	195 261
All cases	238	52.2	218	47.8	456

$\chi^2 = 3.75$   $P = 0.053$

infection could be found. Among the 195 infants who were dehydrated on admission parenteral infections were found in 112 (57.4%) and were not detected in the remaining 83 (42.6%). A  $\chi^2$  test on this Table gives only weak support to any suggestion of association between dehydration and parenteral infection.

#### Analysis of Deaths

There were 22 deaths in this series. Three infants had overwhelming parenteral infections associated with severe dehydration which failed to respond to intensive treatment. Four infants died of severe parenteral infections which, in retrospect, must be regarded as having been inadequately treated. In one of these the institution of intravenous therapy also appears to have been delayed. In one case bronchopneumonia and an empyema were not discovered until necropsy. No sulphonamides had been administered.

Four cases were moribund on admission. One of these had already been given abundant subcutaneous saline infusions, and was waterlogged and oedematous on arrival. Another of these infants was extremely dehydrated and collapsed. Intravenous therapy was attempted but was unsuccessful, and the child died 15 hours later. Two infants were severely dehydrated on admission, failed to respond to adequate intravenous therapy, and died in five and eight days, respectively. It is thought that in these two cases the dehydration was irreversible.

Two infants, and probably a third, were given amounts of fluid intravenously which proved to be excessive and died of cardiac failure. In one case the routine red blood cell count was inadvertently omitted and a severe anaemia—RBC 1,910,000—was not discovered until the day of death. This infant had a severe bronchopneumonia which failed to respond to chemotherapy. It is possible that she would have recovered with the aid of a blood transfusion.

The four remaining cases failed to respond to apparently adequate treatment of their dehydration.

#### Discussion

The cases described in this series may be considered a representative sample of infants admitted to an enteritis unit in the London County Council area. They were of average severity, and the clinical findings and results of treatment should therefore be generally applicable to infants admitted to hospital with enteritis.

No discussion of the aetiology of infantile diarrhoea and vomiting will be attempted here. It is of interest, however, that the findings in this series are not in accord with the view that parenteral infections are the main causative factor in the onset of diarrhoea and vomiting. From Table VI it may be seen that in a high proportion of the more severe cases of enteritis parenteral infections were not detected although carefully sought.

Neither can otitis media be implicated as a major factor in the onset or relapse of diarrhoea and vomiting in this series, since it was found in only 76 of the 456 infants. It seems probable that the smallness of the number of mastoidectomies required was due to the more effective methods available for the treatment of suppurative otitis media and to the earlier correction of dehydration.

Parenteral infections, however, when present, may adversely affect the infant's response to treatment of the diarrhoea and vomiting especially when associated with dehydration. It is essential, therefore, that these should be carefully sought for in all cases and energetically treated. Failure of dehydration to respond to adequate intravenous therapy should suggest the possibility of an associated parenteral infection. In such cases if there is continued pyrexia with no improvement in the general condition it has become the custom in this unit to give the infant a full course of sulphadiazine even though no definite parenteral infection has been found. It is considered that this practice is amply justified by cases such as those described in the analysis of deaths.

Dehydration remains the chief cause of the continued high fatality rate of infantile diarrhoea and vomiting and its prevention or early correction constitutes the most important factor influencing recovery. In this series there were no deaths among the 198 infants who were not dehydrated. Among the 258 infants who were dehydrated there were 22 deaths. With earlier recognition and correction of dehydration nearly half of these deaths might have been prevented.

The ability of the infant to conserve water is relatively less than that of the adult. Therefore in any condition characterized by continued fluid loss dehydration occurs more readily in infants and reaches an irreversible stage more rapidly (Gimble 1947). The condition which most commonly produces dehydration in infants is diarrhoea and vomiting. It should be remembered that this condition also leads to starvation. Therefore an infant who has become dehydrated is in need of food as well as of water and electrolytes. If these cannot be supplied by the oral route parenteral alimentation becomes essential.

Feeding by the gastric drip method does not permit of complete alimentary rest for the infant with severe diarrhoea and vomiting. Diarrhoea usually continues, absorption is uncertain and dehydration and starvation are prolonged. This method was tried in a series of 22 dehydrated infants, and dehydration was corrected in only two cases. The remaining 20 infants became more severely dehydrated and required prolonged intravenous therapy. The gastric drip method was therefore abandoned.

Water and electrolytes may be administered by the subcutaneous or intraperitoneal routes but in all but the mildest degrees of dehydration absorption is unreliable. Neither is it possible to provide the infant with adequate amounts of food by these routes. The intravenous route is the only reliable way of supplying such an infant with water and electrolytes, and food in the form of glucose and serum or plasma.

Early institution of intravenous therapy is essential for infants with diarrhoea and vomiting who are severely dehydrated. By this means complete alimentary rest is assured, dehydration is corrected promptly, and starvation is prevented. It is the practice in this unit to continue intravenous alimentation until diarrhoea has ceased or greatly decreased, dehydration is fully corrected, and the infant able to take sufficient fluid and food by mouth for daily maintenance. If watery diarrhoea or dehydration recur, oral feeding is stopped and intravenous therapy reinstituted.



Approximately 40% of the infants admitted to the unit required intravenous therapy. This could have been administered only in a hospital with the necessary facilities. The success of treatment is therefore dependent on (1) recognition of dehydration in its early stages and admission to hospital of all but the mildly dehydrated, (2) correct assessment of the degree of dehydration in relation to the requirements of treatment, (3) a team of trained and experienced staff to carry out the necessary treatment. These requirements are best fulfilled by the establishment of self-contained hospital units for the treatment of enteritis.

The recognition of dehydration in its early stages is within the province of all medical practitioners, and the need for early treatment should be more widely appreciated. The assessment of the degree of dehydration and the treatment required in each case is essentially dependent on clinical judgment gained through practical experience. The successful application of these methods of treatment depends upon the training of the medical and nursing staff of the unit.

The figures shown in Table III lend support to this view. The fall in fatality rates after the first six months of 1945 appears to be directly related to the training of the nursing staff, since the technique of treatment was the same throughout the two years and the degree of severity of the cases did not vary from one year to the next. The distribution in age groups did not vary significantly in successive periods, nor during the first six-months period was there any preponderance of the younger age groups, in which a higher fatality rate might be expected. Owing to necessarily frequent changes of staff, in approximately six months most of the nurses in the hospital had worked in the enteritis unit and had become familiar with the routine management and treatment established there. Thereafter, although shortage of staff became a serious problem, all the available nurses were acquainted with the nursing and treatment of the dehydrated infant and were able to maintain the high standard of care necessary for these babies.

In this series 112 infants relapsed with dehydration. Since the nature of the infecting organism or organisms in diarrhoea and vomiting is not yet known, it is not possible to say what proportion of these relapses was due to cross-infection or to re-infection. The possibility of such an occurrence, especially in an open ward, must, however, be borne in mind. The observations in a previous series (Alexander and Eiser, 1944) are of interest in this connection. In that series the infants were nursed in two different wards—an "open" barrier ward and a single-cell barrier ward. The technique of nursing and treatment were identical, and the numbers of admissions and dehydration rates on admission were the same for both wards. Yet the relapse rate in the open barrier ward was four times as great as that in the single-cell ward.

It seems advisable, therefore, that bed-isolation and barrier nursing should be rigidly enforced in enteritis units, which should whenever possible, be accommodated in wards of single rooms or cells. By the establishment of such units, staffed by trained medical officers and nurses, much may be done to reduce the number of infants still dying of diarrhoea and vomiting.

### Summary

The organization of a hospital unit for enteritis of infants is described and the treatment is outlined.

The results of treatment for the years 1945 and 1946 are detailed. 456 infants under the age of 1 year were treated in the unit during this period. 258 (56.6%) of these infants were dehydrated during the course of their illness. There were 22 deaths, giving a case mortality of 4.8% for all cases, or 8.5%

for infants who were dehydrated. There were no deaths among infants who were not dehydrated. Parenteral infections were found on admission in 238 cases (52.2%).

The association between parenteral infections and dehydration is low, and this series does not support the view that parenteral infections are a major factor in the causation of diarrhoea and vomiting. The need for careful search for parenteral infections is however stressed from the point of view of treatment.

The importance of prevention or early correction of dehydration, the necessity for intravenous therapy in severe cases, and the need for prevention of cross infection are emphasized. This implies the provision of adequate facilities and a staff of medical officers and nurses experienced in the technique of barrier nursing and the treatment of dehydration in infants.

It is suggested that these requirements are best fulfilled by the establishment of self contained hospital units for the treatment of enteritis.

My acknowledgments are due to Dr E H R Harnes (late medical superintendent of the North Eastern Hospital) and to Dr Robert Swyer, acting physician superintendent, for facilities to carry out this work. I am greatly indebted to the resident medical officers and to the nursing staff for their enthusiastic co-operation and to Mr L G C Maslen for all laboratory work. I wish to thank Mr B Benjamin, statistician to the LCC Public Health Department for help with the statistical analyses.

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## MULTIPLE MYELOMA TREATED WITH STILBAMIDINE AND PENTAMIDINE

BY

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Von Rustizky (1873) was the first to describe the disease of multiple myeloma, the name of plasma-cell myeloma being proposed 27 years later by J H Wright (1900). Macintyre (1850) had already described a case of multiple bone tumour, calling it mollities ossium, which had a peculiar "animal matter" in the urine that became evident on gentle heating and disappeared on further heating. He sent the urine to Bence-Jones (1848) for examination, and the substance subsequently became known as Bence-Jones protein. About the same time Dalrymple (1846) gave a clear description of the bony changes in a case he reported on as mollities ossium.

Life insurance tables give the incidence of multiple myeloma as 0.03% of all malignant growths or 3% of all bone sarcomas, but recent collections of cases published suggest that the figures may be higher. Thus Batts (1939) found 40 cases in 200 primary malignant tumours of bone, and Bayrd and Heck (1947) saw 18 in a period of six months. Improved methods of pathological investigation and the attention drawn to the disease by publications have no doubt been largely responsible for the increased number of cases diagnosed.

Multiple myelomatosis is usually described as a fatal disease of middle life, occurring twice as often in males as in females and characterized by multiple tumours growing from the marrow and eroding the bone in a characteristic



## Case 4

A well built woman aged 42 consulted her doctor for an aching pain in the middle and lower parts of the back. It had been present for some months. She had recently noticed some breathlessness on exertion and an increasing weakness. Physical examination did not reveal any cause for these symptoms.

The blood count disclosed a macrocytic anaemia (Hb 41%) and a leucopenia (3800 per cmm) due to a reduction in neutrophils the latter showing a marked shift. There were 3% of myeloma cells in the blood smears which were particularly grey. At the same time a routine radiograph of the chest showed an expanding and bone destroying tumour of the seventh rib posteriorly. Radiographs of the rest of the skeleton did not reveal any other lesions. A sternal puncture showed 61.5% myeloma cells with the red cell series (3%) and the neutrophil series (20%) greatly reduced, findings which indicated extensive and widespread involvement of the marrow in spite of the fact that only one small tumour was apparent on the x-ray film. The serum globulin (5.6 g) and alkaline phosphatase (26 units) were considerably raised. The urine was normal.

After a transfusion a course of deep x-ray therapy was given without any improvement and the pain became worse. A total of 4 g of stilbamidine was then given over a period of two months; this resulted in complete alleviation of pain, although the general condition continued to deteriorate and the urine now contained protein and casts. Bence-Jones protein was never found. Over the next two months 3.8 g of pentamidine was given, but the patient went steadily downhill and died from complete aplasia of the marrow due to replacement by myeloma tissue and renal failure. There were generalized haemorrhages and purpura.

## Case 5

A stocky well-built Greek complained in January 1946 of intermittent epigastric and subcostal pain. He was investigated for peptic ulcer in hospital but no definite diagnosis was made. Over the next year the pain became much worse, was more extensive and continuous, and was accompanied by increasing weakness.

In June 1947 the blood count showed an extensive leuco-erythroblastic anaemia (Hb 36%) with 3% myeloma cells in the differential count. A sternal puncture revealed 86% myeloma cells with very scanty red cell series (less than 1%) and white cell series (13%). The serum globulin was raised (3.7 g). The urine contained albumin casts, and pus although Bence-Jones protein did not appear until the very terminal stages.

A radiograph of the skeleton taken in June 1947 showed advanced generalized myelomatosis with considerable collapse of the spine and many fractures. Support was given by a spinal jacket and he received a course of x-ray therapy without any improvement or relief of pain.

Stilbamidine therapy was started on Oct. 11 and totalled 8.6 g over a period of three months combined with transfusions of folic acid and iron and penicillin for broncho-pneumonia. Apart from improvement in the pain the patient gradually became worse and died on Jan. 12, 1948. During the last two weeks 2.1 g of pentamidine was given also without improvement.

Necropsy revealed the ribs, sternum and vertebrae to be almost entirely replaced by myelomatous tissue. In the long bones the marrow cavities were enlarged and filled with such tissue. There were very numerous pathological fractures. Sections and smears showed masses of myeloma cells about 7% containing inclusion bodies (see below). Both kidneys showed pyelonephritis. Sections of the kidneys and the liver revealed myelomatous infiltration.

## Case 6

A large well built man aged 63 was admitted with generalized purpura, haematuria, epistaxis, melena and a right testicular haematoma. Generalized aching pains had been present for the last few months, had become worse in the last few weeks and were now accompanied by some loss of feeling in the

hands and feet. Marked arteriosclerosis and some chronic bronchitis were present. The central nervous system apart from rather weak jerks, showed no abnormality.

Blood examination showed a normal red cell count and thrombocytopenia, a leucocyte count of 10,000 per cmm with a marked neutrophil shift and an eosinophilia (23%) and the presence of scanty myeloma cells. A sternal puncture revealed 9% myeloma cells with 4% plasma cells. The red cell series (14%) and the neutrophil series (31%) were reduced, eosinophils (18%) were increased. The serum globulin (7.8 g) was greatly raised. The serum calcium (11.8 mg) and plasma alkaline phosphatase (169 units) were slightly increased. The urine contained protein with some granular casts but no Bence-Jones protein. A radiograph of the skeleton failed to show any abnormalities. A total of 4.2 g of stilbamidine was given over two months. Clinical improvement was at first limited to disappearance of the purpura but on completion of the treatment the patient could get about fairly well and said that his pains were not as bad.

## Effects of Treatment

*Clinical*—Case 3 has shown definite improvement with relief of pain and could get about for short distances twelve months after the diagnosis was made and approximately two years from the time of the first symptom. Case 6 has shown some improvement and is fairly mobile six months after the diagnosis and twelve months from the time of the first symptom. In Cases 4 and 5 the patients, who had very extensive marrow involvement before treatment, died after a period of some months without showing any improvement except for the relief of pain. In Cases 1 and 2 the patients died suddenly after a few injections of stilbamidine, the first from renal failure and the second from agranulocytosis.

*On Myeloma Cells*—Snapper and his colleagues demonstrated the development of basophilic inclusion bodies in the cytoplasm of myeloma cells in patients receiving stilbamidine. These bodies appeared to be compounds of stilbamidine and ribose nucleic acid. It is suggested that the ribose nucleic acid becomes dissociated from its protein in the ribose nucleic complex and attached to the stilbamidine to form a substance which appears within the cytoplasm of the cell as deeply basophilic granules. These granules ultimately coalesce to form inclusion bodies. Such inclusion bodies were demonstrated in Cases 3, 4, and 6 (Figs 1 and 3). Case 5 never developed them in spite of the



FIG. 1—Two typical myeloma cells, one containing at least 12 well-formed inclusion bodies and the other three earlier and less distinct bodies. ( $\times 850$ )

large dosage and the length of treatment. Cases 1 and 2 ended fatally before there was time for them to develop. A reduction in the number of myeloma cells was obtained by sternal puncture in Case 3 (15% to 3%) and in Case 6 (9% to 5.5%) (Table I). In both cases the small number of myeloma cells originally present in the peripheral blood disappeared.

*Biochemical*—No improvements were obtained except in Cases 3 and 6 (Table II). In Case 3 the plasma globulin, the alkaline phosphatase, and the serum calcium returned to normal. In Case 6 they showed a fall towards normal.

*Haematological*—Cases 3, 4, and 6 developed a very considerable eosinophilia in the early stages of treatment (74% in Case 6). In Case 4 this persisted until death but in



impression of a dispersing nucleolus. The cytoplasm stained irregularly, giving a foamy appearance. As a rule deeply basophilic it had a definite and distinctive purplish tint (Jenner-Giemsa stain), often contained a number of azure granules, and was sometimes vacuolated.

The primitive or blast type (Fig 5) was about  $26\ \mu$  in diameter. A definite nuclear membrane enclosed a nucleus which occupied three-quarters of the cell space and possessed one large nucleolus with sometimes up to three small nucleoli in addition. The chromatin assumed a definite



FIG 2—Early stage in development of typical myeloma cell: disappearance of nucleoli and condensation of nuclear chromatin. Outline of the foamy cytoplasm distorted by spreading ( $\times 965$ )



FIG 3—Typical myeloma cell containing stilbamidine inclusion bodies. Pale central nuclear zone surrounded by coarse chromatin masses ( $\times 965$ )

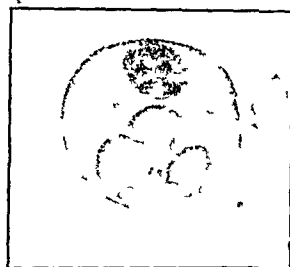


FIG 4—Multinucleated myeloma cell ( $\times 965$ )



FIG 5—Blast type of myeloma cell containing three nucleoli ( $\times 850$ )

stippled pattern. The cytoplasm presented the same features as described in the typical myeloma cell but did not contain granules or vacuoles nor stain so deeply.

The multinuclear cells usually contained two nuclei but occasionally had four or more, and varied in size from 20 to  $40\ \mu$ . The nuclear and cytoplasmic characteristics were identical with those described in the typical myeloma cell.

In all cases the myelogram showed an increase in the number of normal plasma cells—i.e., plasma cells indistinguishable morphologically from those found in normal marrow.

### Comments

The fact that stilbamidine has such a favourable influence on the pain of multiple myeloma constitutes an advance in the treatment of this malignant disease. The method of administration by intramuscular injection is simple and not usually accompanied by severe local or general reactions provided the precautions outlined are taken. In addition stilbamidine seems to have a specific effect upon the protoplasm of some myeloma cells which is evident in fixed stained preparations. While this effect does not bring about complete disappearance of the cells there is evidence that it hinders their increase and dissemination, allowing local healing reactions to take place. The fact that no other cells but myeloma cells are affected suggests that the protoplasm and protein metabolism of the latter differs from that of other cells. Snapper (1946a) states quite definitely that stilbamidine has no effect in other malignant diseases such as leukaemias and Hodgkin's disease.

Two prime factors seem to influence the success of treatment: (1) the initial blood count findings, which are a reflection of the state of the marrow, and (2) the extent of renal involvement.

Those cases which presented with a serious anaemia did not improve. The malignant process was evidently too widespread and had replaced too much normal marrow to permit recovery of haemopoiesis. It seems likely that not enough stilbamidine could be given to have an effect on all the myeloma cells. For example, in Case 5, which received 8.6 g, inclusion granules were demonstrated in only 7% of the myeloma cells, and this figure did not vary significantly whether the tissue examined was from the ribs, sternum, vertebrae, or femur.

The one patient showing extensive renal involvement (Case 1) died in uraemia after only six injections, suggesting that the stilbamidine had provoked an unfavourable renal reaction.

Snapper (1946a) stated that stilbamidine gave its best results in patients with widespread but not large osteolytic lesions and with normally functioning kidneys. Detailed information on the blood counts and marrow findings was not given.

### Summary

Reference is made to some of the literature on multiple myeloma, the difficulty of early diagnosis, and the help that pathological investigation may give.

A detailed description is given of six cases and their treatment with stilbamidine by Snapper's method. (Two cases also had pentamidine.) Four of the cases were fatal and two have made some clinical recovery. These results do not compare very favourably with those of Snapper, who reported seven out of fifteen showing continued improvement.

The outstanding clinical feature of treatment with stilbamidine is the relief from pain.

The morphological features of the abnormal cells found in the marrow and the appearance of inclusion bodies in their cytoplasm as the result of treatment are described.

My thanks are due to Dr H. V. Morlock, Dr Harold Davis, Dr Lindsey Batten, Dr K. Blatchley, Dr Gray Thomson, and Dr Z. Leitner for the opportunity of studying these cases; to the laboratory and nursing staffs for their co-operation, and to Mr J. H. Hunter for the photomicrographs.

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The Executive Board of WHO has authorized the Director General to sign a preliminary agreement, as soon as 14 of the American Republics have deposited their instruments of ratification of the WHO constitution, between WHO and the Pan American Sanitary Organization providing for the ultimate establishment of that organization as the WHO regional organization for the western hemisphere. The Executive Board has also recommended that WHO establish contacts with the following international non-governmental organizations: International Union against Venereal Diseases, International Union against Tuberculosis, International Union against Cancer, World Federation for Mental Health, International Committee of the Red Cross, International Hospital Federation, International Academy of Forensic and Social Medicine, International Leprosy Association, International Association for the Prevention of Blindness.

## SEPSIS IN RELATION TO TUMOURS

### CLINICAL IMPLICATIONS OF AN EXPERIMENTAL STUDY

BY

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The occasional occurrence of sepsis in surgical wounds maintained under rigid aseptic conditions leads to the inference that such infection can take place by routes other than direct contact from without. Learmonth (1924) described invasion of undamaged muscle of an arm by *Clostridium welchii* following a partial gastrectomy. Okell and Elliott (1935) demonstrated the transient presence in the blood of organisms associated with oral sepsis. Buchanan and Kyles (see C H Browning, 1944) by repeated blood cultures showed the occurrence of bacteraemia after minor surgical intervention in a limited area where infection is present, as, for example, in the extraction of teeth. Such circulating organisms are no doubt usually disposed of rapidly by the blood, as indicated by the work of Wright and Douglas (1903), but where persistent bacteraemia exists and there are sites of lowered tissue resistance conditions will be favourable for the establishment of secondary metastatic infection.

Butler and Valentine (1943) stressed the importance of small initial staphylococcal lesions in maintaining bacteraemia—e.g., those occurring under hard skin or beneath a scar. Damage following slight trauma will supply conditions favourable for secondary localization, and degenerating tumour tissue would also appear to afford an excellent nidus in which pyogenic organisms may settle. Muir (1941) has stated that tumours have little resistance to bacterial invasion, and Boyd (1947) emphasized the part played by sepsis as a cause of death in cancer of the human subject.

#### Experimental Investigation

It was therefore decided to ascertain experimentally whether such abnormal tissues are in fact especially apt to harbour pyogenic organisms brought by the blood stream. The problem resolved itself into balancing the factors of tumour growth and progress of infection so that the effects of both might be assessed. A rat sarcoma originally induced by styryl-430 (P Browning, 1941) provided a readily transplantable tumour with a regular progressive course of sufficient duration to permit observation both of the effect of the new growth and of the bacterial agent.

Following a subcutaneous injection of a coarse emulsion of about 0.05 g of tumour tissue in saline death takes place in six to eight weeks from pulmonary metastases, or the animal requires to be chloroformed owing to ulceration over the treated tumour. The strain of staphylococcus was that used by Browning and Calver (1947), as it responds well to treatment with penicillin. It is noteworthy that rodents are naturally resistant to staphylococcal infection, apparently owing to their plasma being little affected by the coagulase of the organism (Hale and Smith 1945), however, virulence may be enhanced in various ways—e.g., by addition of mucin to the inoculum in order to reduce so far as possible the effects of toxin production *in vitro* the inoculum for a rat of approximately 60 g consisted of 1 ml of a 1 in 20 dilution of an eighteen-hour agar growth injected intraperitoneally.

It was necessary to control the infection by chemotherapy, three or four doses each of 1 000–2 000 units of penicillin being injected subcutaneously in the first twenty-four hours after inoculation. This treatment was the minimum necessary to

effect cure in the majority of inoculated control animals without tumours, 36 out of 43 being cured. Those which did not respond to the therapy died from septicaemia within a few days. In the survivors there were no focal lesions apart from occasional transitory suppuration in the needle-track of inoculation which appeared about a week after infection and which lasted for only a few days. Out of 52 inoculated but untreated animals 43 died within twenty-four hours from staphylococcal septicaemia, within seven days the nine survivors had to be chloroformed owing to extensive sepsis located in the inoculation track.

Tumour-bearing rats were inoculated seven to twelve days after grafting, when the growths were about 1 cm long. Out of 62 which were inoculated and treated with penicillin as above described 52 survived, these were chloroformed before growth of the tumour led to surface ulceration (about five weeks after inoculation). Immediately after death approximately 0.1 g of the tumour was cultured in nutrient broth, several loopfuls of spleen tissue and heart blood were also cultured and other organs examined for lesions, and it was noted that no septic focus existed at the site of inoculation. From the tumours in 19 out of the 52 animals coagulase-positive staphylococci were recovered (often in mixed culture with coliform organisms and diphtheroids). On the other hand, the tumours of all 21 uninoculated tumour-bearing control animals, which had received no penicillin, yielded no staphylococci, although coliform organisms and diphtheroids were often present. Staphylococci were not demonstrated in the spleen or heart blood of either the treated tumour series or the controls. In some of the tumours the staphylococcus was isolated where no gross central degeneration had occurred. These experiments show that localization of pyogenic organisms in a malignant tumour tends to occur as a result of bacteraemia.

#### Conclusions

Two conclusions of clinical importance follow from the results. First, especially in view of Butler and Valentine's work, minor sepsis should be regarded seriously in cancer patients, particularly when radiation therapy may lead to marked lowering of the local resistance. Secondly, since it has been shown that the virulence of pyogenic and other organisms is greatly enhanced by the injection of adrenaline at the site of inoculation (Evans, Miles, and Niven, 1948), where surgery is associated with the use of combined local analgesic and adrenaline the prior clearing up of septic foci which might otherwise seem of little consequence is of prime importance.

I acknowledge with thanks a grant towards the expenses of this work from the British Empire Cancer Campaign.

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The American National Multiple Sclerosis Society, which was formed two years ago to stimulate interest and finance research in disseminated sclerosis, has appointed as medical director Dr Cornelius H Traeger. The appointment was made possible by a grant of \$50 000 from the Milbank Memorial Fund. Dr Traeger is a member of the Executive Committee of the New York Rheumatism Association and of the Committee of Research and Education of the American Arthritis and Rheumatism Foundation.



# ANTI-HISTAMINE DRUGS AND RADIATION SICKNESS

BY

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AND

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Radiation sickness is a syndrome characterized in varying degree by drowsiness, fatigue, nausea, and vomiting. Indirect evidence in favour of the hypothesis that histamine plays a part in the production of this syndrome has been put forward by various workers (Segal, 1939, Leblond and Segal, 1942, Ellinger, 1945, 1946, 1948, Thygesen, 1947). The use of antihistamine drugs in the treatment of radiation sickness has been advocated by Lofstrom and Nurnberger (1946). These authors claimed that the administration of "benadryl" to patients who had developed radiation sickness resulted in a considerable amelioration of symptoms. However, in their paper not enough details were given of the factors governing x-ray dosage and there was no control series of cases. In view of this claim, and also of the possible significance of histamine in the production of radiation sickness, it was considered that a controlled clinical experiment was required to clarify the position.

## Details of the Experiment

The antihistamine used was "anthisan," which has been shown to be the most potent and specific drug available (Schild, 1947, Gaddum, 1948). The patients used for the investigation were those undergoing post-operative irradiation with x rays for carcinoma of the breast. This form of treatment has been standardized in respect of duration of treatment, volume irradiated, and total dosage given (McWhirter, 1948). The 47 patients in this study were divided into three groups, as follows:

**Group A**—Seventeen patients were given anthisan in doses of 0.6-1 g daily. Ten of these received 1 g daily and seven had 0.6 g daily; these latter cases being unable to tolerate the higher dose. The active tablets were administered for five days before starting irradiation so that side effects were minimized and an adequate concentration of anthisan was secured in the tissues.

**Group B**—Fifteen patients were given an inactive preparation identical in appearance to the active preparation. This was also administered for five days before the beginning of irradiation.

**Group C**—Fifteen patients were given no preparation at all.

In every case an assessment of the patient's clinical condition was made by one of us (W M C B) who was entirely ignorant of the type of tablet which the patient was being given. This assessment was made after every fifth treatment in respect of drowsiness, fatigue, headache, nausea, and vomiting. The results are shown in the Table.

Group	Total No. of Cases	No. Developing Radiation Sickness
A	17	16 (94.1%)
B	15	10 (66.6%)
C	15	11 (73.3%)

It will be noted that only a small number of patients have been studied in each group. The investigation had to be abandoned because many of the patients given the active drug became so upset after the starting of irradiation that they would have been unable to continue with x-ray treatment unless the drug had been withdrawn.

**Toxic Effects**—Five out of the 17 cases receiving anthisan developed a toxic erythema accompanied by pronounced constitutional symptoms during irradiation. This patchy erythema, first noted in the posterior shoulder field between the third and fifth days after the beginning of x-ray therapy, spread centrifugally, becoming generalized over the greater part of the trunk and extremities after 48-72 hours. With withdrawal of the antihistamine drug at any stage in its development resulted in a rapid disappearance of the erythema even though x-ray therapy was continued. Such a skin rash never occurs with x-ray therapy alone, and is seen in less than 1% of cases receiving antihistamine drugs for other purposes.

## Discussion

The important practical point that emerges from the study is that in spite of the small number of patients observed it can confidently be stated that anthisan is of no value in the treatment of radiation sickness. Any benefit which results from the administration of other antihistamine drugs is likely to be due to properties other than their antihistamine effect. In addition, not only did anthisan fail to prevent radiation sickness, but, as will be seen from the Table, it appears that those patients receiving the active drug showed a greater incidence of constitutional upset while having x-ray therapy than did either of the two control groups. The difference between Group A and the control series is not statistically significant, but was convincing enough to stop the trial of further cases.

There is considerable evidence to show that histamine may be released in animals in a variety of circumstances. The similarity which exists between the manifestations of certain human states and conditions that can be produced experimentally in animals has led to the belief that histamine plays an important part in certain disease processes. Dale (1948) has suggested that it may possibly have a physiological role in the control of capillary tone. Though there is no direct proof that histamine is released from the tissues by ionizing radiations, the presumption of such a release is an attractive hypothesis which explains many of the manifestations of radiation sickness.

This study seems to show that the administration of anthisan during irradiation with x rays produces a toxic erythema in some cases and may also give rise to a profound constitutional upset. Antihistamine drugs such as anthisan exert their effects by modifying the tissues in such a way that locally released histamine does not produce its pharmacological effects. It is suggested that the local release of histamine resulting from irradiation with x rays and leading to vasodilatation and alteration in capillary permeability may be of physiological importance, and that this type of reaction to injury may well play an important part in preserving the integrity of the organism. The administration of agents such as antihistamine drugs during irradiation may interfere with this protective mechanism, thus accounting for the marked effects noted in this study.

We are indebted to Professors McWhirter, Dunlop and Gaddum for their advice and criticism in the construction of the experiment and during the preparation of the paper. Anthisan tablets and dummy tablets were supplied by Messrs May and Baker, Ltd.

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# PATENCY OF VEINS AFTER A NEW TECHNIQUE OF CUTTING-DOWN FOR TRANSFUSION

BY

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AND

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During the course of a research project which necessitated the introduction of a catheter into a vein of an arm we felt somewhat guilty, at depriving each patient of a vein which might be required later in an emergency that would conceivably need every available transfusion site. As our patients were all women, and also pregnant, this matter seemed very important. A technique was devised whereby the patency of the vein could be retained for any future occasion. This extremely simple method can be used for any type of transfusion where the introduction of a cannula is necessary. We recommend it particularly to junior house officers, who occasionally waste veins once and for all time. With this method they may still waste a vein through their inexperience, but only temporarily.

## Method

The vein is exposed and mobilized in the usual way, using a small transverse incision, and a loop of fine catgut is drawn underneath by means of an aneurysm needle (Fig 1)

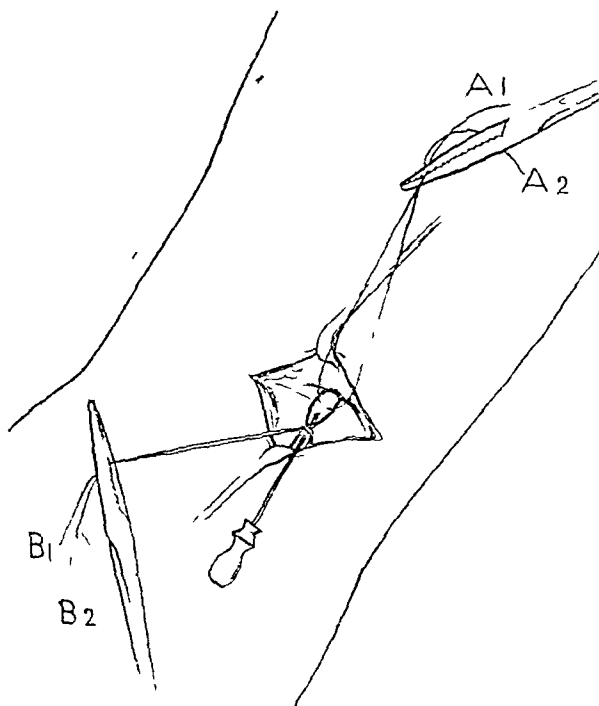


FIG 1

This loop is then cut so that there are two pieces of catgut—the upper piece, A<sub>1</sub> and A<sub>2</sub>, and the lower piece, B<sub>1</sub> and B<sub>2</sub>. The upper piece is not tied, but its two ends are secured with a pair of Spencer Wells forceps. The lower piece is tied once only and the ends secured. A small nick is then made in the vein wall between the two pieces of catgut and the cannula is inserted. It will then be necessary to tie A<sub>1</sub> and A<sub>2</sub> together to secure the cannula, but this step is not necessary in catheter work.

At the end of the transfusion or research catheterization the loop A<sub>1</sub> and A<sub>2</sub> is untied and the free ends are brought through the upper skin edge. Similarly with B<sub>1</sub> and B<sub>2</sub>, the free ends being brought through the lower skin edge (Fig 2)

A<sub>1</sub> is then tied to B<sub>1</sub> and traction applied to the free ends A and B. A few drops of penicillin are applied locally, the cannula withdrawn, and A and B tied together. The wound is then closed, and bleeding from the vein is controlled by direct pressure against the skin. It will be seen that there is no buried catgut, and the loops—A<sub>1</sub> and A<sub>2</sub>, B<sub>1</sub> and B<sub>2</sub>—come out spontaneously after five to seven days.

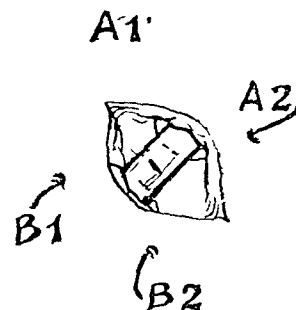


FIG 2

Few cases of infection occur, and what infection does arise is very mild and is easily treated along usual surgical lines. As a prophylactic measure we recommend the introduction of 200,000 units of penicillin along the catheter as it is withdrawn. The final scar is minute.

A refinement of the technique which makes this operation simpler, affords better control of the vein, and minimizes the chances of infection is to bring the cut ends of each loop out on the skin before nicking the vein wall.

We have been able to show that the veins thereafter remain patent in 100% of cases not only by inserting a needle but also by cutting down on them again in the course of our research.

## Medical Memoranda

### A Note on Direct Inguinal Hernia

Although commonly associated with advancing years, the direct variety of inguinal hernia is not infrequently found in younger men who are not necessarily of poor physique, and it is occasionally seen under the age of 20. For some of the older subjects surgical treatment cannot be entertained, but to others, especially those in active occupations, operation would be more acceptable than a truss if the results were less uncertain. Methods of repair are very diverse, and recurrence rates vary widely between figures of 4.4% (McCloskey and Lehman, 1940) and 35% (Page, 1943).

The narrow strip of conjoint tendon or the free margin of the internal oblique muscle which bounds the broad defect cannot be brought down to the inner end of Poupart's ligament. A Bassini repair is therefore unsuitable and carries an average recurrence rate of 17.6% (Mair, 1945). Instead it is necessary to fill in the intervening gap with fascia or other material which will remain in place permanently. As this gap lies directly underneath the external ring and the weak intercolumnar fascia, it appears advisable also to make full use of the external oblique by displacing the exit of the spermatic cord as far outwards as possible. Subcutaneous transplantation of the cord is not harmful (Rose and Carless, 1940), but doubt has been expressed about the value of the external oblique aponeurosis (Gallie and Le Mesurier, 1924). Yet at operation for recurrent hernia the aponeurosis is found to be an intact sheet, tough and fibrous, the sac emerging from an aperture left for the passage of the cord. Overlapping is less important than closure right down to the pubis.

In Service cases particularly the possibility must be kept in mind that operation may be marred by side-effects, especially upon the locomotor system, for which reason the routine use of fascia cut from the thigh is open to question. As an alternative I sought to apply the older method of McArthur (1901) for the deep half of the repair, to a consecutive unselected series of 55 direct herniae in 38 such patients. Most of them were aged 30 to 40, with extremes of 20 and 45. Five herniae were

of the curious and uncommon funicular type described in Langot's *Post Graduate Surgery* (1937), the rest diffuse, five were recurrent, of which one was funicular.

Generally the broad based sac was not cut away and the transversalis fascia not considered strong enough to be worth any attention. Disturbance of the internal ring was limited to the removal of seven small oblique sacs. The first couple of turns of the fascial suture picked up the rectus sheath and were drawn fairly taut so as to bring the rectus sheath and Poupart's ligament as close together as possible. This closed the inner part of the defect narrowed the remainder, and left enough of the suture to lace the internal oblique loosely to Poupart's ligament. All areolar tissue under the external oblique and upon the pubis was cleared away and resuture of the aponeurosis started on the pubis. A satisfactory strip could not be obtained from either the upper or the lower leaf of the external oblique in only one instance—a recurrence with an ugly appendicectomy scar close by and much fibrous matting of the tissues, in this case a Halsied repair was effective.

Results were sought by questionnaire between two and nearly six years after operation (average interval four years). Twenty-nine replies were received relative to 42 fascial repairs, including the four relapsed cases. One-third of the replies were sent by doctors. There were three recurrences. In one, originally bilateral, an associated small oblique sac reappeared on the outer side of the displaced cord. After I excised this the groins withstood without further trouble three years' artillery service followed by eighteen months heavy road work. The only traced simple funicular hernia recurred. A third case was reported to have a definite bulge on the iliac fossa on coughing and an impulse felt through the external ring also. Recurrence was simulated in a fourth case by a venous impulse in the superficially placed cords on coughing but on exploration the repairs proved to be sound. With the possible exception of one patient who was invalided for other causes and later died, all the others have led lives of normal activity, though seven have experienced minor symptoms. Thus, one man has a feeling of weakness on one side, another wears a truss "for extra support," and five have some discomfort at times probably due to intermittent compression of the cord veins in their abnormal course through the musculature.

The series closely resembles that of McCloskey and Lehman's 45 direct herniae with two recurrences, both in results and in details of repair. I have dealt more recently with fifteen more herniae of this kind, including three that were recurrent, at ages ranging from 18 to 54. The same procedure was found to be practicable in all of them, but the later results are not yet known.

It is reasonable to conclude that the method described is very generally applicable to cases of direct inguinal hernia and satisfactory in a fair proportion. Unless the full technique of Gallie and Le Mesurier (1924) is carried out there is not much advantage in using the fascia lata, but a single suture from any source is unlikely to be of much value unless supported by close contact with the overlying aponeurosis.

S W DRINKWATER, FRCS

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The production of two new scientific sound films is announced by Crookes Laboratories, London. They are entitled 'Emulsions' and 'The Story of Halibut Oil,' and may be borrowed free of charge by schools, colleges, hospitals, and scientific societies. 'Emulsions,' which runs for fifteen minutes, opens with a series of simple test tube experiments showing the contrast between an emulsion and a suspension. The two types of emulsions and the function of emulsifying agents are then demonstrated. The preparation of emulsions experimentally and industrially by mechanical, chemical, and supersonic means and their uses in daily life are described pictorially. 'The Story of Halibut Oil' is a thirty minute film divided into two parts: the first giving vivid details of life aboard a trawler in Icelandic waters, the second concerned with the scientific treatment of halibut liver, formerly a waste product for the extraction of its vitamin bearing oil. Both films are available in 16-mm and 35-mm sizes and can be supplied at fourteen days' notice.

## Reviews

### ESSENCE OF OBSTETRICS

*Management in Obstetrics* By Andrew M. Claye, M.D. FRCS, FRCOG, Oxford Medical Publications (Pp. 186 illustrated 12s 6d) London: Geoffrey Cumberlege (Oxford University Press) 1948

This is an unusually attractive book on the management of pregnancy and labour both normal and abnormal. The author does not discuss the aetiology and diagnosis of various conditions except when they determine a particular treatment. It is a very practical book, and with a few minor exceptions attributable no doubt to the interval between writing and publication, is thoroughly up to date. There is no room for views other than the author's, and these, clearly based on personal and extensive experience, he presents concisely and dogmatically. In obstetrics there is often more than one good way of doing things so as Professor Claye points out, it is inevitable that not everyone will accept some of the opinions expressed. Practising obstetricians will largely agree with his views, however, and even those who disagree most can hardly fail to respect and enjoy this reasonable and honest account of how to manage the everyday problems of midwifery.

Each of the 36 chapters—essays is perhaps a more fitting term—is on a single subject or form of treatment, none is long and some occupy less than a page. Each, headed by a humorously apt quotation, is a joy in itself, not only for its subject matter but for the style and charm of its presentation. Even the details of antenatal care—which, despite its importance, is one of the most tedious subjects to read about—become interesting when Professor Claye discusses them. The book is not intended to describe the management of all obstetrical conditions, much of its attractiveness would be lost if it did. A notable omission is any account of eclampsia. In general the author has made a happy choice of subjects which cover the essence of modern obstetric practice and that without the 'ifs and buts' which sometimes tend to obscure the picture in the standard textbooks. He is not concerned with the technical details of caesarean section but he is concerned with when and how to carry out episiotomy, how to repair a perineal tear, and how to avoid or treat post partum haemorrhage.

This handy little book (a coat pocket will easily accommodate it, and three or four hours suffice to read it), full of good sense, is evidently intended primarily for the general practitioner obstetrician, but all with a genuine interest in obstetrics, and irrespective of their eminence in this branch of medicine, will find in it a fascination which is the attribute of anything well done.

T N A JEFFCOATE

### FATIGUE

*Fatigue and Impairment in Man* By S. Howard Bartley, Ph.D. and Eloise Chute, M.A. Foreword by A. C. Ivy, Ph.D., M.D. (Pp. 429 \$5.50) New York and London: McGraw-Hill Book Company 1947

The industrial and social disturbances of the recent years have aroused increasing interest in the practical and academic aspects of 'fatigue'. No excuse need be offered for the publication of any intelligent contribution, nor indeed, since our progress in understanding this problem has been so sluggish, for any novelty of approach. Herein lies the value of this book, whose authors realize that fatigue 'has been used more often as an explanation than as something to be explained' and have made a clear and insistent distinction between fatigue, a subjective phenomenon describable only in personalistic terms and 'impairment' which refers to specific tissue changes identifiable only through physiological and biochemical studies. Fatigue itself they regard 'as an experiential pattern arising in a conflict situation in which the general alignment of the individual may be described as aversion,' and the limpness, tiredness, feeling of inadequacy for further activity, and sense of bodily discomfort, besides being attempts at retreat or escape, are to be recognized as being fatigue and not merely symptoms of it.

In most of the twenty chapters of this book the authors review material selected from sources discussing the psycho-

logical, physiological, and industrial aspects of problems relating directly to fatigue or to certain conditions which are most likely to induce or influence it. Thus we find discussions on various opinions about fatigue, mental fatigue, chronic fatigue, industrial experiences, conflict, and frustration, and on such topics as continuous activity, anoxia, lack of sugar, temperature extremes, salt deficiency, drug actions, sleep, and dietary habits. The authors pay special attention to neuromuscular activity and aspects of visual functioning. Indeed, it was while examining visual activities that S. H. Bartley formulated his concept of fatigue and was led to test it further. His background of specialized training in psychology and biology, and his researches in neurophysiology and vision have influenced its elaboration considerably. He is at present professor of research in the visual sciences at the Dartmouth Eye Institute, and Eloise Chute, a psychologist, is his research associate.

The book is not easily read. Many of its chapters give the impression of a conducted tour of physiology, normal and under certain stresses, with concluding comments that impairment of tissues is obvious but that there is nothing which really relates to fatigue. The main virtue of the book lies in the authors' dogged insistence on the origin and nature of fatigue, which is not to be described, detected, measured, or ascribed to any condition in terms of tissue impairment from which it must be clearly distinguished.

H. M. WHITE

## PARAVERTEBRAL BLOCK

*Paravertebral Block in Diagnosis, Prognosis and Therapy. Minor Sympathetic Surgery.* By Felix Mandl, M.D. F.I.C.S. Translated by Gertrude Kallner, M.D. With foreword by Max Thorek, M.D., F.I.C.S. (Pp. 330, 32s.) London: William Heinemann Medical Books, 1947.

After a short but adequate account of the regional anatomy the author describes fully the various techniques of paravertebral injection. But the book is much more than a mere account of technique. He discusses the application of sympathetic block in many diseases, sets down all the indications for it and with praiseworthy candour mentions those lesions in which this treatment has proved of no avail. To report failures or rather non-successes, is helpful and worthy of being copied. The section on angina is excellent and in the chapters on disorders of the peripheral circulation he finds a place for accounts of many rare and little-known conditions. The book appeals to one as the outcome of much personal experience and wise reading set out with judgment and great interest.

Inevitably, the work here and there lags behind modern practice—the printed book cannot keep pace with the research worker in so live a subject. Phenol for example, is mentioned at some length but the author states that it has not been used in practice. There are however to day many patients in whom paravertebral phenol block has been used with complete success, and the question how far this, or a similar method, may replace open operation is part of the research of the immediate future. There is no mention of the use of radio-opaque materials with the injection: the information given by them is often helpful and sometimes chastening. This book is an important contribution to the surgery of the autonomic system. As it contains many facts not easy to come by, it should appeal to all research workers in this field.

E. D. TELFORD

*Diseases of the Chest* (E and S Livingstone, 25s.) by Dr Robert Coepe is already becoming recognized as a classic of its kind and the second edition will be welcomed. For the student there is no better introduction to chest disease and he should not be deterred by its length. The author's style and human approach to his subject make reading easy and enjoyable. But this is not only a book for students: the practitioner will find it a useful guide to treatment and indeed all who are interested in chest disease will read it with pleasure and profit. Most specialists are at times in danger of losing touch with reality and it is refreshing to be brought back to the things that really matter. The clinician says Dr Coepe, "I do as myself by training and tradition to caring for the one who is ill" and this epitomizes the object of his book. In the new edition the author has thoroughly revised the introductory section on anatomy but otherwise there has been little change. The new edition might well include a somewhat fuller account of modern practice in chest disease.

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*L'Infection de Foyer* By I. Goia. 2nd ed. (Pp. 191, 300 francs.) Paris: Librairie Maloine, 1948.

A monograph on focal infection.

*Klinische Hämatologie* By Hanns Fleischhacker. (Pp. 624, Sch. 190.) Vienna: Wilhelm Maudrich, 1948.

An illustrated textbook of haematology.

*Les Mathématiques de L'Hérédité* By G. Malecot. (Pp. 63, 180 francs.) Paris: Masson, 1948.

The mathematics of probability applied to genetic inheritance.

*Therapy Through Interview* By S. G. Law, M.D. (Pp. 313, 27s.) London: McGraw-Hill, 1948.

An introduction to psychotherapy intended specially for the general practitioner.

*Eclampsie et Eclampsisme* By H. Vignes. (Pp. 217, 450 francs.) Paris: Masson, 1948.

A study of eclampsia and pre-eclampsia.

*Nursing for the Future* By E. L. Brown, Ph.D. (Pp. 198, \$2.00.) New York: Russell Sage Foundation, 1948.

A study for the future education of nurses in the U.S.A.

*Pregnancy Diagnosis Tests* By A. T. Cowie, B.Sc., M.R.C.V.S., Ph.D. (Pp. 283, 15s.) Edinburgh: Commonwealth Bureau of Agriculture, 1948.

A review of the literature, particularly with reference to domestic animals.

*La Gelure* By M. S. Vagliano. (Pp. 255, 650 francs.) Paris: Masson, 1948.

The symptomatology and treatment of frost-bite.

*Introduction to Diseases of the Chest* By J. Maxwell, M.D., F.R.C.P. 3rd ed. (Pp. 307, 12s. 6d.) London: Hodder and Stoughton, 1948.

The author emphasizes the necessity for x-ray examination and includes new material on the sulphonamides and antibiotics.

*The Dark Mind* By R. Goyne. (Pp. 256, 9s. 6d.) London: Stanley Paul, 1948.

A tale of crime and scandal.

*Sex and Citizenship* By E. F. Griffith, M.R.C.S., L.R.C.P. 4th ed. (Pp. 224, 8s. 6d.) London: Methuen, 1948.

The author discusses the relation between religion and sex and the significance of personal behaviour on the problems of social morality.

*Medical Research in France During the War 1939-45* By J. Hamburger. (Pp. 306, No price.) Paris: Flammarion, 1948.

Includes papers on the prophylaxis of diphtheria and typhus, antihistamine substances, intravenous procaine and the treatment of endometriomas with male hormone. In English.

*Le Enervazioni Articolari* By F. Morin and F. Roasenda. (Pp. 138, 1,400 lire.) Turin: Minerva, 1948.

An account of innervation of the joints for the surgeon.

*The 1948 Year Book of Radiology* Edited by Jenner Hodges, M.D. and I. I. Kaplan, M.D. F.A.C.R. (Pp. 472, 36s.) London: H. K. Lewis, 1948.

Abstracts from recent papers on diagnosis and therapy with editorial comment.

*Die Reaktion der Pupille auf Mydriatica nach Unterbrechung der Sympathischen Pupillenbahn* By P. Wonnser. (Pp. 160, 17 Swiss francs.) Basle: S. Karger, 1948.

An analysis of pupillary reactions to mydriatics after interruption of the sympathetic innervation.

*The Countryman Book* Compiled by J. W. Robertson Scott, C.H. (Pp. 308, 10s. 6d.) London: Odams Press, 1948.

A selection of articles of rural and horticultural interest from the Countryman.

*Traitement des Dermatoses Communes* By A. Desaux. (Pp. 1,300, 1,960 francs.) Paris: Masson, 1948.

A textbook intended for the general practitioner or young specialist.

# BRITISH MEDICAL JOURNAL

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## THE KING'S HEALTH

The medical profession in Britain has shared to the full the universal alarm felt about the state of the King's health. His medical advisers in the bulletin issued on Nov. 23 stated that 'the King is suffering from an obstruction to the circulation through the arteries of the legs, which has only recently become acute, the defective blood supply to the right foot causes anxiety'. The King's doctors underlined the gravity of the news in the bulletin when they stated that "it would be hazardous for His Majesty to embark upon a long journey, which might delay his recovery and which might well involve serious risk to a limb. On Monday of this week a further bulletin brought better news of an improvement in the general health of the King, an important factor in re-establishing arterial circulation to the feet, which is also being encouraged by appropriate medicinal and physical measures. The King's doctors state that there is less cause for immediate anxiety regarding the right foot.

The medical profession will join with the rest of the community in heartfelt sympathy with the King in his present disablement—a sympathy heightened by their knowledge of the pathology of arterial disease. The British Medical Association in particular will wish its Royal Patron a speedy return to better health.

## VIRUSES OF HEPATITIS

There is now no doubt that a certain number of persons in apparent health carry with them in their blood stream a virus which when inoculated parenterally into other healthy human beings will produce in a proportion of cases the signs and symptoms of hepatitis. Evidence that such a virus existed first appeared in 1934 shortly after the introduction of immunization against yellow fever, when the vaccine was made up in pooled serum obtained from presumably healthy persons<sup>1</sup>. Shortly afterwards Soper and Smith<sup>2</sup> in South America also reported the occurrence of hepatitis after the administration of yellow fever vaccine, and McNulty<sup>3</sup> drew attention to the fact that the disease had been observed in children and adults who had received inoculations of pooled measles immune serum. Thus even before the war the possibility was recognized that serum from apparently healthy persons might contain an interogenic agent<sup>4,5</sup>. Unfortunately neglect of this possibility led to much illness in the American armed Forces<sup>6</sup>.

while among British Service men and women inoculated in this country nearly 800 cases are known to have occurred. Since human serum has been discarded in the preparation of yellow fever vaccine some hundreds of thousands of persons have been inoculated without the development of a single case of hepatitis.

Meantime there were other pointers to the presence of a virus in human blood and its products. Service and his colleagues<sup>7</sup> in Russia noticed the development of jaundice in persons inoculated with a vaccine against sandfly fever, the vaccine contained human serum. Beeson<sup>8</sup> in 1943 described hepatitis appearing one to four months after the transfusion of blood or plasma. The disease has also been known to follow the giving of blood or its products as a prophylactic against mumps<sup>10</sup> and when therapeutic malaria has been induced by the injection of red cells infected by malaria parasites<sup>11,12</sup>. Further presumptive evidence that a virus was present in the blood stream had been derived from the experience of venereal disease clinics in the years between the two world wars. The common belief, however, was that the jaundice was due to arsenic acting on a liver damaged by syphilis, despite the fact that hepatitis was known to occur in patients who had received only bismuth, in patients given injections of acriflavine,<sup>13</sup> and in diabetic clinics<sup>14</sup>. In a survey of the information available on the incidence of arsphenamine jaundice in 1939 Findlay<sup>15</sup> reached the conclusion that some factor other than these drugs was necessary for its development, and that this factor was a virus and quite possibly the virus of infective hepatitis.

The suggestion that a virus was responsible for the production of "syringe-transmitted hepatitis," as it was called, was again made in 1943 by MacCallum<sup>16</sup> and Bigger<sup>17</sup>. Later MacCallum<sup>18</sup> showed that serum from a patient with so called arsenical jaundice would produce hepatitis in normal volunteers who were not receiving arsenic or any other drug. Since then it has become evident that if carefully sterilized syringes are not used for each individual there is a risk of transmitting hepatitis by giving intramuscular injections of penicillin or even by simple venepuncture. The presence of a hepatitis-producing virus in the blood stream has now been demonstrated throughout Europe, Russia, North and South America, and in various parts of Africa, including Egypt, Uganda, and West Africa<sup>19</sup>.

While these are known facts, there is still room for speculation. Is this virus which is present in the blood stream of perhaps 5%, or it may be even 10%, of apparently healthy persons the same as the virus of infective hepatitis? Though the signs and symptoms of the hepatitis following yellow fever vaccination were indistinguishable from those of infective hepatitis the incubation period was

<sup>1</sup> Findlay G. M., Martin N. H., and Mitchell J. D. *Lancet* 1944 2 301-303.

<sup>2</sup> *Terap. Arkh.* 18 595.

<sup>3</sup> *J. Amer. med. Ass.* 1943 121 1332.

<sup>4</sup> *Lancet* 1943 1 83.

<sup>5</sup> Chalmers T. C. *J. clin. Invest.* 1947 26 1055.

<sup>6</sup> Smith M. H. and Hall J. W. *J. Lab. clin. Med.* 1948 33 998.

<sup>7</sup> Murray D. H. *J. R. Army med. Cps* 1930 54 19.

<sup>8</sup> Graham G. *Lancet* 1938 2 1.

<sup>9</sup> *Recent Advances in Chemotherapy* 1939 2nd ed. London: J. and A. Churchill.

<sup>10</sup> *Brit. J. veter. Dis.* 19-6 22 151.

<sup>11</sup> *Lancet* 19-3 1-57.

<sup>12</sup> *Ibid.* 1945 1 342.

<sup>13</sup> Findlay G. M. *For. Bull. Mar. Hlth* 19-8 7 2 and 32.

<sup>1</sup> Findlay G. M. and MacCallum F. O. *Trans. R. Soc. trop. Med. Hyg.* 1935 31 297.  
<sup>2</sup> *Amer. J. trop. Med.* 1938 18 111.  
<sup>3</sup> *Ann. Entomol. Soc. Amer.* 1937 30 1.  
<sup>4</sup> H. M. S. O. London.  
<sup>5</sup> Findlay G. M., MacCallum F. O. and Murgatroyd F. *Trans. R. Soc. trop. Med. Hyg.* 1939 33 65.  
<sup>6</sup> Findlay G. M., J. P. *Ann. R. Soc. Cps* 19-0 74 72.  
<sup>7</sup> Turner P. H., Savage J. R., Grossman E. B., Buchanan R. N. and Findlay G. M. *Ann. R. Soc. Cps* 19-4 20 193.

nuch longer—58 to 134 days, as against 15 to 35 days for infective hepatitis<sup>14</sup>. Further, the disease tended not to infect contacts. The histological changes in the liver were indistinguishable,<sup>20, 21</sup> and neither virus can be transmitted to laboratory animals. However, there have now been outbreaks such as those recorded by Smith and Hall<sup>12</sup> and Capps and his colleagues<sup>22</sup> in which the incubation period was in every case quite short (17 to 43 days), other similar outbreaks are known. Aycock and Oren<sup>23</sup> suggest that the prolonged incubation period of syringe-transmitted hepatitis is due to the presence of immune body together with virus in the inoculum. Although syringe-transmitted hepatitis is not as a rule highly infectious there are instances where contact cases of jaundice are very difficult to explain except by spread of infection<sup>24, 7</sup>. Some outbreaks of infective hepatitis in schools, however, have been limited to one or two cases. More recently it has been found that infective hepatitis virus is present in the stools, and in the urine also when haematuria occurs. The virus which is present in the blood stream in syringe-transmitted hepatitis does not appear to be present in the stools, though it conceivably might be if the patient suffered from haemorrhage from the bowels or even from bleeding piles. So far no instance has been published of infection with the blood-borne virus by the alimentary route, whereas infective hepatitis can be readily transmitted orally. Cross-immunity experiments are contradictory in some immunity to the two viruses appears to develop, in others no immunity. But it must be remembered that the immunity to infective hepatitis is by no means absolute, and cases of a second attack are not uncommon.

This uncertainty whether two separate viruses or strains of one and the same virus are concerned is reflected in the question of nomenclature. There is no doubt about the nomenclature of infective hepatitis: this term was first used by Cockayne<sup>25</sup> in 1912 and thus has priority over "infectious" or "epidemic" which was first used by Lindstedt<sup>26</sup> in 1919. The term "homologous serum jaundice" was used for the disease caused by the blood-borne virus in 1943 in a memorandum prepared by medical officers of the Ministry of Health<sup>10</sup>. Since then a fuller knowledge of the disease has been obtained. The word "jaundice" is unfortunate for clinical jaundice may be either slight or absent. The fundamental lesion is a hepatitis, so that "homologous serum hepatitis" or, as it has been called in America, "SH disease" would be preferable. But the word "serum" is open to criticism, for the infection is transmitted often by plasma and sometimes by whole blood as well as by serum. Findlay<sup>27</sup> suggested the provisional term "haematic," which was preferred to "haematogenous" because the latter suggests that the virus is actually produced in the haemopoietic system.

If the natural method of transmission of haematic hepatitis was known with certainty it might be possible to take more reasonable steps to prevent it. It does not seem to be transmissible by food, but there is evidence that it can

infect through the nasopharynx<sup>28, 28</sup>. At present we have no means either of preventing natural infection with haematic hepatitis or of determining who is a symptomless carrier of the virus. It is known that after an infection some viruses, such as that of anaemia of horses, remain in the blood stream for life. Whether this is true of the haematic viruses is not yet known. The prevention of haematic hepatitis has two aspects: (1) prevention of cross infection from the use of contaminated syringes and needles, and (2) avoidance of infected blood or its products in transfusions or therapeutic immunizations. In clinics and wards where repeated injections have to be given, often with a limited number of syringes, the only way of avoiding haematic hepatitis is always to clean and boil syringes and needles before each injection. If these steps are correctly carried out there will be no cases of hepatitis. That it is possible to make mistakes even with apparently foolproof techniques is clearly shown in the papers which we published last week by Malmros and his colleagues (p. 936) in Sweden and by Morton (p. 938) in this country. It is only when all concerned in the sterilization of syringes and needles fully realize the necessity for scrupulous care that it will be possible to abolish syringe-transmitted hepatitis.

The selection of uninfected blood, plasma, or serum for transfusion or immunization is a more difficult matter, since there is no indication of who is or is not a carrier of a hepatitis virus. The danger of hepatitis has not always been fully appreciated by those who collect blood from volunteers. Thus in some instances blood has been taken in areas where an outbreak of infective hepatitis was occurring, while persons who have had hepatitis have acted as donors, having been told that if the disease occurred two years previously there was no danger. For this statement there is of course no scientific evidence, since it is not known whether after an attack virus may not at times recur in the blood. By limiting pools of whole blood or plasma to 10 donors it is possible to some extent to limit the distribution of haematic hepatitis virus if the incidence of infected donors is below 1 in 10.

Since the virus may apparently be inactivated by ultra-violet light Wolf and his co-workers<sup>29</sup> gave irradiated plasma to 21 volunteers without untoward reaction, but they offered no evidence to show that the virus was actually inactivated. MacCallum<sup>30</sup> failed to inactivate the virus with the doses of ultra-violet light recommended by Oliphant and Hollaender,<sup>31</sup> but Blanchard and his colleagues<sup>32</sup> have now shown that a practical and effective method of irradiating icterogenic serum and plasma can be evolved. Irradiation cannot of course be applied to whole blood. Gellis and his co-workers<sup>33</sup> used heat in an attempt to inactivate hepatitis virus. Certain viruses (Theiler's mouse encephalomyelitis virus, vaccinia, tobacco-mosaic, and tobacco-necrosis virus) added to pooled plasma

<sup>22</sup> Findlay G M and Martin N H *Lancet* 1943 1 678

<sup>23</sup> MacCallum F O and Bayer D J *ibid* 1944 1 622

<sup>24</sup> *J Amer med Ass* 1947 135 476

<sup>25</sup> *Proc R Soc Med* 1946 39 655

<sup>26</sup> *Publ Hlth Rep Wash* 1946 61 598

<sup>27</sup> *J Amer med Ass* 1948 138 341

<sup>28</sup> *J Clin Invest* 1948 27 239

<sup>29</sup> Berk J E *Gastroenterology* 1947 8 296

<sup>30</sup> Duncan G G *Amer J med Sci* 1947 213 53

<sup>31</sup> Stokes J Jr, Blanchard M, Neefe J R, Gellis S S and Wade G R

*Amer med Ass* 1948 138 336

<sup>32</sup> *Gastroenterology* 1947 9 28

<sup>33</sup> *J Amer med Ass* 1947 135 268

<sup>20</sup> Roholm K and Hensen P *Acta path microbiol scand* 1939 16 427

<sup>21</sup> Doh J H, McMichals J and Sherlock S P *Lancet* 1943 2 402

<sup>22</sup> *J Amer med Ass* 1947 135 819

<sup>23</sup> *J Amer med Ass* 1947 135 214-5

<sup>24</sup> *J Amer med Ass* 1947 135 214-5

<sup>25</sup> *J Med* 1912 6 1

<sup>26</sup> *J Med* 1919 51 44



survived fractionation and were found in all fractions prepared from plasma. Albumin solutions to which the infectious hepatitis virus was added were heated at 60° C for 10 hours and when inoculated into volunteers failed to cause hepatitis, whereas the unheated mixture of albumin and virus caused hepatitis, though without jaundice, in volunteers. This method of heat inactivation may be applied to albumin solutions, since they can be stabilized to withstand heating, it is not of course applicable to serum, plasma, or whole blood.

Initial studies suggested that gamma globulin injections might be of value in preventing the onset of haemagic hepatitis, but more recent investigations<sup>31, 36</sup> showed that one injection was valueless. Since there is evidence that passive immunity resulting from the injection of gamma globulin does not last for more than three weeks and the incubation period of haemagic hepatitis may be as long as three months, a series of injections would probably be necessary. Further the large scale use of gamma globulin would be difficult in a civilian population. It is obvious that much more work requires to be done on the hepatitis viruses. Rosenthal<sup>3</sup> found that 4.08% and Brightman and Korn<sup>38</sup> 4.5% of transfused patients developed hepatitis. More blood and blood products are now being used for transfusion than during the war, and the need for increased knowledge is urgent.

## TREATMENT OF INFANTILE ENTERITIS

The announcement early this week that a gastro-enteritis "flying squad" is now based on the Hospital for Sick Children, Great Ormond Street, and ready to work, has roused the interest of the public in this dangerous disease. Deaths from gastro-enteritis in infants under one year of age have exceeded 3 000 per annum since 1940, giving mortality rates which have varied from 4.4 to 5.2 per thousand live births. The increase in the number of deaths in the past few years (3,611 in 1946) is doubtless related to the increased number of births and to the overcrowded and unhealthy houses in which many babies are being reared, for infantile enteritis is a social disease with its greatest incidence among artificially fed infants living in poor-class urban areas. Unfortunately, because this infection is not generally notifiable, our knowledge of its epidemiology is limited, although the investigation by the Wrights<sup>1</sup> was a brave attempt to disentangle some of the environmental factors concerned in its aetiology. Meanwhile the search goes on in the laboratory for a specific causal organism. Here again progress is hampered because the material admitted to hospital may consist of a variety of clinical syndromes varying from simple dietetic upsets, through enteritis associated with some parenteral infection, to primary gastro-enteritis. It is therefore more profitable to concentrate laboratory investigations on localized institutional outbreaks or on more widely spread epidemics. In such an epidemic which occurred in Aberdeen in the spring of 1947 the labours of the bacteriologists along a

novel approach have been rewarded. Giles and Singster<sup>2</sup> prepared agglutinating antisera from three strains of *Bact coli* (biochemically identical with *Bact coli* No. 1) isolated from three fatal cases and found that these strains were all serologically alike. Furthermore, 86 strains of *Bact coli* out of 92 isolated from cases of primary gastro-enteritis were agglutinated by the specific antiserum, whereas this serological type of *Bact coli* was isolated from only 2 out of 44 cases classified as enteritis secondary to some parenteral infection and from 3 out of 72 mild cases of infantile diarrhoea not treated in hospital. The organism was also found in the faeces of four infant contacts who 24 hours later developed diarrhoea. It disappeared from the faeces of affected infants as they recovered from the infection. These findings corroborate the earlier work of Bray,<sup>3</sup> and indeed the authors state that their organism closely resembles Bray's strain serologically, but in view of claims made from time to time for the aetiological relationship of other intestinal bacteria such as Morgan's bacillus, proteus and paracolon, *Staph aureus*, and *Str faecalis* a certain caution is necessary in their interpretation. The results obtained by other workers in this field will be eagerly awaited.

While the aetiology still remains unsettled, considerable advance has been made in the treatment of infantile enteritis. Acute vomiting and diarrhoea in an infant lead quickly to dehydration and an upset in the balance of body fluids which, if allowed to progress beyond a certain stage, become irreversible. The primary need therefore is to prevent or correct dehydration either by direct treatment and control of the diarrhoea and vomiting or by the replacement of lost body fluids. There have been many "cures" of gastro-enteritis aimed directly at the alimentary tract, either to reduce peristalsis, absorb toxins, or eliminate the infecting organism. In the last category the poorly absorbed sulphonamides—e.g., sulphaguanidine and "sulphasuxidine"—have proved disappointing, though they still have a vogue on the Continent. New antibiotics like aerosporin and streptomycin are now being used, and while in one study encouraging results have been reported with streptomycin<sup>4</sup> it is still too early to say what part these intestinal bactericides will play in the treatment of gastro-enteritis. Certainly they cannot be expected *per se* to correct severe dehydration and shock. Therefore effective treatment of the acute case of infantile enteritis must surely depend primarily on rehydration in a way that will establish the proper balance of body fluids and osmotic pressure as quickly as possible and supply food until the alimentary system is again functioning normally. Subcutaneous or intraperitoneal glucose-saline may suffice in mild cases, but for the acutely dehydrated child, who is usually in a toxic or "shocked" condition, intravenous infusion of a Hartmann-glucose solution alternating with serum or plasma is essential.

The setting up of an intravenous drip and its maintenance for two or more days require experienced doctors and nurses. It has become the firm conviction of those engaged in the day-to-day treatment of infantile enteritis that satisfactory results will be obtained only in

<sup>1</sup> J. H. Wright, *Clin. Med.* 1946, 44, 480.

<sup>2</sup> J. H. Wright, *ibid.* 1948, 45, 1.

<sup>3</sup> J. H. Wright, *ibid.* 1948, 57, 239.

<sup>4</sup> James L. and Kramer I. R. H. (with statistical analysis of results by P. A. M. Agnelli), *Lancet* 1948, 2, 555.

special units with adequate accommodation—preferably as single-bedded rooms, for relapses from cross-infection are not uncommon—and enough trained nurses in the charge of an experienced medical officer. The organization of such a unit is described by Dr M B Alexander elsewhere in this issue, and the results obtained—22 (8.5%) deaths among 258 dehydrated infants under one year of age—are a tribute to the teamwork of medical and nursing staff under conditions that were by no means ideal. Dr Alexander makes the interesting point that the case mortality in the four consecutive six-monthly periods following the establishment of the unit was respectively 11.3%, 2.4%, 2.4%, and 3.5%, which suggests that treatment becomes more efficient after the nurses gain experience in the handling of cases. When these results are compared with the fatality rates of 30%–60% which are still being experienced in different parts of the country and with the tragic reports of even higher rates in institutional outbreaks, the need for properly organized units for the treatment of gastro-enteritis becomes obvious. Large established units which could give experience to a maximum number of doctors and nurses in the minimum of time might be used as training centres for the medical officers and sisters who are to take charge of new units. They would thus become conversant with the organization and management of a going concern. Alternatively, a demonstration team could be sent to a hospital to help in establishing a new unit and to initiate medical and nursing staff into the intricacies of intravenous drips and the like. The newly organized flying squad at the Sick Children's Hospital, Great Ormond Street, has been written up in the lay press as something akin to a fire brigade, ready to fly at a moment's notice to quench some conflagration in the shape of an outbreak of gastro-enteritis. An equally useful function may be to act as a demonstration team by taking over the treatment of gastro-enteritis for some weeks in a hospital where it is proving troublesome, and thereby training the resident staff in the proper handling of this disease. We understand that the flying squad would regard this as one of its main purposes, and it is to be hoped that hospitals which are experiencing high fatality rates among infants admitted with diarrhoea and vomiting will make use of this service. The family doctor will play his part by not sending patients with mild dietetic disorders to hospital and by doing all in his power to encourage the continuance of breast-feeding when babies are reared in conditions where the standards of household hygiene and infant care are poor.

### O RUSSIA! O MORES!

In a review in *Nature* in 1946<sup>1</sup> Professor Eric Ashby wrote "As to the present state on the new genetics in the Soviet Union, it is safe to assume that Lysenko's school is well past its zenith." A year later, however, the Russian geneticist Zhebrak was severely taken to task by *Pravda* for daring to express his own views of Lysenkoism. 'Zhebrak' *Pravda* pontificated, 'as a Soviet scientist

should have unmasked the class meaning of the struggle which is taking place around questions of genetics. But, blinded by bourgeois prejudices, by detestable fawning on bourgeois science, he has adopted the attitude of the enemy's camp." Reviewing the situation in a leading article in these columns in the *Journal* of Oct 18, 1947, we observed that this attack by *Pravda* suggested "that genetics is once again becoming an acute political issue in the USSR." And now a year later the Lenin All-Union Academy of Agricultural Sciences has declared that the genetics of Lysenko is the only genetics that may be taught in Soviet institutions,<sup>2</sup> a decision which a special correspondent in *The Times*<sup>3</sup> says "has shocked scientists all over the world." Sir Henry Dale, O.M., President of the Royal Society from 1940 to 1945, has made his protest by resigning his honorary membership of the Academy of Sciences of the USSR. Sir Henry points out that it is clear from Lysenko's own statement "that his dogma has been established and enforced by the Central Committee of the Communist Party as conforming to the political philosophy of Marx and Lenin." Sir Henry Dale might have added as a footnote to his letter a statement made by Professor J. B. S. Haldane to a correspondent of the American magazine *Time*: "I don't think a political body should decide scientific theories."<sup>4</sup>

Dreary conformity to the deadening dogmas of the Marxist faith is being imposed on those unfortunate countries now being absorbed into the Russian Empire. This year the Czechoslovak medical association was decreed out of existence, and now doctors, nurses, and midwives in the Polish medical schools are obliged to take courses in dialectical materialism. The Polish Vice-Minister of Health has declared that "the philosophy of Marxism is an indispensable tool in the practical and scientific work of a physician." The basis of Polish medical schools, it is declared, must be "class consciousness and systematic political training."<sup>5</sup> As an example of how the Russian medical man has to pander to the Russian propaganda machine we may note the observations made by Professor S. A. Reinberg in an article<sup>6</sup> on mass radiography in the Soviet Union. Professor Reinberg is Director of the Molotov Central Institute for Scientific Investigation in Radiology. He notes that the number of radiography examinations made is "still less than those of some foreign series," and then goes on to explain this away by stating "There is no doubt that these pretentious figures published in foreign countries constitute only a thinly disguised cheap advertisement." Mass radiography, says Professor Reinberg, "by its very nature is foreign to the ideas and training of the medical faculty in capitalist countries. The idea of radiography of large masses of workers does not correspond to the interests of a bourgeois society." This kind of nonsense, and the tragedy of death and exile of Soviet geneticists, must, we are sure, be silently condemned by countless men of medicine and science in the USSR. With them we must hope that the day is not far off when freedom to think and to speak and to write is once more restored to a great people.

### TEMPERATURE RECORDING

In 1620 Sir Francis Bacon wrote, "Let further inquiry be made into the different degrees of heat in different parts and limbs of the same animal."<sup>1</sup> But very few studies of skin temperature were made till the nineteenth century, when Davy<sup>2</sup> investigated the problem in 1814. Others followed him, using the mercury thermometer, and later Becquerel

<sup>1</sup> 19-5 152 236

<sup>2</sup> *Time* Sept. 27 1948

<sup>3</sup> Nov. 6 19-8

<sup>4</sup> *Sci.* 27 19-8 p. 2

<sup>5</sup> *B.B.C. News Paper* Nov. 3 19-8

<sup>6</sup> *Pravda* 19-8 Nov. 5 19-8

<sup>1</sup> *Novum Organum* 1620 Book 2, Aphorism 13 No. 12  
<sup>2</sup> Quoted by Cobet R. *Ergebn. Physiol.* 1926 25 440

and Breschet<sup>3</sup> in 1835 and Geigel<sup>4</sup> at Wurzburg made more accurate studies with the thermocouple. Geigel took measurements in four different areas and compared them with the rectal temperature taken simultaneously. He showed that during a rigor the surface temperature falls while the rectal temperature rises, the difference between the two readings therefore increasing. In 1931 Fritz Talbot published his monograph on skin temperatures in children. Using the thermocouple he made the following observations: variations occur in the temperature at any given spot on the body within five minute periods; there are considerable differences in the temperature of the skin in different parts of the body, the temperature of the trunk being highest, that of the face next, and of the extremities lowest; the surrounding temperature has a considerable effect on the skin temperature, the cooler the room the cooler being the temperature of the skin; there is a rapid loss of heat from the surface of the body on exposure; exercise causes a preliminary fall followed by a rise of skin temperature; and other factors such as sleep and clothing affect the temperature. He confirmed the well-known fact that the rectal temperature is higher than that of the skin, and more recently<sup>6</sup> he has shown that the rectal temperature varies with the depth of insertion of the thermometer. It should be inserted 5 cm in infants, the reading at 14 cm will be 0.2–1.3° C higher than if it is inserted 2–6 cm. It is worth noting that the rectal temperature may not always be higher than the oral. Rappaport<sup>7</sup> described a series of 25 patients whose rectal temperature was normal but in whom the oral temperature was raised persistently above normal. The reasons for this unusual finding are obscure.

Elsewhere in this issue Professor Alan Moncrieff and Dr B J Hussey describe some simple experiments with the ordinary mercury thermometer. They mention the well-known fallacy of the 'normal' axillary temperature: the child is chilled in the out-patient department, but when he has been warmed in bed a raised axillary temperature may be recorded within half an hour of his admission to the ward. The ordinary half-minute thermometer placed in the axilla gave a reading 0.4–1.4° F (0.22–0.78° C) higher after five minutes than after two minutes. Because of the unreliability of readings taken in the axilla or groin the authors advocate that these sites should no longer be used for temperature recording, and they recommend that temperatures should be taken rectally in all children under five years and by the mouth after this age. Allowance must of course be made for the fact that the rectal temperature is normally higher than that in the mouth. With proper technique the risks of cross-infection are small. Green and Penfold<sup>8</sup> recently investigated the risk of transmitting infection by hospital thermometers and paid special attention to the efficiency or otherwise of the antiseptic solutions in common use. They obtained on culture up to 40,000,000 organisms per ml, including *Bact. coli*, from glycerin of thymol solution into which thermometers had been dipped on the nurses' rounds, but no organisms from 1 in 20 phenol. Every child should have its own thermometer kept in a safe antiseptic solution above the bed or in a cupboard; it should be sterilized when the child is discharged.

Taking the temperature is a simple procedure—so simple that frequently insufficient care is taken, particularly in the choice of site in inserting the thermometer properly, in

leaving it in for a sufficient length of time (at least two minutes for a half-minute thermometer), and in sterilizing it after use. We are prepared for technical errors in complicated laboratory tests but often forget the possibility of errors in simple bedside procedures.

### THE MILK BILL

Last week the Government introduced into the House of Lords the Milk (Special Designations) Bill. This will give the Minister of Food power to specify areas in which only specially designated milk may be sold retail or supplied under the milk-in-schools scheme. The approved designations in England and Wales will be TT (certified) milk, TT milk, accredited milk (derived from a single herd), pasteurized milk, and sterilized milk. In Scotland the designation "standard" takes the place of "accredited". Descriptions of these milks and the conditions which must be complied with before they can be so designated will be set out in Milk (Special Designations) Regulations.

In a recent annotation<sup>1</sup> we drew attention to Lord Bledisloe's observation that Great Britain, with about 40% of her cattle infected with tuberculosis, has the worst record in this respect of all the countries in Western Europe. Milk must be made safe for the public to drink, and at the same time the health of dairy herds must be improved. The Minister of Agriculture bears responsibility for the latter task, but the Minister of Food under the new Bill is now to be given power to ensure that only heat-treated milk or milk from disease-free animals may be sold in certain areas of the country. It has often been suggested that the public might be misled by the term "accredited" into thinking that milk from accredited herds must be "safe," and it is encouraging to see in the new Bill that recognition of accredited and standard milk as designated milks will be restricted to a period of five years from the commencement of the Act, and that in the meantime the designation will apply only when the milk concerned comes from a single herd. Many would wish that it might have been possible to dispense with this designation immediately. In order that the Minister of Food may be in a position to carry out the requirements of the Bill he is to have power to install and operate heat-treatment plants wherever he may decide they are necessary, or he can arrange for the work to be done by local authorities.

Under Defence Regulation 55G (now to be revoked) the Government has had powers for the past five years to impose limitations similar to those proposed in this Bill. So far as we are aware, no area of the country has yet been specified as an area in which only designated milk may be sold. Shortage of heat-treatment plant and of skilled labour cannot be the only reasons for this deplorable gap during which many lives have doubtless been lost and much illness caused by infection with bovine tubercle bacilli. With the powers proposed in this Bill the Minister of Food should at last be in a position to correct what is recognized by the medical profession to be a serious hygienic defect in this country.

The Goulstonian Lectures on 'The Cardiology of Old Age' will be delivered by Dr C J Gavey, FRCP, before the Royal College of Physicians of London (Pall Mall East SW) on Tuesday and Thursday Jan 11 and 13, 1949, at 5 p.m.

<sup>3</sup> *J. de Med.* 1835 1 385.  
<sup>4</sup> Quoted in Albutt and Rolleston's *System of Medicine* 1905 1 834. London: Macmillan.

<sup>5</sup> *Ann. J. Dis. Ch.* 1931 42, 965.

<sup>6</sup> *British Medical Journal* 1948 2, 251.

<sup>7</sup> *Ann. N.Y. Acad. Sci.* 1946 25 1.

<sup>8</sup> *Lancet* 1947 2, 89.

## LOYAL ADDRESS OF THE BRITISH MEDICAL ASSOCIATION

We print below the loyal address presented to His Majesty the King Patron of the British Medical Association on the occasion of the birth of a son to Her Royal Highness Princess Elizabeth

To the King's Most Excellent Majesty

The Humble Address of the President and Members of the  
British Medical Association

May It Please Your Majesty,

We, Your Majesty's dutiful and loyal subjects, the members of the British Medical Association distributed throughout Your Majesty's Commonwealth and Empire, humbly offer to Your Majesty and to Her Most Gracious Majesty the Queen congratulations on the birth of a son to Her Royal Highness the Princess Elizabeth, Duchess of Edinburgh

Our gladness on this auspicious occasion is joined with a fervent hope that the young Prince may enjoy length of days richly blessed with happiness and health

With our heartfelt felicitations we beg to express to Your Majesty our high and affectionate regard and to assure Your Majesty of our unceasing fidelity and loyalty to Your Majesty's Throne and Person

Signed on behalf of the British Medical Association

LIONEL WHITBY, President

H GUY DAIN, Chairman of Council

F A GRIGG, Chairman of the Representative Body

A M A MOORE, Treasurer

## Reports of Societies

### PREVENTION OF ACCIDENTS

The prevention of accidents was the theme at a meeting of the Section of Epidemiology and State Medicine at the Royal Society of Medicine, held on Nov 1 with Sir Allen Daley in the chair. Mr W GISSANI, surgical director of the Birmingham Accident Hospital, discussed the incidence, severity, and after effects of accidents domestic and industrial with special reference to the provision of efficient treatment and showed that despite some improvement there was no room for complacency. He thought that patients with accidental injuries endangering life were too often given treatment too late or by medical personnel inadequately trained for the task. Suitable structural arrangements and modern equipment were required in hospitals for this purpose, and team work was necessary for even reasonably good results. Adequate after-treatment should be given by the same team. As a result, crippling deformities which in the past lowered industrial efficiency were rare and the effect of treatment was greatly improved when patients received rehabilitation specially designed to fit them for a particular task or occupation. He felt that while prevention of accidents might be a very difficult problem the prevention of the crippling results was something which could be tackled immediately.

Dr FRANK COLLIER, gave an interesting analysis of 71 cases of accidents treated in Birmingham. Of these 504 occurred in the home (all ages) and 232 in industry. The fatality of the home accidents was six times that of the industrial accidents and the average stay in hospital was approximately 25 longer—due largely to the more serious accidents occurring in the home, especially burns and scalds in children and old people. One third of the patients burnt at home were children and the burns were caused mainly by tea and other hot liquids, coal fires, electric and gas fires, baths left unattended and inflammable liquids. Electrical faults and other causes constituted a very small part. The need for prompt admission to hospital without prior treatment apart from first aid to the damaged tissues was stressed as part of the preventive programme.

### The Danger of Carelessness

Dr C A BOUCHER stated that more than 8 000 persons were killed every year in England and Wales as a result of accidents at home and in everyday pursuits. Six thousand of these were in the home, which represented about two fifths of the total of all fatal accidents including road accidents, transport accidents, mine accidents etc. There had been no fall in the figure since 1938. On the contrary, in the age groups under 5 and over 65 there had been an increase. In 1945 one fifth of all fatal accidents occurred in children under 5 and about half in persons over 65, falls being the main cause in the latter group. Structural defects in the home or faulty house design were not considered to be a major cause. On the other hand, overcrowding in the home was a definite factor, especially in the case of accidents affecting children. Dr Boucher laid emphasis on carelessness and neglect about the dangers existing in the home and the use of faulty appliances which looked tempting and cheap in the shops and could be purchased so easily by the non-discriminating person. He felt that there was a great lack of awareness among the people concerning the extent of this problem. There was also indifference, when it was realized that the majority of these accidents were preventable. He believed that there were at last signs of activity directed towards the prevention of home accidents. The Royal Society for the Prevention of Accidents had shown great energy and imagination in drawing the attention of the public to dangers in the home. This society was the chief medium through which educational work was initiated. There was also an Inter-departmental Committee on Accidents in the Home set up by the Home Secretary in 1947 to co-ordinate the work of departments in preventing accidents in the home, and a Domestic Accidents Panel of the Building Requirements Subcommittee of the Ministry of Works was already at work.

In Dr Boucher's opinion the most hopeful course was to use education and propaganda rather than legislation. He quoted the ineffectualness of the provision in the Children and Young Persons Act 1933, in which it was decreed that any person over the age of 16 having the care of a child under the age of 7 who was killed or seriously injured because of an insufficiently guarded open fire, shall be liable to a fine of not more than £10. Nobody could penalize a woman, particularly a mother for so tragic an accident. He thought that the aim of education should be to make the public critical of goods which they bought in the hope that in time public opinion would demand safe articles, in the schools teachers could help by giving suitable instruction to children.

### Need for Reliable Statistics

Dr PIERCE STOCKS, mentioning the work being done in America to reduce home accidents, thought that general appeals were unlikely to succeed and that each cause of accident would have to be attacked in detail. A necessary prelude to such action was to obtain good statistics, and the General Register Office was doing three things to that end. Coroners' certificates were providing more detail than hitherto of the circumstances of fatal accidents and the places where they took place. After lengthy discussion with experts in the USA a classification both by nature of injury and cause of accident had been grafted into the International List, which was now designed for morbidity as well as mortality statistics. This contained definitions and enough detail of grouping to satisfy anyone. The teaching hospitals had in the past paid little attention to causes of accidents but now they were being asked to do so in the interests of prevention. It was hoped to secure sufficient information about inpatients during 1949 to provide some useful statistics. He believed that the hospitals could in that way make an important contribution to the eventual reduction of many kinds of accidents.

Dr BRIAN STANFORD gave a preview of a new film strip lecture addressed to persons who have the care of children. This showed the main causes of home accidents and the ways in which they could be prevented. Mr JOHN BUNNAN described a bag which could be used to cover a limb and thus provide adequate protection until the injured patient reached medical care.

## Correspondence

### Treatment of Placenta Praevia

SIR—The excellent paper by Mr W G Mills (Nov 20 p 896) in which 100 cases of placenta praevia are recorded with no maternal deaths and a foetal and neonatal mortality of 16.5%, provides further convincing evidence of the value of expectant treatment of this disease and shows that it can be carried out in proper surroundings with safety to the mother and increased chances of survival for the child. I have advocated this treatment for 20 years or more and described it in the first edition of my book, *Antenatal and Postnatal Care* (1935) London and during that time it has been practised in the obstetric unit of University College Hospital London.

It is encouraging to note that Mr Mills adopts the newer classification of placenta praevia into four degrees in preference to the older and confusing one into lateral, marginal etc. On one point, the treatment I have advocated views differing from his—i.e. that once a "warning" haemorrhage has occurred after the 28th week the patient should be kept in hospital under observation until delivery. The majority go into labour spontaneously at term deliver themselves without further bleeding and go home without any exploration of the lower uterine segment having been made, and consequently without the nature of the haemorrhage—whether unavoidable or accidental—having been accurately ascertained. Only a speculum has been passed shortly after admission to view the cervix and exclude any cervical lesion. In this annual report of University College Hospital such cases are classed as 'haemorrhage of unknown origin,' and four varieties of antepartum haemorrhage are included: (1) haemorrhage certainly due to placenta praevia, in which the placenta has been *felt* or *seen* in the lower segment, (2) those in which it is not felt or seen there (accidental haemorrhage), (3) those due to haemorrhage from extra-placental sites usually the cervix, and (4) those in which it is not known if the haemorrhage is accidental or unavoidable. The last is by far the largest class in each annual report. In other words the report is an honest one not attempting to classify where accurate classification is impossible.

Some other hospitals have already adopted this classification but it is disappointing to find that in the recently published 'standard' form for annual reports (*J Obstet Gynaec Brit Emp*, 1948, 55, 478) drawn up by a committee of the Royal College of Obstetricians and Gynaecologists the old one into three varieties only is adopted. Frankly I am always suspicious, to put it mildly, of any report that classifies all cases of antepartum haemorrhage as due either to placenta praevia or to premature separation of a normally situated placenta (accidental haemorrhage). Into what class the case is put so often depends on the whim of the house surgeon or registrar, or on examination of the placenta after its delivery—an entirely unreliable guide, as experience proves.

The expectant treatment often means that patients have to be kept in hospital for several weeks before delivery but all who have practised the method will agree that it is well worth while. It makes too a great demand on antenatal beds but bed scarcity is no reason for condoning inadequate antenatal care. If we do not in the interests of our patients, demand more antenatal beds we shall certainly never get them—I am, etc.,

London W 1

F J BROWNE

SIR—Whilst congratulating Mr W G Mills on his results of treatment of placenta praevia (Nov 20 p 896) I should like to point out that his figures are not comparable with other statistics. Vaginal examination under anaesthesia is now practised in some obstetric centres in all cases of antepartum haemorrhage after the thirty-sixth week of pregnancy unless the bleeding is of extraplacental origin. I gather that this is the routine at the Birmingham Maternity Hospital.

Such a practice results in accuracy of diagnosis and successful results but it also gives a diagnosis of placenta praevia to a proportion of that large group of cases which Professor F J Browne includes under the heading 'antepartum haemorrhage of unknown origin'. Now this group comprises those cases

of haemorrhage which are mild and the majority of them end in a spontaneous and successful delivery. If cases of placenta praevia from this group are added to statistical summaries it will improve the maternal and foetal death rates. This may in part account for the apparent success of Mr W G Mills's results—I am, etc.,

London WC1

J G DUMOULIN

### Primary Post-partum Haemorrhage

SIR—I have only just seen the *Journal* of Oct 23, but I would like to comment on the article by Drs James B Joyce and G Gordon Lennon at p 740 of that issue. It is stated,

'We believe it is better to go to the highest point of the placenta and start separation from above downwards'. It seems to me that a placenta situated on the posterior wall would be extremely difficult to remove by this method. It would mean the operator working with an acutely flexed wrist in the confined space of the uterine cavity. This would create a tremendous mechanical disadvantage as well as causing the hand to become quickly exhausted if the operation takes longer than anticipated. It would also mean introducing far more of the hand, wrist, and forearm into the uterine cavity than is necessary.

The reason given in support of this method is that the uterus can retract immediately on the open sinuses. Surely with adequate control of the fundus with the external hand there is not much chance of venous bleeding occurring while the operation is actually being carried out. With an operation such as this, in which one has always to work alone and in the dark, it seems a pity to confuse the first time operator (who is often considerably in awe of the whole procedure) with theoretical directives, however explicit. All this apart from the fact that it is much easier to remove a placenta from below upwards.

The authors include interesting quotations from obstetric forebears, consequently it seems doubly hard on Credé that his name should be omitted deliberately, and so unceremoniously, from Part II. The reason given, that he never awaited the natural separation of the placenta before applying his method, seems irrelevant. Credé may have been an impatient man, but surely the technical method is the same at whatever moment after delivery of the child it is carried out—I am, etc.,

Toronto Canada

ROBERT A H KINCH

### Breast-feeding

SIR—I read with interest Dr Enid L Hughes's article on breast feeding (Sept 25, p 597). In the fishing community of Newfoundland marriage, having babies, and breast feeding are looked upon as natural for a woman. As a result the mothers have a very much easier time while having their babies than do their sisters in England. Dr Grantly Dick Read's teaching is not needed here, for mothers accept their labour as something essentially normal, not something to be feared and struggled against as in England.

Likewise with breast-feeding. In the houses there is rarely any possibility of privacy, but the mother feeds her baby in full view of her family and any visitors who happen to be present. While waiting to see the doctor it is quite common for the mother to give her infant a "meal". At least 95% of the babies are breast-fed, and a woman who does not breast feed is looked down on.

Unfortunately the above does not obtain in the towns where the situation is the same as in England—giving birth is a 'disease' and breast feeding is carried on by a much smaller percentage. It would be of interest to conduct a survey of breast feeding considering the social status of the family—I am, etc.,

Burgeo Newfoundland

M G JACOBY

SIR—The figures given by Dr Enid L Hughes (Sept 25 p 597) regarding failure of lactation raise the question how important this is. After 19 years in M and CW work my views have changed and I do not now regard artificial feeding as a disaster. On the contrary, I think the gains to mother and child are many. The mother is relieved of a function

which is an irksome tie and often detrimental to her health, and the baby, brought up on dried milk preparations fortified with vitamin D and minerals, plus cod-liver oil and orange juice, receives a diet lacking nothing needful for its optimum development. In fact, at the five year-old routine school inspections I have often remarked that the children with the best teeth have been artificially fed and, contrariwise that the worst dentition tends to be correlated with breast feeding, particularly if this has been prolonged.

Moreover, the teaching that breast milk is a perfect diet is, we now know, fallacious and often results in the withholding from the infant of the necessary vitamins, iron, etc. We do not know the ideal length of time for breast-feeding, but it is probably much shorter than the fashionable 6 to 9 months. As for the loosening of the emotional tie between the lactating mother and her infant, this I think is ideological. I have never noticed any diminution of affection in the mother or of satisfaction in the infant when bottle feeding is instituted. On the contrary, when the babe is partly breast-fed and partly bottle-fed the mother almost invariably says it prefers the bottle to the breast.

In short, during the puerperium and for a few weeks following I think breast-feeding is desirable if it can be achieved. But it is a primitive function which the majority of women find they cannot fulfil in the rush and bustle of urban life for any length of time—I am, etc.,

Exeter Devon

GRACE H WALKER

### Ménière's Syndrome

SIR—We have been interested in the work done by Mr E R Garnett Passe and Dr J S Seymour (Nov 16, p 812) in treating Ménière's syndrome by interrupting the sympathetic fibres from the stellate ganglion running along the vertebral artery, and in some cases by dividing the artery as well. They raised the problem of ligating the second vertebral artery if the condition should also develop on that side, and they suggest that the safety of this procedure should first be proved by animal experiment.

We have been doing some experimental work on blood flow in the circle of Willis using rabbits, of the readily available animals they have a circle most like that of man (cats and dogs are especially unsuitable for anatomical reasons). Ligation of both vertebral arteries has been done by other workers besides ourselves and does not result in death. Using a rapid coagulation technique modified from that of Franklin and Amoroso<sup>1</sup> we have confirmed earlier work that under normal circumstances the vertebral arteries supply the hind-brain and posterior-cerebral artery territory. And we have shown that in this animal carotid and vertebral blood-flows meet and oppose each other without appreciable mixing in the posterior communicating arteries. Any alteration in balance of pressure between the carotid and vertebral circulations causes the posterior communicating artery to function as an anastomosis and blood flows along it.

In man the condition of the posterior communicating arteries, therefore would appear to be all-important in the main problem under consideration. Normally these are relatively smaller than in the rabbit but they show great variation. Davis<sup>2</sup> found that they were 'normal' in less than 50% of 1033 cases, and in 3% of 1603 cases they were both absent. Forster and Moran<sup>3</sup> found absent or threadlike posterior communicating arteries in 23% of 200 cases averaging 59 years of age. These cases showed a higher incidence (31.8%) of cerebral softening than cases without these defects (23%). Because of these variations it would be unwise regardless of results of animal experiment to attempt to predict the results of bilateral vertebral ligation especially in older patients.

Under rarer circumstances the structure of the circle of Willis might render even unilateral vertebral ligation dangerous. To investigate the presence and patency of the posterior communicating artery in any individual angiographic studies are necessary or else close observation could be made at operation during bilateral vertebral compression.

Another factor is the possibility of thrombosis. The injection of small doses of thrombin into one vertebral artery resulted in death of the animal from respiratory failure followed by cardiac failure.

whereas larger quantities injected into the internal carotid artery did not cause death. While the thrombosis resulting from intravascular injection of thrombin is hardly comparable to that which might follow the ligation of a vessel, we think this observation worthy of record. Although much of this is theoretical as regards man, we feel that the factors mentioned should be appreciated if interference with the vertebral artery, whether by ligation or by injection of radio-opaque substances, is to become more common than hitherto—we are, etc.,

DONALD A McDONALD  
JOHN McE POTTER

London E C 1

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- 1 Oral communication Physiological Society March 23 1948
- 2 McDonald D A Potter J M *Proc physiol Soc* 1948 (In the press)
- 3 *Intracranial Arterial Aneurysms*, 1945 p 147 New York
- 4 *Arch Path* 1941 32 251

### A Gastric Bezoar

SIR—On Oct 16 a man aged about 40 was admitted to the Waveney Hospital, Ballymena, he had had vomiting and stomach discomfort for about three weeks. He was of low-grade intelligence, and no clear and reliable history of his condition could be got from him. So far as we could find out he complained of a dull, aching pain in his epigastrium which radiated upwards, occasionally woke him up at night, and was relieved by a drink of milk. There appeared to be no previous history of stomach trouble. His appetite was good, and he had no loss of weight.

On examination by the H.S. when admitted his abdomen was noted as lax and mobile, with no tenderness or rigidity, and no abnormality was discovered. When examined next day by me I noted some abdominal distension and a certain amount of rigidity, making it impossible to palpate the abdominal organs clearly. On Oct 17 he had a fractional test meal done but there was great difficulty in getting an adequate specimen from the stomach at any time. Such specimens as were got showed no free HCl and diminished total acidity. On Oct 18 he was x-rayed. On examination six hours after a barium meal the meal seemed to be in the normal position in the caecal region, but there was a faint shadowy picture of an enlarged stomach visible. On getting his second barium meal the stomach was shown considerably enlarged, with some thinning of the barium shadow in the pyloric and cardiac regions which could hardly be described as definite filling defects.

When I examined him on Oct 21 before a meal he was quite relaxed and I was able to feel a definite mass occupying the whole stomach area and freely movable. At operation on Oct 22 I removed from inside his stomach a rolled mass of hay and straw weighing 1 lb 12 oz (793 g). This was tightly rolled and matted in the pyloric region and looser and less compact in the cardiac region. His recovery has been uneventful save for a stitch abscess, and his only complaint at present is that he does not get enough to eat—I am, etc.,

Ballymena N. Ireland

J ARMSTRONG

### Intussusception Due to Carcinoma of Colon

SIR—Surely Mr R A C Owen (Oct 30, p 786) is wrong with regard to the rarity of intussusception in adults. Interesting though his cases were, and that the opposite holds true, namely that they are too common to require reporting? If not, my first case, an ileo-ileal intussusception headed by a sub-mucous lipoma is hardly relevant to his article, but my second has its own interest.

The patient was a woman aged 49, and she was seen on July 16, 1940, with a history of increasing constipation. A mass was felt attached to the left corner of the uterus. She was later moved to the Staffordshire General Infirmary, and on July 26 a growth (histologically adenocarcinoma) of the sigmoid colon together with attached portions of the uterus and bladder wall was removed, using a modified Paul operation. She returned home healed and well in September 1940, and nothing further was heard of the patient till March 20 1945. At this time she had a sudden violent attack of abdominal pain and vomiting. This gradually settled down, and a subsequent barium enema gave a "normal" (i.e., indeterminate) result.

It was more than a year later that she was confined to bed with griping pains and constipation (May 7, 1946). She was treated expectantly with oil and magnesia, with fair apparent success. On



May 16 there was a relapse, and a vague tumour in the left upper abdomen appeared together with visible peristalsis. On May 17 blood was passed per rectum, and laparotomy showed the head of an intussusception from the mid transverse colon to have just reached the splenic flexure. Reduction was easy, and a malignant growth was manifest. Search of the abdomen showed no distant secondaries nor any evidence of trouble in the sigmoid colon or pelvis, and the operation was completed by the formation of a caecostomy. On June 7 nine inches of the mid transverse colon was excised centring on what proved again to be an adenocarcinoma, and continuity of the bowel restored by side-to-side anastomosis. The caecostomy shortly closed and the patient returned home on June 25 and has remained well since.

A personal view is that the second carcinoma had a quite distinct origin from the first. The occurrence of pain, etc. fifteen months before its first discovery indicates a possible polypoid origin which might be common to the two but no other polyps were manifest at the 1946 operation. However, the concurrence of to my mind two not very rare conditions, discrete colonic growths with intussusception of one of them is unusual and comment on either subject would be welcomed—I am etc.,

Stafford

G I WILSON

### Aortic Dissecting Aneurysms

SIR—I read with interest the article on aortic dissecting aneurysms by Mr D P van Meurs in your issue (Sept 25 p 599) which reached here this week, just two days after a discussion on the same subject had taken place at the weekly clinico pathological conference at the Royal Hobart Hospital attended by resident medical staff consultants, and local general practitioners.

The case under discussion was a man aged 65 whom I was called to see at 6 a.m. on Nov 1, 1948. He had been seized with an acute abdominal pain on rising and had collapsed to the floor. On arrival I found him on the floor in a state of severe shock. He was extremely pale, sweating, but not dyspnoeic. He retched twice in my presence, but did not vomit. His radial pulse was of poor volume, rate 96, rhythm regular. The heart was not enlarged clinically, and the sounds were normal. Blood pressure was 80/40. There was rigidity of the abdominal musculature in all areas. I considered he was far too shocked for a case of perforated abdominal viscus and sent him to hospital with a diagnosis of dissecting aneurysm of the abdominal aorta. He revived somewhat after admission to hospital and was able to give more history. He had no relevant past history. The abdominal pain commenced soon after he retired, and it woke him at intervals during the night. He was seen after admission by a surgeon who advised against laparotomy. The patient was then feeling much better and had only a dull ache in the abdomen. The abdomen was rigid all down the right side and out into the right loin. On the day following admission he still had a fair amount of pain. At 2 p.m. he began to sweat, went pale and died in a few minutes.

Post mortem examination showed a rounded aneurysm of the abdominal aorta about 3 inches in diameter situated just proximal to the bifurcation. The aneurysm had ruptured over a wide area anteriorly, and several pints of blood were present in the adjacent tissue spaces and in the mesentery and peritoneal coat of the intestines. The aneurysmal sac was adherent to the lumbar vertebrae, but there was no erosion. The inside lining of the aneurysm showed some calcification, much necrosis and stripping of the walls and some slight tendency to longitudinal wrinkling. The proximal aorta and the iliac arteries were arteriosclerotic, with calcareous plaques. Apparently the aneurysm had been leaking all night, and the effort of rising had caused further dissection with terminal rupture 36 hours later.

I am indebted to Dr J C Laver, superintendent, Royal Hobart Hospital for the clinical notes after admission and to Dr Campbell Duncan, Commonwealth Government pathologist, Hobart, for the post mortem report.

—I am etc.

Hobart, Tasmania

A W O YOUNG

### Bronchial Asthma and Thiopentone

SIR—Dr Brian D L Johnson's letter (Nov 6, p 837) calling attention to the fact that bronchial spasm can follow the administration of pentothal to a patient suffering from bronchitis and asthma would have been more convincing had he described his induction in greater detail. That type of case can be safely anaesthetized with thiopentone provided due

care and attention are given to the underlying pathology. Most or all of the lung tissue is affected by bronchitis emphysema and asthma in varying degree, probably there is bronchiectasis and residual sputum in addition. Secondary deposits are also possible in the type of case described by Dr Johnson. Such a patient is quite unfit for the strain of any athletic performance and she is equally unfit for a rapid induction with drugs that will also cause respiratory depression. Such cases are sick patients and must be anaesthetized with considerable respect. For some years I have adopted the following procedure in all bad risk cases and without exception have always had most satisfactory results.

The patient's arm is put on a splint. A syringe of 20 ml of thiopentone 5% is taken and the needle inserted into a vein. The syringe is strapped on but no injection is made. With some 8 litres per minute of oxygen running through a Boyle's machine a mask is placed near the patient's face. He is told what is happening—that the oxygen is to help his lungs, etc., that he will not go to sleep yet, and that he will be told when he is to be put to sleep. I have never seen any anxiety follow this procedure. While talking to the patient the mask is lowered on to his face, frequently the colour improves, but in any case at the end of about two minutes or less 1 ml. only of thiopentone is injected and the patient is told that he will go to sleep in the next few minutes. Rarely does this dose upset respiration but if it does no further injection must be made until good movement has been restored. Some 30-45 seconds later a further 1 ml is injected and the result observed. The injection can now be continued at an increased speed, but slowing of respiration must not be ignored. After the first 5 minutes, and usually after 0.5 ml thiopentone has been given, the oxygen can be reduced and N<sub>2</sub>O added. The mixture should be 50% at first, and the O<sub>2</sub> content should not drop to say 20% in under 10 minutes, though the operation can have started before then.

Bronchial spasm, if it occurs, will be preceded by a bout of coughing. Further steps that can be taken to avoid this coughing are: (1) Do not risk inserting an artificial airway at too light a plane of anaesthesia. Be sure that an adequate plane has been reached before this is done. (2) If further anaesthetic agents are to be given, remember that ether will set up violent coughing if not used carefully. Chloroform is at its best in this type of case and makes a good stepping stone to ether.

Finally, though one has had a smooth induction and anaesthetic a stormy recovery may follow. Long bouts of coughing and straining can be separated by periods of breath holding. This tends to produce a blue patient, perhaps in spite of the administration of oxygen. My conclusions from this, if a patient has a really chronic chest, are as follows: (1) Use locals if reasonable—e.g., for suprapubic drainage. (2) Limit the thiopentone to 1 g, and a quicker recovery will ensue. (3) Early removal of artificial airways is important. (4) Do not leave the patient lying flat if coughing is occurring. They are better well propped up.

The administration of oxygen before inducing anaesthesia is too little practised. I have twice previously described my technique in the *Journal* and know how smoothly bad risk cases can be induced in this way. It is also very regrettable, but equally true to say that many patients are inadequately oxygenated when they go blue from any cause. This crime—for to me it is none other than culpable negligence—is by no means confined to the junior anaesthetist and may even be committed in teaching hospitals—I am, etc.

Southsea

H B C SANDIFORD

### Pulmonary Rheumatoid Disease

SIR—The paper by Drs Philip Eilman and R E Ball (Nov 6, p 816) raises several interesting points. The first is that, whatever causes pulmonary fibrosis in rheumatoid disease, it is a rare finding in such cases. Skiagrams of the chest are usually normal in this disease. In view of this we feel justified in reporting a case we have at present under our care.

A clerk, aged 43, first developed symptoms of rheumatoid arthritis in 1934 in his feet at first and later in his knees. Under physiotherapy the disease remitted, only to reappear in more active form in 1941 in his hands, wrists, and elbows. A further relapse occurred in 1947 when his shoulders became affected. In 1943 he became aware of the onset of swelling and redness of the finger tips, which subsequently remained swollen and pink. In 1945 he had a short sudden attack of dyspnoea with palpitations. Skiagrams and electrocardiographs were normal. One year later a sharp pain of pleural

type appeared at the right base, abating within a fortnight. Treatment had been gold, vaccines, lactic acid intra-articular injections, and physiotherapy.

His previous history was as follows. In 1928 he was treated for thyrotoxicosis by iodine and deep x ray therapy. The last treatment was given in 1932. The condition subsided and has never relapsed since. Total dental extraction was performed in 1934. He gave no past history of chest trouble and had never been exposed to dust hazards. His family history was irrelevant. An elder brother also had thyrotoxicosis.

On examination he was found to have bilateral exophthalmos, there were no other signs of thyrotoxicosis. His fingers were markedly clubbed, the terminal phalanges being bright pink in colour. The cardiovascular system was normal. B.P. 120/80. The chest was barrel shaped, maximal expansion 2½ in (5.6 cm). A few fine basal rales were present. Signs of advanced rheumatoid arthritis were present in elbows, wrists, hands, knees, and the left shoulder.

The Wassermann reaction and gonococcal fixation tests negative. Blood count normal. Haemoglobin 95%. Electrocardiograph normal. Serum cholesterol 214 mg per 100 ml, plasma proteins 6.4 g per 100 ml (albumin 4.2 g, globulin 2.2 g). ESR (Wintrobe) varied between 13 and 34 mm. Non protein nitrogen 22 mg per 100 ml, plasma uric acid 3.7 mg per 100 ml. Serum alkaline phosphatase 9 units. Thymol turbidity 2 units. Thymol flocculation 1+. Serum colloidal gold negative. Twenty-four hour specimens of urine contained 1.2 g creatinine and 0.2 g creatine.

Biopsy of the skin and deltoid muscle was reported on by Dr A. W. Morgan as follows: "The capillaries of the cutis vera are rendered prominent by congestion and endothelial swelling, also by a mild lymphocytic infiltration of the perivascular lymph spaces. The portion of muscle shows little of note in the fibres themselves and no fibrosis. There is, however, a focal infiltration of round cells between the fibres and a slight degree of sarcolemmal nuclear proliferation."

Skilograms showed typical rheumatoid changes in knees, hands, and wrists. The cardiac outline was normal. The lungs showed a fine reticulation in lower and middle zones, with coarser nodulation in the outer quadrants of the middle zones. Progress was slow but encouraging. The patient is still under observation as an out-patient after spending four months in the ward.

The case is still *sub judice* but we consider it worth reporting in the light of Ellman and Ball's report. The history and clinical and radiological findings do not suggest pulmonary tuberculosis or bronchiectasis. Polyarteritis and scleroderma were considered as diagnoses but were rejected. We have for some time considered him to be a rheumatoid disease of the lung as the pulmonary changes appeared during the course of the disease were not accompanied by symptoms, and did not appear due to other causes. The patient an intelligent man is certain that finger clubbing appeared first in 1943 between two acute relapses in the rheumatoid condition. In view of Ellman and Ball's report we feel inclined to adhere to our diagnosis and advance this, tentatively as a further report of pulmonary rheumatoid disease.—I am, etc.

London S.W.1

F. DUDLEY HART

### Hereditary Haemorrhagic Telangiectasia

SIR—I was most interested in the article written by Dr C. P. Petch (Oct 30 p 785) on this condition sometimes known as Osler-Weber disease (Parkes-Weber first stressed hereditary nature by describing a family in 1907 and he reviewed the literature in 1924). In reviewing some of the literature (with a report of a rather unusual case with a four-generation pedigree) in the *Journal* of March 31, 1945 (p 440) I was impressed that the disease was not quite as rare as the number of actually recorded cases might indicate. Like Hurst and Plummer stated this, and Price goes so far as to say that the condition may be as common as haemophilia. Certainly the difficulty has been to distinguish clearly the condition from disorders like purpura haemophilia, and so on.

The condition could perhaps be enumerated as follows: (1) the presence of a Mendelian dominant and not recessive mode of inheritance; (2) the presence of telangiectases; (3) the tendency to haemorrhage; and (4) the multiplicity of lesions. The condition may follow a benign course like most Mendelian conditions, or it may be severe. The severe cases would tend to be associated with a more serious course. The condition may be present in the skin, the mucosa of the alimentary canal, the respiratory tract, or even in the capillaries of the brain,

but usually they are found in the nose. The bleeding is sporadic, epistaxis being the common feature. Hess's test is negative. It is this fact which would throw doubt on the cases reported by Singer and Wolfson<sup>1</sup> in 1944.

Finally, I would like to mention that I was not quite certain at what stage the patient reported by Dr Petch had attempts at cautery done. Hurst and Plummer<sup>2</sup> described a method of immediate control by the inflated-finger-stall device, when the bleeding settled cauterization of the larger naevi was performed. This has been found a most efficient method of treatment, though admittedly a new crop of naevi are liable to occur—I am, etc.

London S.E.1

D. CAPPON

### REFERENCES

- <sup>1</sup> *Lancet* 1944 2, 502.
- <sup>2</sup> *Principles and Practice of Medicine* 1936 New York.
- <sup>3</sup> *New Engl J Med* 1944 230, 637.
- <sup>4</sup> *Gin & Hosp Rep* 1932 82 81 87 and 96.

### H 11 in Malignant Disease

SIR,—Case 5 reported by Mr J. H. Thompson and Dr G. J. W. Ollerenshaw (*Journal*, Nov 6, p 835) and the third case referred to by Dr H. Josephs (Nov 13, p 876) appear to be identical with a case recently under my care. In both the above references the assumption is made that here was a case of carcinoma of the rectum with secondaries in the liver which disappeared as a result of H 11 therapy. Every doctor who accepts this assumption will feel that a very good case has been made out for this therapy in cancer. The history of the case known to me, however, is that the nodules in the liver were not typical secondary carcinomatous nodules. They were described by the original operator as "very small nodules," and in a personal communication he tells me that "he would not now regard such nodules as cancerous." Every surgeon of experience must have met similar small nodules which on section turned out to be fibromas or hepatomas or small cysts or other benign lesions. The patient has done very well, and I do not deny that H 11 may have been beneficial, but it has not been proved that such a striking and unusual effect as the disappearance of liver secondaries has occurred.—I am, etc.

Birmingham

FAUSET WELSH

### Pensions for Diabetics

SIR,—I am rather surprised at the somewhat unsympathetic attitude adopted by Dr R. D. Lawrence (Nov 13, p 875) in view of his well-known interest in the welfare of the diabetic and of his work for so many years for those who have this handicap. As he points out, recruits found to have glycosuria were most carefully excluded from service with the Forces unless this condition was proved to be of the harmless variety. It was therefore to be expected that the incidence of diabetes among serving members of the Forces would be low. But nevertheless many were admitted with a diabetic heredity, in these exigencies of war might easily precipitate a diabetic state which might never otherwise have occurred, or antedate its onset.

A case of this type came under my own notice. This man, whose mother died of diabetes, was passed fit for service, trained for the commandos, put in strenuous service in Syria, Tobruk, and Burma, contracted septic infections, epidemic jaundice, dysentery, scrub typhus, and malaria, and fell a victim to diabetes. In establishing a claim for pension it was not a question of war conditions only but war conditions plus repeated infections to which this man would not have been otherwise subjected and which were likely to antedate the onset of diabetes in a predisposed individual.

Where the onset of diabetic symptoms follows immediately upon an incident under Service conditions—e.g., a head injury in a motor-cycle accident or on immersion in the icy North Sea both examples of actual cases—no one can maintain that the accident had nothing to do with the onset of diabetes. In fact any unprejudiced observer, be he medical, scientific, or lay, would take the view that cause and effect might reasonably be associated here. Furthermore, as I understand the position it is not for the claimant to prove cause and effect without the shadow of a doubt but for the Ministry to show without any doubt that the incident and the onset of diabetes could not have been in any way associated. I should therefore still

make the plea that where there is any possibility that diabetes occurred as a result of accidents or strain during service the case of the claimant should get a fair and full hearing.

I cannot agree with Dr Lawrence that diabetes is in every instance a disease which can be so lightly regarded that it will not produce disability and some incapacity in earning a living. The severe diabetic is liable to sepsis following minor injuries and abrasions and to major effects from minor infections. He may be unsafe in occupations involving proximity to dangerous machinery and in particular he may easily fall a victim to tuberculosis. I have already seen this occur in a diabetic pensioner. In conclusion, I still feel very strongly that the diabetic is worthy of his pension—I am etc.

Aberdeen

A LYALL

### Bornholm Disease

SIR—Dr A F T Ord's admirable description (Nov 20, p 916) of his cases comes close to Daa's original description of the syndrome (as quoted by Sylvest<sup>1</sup>) which he named epidemic myalgia. As a rule the patient has a stitch in one side of the chest, which is often accompanied by pains in the back, shoulders, epigastrium, and abdomen. Several outbreaks of epidemic myalgia have been described in the literature,<sup>2</sup> and most observers agree that there are no x-ray changes demonstrable in the disease. In this connexion it is interesting to note that if the film was correctly interpreted some mid zone opacity was seen in Dr Ord's first patient's chest thus bringing atypical pneumonia into the differential diagnosis.

The other syndrome which ought to be considered in the differential diagnosis is the non glandular form of infectious mononucleosis. In a recent paper<sup>3</sup> I have described the extremely difficult differential diagnosis between the atypical forms of infective mononucleosis, epidemic myalgia, and the pre-paralytic stage of acute poliomyelitis—an important point in times of an epidemic.

I cannot but concur with Dr Ord's criticism of the indiscriminate use of the 'sulpha' preparations and penicillin in these cases. Some yet unpublished therapeutic response has been demonstrated in at least infectious mononucleosis with para-aminobenzoic acid (PABA). It is possible that the drug may be effective also in the more uncommon epidemic myalgia, and it is obvious that to give these patients sulphonamides is just the wrong thing to do.

The differential diagnosis can be made easier if white counts are taken of these patients, a procedure certainly easy for a hospital and accessible even to a general clinician. In a case of frank pneumonia warranting chemotherapy or penicillin one would expect marked leucocytosis with increased polymorphonuclears, except in a very few toxic cases of bone marrow depression. The white counts in epidemic myalgia are either normal or only very slightly increased, and in infectious mononucleosis the diagnosis can be safely made by demonstrating the typical young mononuclears ('atypical lymphocytes' of American writers). As a matter of fact the differential white count is the only safe way of diagnosis for the latter syndrome since the Paul-Bunnell reaction is positive only in less than 50% of the cases during the first fortnight and cannot be demonstrated at all in almost 30% of the cases.<sup>4</sup>

To sum it up a little more clinical observation, like that demonstrated by Dr Ord and much less mechanized medicine, and the list of rare and uncommon diseases will have to be radically revised—I am etc.,

London S W 7

A ERDEI

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- <sup>2</sup> Nichaman S J *J Amer med Ass* 1945 129 600
- <sup>3</sup> Scadding J G *Lancet* 1946 1 763
- <sup>4</sup> *Clinical med Ass J* 1948, 59 159
- <sup>5</sup> Price J H, Shlevin E L and Rosen A P *Ann Intern Med* 1944 22 546

### Out-patient Electric Convulsion Treatment

SIR—Dr J F Cooper's letter (Nov 13 p 878) prompts me to report that at the Middlewood out-patient clinic ECT has been used regularly since 1944 with results very similar to those recorded in Sir W P Mallinson's article (Oct 2 p 641). We can confirm the safety of this form of treatment when carried out by experienced psychiatrists with facilities for the immediate admission of the patient when desirable. In over 3,000 treat-

ments no complications, fractures or untoward incidents have occurred. No restraint has been used apart from a loose draw sheet passed round the trunk and arms. Oxygen has never been used and complaints of post-convulsive headache have been few and hardly worth mentioning. Three nurses are utilized, mainly for the purpose of transport of patient to the recovery rooms and subsequent supervision.

Fear of treatment is a noticeable feature in a minority of patients and probably the majority would confess to some apprehension if asked about it, but the benefit derived from treatment far outweighs these misgivings. The number of treatments given in one course seldom exceeded eight, and I can recall only one or two patients in each year who gave up attending through fear. For the latter patients and for those who experience a post-convulsive period of excitement Dr Cooper's recommendation of premedication with small doses of pentothal is of value but I doubt the wisdom of complicating the procedure by routine intravenous injections—I am, etc.,

Middlewood Hospital Sheffield

F T THORP  
Medical Superintendent

### Clouding of Surgeons' Spectacles

SIR,—Like most surgeons who wear glasses, and particularly those who prefer a mask with a cellophane layer, I have tried many methods of preventing steaming. Until we get our 'green forms' for the special glasses recently described, may I recommend the following simple method which was evolved under the testing conditions of a hospital where the atmosphere was particularly humid as well as very hot?

A thin piece of soft cotton-wool about 5" x 2" is partly torn across the middle to give it a butterfly shape, the 'butter fly' so formed is placed along the upper edge of the mask before it is assumed. It causes no irritation, and experiment soon determines the smallest amount of wool which will prevent one's breath from passing between the mask and the nose. Unlike special preparations for the glass, which soon lose their effect, the wool enables one to pass the longest, hottest mornings operating with unclouded glasses—I am, etc.,

Birmingham

G K ROSE

### Psychiatry

SIR,—Whilst I am grateful to your critic, Dr Eliot Slater (Nov 20, p 906), for reviewing my book on psychiatry, I feel, nevertheless, obliged to register a mild protest against some of his remarks. A book which sets out to deal with the whole of the subject of psychiatry in some 380 pages cannot, surely, afford to be 'full of asides'. The latter were intended to be not off-stage whispers but positive and fully thought out statements and reflections, whose extra-textual quotation can only be calculated to distort their meaning.

The impression given by Dr Slater that the book emphasizes body-mind dualism overmuch must, I fear, be imputed to his reading of it, not to my writing. Indeed, the theory embodied in the book is in effect a mind-body monism—if I may so put it. It purports, furthermore, to treat psychiatry as if it were concerned with mental illness, with psychic deviations from an accepted norm. If in championing this viewpoint I have run counter to the, at present, more fashionable notion of looking at the subject from a physical angle, it is regrettable that I should be chastised for it.

Dr Slater quotes me as saying, or rather meaning that 'pre-clinical disease is an unconscious process'. Yes indeed it is. A conglomerate of carcinomatous cells, for instance, may lead its parasitic existence for quite a time to the complete unawareness of its host—would that it were otherwise! But I went much further than this. I meant to convey the assumption that unconscious dynamic processes and physical disease might well stand towards each other in the relationship of cause and effect or at the very least as concomitants in one single and indivisible process.

I am well acquainted with Dr Eliot Slater's learned work on genetics as well as with his orientation in psychiatry and I have met him on several occasions. May I end by thanking him for not sparing the rod, and for wielding it with more grace and charm than is usual among psychiatric opponents?—I am etc.,

Kingswinford Staffs

W A O'CONNOR

## "Dye"

SIP.—I note a regrettable tendency on the part of radiologists and other clinicians to refer to many contrast media used in radiology as 'the dye'. The *OED* gives the following meanings of the noun (1) colour produced by dyeing, and (2) material used for dyeing.

Is it really necessary to be so slipshod in the use of our native tongue, even for the sake of brevity? The fact that tetraphenolphthalein is, until acidified, a blue dye is no justification for so describing such colourless substances as pheniodol, 'iodoxyl' diiodone, thorotrast, and iodized oil. If this goes on we shall soon be giving barium dye to show a duodenal ulcer. I write in the hope that this habit will soon be a natural death—I am, etc

Lord W 1

S COCHRANE SHANKS

## Eye Bank Needed

SIP.—I am an Australian and have just returned to London after several months of study in the USA. I feel there is a very real need in England for the establishment of an eye bank. The American eye bank is very busy and functioning splendidly. It has enabled thousands of corneal grafts to be done which have undoubtedly restored vision to many blind people. It receives as much support from the American people as the blood bank. In a small country like Britain an eye bank should be very easy to organize—I am etc

London W C 2

F W SIMPSON

## Marxist Genetics

SIP.—Dr C D Darlington's sarcasm at the expense of *Soviet Biology* (Nov 13, p 862) might have been more effective if it had been more accurate. A particular example of this inaccuracy is his reference to "the idealistic metaphysical bodies the chromosomes," implying that this is Lysenko's attitude. In fact Lysenko states: "We recognize the chromosomes we do not deny their presence. Is heredity transmitted through the chromosomes in the sexual process? Of course it is" (p 43). Again Dr Darlington remarks on the alleged deletion from Lysenko's report of any reference to his views concerning the competition of members of the same species. Yet if only Dr Darlington had read as far as p 38 he would have seen an explicit reference to this very theory.

Dr Darlington also refers to what he terms "a new figure in Soviet mythology" and adds, "We shall all watch Williams with him well in his watching, for Williams died 20 years ago. He was a very well known Russian soil biologist whose ancestors emigrated there. A review containing such inaccuracies cannot be taken seriously. Dr Darlington appears to have been chiefly motivated by reasons other than scientific. Lysenko's report however is well worth serious study to all who are genuinely interested in genetics. He is by no means an unscientific farmer but a scientist well conversant with the scientific theories of formal genetics—I am etc,

London W 1

BARBARA MCPHERSON

## Safer Milk

SIP.—In the annotation entitled "Safer Milk to Come" (Nov 13, p 868) you say: "About one quarter of the milk supplied to schools is neither from a TT herd nor has it been tested." This is incorrect. Figures for school milk at the beginning of this year were:

From TT herds	92%
TT tested	96%
From TT herds and TT tested	96.6%
From TT herds and TT tested and from other sources	99.2%
From TT herds and TT tested and from other sources and from other sources	99.6%
From TT herds and TT tested and from other sources and from other sources and from other sources	99.9%

It is clear that all milk will receive a double test. All milk is tested in the Welsh mountains where no TT milk is available. The milk where the medical authorities have produced a local supply which is kept.

W A LITTLE  
W 1

## POINTS FROM LETTERS

## Breast feeding

Dr CHARLES A MARSH (Bath) writes: Another cause of the failure of lactation is the abolition of the free movement of the baby's arms. In normal lactation the baby's hands gently massage the mother's breast, and this is a most important factor in the flow of milk. The modern plan of wrapping the baby up so completely that the arms are invisible and useless, thus turning it into a mummy, is altogether contrary to nature and limits the co-operation between mother and baby so well described by Dr Rachel Pinney (Nov 13, p 878) as a love act. A calf or a lamb constantly varies suction with bumping its head against its mother's udder, massage by the baby's hands is just as natural though less violent. The only reason I have been given for wrapping the arms is to prevent the baby scratching its face, involving possible criticism of the nurse, but this can be met by cutting the baby's nails. The fact that there is little difference in the amount of breast-feeding in hospital or at home does not affect this question, as the district midwives get the same training. The old fashioned tight binder has gone out and the new fashioned mummification come in. I do not know which of the two is worse.

Dr C T NORRIS (London, S W 6) writes: With experience similar to Dr James S Hall (Nov 20, p 919) I have only found one mother among all those who really want to feed their babies who could not do so when afforded adequate supplies of calcium and iron, which I now use in the form of calcium lactate gr 10 or 15 (0.65-1 g) in 2 dr (7 ml) of the *N.W.F.* *mistura ferri et ammonii citratis*, t.d.s. The criterion is not quantity only, a thin watery milk, however plentiful, requires this treatment, and so does a mother, whatever the lactal condition, who resumes the puerperal flow on returning home or who menstruates during lactation. These facts are not and cannot be known to those who lose sight of the mother 10 or 14 days after delivery, in whose hands most of the midwifery now lies, and who consistently fail to induce the mother to see her own doctor for further advice when they send her out of their care. They also do harm by sometimes advising 3-hourly feeds, against which no mammary organization I have met can contend indefinitely. In at least half the cases where the baby is presented as the patient for a vague asthenia or wind, treatment is needed on these lines for, and through, the mother.

## Carcinoma of Cervix

Dr E MALCOLM CLARK (Fort Hall, Kenya) writes: Mr Sampson Handley has stated (Dec 20 1947, p 1010) that the relative freedom of Jewish women from carcinoma of the cervix was almost certainly due to circumcision of Jewish males. He also quotes the case of circumcised Fijians, and even goes so far as to state that as a consequence of present standards not being as far ahead as the hygiene code of Moses thousands of women are annually sacrificed to this form of cancer. Amongst the Kikuyu tribe in Kenya all the males are without exception circumcised before puberty. Carcinoma of the cervix amongst the females of the tribe is, however, so far from being rare, the commonest of all forms of cancer. In a series of 82 consecutive cases of cancer amongst the Kikuyu (both sexes) I found no less than 12 cases of carcinoma of the cervix. With one exception the diagnosis was confirmed by histological examination at the Medical Research Laboratory, Nairobi. One case not so confirmed was operated on by a very experienced gynaecologist in Nairobi. It was found that owing to the advanced state of the growth it was impossible to perform a hysterectomy, there could be no possible doubt as to the diagnosis. It would not, I think, be justifiable to attribute the low incidence of carcinoma in Jewish and Fijian women to circumcision in their men folk. Rather would it not be safer to suggest some racial factor which we do not as yet fully understand?

## Another Unusual Case of Twins

Dr J K POMEROY (Lemberg, Canada) writes: With reference to the memorandum on an unusual case of twins by Drs J H Young and F E Cull (Oct 16, p 713) I was called to a maternity case thirty miles away on April 5 1948. When I arrived the woman was in labour. I diagnosed twins. I had not been in the house many minutes when I delivered the first foetus a girl, by the breech and divided the cord. The next presenting object was a placenta. At this point there were two cords leading into the uterus and at the external end of one a placenta was attached. Then came the second foetus, a boy, vertex presenting. As I had not severed the cord there I was with the second foetus connected by an intact cord with its placenta—the placenta that had already been expressed. The placenta belonging to the first foetus was expressed in a few minutes. The woman made an uneventful recovery. I do not know the woman's history as I saw her only the once. I do know she was a bipara with the first child about 4 years of age. It is a rare condition. The sequence was the same as Young and Cull's, foetus A placenta B, foetus B, placenta A.

## Obituary

### STUART McDONALD, M.D., F.R.C.P.E.D.

Many of those who were students in medicine at Newcastle upon-Tyne before the last war and many of the older members of the Pathological Society will learn with regret of the death on Nov. 15 of Stuart McDonald, emeritus professor of pathology in the University of Durham.

Stuart McDonald was born at Castle Douglas and educated at Dumfries Academy going on to the University of Edinburgh where he graduated M.B., C.M. in 1896. In 1907 he proceeded M.D., obtaining a gold medal for his thesis on subacute necrosis of the liver, a subject of which much less was known then than is the case to-day. Shortly after qualifying he began to specialize in pathology, spending some time at Freiburg, where he learnt much from the teaching of Aschoff. Then for some years he lectured on his specialty in the extramural school at Edinburgh. In 1909 McDonald was appointed to the chair of pathology in the University of Durham, and there he remained for the next twenty-eight years, till his retirement in 1937. He published little in his later years with the exception of an important study on asbestosis in 1927, but he was a constant attendant and a well-known figure at the bi-annual meetings of the Pathological Society. He threw himself with zest into the life of the University, becoming dean of the medical faculty and an officer in the Medical Detachment of the Officers' Training Corps as well as taking a keen and active part in many student activities. He was also deeply interested in forensic medicine and became known throughout the North of England as a reliable expert witness. Professor McDonald was for long a member of the Newcastle upon-Tyne and Northern Counties Medical Society and eventually became its president. His services were much in request as an external examiner in pathology in many universities in England and Scotland, and in addition he served both as secretary and as vice-president of the section of pathology at B.M.A. Annual Meetings.

Despite his love of cities McDonald was essentially a countryman who looked forward with zest to the days that he could snatch beside his beloved trout streams. His years of retirement were spent among the quiet Peeblesshire hills, where he could indulge to the full his taste for rural things. His life at the end was saddened by the death in 1946 of his son, who was professor of pathology in the University of St. Andrews.

### J. B. SIMPSON, C.B.E., M.D., F.R.C.P.E.D.

Dr. James Bertie Simpson, of Golspie, died on Nov. 16 in Edinburgh at the age of 85. Dr. Simpson was a student at Edinburgh University, and graduated M.B., C.M. in 1887, proceeding M.D. in 1892 after a period of study at Leipzig and Vienna. He was elected F.R.C.P.E.D. in 1925, and was a deputy-lieutenant for the county of Sutherland. He was awarded the O.B.E. in 1920 and was made C.B.E. in 1942. Dr. Simpson was an assistant in Ballachulish, Argyle, before settling in Golspie. He was chairman of the Caithness and Sutherland Division in 1922-3 and again in 1941. He had been a member of the Highlands and Islands Consultative Council and of the Insurance Acts Subcommittee for Scotland. He was an active member of the Scottish Committee from 1933-40 and again in 1945-6. He was also a representative at Annual Representative Meetings on several occasions.

Dr. D. W. D. MacLaren writes: "With the passing of Dr. J. B. Simpson our profession in the North of Scotland mourns the loss of its most honoured and distinguished representative."

Simpson of Golspie was indeed a household word in all our northern counties. His devoted work over many years on behalf of his medical colleagues can never be forgotten. He was a keen and enthusiastic 'B.M.A. man' holding the highest positions in his Division and Branch, and for years the trusted delegate to its national councils and committees in Edinburgh. His dynamic and colourful personality found its scope in so many local and county activities that it was always a source of amazement how he found time for them all. In addition he ran a large and most successful general practice and was

medical superintendent of the county hospital at Golspie. He had the highest ideals and principles and he was always a wise guide and friend to all who sought his advice. With his natural gifts of mind and heart he brought exceptional skill and competence to his professional work in Sutherland, that county which he served so well and which he loved so much. We shall always recall the energetic figure, the fresh complexion, the twinkling eye, the ready wit—caustic at times, but never vindictive—and the abounding humour, wise judgment, and shrewd Scottish common sense of this remarkable doctor, sportsman, and friend. To his son Mr. B. Soutar Simpson, consulting surgeon to the county of Sutherland who continues the family tradition and to all those near and dear to him we offer heartfelt sympathy.

Dr. R. W. Craig writes: "With a cultured mind and a capacity for shrewd judgment Dr. J. B. Simpson combined a rich sense of humour and a strong appreciation of the finer things of life. Straight as a die, he could not tolerate humbug in any shape or form. His penetrating eye, despite its twinkle, could exert an influence which was frequently both chastening and astonishing. As a raconteur he was inimitable, and to spend an evening in Simpson's company was a most refreshing and delightful experience. To the British Medical Association he gave ungrudging and loyal service, but it was only natural that his chief interest should lie in the work of the Highlands and Islands Subcommittee, of which he was chairman for many years. It was in large measure due to his influence that the Highlands and Islands Medical Service achieved its world-wide reputation. In the home of the crofter or the laird he was equally beloved and respected. He was a keen angler and an expert deerstalker. He kept himself fully abreast of the latest developments in medical science, and this is reflected in the fact that the late Sir John Fraser was glad on occasion to give his class of clinical surgery the opportunity of having a lecture from Dr. Simpson. A fine example of the best type of family doctor, his character and work will remain an inspiration to all who had the privilege of knowing him."

Dr. GEORGE JAMES IRVINE LINKLATER, chief executive school medical officer to Edinburgh Corporation, died in the City Hospital in Edinburgh on Nov. 24 at the age of 57 after an illness of some months' duration. Dr. Linklater had been in the service of the Edinburgh Corporation for twenty-six years. He graduated at Edinburgh in 1912 and proceeded M.D. in 1920. Over the next two years he took the M.R.C.P.E.D. and the diplomas in public health and in tropical medicine. Dr. Linklater was a keen Territorial and served in the R.A.M.C. in both world wars. He received the O.B.E. for his services in the 1914-18 war, and in the recent war he held the rank of colonel, for his services to the Red Cross he was awarded the Order of St. John. He had also been for many years a High Constable of Holyroodhouse. Before his appointment as school medical officer in 1930 Dr. Linklater had been a resident physician in the City Fever Hospital and in the Royal Victoria Hospital, and from there he went on to become a tuberculosis officer in the city. With Dr. John Guy, a former medical officer of health, he was the joint author of a book, *Hygiene for Nurses* which has been the standby of many nurses for years. Dr. Linklater was one of Edinburgh's ablest administrators, and the present high standard of the school medical service is due to his unceasing work. He was at his best with children, as those who saw him hold the rapt attention of large audiences at the junior cinema clubs on Saturday mornings would know. He was an able and lucid lecturer and took a leading part in teaching hygiene to nurses and health visitors. A delightful raconteur and a good companion, he will be sorely missed by a wide circle of friends.—W. G. C.

Dr. L. Carlyle Lyon writes: "It is with profound regret that I, one of his grateful Aberdeen students in the years 1922 to 1927, learned of the death of Professor Theodore Shennan (Journal Nov. 6, p. 839). His value as a teacher was due in part to the unusual personal interest he showed in each one of the students in his class, even to the point of obtaining their individual photographs. His friendliness created enthusiasm for his subject and transformed hard work into a human relationship. He was invariably at his best in the post-mortem room and his textbook remains, in my opinion, a fitting record of his thorough mastery of his subject. All those who studied under him will feel a very personal loss."

## Medical Notes in Parliament

### Sanitary Conditions in the Catering Trade

Mr EDWARD DAVIES on Nov 18 drew attention to the use of cracked and chipped crockery, particularly in catering establishments, and the relation of this use to the spread of infection and disease. Dr BARNETT STROSS said that from what little bacteriological work had been carried out it appeared that reasonable cleansing of an unbroken service with boiled water would leave only a few organisms, whereas on cracked crockery there could be found many types of organism, particularly haemolytic streptococci. Medical students used to hear terrifying stories about diseases which could infect the lips from the use of dirty cups by infected people. They now knew that this happened very rarely, but trench mouth had been prevalent during the war and there was some cause for thinking that it could arise from cracks in pottery.

Dr EDITH SUMMERSKILL said that the Medical Research Council had experimented on china in various stages of dilapidation and the viable bacterial count on the mouth area of a cup was found to vary from a few organisms to many thousands. The number of these organisms was not determined by the cracks or chips but by lack of cleanliness. The Ministry of Health had no record of any serious illness that had been traced to the use of cracked crockery. Apart from sore throats which could be attributed to streptococci there was no trace of any other outbreak. Though germs might be left in cracks after the use of boiling water, there must be a heavy dose of virulent streptococci before anyone could be infected. Cases of food poisoning which had been reported all over the country were not attributable to infected cups, spoons or forks but to food in which organisms had multiplied rapidly. It was quite impossible for organisms to multiply rapidly in cracked cups. Whatever the material used to make utensils, the only safeguard was to ensure that they were properly cleaned. In restaurants throughout the country these utensils were rinsed in water which teemed with bacteria and were wiped with cloths containing many thousands of living bacteria to the square inch. The Ministry of Health was trying to educate the public on the need for a better service. She thought it would be possible for the large catering establishments to give a preliminary wash in a first sink of water containing a detergent at a temperature of 110 to 115° F (43.3°–46.1° C) followed by a rinse in a second sink of water at a temperature of about 175° F (79.4° C) for at least thirty seconds, the articles then being allowed to drain dry without wiping. That was much better than wiping them with a filthy cloth covered with bacteria. Crockery, so treated though not sterile, would have a low bacterial count.

Dr Summerskill reminded the House that at present any individual could inform upon the manager of a catering establishment who conducted it in a dirty fashion. He could inform the local authority for an inspector to inspect the establishment. The Ministry felt so seriously about this matter that it was setting up a catering trade working party with the following members of reference. To make recommendations to the Ministry of Food and Health and the Secretary of State for Scotland as to the precautions considered practicable and desirable with a view to securing the observance of sanitary conditions in the catering trade.

The chairman of this working party would be Sir William Campbell, an authority on food hygiene. It also included a representative of the Ministry of Health, a sanitary inspector, Dr Sutherland, a representative of the Central Council for Health Education, medical and nursing officers from the health departments at the Ministry of Food and persons drawn from different sections of the catering trade. This working party would hold its first meeting on Nov 26. Dr Summerskill added that supplies of crockery were now taking more than 10% of the value of the home market. It was essential, however, to make a national provision prohibiting the use of cracked crockery.

### Civil Defence Medical Arrangements

Mr EDWARD DAVIES on Nov 22 drew attention to the Second Civil Defence Bill. Mr. A. BEVAN said it was a very important Bill. It was a Bill which would enable the Government to make arrangements for the medical services in the event of a war. There had not been any serious consideration of the medical services in the event of a war. It was now only

necessary for the Minister of Health to ask regional hospital boards to identify sites and buildings where they could expand hospital services in an emergency. The same thing was true of blood banks. Blood transfusion services were nationally organized and nationally administered. The same was also true of the ambulance services now the responsibility of the counties and county boroughs and capable of being expanded at any time. So the Government by its wisdom in constructing the National Health Service had at the same time provided the foundations for an effective defence organization.

### Tuberculous Ex-Servicemen in Switzerland

Mr CHETWYND on Nov 23 asked whether the Minister of Pensions had any statement to make on the results of the scheme initiated by the Don Suisse for the treatment in Switzerland of ex-Servicemen disabled by tuberculosis.

Mr H. A. MARQUAND said he would circulate in the official report a short account of the scheme under which, through the generosity of the Don Suisse organization, 180 British ex-Servicemen suffering from pulmonary tuberculosis were provided with free sanatorium treatment in Switzerland. He added that he had conveyed to the Swiss Minister the cordial thanks of His Majesty's Government for the generous and friendly gesture of the Swiss people.

The account which Mr Marquand supplied indicated that in 1946 the Don Suisse offered to provide, for one year, 100 beds in sanatoria at Leysin, in Switzerland, for the free accommodation and treatment of British ex-Servicemen suffering from pulmonary tuberculosis. It was arranged that the patients should be selected by the Ministry of Pensions according to clinical criteria agreed with the Swiss doctors. Medical officers of local health authorities were consulted and patients were selected as follows: from Service hospitals 28, from local authority sanatoria English counties and county boroughs 87, London County Council 34, Scotland 21, and Wales 10. The first hundred patients went to Switzerland in January–February 1947, in six parties. In August, 1947, 76 patients returned on completion of the agreed period of treatment and 79 others went out. Seven patients returned in December, 1947, and 37 in April 1948. The remainder came back in small groups each month up to Aug 31 on which day the scheme ended, having been extended by eight months through the generosity of Don Suisse.

### Basic Salary

Dr SEGAL asked on Nov 25 by what authority local executive councils were empowered to ask a doctor applying for payment of basic salary to submit details of his income from all sources. He demanded an assurance that a doctor who refused to divulge these details would be in no way prejudiced when his claim for a basic salary came up for consideration.

Mr BEVAN said his view was that it was only the doctor's professional income which should be taken into account in such cases.

Dr SEGAL asked whether it would be advisable to investigate incomes at the other end of the scale where overworked doctors might have lists of patients with which they could not cope and might be receiving incomes larger than they ever had before.

Mr BEVAN said that was entirely another question. That matter was being reviewed by the Medical Practices Committee. Until the Ministry had received a survey of the whole country it would not be able to identify those parts where the lists were too large and the areas under-doctored.

Mr RANKIN said that doctors who applied for the basic salary were told that that salary, if paid, was a charge on their colleagues in the area in which they practised.

Mr BEVAN replied that it was true that the £300 a year came out of the general capitation pool as indeed it ought to do because it formed part of a doctor's remuneration. Where however an individual doctor was aggrieved he had the right of appeal to the Minister. Many had so appealed, and decisions had been given.

### Distribution of Doctors

Mr BOSKOV asked how many more doctors were required to enable the service promised under the New National Health Scheme to be given satisfactorily, and what special efforts were being made to train doctors to supply this need.

Mr BEVAN said distribution was as important as total numbers. The Medical Practices Committee was obtaining reports from all areas in England and Wales as at Dec 31 and would then be able to assess where the main under-doctored areas were. The medical schools were already filled to capacity.

Mr BOSKOV asserted that there was a shortage of about 20% of the doctors required.

Mr BEVAN said this was quite incorrect. He added that until the Medical Practices Committee reported he was not in



a position to say what areas were under-doctored. He had no information that the medical profession itself said that approximately 20% were required. It was, however, a fact, he said, that doctors in particular areas were not anxious to say their areas were under doctored.

Mrs MANNING asked Mr Bevan to consult Sir Stafford Cripps about expanding the medical schools at a very early date.

Mr BEVAN answered that these schools were filled to capacity. It was impossible to expand them beyond the capacity of teachers available to teach in them. The medical teaching staffs formed the limitation.

Colonel STODDART SCOTT asked whether Mr Bevan was prepared to carry out the recommendation of the Goodenough Committee to start another medical school.

Mr BEVAN replied that many recommendations of the Goodenough Committee were already in operation, but it was useless to open medical schools if they did not have staff for them.

### Prescribing for School children

Mr YORK on Nov 25 asked whether Mr Bevan would provide for the supply, free of charge, of medicines and drugs prescribed by school medical officers at school clinics.

Mr BEVAN answered that medicines supplied at a school clinic would be supplied without charge. If the school medical officer thought a pupil required other medicines he could refer the patient to his National Health Service doctor who could prescribe for free supply under the Service.

**Medical Practices Committee**—Mr BEVAN informed Sir Henry Morris Jones on Nov 15 that up to that date he had received no recommendations from the Central Medical Practices Committee on the question of maldistribution of practitioners. That Committee would obtain by Dec 31 comprehensive reports on the adequacy of the medical services throughout England and Wales. In the light of these reports he would carefully consider any recommendations which the Committee saw fit to make to him.

**B C G**—On Nov 18 Mr WARBEY asked the Minister of Health what arrangements were being made for a trial of B C G vaccine in this country, with a view to better protection of nurses, doctors, and other contacts? Mr BEVAN answered that arrangements were nearing completion. He was not yet in a position to make any useful public statement on them but would do so as soon as possible.

**Hospital Charges**—Mr PETER FREEMAN asked Mr Bevan on Nov 18 what charges, and under what conditions, hospitals controlled by his department could impose on patients and whether they were informed on admission of such charges. Mr BEVAN replied that patients could go into pay beds at full cost. Otherwise they could only be charged for extra privacy in single rooms or small wards for the extra cost of certain expensive appliances, and for renewal of appliances damaged through negligence. They were so informed on admission.

**Veneral Diseases**—The National Health Service (Veneral Diseases) Regulations 1948, were presented to Parliament on Nov 22.

**Milk for Old People**—Dr SUMMERSKILL said on Nov 22 that milk supplies were not yet sufficient to allow extra milk to old people. There were 3,000,000 persons in the United Kingdom above the age of 70 years.

**Equal Pay for Women**—Mr BEVAN announced on Nov 25 that the differences in the scales of pay between men and women administrative officers in the National Health Service were being abolished.

**X-ray Equipment**—Hospitals in the National Health Service have received 179 diagnostic x-ray units under the arrangements for central provision. Some types can now be supplied from stock. All hospitals have been asked to state their needs.

**Waiting List**—Persons suffering from tuberculosis who awaited admission to hospital on June 30 1948, numbered 9,208.

**Jamaica**—Of the total births registered in Jamaica in 1946 67.71% were illegitimate. There are at present 5,576 free hospital beds in Jamaica to meet an estimated need of 7,850.

## Universities and Colleges

### ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Professor James C Spence will deliver the Finlayson Memorial Lecture in the Hall of the Faculty (242 St Vincent Street Glasgow) on Wednesday Dec 8 at 5 p.m. His subject is 'Poliomyelitis'. Medical practitioners are invited to attend the lecture.

## Medical News

### International Congress of Ophthalmology

Their Majesties the King and Queen have been graciously pleased to grant their patronage to the sixteenth International Congress of Ophthalmology, which will be held in London under the presidency of Sir Stewart Duke-Elder from July 17 to 21, 1950. Any qualified medical practitioner may become a member of the Congress, others not so qualified who have rendered service to ophthalmology and who are approved by the Council will be eligible to attend. Relatives and friends of members will be welcomed as associate members and may attend the opening and closing ceremonies and all social functions. The official languages are English, French and Spanish; any language, however, may be used. The International Council of Ophthalmology has agreed upon two main discussions on the following subjects: (a) the role of the sympathetic system in the genesis of vascular hypertension and its effect upon the eye, (b) the clinical and social aspects of heredity in ophthalmology. Those desirous of participating in the main discussions or reading communications on other ophthalmological subjects should communicate with Mr Keith Lyle, International Congress of Ophthalmology, 45, Lincoln's Inn Fields, London, W.C.2.

### Malta Hospital Rebuilt

The King George V Merchant Seamen's Memorial Hospital in Malta has been rebuilt and was opened by Lady Mountbatten on Nov 30. The hospital was originally opened in 1922 and was intended chiefly to serve the needs of merchant seamen. In addition, however, it has always cared for the personnel of the Royal Navy and their families, and residents and visitors to the Island. It was destroyed by enemy action on April 7, 1942. The Scottish Branch of the British Red Cross Society contributed £125,000 to rebuilding the hospital, and other organizations and friends have contributed large sums.

### Historic Medical Diary

On display in the rare manuscripts room at the British Museum are the diaries and papers from Scott's last expedition. An interesting item is the 1910 'Wellcome' Medical Diary carried throughout his journey by Dr E. A. Wilson, medical officer to the party. As legible as if it had been written to-day, it forms a record of personal and scientific observation second in importance only to Captain Scott's own papers. The diary was found in the tent where the South Polar explorers met their end.

### Radioactive Tracers for Germany

A contract for the supply of radioactive tracers to approved research institutes in the Bizone has recently been placed with the Atomic Energy Research Establishment, Harwell, by the Joint Export Import Agency. This follows the decision of the Isotope Allocation Committee of the Ministry of Supply in January last that radioactive tracers produced in the Harwell 'gleep' could be made available for research work in Germany. The decision of the Isotope Allocation Committee was communicated to the authority responsible for the control of research in the British Zone who immediately informed the U.S. Research Control Group. Together they approached the Board of J.E.I.A. supported by their respective public health advisers, and with the minimum of delay the Board authorized the import of radioactive tracers from Harwell into the Bizone. Research institutes in the Bizone thus gain access to a range of radioactive tracers the indigenous production of which is denied to Germany under Control Council Law No. 25 for the Control of Research. Their allocation within the Bizone is the responsibility of a small German committee competent to decide where proper use will be made of the small total supply of tracers at present available. In order to assist the committee in its task a team of experts from A.E.R.E. visited Germany during October demonstrated the latest ancillary equipment, and answered many queries put to them by the committee.

### Admission to Roll of Assistant Nurses

The General Nursing Council for England and Wales announces that people wishing to apply as assistant nurses with intermediate qualifications for admission to the Roll of Assistant Nurses set up under the Nurses Act 1943, must do so before Jan 1, 1949. After that date only those people who have undergone two years' training as pupil assistant nurses in a training school approved by the Council and have passed a test laid down by the Council will be admitted to the Roll. Under the Waiver Rule applicants who would have been eligible for enrolment as existing assistant nurses but who failed to apply before Feb 3 1946 may now be considered for enrolment. Information may be obtained from the Registrar, General Nursing Council for England and Wales, 23, Portland Place, London, W.1.



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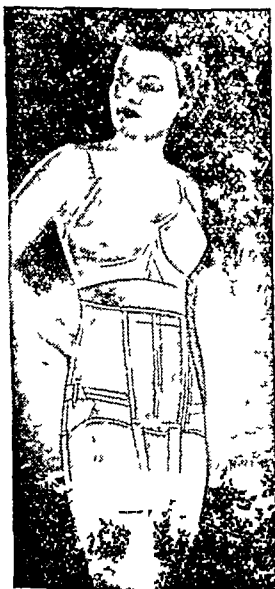
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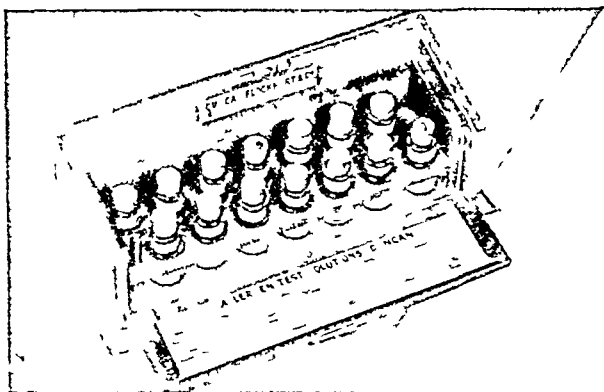
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## Marriage Guidance

The 'Report of the Departmental Committee on Grants for the Development of Marriage Guidance' has just been published. The Committee, which was set up in February of this year by Mr Chuter Ede, recommends that the work in marriage guidance of the National Marriage Guidance Council, the Catholic Marriage Advisory Council, and the Family Welfare Association should be given help from public funds. It is suggested that these three bodies should together devise schemes for selecting and training persons who are acting as marriage counsellors. It is proposed also that ministers of religion might be allowed to take advantage of these schemes of training. The three organizations are not to lose their identities, and Government grants are recommended of £5,000 a year for the National Marriage Guidance Council and £1,500 a year for the Family Welfare Association and the Catholic Marriage Advisory Council. The Committee proposes that the grants should be reviewed from year to year over an experimental period. The setting up of local centres for marriage guidance is recommended, and it is proposed that such centres should be supported financially by the local authority, one half of any substantial expenditure incurred by the local authority being met by a Government grant.

## Dr E H Taylor Cummings

Dr E H Taylor Cummings, MBE, JP, was elected Mayor and Alderman of the Municipality of Freetown, Sierra Leone, on Nov 16.

## Dr G M Findlay

Dr G M Findlay, editor of the B.M.A. Abstracting Service, has been elected a Corresponding Member of the Société de Pathologie Exotique.

## Sir Arnold Stott

Sir Arnold Walmsley Stott, KBE, BCh, FRCP, has been appointed an Extra Physician to the King's Household.

## New Sheriffs

David Rhys Lewis, MD, FRCPed, has been nominated a Sheriff in the County of Breconshire, and Dyfrig Huws Pennant, DSO, MD, in the County of Pembrokeshire.

## Director General of Unesco

Señor Torres Bodet, Foreign Minister of Mexico, has been elected Director General of Unesco in succession to Dr Julian Huxley. Señor Bodet was the only candidate.

## COMING EVENTS

## South West London Medical Society

The third clinical meeting of the session will be held at the Boleyn Hospital at 8.15 p.m. on Wednesday, Dec 8, when Mr Wm A. Hervey will lecture on 'Fenestration—Hearing Aids'.

## Public Health Centenary

The centenary of the Public Health Act, 1848, will be celebrated by the Trustees of the Chadwick Trust at the Royal Society of Tropical Medicine and Hygiene (26, Portland Place, London, W) on Tuesday, Dec 14, when tea and cocktails will be served between 4 p.m. and 6 p.m.

## Rheumatic Diseases Conference

The 7th International Congress of Rheumatic Diseases will be held in New York City on May 30—June 3, 1949, under the auspices of the International League against Rheumatism. The invited guests will be the members of the International League, the European League, and the Pan-American League against Rheumatism with their constituent organizations, the Canadian Rheumatism Association, the British Empire Rheumatism Council, the Heberden Society of London, the Rheumatism Societies affiliated to the American Rheumatism Association, and certain individuals. Prospective participants who intend to present papers should submit titles of their papers to the Programme Committee before Jan 1, 1949. Information may be obtained from Dr Ralph Pemberton, 1901, Walnut Street, Philadelphia, Pennsylvania, U.S.A.

## SOCIETIES AND LECTURES

## Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Edinburgh Royal Infirmary (West Medical Lecture Theatre), Dec 7, 5 p.m. *A Scholar's View of Immortality* by Professor O. L. Richmond.

EUGENICS SOCIETY—At Royal Society, Burlington House, Piccadilly, London, W, Dec 7, 5.30 p.m. *Maternity in Britain: The Results of a Social Survey* by Dr J. W. B. Douglas. All interested are invited to attend.

GLASGOW UNIVERSITY—Dec 7, 4.30 p.m. *Medicine in Literature* by Dr Douglas Guthrie.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Dec 7, 5 p.m. *Hysteria Cutis* by Dr W. J. O'Donovan.

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street, London, W.C., Dec 7, 11 a.m. *Interpretation of Serological Reactions for Syphilis*, by Dr R. Thomson, at St Peter's Hospital, Henrietta Street, London, W.C., Dec 7, 5 p.m. *Non-gonococcal Urethritis*, by Dr A. H. Harkness.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Dec 7, 5 p.m. *The Pestilences of War—I: The Early Civilizations and Greece*, FitzPatrick Lecture by Dr W. H. Wynn.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—Dec 7, 3 p.m. *The Physiology of Haemopoiesis*, Harben Lecture by Sir Lionel Whitby.

## Wednesday

BRITISH PSYCHOLOGICAL SOCIETY—At Royal Society of Medicine, 1, Wimpole Street, London, W., Dec 8, 8 p.m. Meeting of Medical Section. *The Changing Functions of a Psychiatric Out-patient Department*. Symposium by Drs Elizabeth Rosenberg, O. W. S. Fitzgerald, and Sir Paul Mallinson.

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street, London, W.C., Dec 8, 11 a.m. *Biological False positive Serum Reactions* by Dr R. Thomson, 5 p.m., *Fistula Carcinoma and Foreign Bodies of the Urethra and Injuries of the Urethra* by Mr C. H. Mills.

PHYSICAL SOCIETY COLOUR GROUP—At Large Physics Lecture Theatre, Imperial College, Imperial Institute Road, London, S.W., Dec 8, 3 p.m. 43rd Science Meeting of Group. *The Scotopic Visibility Function* by Dr B. H. Crawford. *Visual Purple and the Photopic Luminosity Curve* by Dr H. J. A. Dartnall.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW, 242 St Vincent Street, Glasgow—Dec 8, 5 p.m. *Poliomyelitis* by Professor J. C. Spence.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—Dec 8, 3 p.m. *Dyshaemopoiesis from Nutritional and Specific Deficiencies*. Harben Lecture by Sir Lionel Whitby.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace Road, London, S.W.—Dec 8, 2.30 p.m. *Food Hygiene: Ideas for the Future*. Discussion to be opened by Councillor William L. Roots and Mr H. W. Walters.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—At Physiology Theatre, Dec 8, 5.15 p.m. *Statistics from the Standpoint of a Pharmacologist* by Dr J. W. Trevan, F.R.S.

## Thursday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Dec 9, 5 p.m. *Seborrhoeic Dermatoses* by Dr J. L. Franklin.

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street, London, W.C., Dec 9, 11 a.m. *Treatment of Syphilis* by Dr W. N. Mascall, 5 p.m., *Injuries and Diseases of the Penis other than Venereal* by Mr A. R. C. Higham.

PLANNING FORUM—At Planning Centre Hall, 28, King Street, Covent Garden, London, W.C., Dec 9, 6.15 p.m. *Manpower* discussion to be opened by Mr A. E. U. Maud and Mr G. D. N. Worswick.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Dec 9, 5 p.m. *The Pestilences of War—II: The Roman Republic and Empire*, FitzPatrick Lecture by Dr W. H. Wynn.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—Dec 9, 5 p.m. *The Reactions of Bone to Metal*, Robert Jones Lecture by Sir Reginald Watson Jones.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—Dec 9, 3 p.m. *Dyshaemopoiesis from Noxious Agents*. Harben Lecture by Sir Lionel Whitby.

ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, SCIENTIFIC AND TECHNICAL GROUP, 16, Prince's Gate, London, S.W.—Dec 9, 7 p.m. *The Action of X Rays and Electrons on the Photographic Emulsion* by Dr R. H. Herz.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE—At 26 Portland Place, London, W., Dec 9, 7.30 p.m. *A Survey of Physiological Studies of Mental and Physical Work in Hot and Humid Environments* by Professor G. Crowden. A discussion will follow.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—Dec 9, 4.30 p.m. *Neurology and Psychiatry*. Lecture-demonstration by Dr Desmond Curran.

SOCIETY OF CHEMICAL INDUSTRY, FINE CHEMICALS GROUP—At London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., Dec 9, 7 p.m. *The Chemistry of Plant Growth Regulators* by Dr W. A. Sexton.

## Friday

LONDON CHEST HOSPITAL, Victoria Park, E.—Dec 10, 5 p.m. *Mediastinal Tumours* by Dr J. Smart.

MAIDA VALE HOSPITAL MEDICAL SCHOOL, Maida Vale, London, W.—Dec 10, 5 p.m. Case demonstration by Mr Valentine Loeue.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh—Dec 10, 8 p.m. Hat night.

WEST KENT MEDICO-CHIRURGICAL SOCIETY—At Miller Hospital, Greenwich High Road, London, S.E., Dec 10, 8.30 p.m. *New Chemotherapeutic Substances of Microbial Origin*. Presentation by Sir Howard Florey, F.R.S.

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov 13

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland

Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	33	7	12	3	—	40	2	26	1	—
Diphtheria Deaths	159	18	57	6	5	195	27	60	25	5
Dysentery Deaths	133	19	53	—	—	95	9	17	—	—
Encephalitis lethargica acute Deaths	2	—	1	—	—	2	—	—	—	—
Erysipelas Deaths	—	—	37	13	1	—	—	48	16	4
Infective enteritis or diarrhoea under 2 years Deaths	32	2	7	54	3	61	4	13	53	6
Measles* Deaths†	6 910	108	119	50	46	2 355	116	224	227	1
Ophthalmia neonatorum Deaths	45	7	6	—	—	58	5	12	—	—
Paratyphoid fever Deaths	8	2	17	—	—	8	—	—	—	—
Pneumonia influenzal Deaths (from influenza)‡	579	39	13	3	2	582	41	8	1	13
Pneumonia primary Deaths	202	42	200	24	7	49	321	21	9	7
Polio-encephalitis acute Deaths	3	—	—	—	—	15	2	1	—	—
Polio-myelitis acute Deaths§	60	3	3	3	—	186	12	18	7	—
Puerperal fever Deaths	—	1	5	—	1	—	13	—	—	—
Puerperal pyrexia   Deaths	92	7	5	—	—	117	4	7	—	4
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 450	97	302	207	38	1 947	124	353	54	42
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	5	—	1	—	—	11	3	—	2	3
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping cough* Deaths	2 481	152	101	56	10	1 217	70	43	36	7
Deaths (0-1 years) Infant mortality rate (per 1 000 live births)	279	35	42	22	12	376	47	51	32	20
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4 876	801	658	171	118	4 582	742	593	179	118
Live births Annual rate per 1 000 persons living	7 065	112	851	417	180	7 781	1260	907	312	224
Stillbirths Rate per 1 000 total births (including stillborn)	179	20	30	—	—	196	28	29	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county) will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county) are combined.

|| Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Discussion of Table

In England and Wales an increased incidence was recorded for measles 733 whooping-cough 241, acute pneumonia 83, and dysentery 78.

The increase in the notifications of measles was due to a few counties, in the remainder of the country only slight variations occurred. The largest increases were Lancashire 390, Yorkshire East Riding 107, Derbyshire 93, and Suffolk 54.

The largest rises in the incidence of whooping-cough were 80 in Lancashire and 57 in Wales. The rise in Wales was due mainly to an outbreak affecting 37 persons in the rural districts of Twpelwyn and Valley in Anglesey.

The chief feature of the returns of diphtheria was an outbreak of 12 cases in Yorkshire West Riding, Hoyalnd Nether U.D. No large fluctuations in the notifications of scarlet fever were recorded. The largest rise in the incidence of acute pneumonia was 32 in Yorkshire West Riding.

No further case of typhoid was notified in Shropshire, Oswestry R.D., where the outbreak which had persisted for the preceding nine weeks had resulted in 105 notifications.

Fresh outbreaks of dysentery during the week were notified from Essex, Hornchurch U.D. 60 and Cornwall, Truro R.D. 7. An increase of 12 in the cases of dysentery was reported from London, where the notifications were distributed over nine boroughs. The only other large return of dysentery was Lancashire 19.

Acute poliomyelitis declined from 73 to 60 notifications, the largest returns were Durham 7, Lancashire 4, and Middlesex 4.

In Scotland rises occurred in the notifications of acute primary pneumonia 13, whooping-cough 12, and paratyphoid fever 11, while decreases were recorded for measles 47 and scarlet fever 12. All the 17 cases of paratyphoid fever were notified in the city of Aberdeen. The chief centres of dysentery were the cities of Glasgow 31 and Edinburgh 14.

In Eire decreases in the notifications of measles 74 and whooping-cough 16 were the chief features of the returns. A fall of 11 was recorded in the notifications of diarrhoea and enteritis in Dublin C.B.

In Northern Ireland the notifications of measles in Belfast C.B. were 29 fewer than in the preceding week.

## Week Ending November 20

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1,835, whooping-cough 2,680, diphtheria 154, measles 6,923, acute pneumonia 732, cerebrospinal fever 32, acute poliomyelitis 46, dysentery 49, paratyphoid 4, and typhoid 9.

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

Calvert Smith.—On Sept. 18 1948 at Daphne (née Bousfield) M.B. B.S. wife of John E. Calvert-Smith M.A. of 60 Hall Farm Drive Whitton Middlesex a son—Colin Paul.

Cine.—On Nov. 17 1948 at Tabora Tanganyika to Margaret wife of Dr. Hugh Cine a son.

## DEATHS

Bonavia.—On Nov. 20 1948 at No. 94 British Military Hospital Hamburg Victor Joseph Bonavia M.D. MRCP Colonel late R.A.M.C. aged 54.

Deuchars.—On Nov. 20 1948 at 38 Hope Terrace Edinburgh James McGavin Deuchars M.B. Ch.B. Ed.

Hamilton.—On Nov. 12 1948 at 205 East 61st Street New York George Johnson Hamilton M.D.

Heath.—On Nov. 16 1948 at 9 Highdown Avenue Worthing Wrotham Gerald Heath M.B. Ch.B. Ed. aged 75.

Kitchin.—On Nov. 22 1948 Percy Kitchin MRCS LRCP of 86 Sea Lane Goring by Sea aged 78.

Maples.—On Nov. 16 1948 at 7 Windsor Crescent Jersey Ernest Edgar Maples M.D. FRCS.

Moseley.—On Nov. 21 1948 at Ipswich Charles Kingston Moseley MRCS LRCP aged 84.

Oakman.—On Nov. 22 1948 at a nursing home in Hove Joseph John Oakman MRCS of Rulands Upper Shoreham Road Shoreham by Sea Sussex aged 84.

Palmer.—On Nov. 22 1948 at Morningside Prestbury near Cheltenham Harold Thornbury Palmer MRCS LRCP D.D.M.S. Nigeria retired.

Pictou.—On Nov. 19 1948 at Holmes Chapel Cheshire Lionel James Pictou O.B.E. B.M. Ch. aged 74.

Roberts.—On Nov. 20 1948 at Northbrook Pangbourne Berks Harry Triet Roberts L.M.S.A. L.D.S. R.C.S. late of 31 Harley Street London W.

Robertshaw.—On Nov. 21 1948 Walter Midgley Robertshaw M.B. Ch.B. Ed. of Knoll Top Stocksbridge Sheffield aged 78.

Rozelaar.—On Nov. 21 1948 at 3 Gillingham Road London N.W. Abraham Levie Rozelaar MRCS LRCP.

Waddy.—Recently Frederick Henry Waddy M.D. GLs formerly of Sheffield aged 79.

Wallington.—On Nov. 17 1948 at sea Kenneth Tratman King Wallington MRCS LRCP.

## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Classification of Pulmonary Tuberculosis

**Q**—What is the classification of pulmonary tuberculosis of the National Tuberculosis Association of America, and how does this compare with the latest Ministry of Health classification in this country?

**A**—The classification of pulmonary tuberculosis of the National Tuberculosis Association of America was revised in 1940, when the terms 'primary phase' and 'reinfection phase' replaced 'childhood type' and 'adult type'. The features of previous classification relating to extent of lesions and symptomatology were preserved, but definitions were made more comprehensive and those relating to results of treatment were more rigidly specified. The definitions and classifications may be briefly summarized as follows.

**Primary Phase**—That phase of the morbid process which follows directly and uninterruptedly the first implantation of tubercle bacilli. It may occur at any age and may be symptomless. There may be no clinical or radiological signs, but, on the other hand, the infection may be grave.

**Reinfection Phase**—This follows the primary phase usually after a latent period, and comprises the lesions which develop after re-infection with tubercle bacilli, which are derived from five potential sources: (a) outside the body, (b) from a breakdown of the primary focus, (c) by rupture of a caseous lymph node by way of the lymphatics and the blood stream, (d) from the small apical foci resulting from early haematogenous dissemination becoming progressive after having been stationary or undetected for a long period of time.

**Pulmonary Lesions**—These are classified as: (1) *Minimal*—Slight lesions without demonstrable excavation confined to a small part of one or both lungs, the total extent of the lesions, regardless of distribution, shall not exceed the equivalent of the volume of lung tissue which lies above the second chondro sternal junction and the spine of the fourth or body of the fifth thoracic vertebra on one side. (2) *Moderately advanced*—One or both lungs may be involved, but the total extent of the lesions shall not exceed the following limits: (a) slight disseminated lesions which may extend through not more than the volume of one lung, (b) dense and confluent lesions which may extend through not more than the equivalent of one third the volume of one lung, (c) any gradation within the limits of a and b. Total cavities, if present, should not exceed 4 cm. (3) *Far advanced*—Lesions more extensive than moderately advanced.

**Clinical Status**—Under this heading five definitions are stated:

(1) *Apparently Cured*—In which constitutional symptoms are absent and sputum, if any, must be negative for tubercle bacilli, not only by concentration and microscopical examination, but also by culture and animal inoculation. In case there is no sputum, the fasting gastric contents should be obtained and similarly examined. Lesions must be stationary and apparently healed according to x-ray examination. These conditions shall have existed for a period of two years under ordinary conditions of life. (2) *Arrested*—Constitutional symptoms absent, sputum, if any, must when concentrated be microscopically negative for tubercle bacilli, lesions stationary and apparently healed according to x-ray examination, no evidence of pulmonary cavitation. These conditions shall have existed for a period of six months, during the last two of which the patient has been taking one hour's walking exercise twice daily or its equivalent. (3) *Apparently Arrested*—Clinical conditions demanded for "arrested" shall have existed for a period of three months, during the last two of which the patient has been taking one hour's walking exercise daily or its equivalent. (4) *Quiescent*—No constitutional symptoms, sputum, if any, may contain tubercle bacilli, lesions stationary or retrogressive according to x-ray examination, cavity may be present. These conditions to have existed for at least two months, during which time the patient has been ambulant. (5) *Frankly Active*—Improved, unimproved, symptoms unchanged, worse or less severe, but not completely abated. Lesions not completely healed or progressive according to x-ray examination. Sputum almost always contains tubercle bacilli. (6) *Dead*.

The US classification has had to be given in considerable detail, otherwise it would be difficult to point out how that of the Ministry of Health differs from it. The fundamental difference between the Ministry's classification and the American one is that the former is based on the finding, or failure to find, the tubercle bacillus in the lesion, thereby dividing tuberculous persons into two classes: (a) the non-infectious, in whom the tubercle bacillus has never been found, and (b) the infectious class, in whom the bacillus has been found. Both classes are subdivided into three groups (1, 2, and 3) according to the radiological extent of the lesion and the severity of the symptoms. Cases of pleural effusion in which there is an absence of severe constitutional disturbances, failure to find tubercle bacilli in the pleural fluid, and no parenchymatous lesion are placed in Group 1 of Class A. Where a single positive bacteriological report is not confirmed by further bacteriological search and is unsupported by clinical or radiological evidence of tuberculosis it may be ignored. Considerable difference exists in the definitions of "quiescence". The one adopted by the Ministry of Health reads:

"Cases in which the general condition and exercise tolerance are good, having regard to the extent of the lesion which show no evidence of toxæmia, in which no tubercle bacilli have been found on three consecutive monthly examinations by stained film and in which changes revealed by other clinical investigations and by serial skiagrams point to retrogression of the tuberculous lesion."

A case is not accepted as "recovered" until a state of quiescence has been maintained without interruption for five years. The term 'active' is described by a negative definition as the state that is not quiescent. All cases discharging tubercle bacilli within the preceding three months should be considered as 'active'. A stationary case is one in which the signs, symptoms, clinical tests, and radiological appearance of the lesion have presented no material new feature during the period under review.

To draw up a classification which will satisfactorily include all cases of tuberculosis is a difficult task, and many attempts have been made to produce a comprehensive scheme, but none up to the present meets all requirements. Both the one of the National Tuberculosis Association and that of the Ministry of Health are practical classifications with limited application, but are useful and satisfactory for statistical work on an extensive scale.

### Leukoplakia and Kraurosis Vulvæ

**Q**—What are the present definitions of leukoplakia and kraurosis vulvæ? Which is the commoner? What are the modern figures for the relationship between each of these two conditions and malignancy?

**A**—Although the general opinion on these two conditions is still based on the views put forward by Berkeley and Bonney in 1909 (*British Medical Journal* 1909, 2, 1739, *Proc R Soc Med* 1909, 3, 29) there remains a good deal of doubt and confusion. Indeed, there are signs of a reorientation of ideas during the last few years, and this tends to increase the uncertainty. Kraurosis vulvæ is to be regarded as a condition of extreme atrophy and contracture of the introitus, sometimes complicated by secondary infection. It might be considered as an exaggeration of the normal senile atrophy, and for all practical purposes it occurs only after suppression of ovarian activity. It is conceivable, however, that it might arise before the menopause if for some reason the vulva loses its ability to respond to oestrogens. In the typical menopausal case the lesion responds to oestrogens but recurs when they are withheld. It does not predispose to cancer. Its occurrence is rare as compared with that of leukoplakia.

Leukoplakia vulvæ is characterized by excessive keratinization of the skin, which becomes thickened, white, and hard and tends to crack, and it is not strictly confined to the introitus. In the deeper layers of the dermis, in the later stages of the disease at any rate, there are degenerative changes, and the appearances suggest that the nutrition or blood supply of the epidermis is impaired. It is doubtful whether the four separate pathological stages of the lesion as described by Berkeley and Bonney really exist. It was formerly thought to be a definite clinical entity of unknown cause, possibly a manifestation of chronic infection but not syphilitic. There is now a good deal of



evidence to suggest that the skin changes represent a non specific reaction to a large number of possible factors. Among these factors deficiency states may be important, so 'leukoplakia' is sometimes seen as a manifestation of riboflavin deficiency, iron deficiency anaemia, achlorhydria or macrocytic anaemia, and clears up when the missing factor is replaced. Sometimes, perhaps, the deficiency is a local rather than a general one, and results from an interference in blood supply to the vulval skin or from a failure of the tissues to utilize the factor concerned. Scratching by the patient in response to pruritus vulvae of any origin may also account for some of the skin changes. Leukoplakia can occur at any age and is probably not related to failure of ovarian function, it is not improved by oestrogen therapy. These are some of the lines of modern thought, the ideas are attractive, but many await proof.

Unlike kraurosis, leukoplakia is a precancerous condition, and that at any age. It is impossible to give reliable statistics about how often cancer is superimposed, but it is frequent enough to justify excising areas of leukoplakia which do not respond readily to medical treatment. There are figures showing that established carcinoma of the vulva is very frequently associated with leukoplakia in adjacent areas of skin, suggesting that leukoplakia preceded the growth. Berkeley and Bonney (*loc cit*) said they had never seen a case of carcinoma without there being evidence of leukoplakia as well. F J Tausig, the American authority on this group of diseases, found leukoplakia to be present in 50% of cases, while S Way (*Ann Roy Coll Surg Eng* 1948, 3, 187), in his recent report on a comparatively large series of cases of cancer of the vulva, puts the figure at 78%.

#### Fattening the Lean

**Q**—Is there any treatment which will increase the weight of very thin people who appear to have no other abnormalities? A man of 30 weighs 9 st 7 lb (60.3 kg) and is 6 feet (1.8 m) tall. He has been this weight for twelve years. An office worker he is very fit but tires rather easily. He has no relevant previous history and his diet seems to be adequate. He asks if insulin injections would be helpful.

**A**—The problem of increasing the weight of the abnormally thin is complementary to that of reducing the weight of the abnormally fat. Assuming the absence of morbid causes, in the latter the intake of calories exceeds the output, in the former, the reverse. Many believe that constitutional factors are important: that in some, absorption is unduly efficient or utilization greater. No evidence exists to suggest that these views are correct. In the absence of disease the tendency to gain or lose weight appears to be a simple function of the quantity of food eaten and the amount of energy expended in work. It depends, that is, on appetite, and appetite is a habit without close correlation to the energy output of the body. While those who gain weight always eat more than they need, it is proverbial that they invariably claim to eat "hardly a thing". Similarly, careful analysis of the exact quantities eaten by those who are unduly thin will show that the calorie intake is low. They will seldom agree that they eat insufficient, and they do indeed take enough to assuage their small appetites. It will be found that if a diet of sufficient calorie value is taken the thin will certainly gain weight.

In the present instance the mean normal weight for a man of 30 years, 6 feet tall is 12 st 4 lb (78 kg). He is thus 39 lb (17.6 kg) under weight. The estimated basal requirements of a normal man of this age and height would be 1,920 calories, average requirements for a moderately active life are a little above twice the basal values. If he took a diet of 3,800 calories there is little doubt that his weight would rise to normal levels. Insulin has the effect of increasing appetite and might be of value in this respect.

#### Phosphaturia

**Q**—What is the best treatment for phosphaturia? What measures should be taken to counteract it?

**A**—Phosphates are of course, present in normal urine, and it is quite usual for phosphatic salts to be deposited when the urine cools. Sometimes phosphates come out of solution before the urine leaves the bladder and the urine is then cloudy when passed. This is not indicative of any state of ill-health and has

not been shown to predispose towards the formation of calculi. It therefore requires no treatment, but if it worries the patient it can be prevented by acidifying or diluting the urine. This could be done by taking more fluid and a diet containing more protein and less fruit and vegetables. Acidifying salts such as ammonium chloride would have the same effect but there is no reason to give these unpleasant remedies for this harmless symptom.

#### Quinidine, Dicoumarol, and Auricular Fibrillation

**Q**—In view of the serious consequences which may follow embolism in cases of auricular fibrillation treated with one of the digitalis compounds is it justifiable to give a course of dicoumarol at the onset of the digitalis therapy? If so for how long and in what dosage? Does digitalis act on the blood by increasing the clotting power or is it simply that thrombi are more likely to be discharged from the auricles as a result of the altered action of the heart under the influence of digitalis?

**A**—Digitalis compounds do not in themselves increase the likelihood of embolic phenomena when given in cases of auricular fibrillation. Digitalis increases coagulability of the blood to such a slight degree that it has no clinical significance. In the case of quinidine, which apparently is the drug in mind, embolic phenomena may follow its use. This danger depends on the presence of pre formed thrombi in the auricular appendages, which are expelled when the auricles revert to sinus rhythm. Its danger is not removed by a course of dicoumarol, but may be avoided in part by the careful selection of cases for quinidine therapy. This drug should not be given to a patient known to be fibrillating for eighteen months or longer who has been in congestive failure, who has already suffered embolic accidents, or who has severe cardiac damage.

#### NOTES AND COMMENTS

**Herpes after Coryza**—Dr M A DOBBIN CRAWFORD (London, WC) writes: "I was interested in the question and answer under this heading ('Any Questions?' Oct 16, p 730). I am convinced that in the majority of cases this condition is due to superficial irritation of the skin about the nose and lips by the catarrhal nasal discharge—very probably infective. The typical blister reaction can be completely prevented by the use of a suitable barrier cream from the start of the cold. The best I have found is a sulphacetamide ointment. If applied freely at night and when possible during the day there will be no herpes. In cases where the skin is already blistered it should be dried and cleaned by frequent application of spirits of camphor, eau de cologne or methylated spirits followed by the use of the sulphacetamide ointment.

**Physiology of Hearing**—Dr R S CREED (Oxford) writes: The answer (Nov 6, p 846) to the request for information about the specific gravity and viscosity of the cochlear fluids may be supplemented as follows. In both shark (Kaieda, J. *Hoppe Seyl Z* 1930 188, 193) and pigeon (Rossi, G, *Arch Fisiol* 1914, 12, 415) endolymph has been found to be much more viscous than perilymph. In the shark they have the same specific gravity (1020), slightly lower than that of cerebrospinal fluid (1023). Other details of chemical and physical properties are given by Kaieda, and by Gerhartz in Oppenheimer's *Handbuch der Biochemie* (1925 4 182 Jena).

**Christmas at Barnardo's**—In Dr Barnardo's Homes 7,000 children are making plans for Christmas. The Homes would gratefully receive gifts of toys or money, which should be sent to Barnardo House Stepney Causeway, London, E 1.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Antology*. Western London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 4 1948

## THE SECRETARY REPORTS\*

### REMUNERATION

The Conference of Local Medical Committees, a report of which appears on subsequent pages, expressed with clarity and vigour the views of general practitioners in the Service. On remuneration generally the demand and the decision were to press immediately for the full application of the Spens Report. The special inquiry into the range of income in a large county area is likely to be completed within a day or two of the appearance of these words in print. Armed with this information the General Medical Services Committee will press for an all round improvement in remuneration. The urgent pressing problems concerning the small-list practitioner were emphasized again and again, the general trend of opinion being that the solution lies in an improvement of remuneration generally, plus an increase in the Mileage Fund.

The mileage issue comes under the general heading of 'Spens,' as is illustrated by the following paragraph from that Report:

"So far, we have discussed solely the position in regard to urban practices. We do not regard as significant the comparatively small differences which Professor Bradford Hill's figures indicate as between urban and mixed practices. The latter have produced somewhat larger incomes, but the difference is not great, and it is far from clear whether this difference would persist in a publicly organized service. A more serious problem exists in regard to incomes from rural practices. We are not prepared to criticize the existence of a difference between the average remuneration of rural and urban practice, having regard to differences in cost of living and amenities, but we consider that the difference of approximately £200 which existed in 1939 between incomes about the £1,000 level in the two classes is excessive and requires reduction by about half, when regard is had to all the facts involved. It appears probable that this could best be secured by weighting mileage more heavily."

Clearly the disparity between urban and rural incomes has substantially increased as a result of the virtual disappearance of private practice and the increased number of items of service being demanded by patients in rural, as in urban, areas. It was obvious that the Conference preferred a permanent solution of the problem rather than special inducements though few will deny that the Special Inducement Fund can and should be used to deal with immediate hardship pending a more permanent solution.

Another point which was pressed—it was made to the Ministry months ago—is that the Mileage Fund cannot be regarded as merely a part of a larger medical fund but is something which stands by itself to be used for the purpose of compensating rural practitioners for the time, as well as the cost, of travelling.

#### Basic Salary

The basic salary position had a debate to itself. It was generally agreed that a system under which the final decision on the disposal of local moneys belonging to local practitioners rested with the Minister was wrong. So far some 11 appeals have been made to the Minister and he has allowed 8 of them.

\*Under this heading the Secretary of the Association will at regular intervals—at present weekly—give an account of the efforts being made to place the new Health Service on a basis which is satisfactory to the profession. These reports will, it is hoped, supplement the items of news which appear in these columns, providing background and explanation.

some 80 appeals remaining outstanding. It was said that some local medical committees regarded the task of considering and making recommendations on applications as invidious and likely to divide the profession. There were suggestions to transfer this work of considering applications to the centre, some resolutions advocating payment from a separate fund, others payment from the existing Central Practitioners Fund. In one unusually effective speech strong arguments were put forward against such a translation. In effect they were that under Spens any money found for basic salaries is bound to come out of the profession's remuneration and that if a separate fund is created for basic salaries it will be by subtraction from the Central Practitioners Fund. This being so, however unpleasant the work, we should keep this matter in our own hands and, because of the importance of local knowledge, in the hands of the local medical committee. To pass it to the centre aggravated the danger of a universal basic salary. After all one of our major gains was the withdrawal of the proposal for a universal basic salary, and it would be tragic if we found ourselves pressing for it in order to meet current difficulties. The General Medical Services Committee is reviewing the whole matter in the light of the Conference's discussion on Thursday Dec 2. There was general agreement on the point that once remuneration and mileage were established on a proper basis providing adequate incomes in all kinds of area, the basic salary issue would tend to recede in the background, except in the special circumstances about which there is no dispute.

The question of the heavy burden of work in relation to the permitted maximum came up, and the general view was that the first and paramount task was to secure the proper application of Spens with an adequate betterment factor applied to the recommendations.

### Hospital Conditions of Service

At last the Ministry's proposed terms and conditions of service of hospital medical and dental staff—marked 'confidential'—have been sent to the Negotiating Committee which in turn has circulated them to the Councils of the Royal Colleges and the Royal Scottish Corporations and the Central Consultants and Specialists Committee for their observations.

### Committee on Partnerships

A fairly full analysis of the report of the Legal Committee on Partnerships is published in these columns this week. The report is unusually complicated, though it is written with great skill and clarity. It amply justifies the complaint made by the profession's representatives to the Minister again and again that the section of the Act stated to deal with partnerships is ambiguous and obscure, so much so that the Legal Committee—presumably believing that no partner could have understood what he was in for—has recommended a new appointed day on which anyone in partnership on July 5, 1948, can decide afresh whether or not to enter the Service, with the same compensation rights as applied to those who entered on the original appointed day. The publication of this report clears away the last obstacle to the production of the amending Bill, and the Minister has been asked when we may expect to be given the opportunity of examining in draft the proposed clauses.

# National Health Service

## TREATMENT OF FOREIGN VISITORS

### COUNSEL'S OPINION

Medical men were surprised to learn from a public announcement issued by the Ministry of Health that they were required under the NHS Act to treat visitors from overseas. One effect of this decision may be to increase the population at risk while returning the same sum for remuneration. The B.M.A. took the matter up with the Ministry, but obtained no satisfaction, and the General Practice Subcommittee of the Negotiating Committee took counsel's opinion on the Ministry's interpretation of the Act. His opinion agrees with the Ministry's.

Counsel began by pointing out that the relevant parts of the Act are Sections 1 and 33. Section 1 speaks of 'the people of England and Wales' as the objects of the Act, and Section 33 requires executive councils to arrange for the provision of medical services for all persons in their respective areas who wish to take advantage of the arrangements. Counsel considers that in order to take advantage of the arrangements under the Act no other qualification is needed than being in the area to which the arrangements relate and wishing to take advantage of them. He found difficulty in justifying any other construction on the words. For example if residence in the area had been required, the Act would have said 'all persons resident, etc.', and even then it would have been difficult to decide what degree of permanence there would constitute residence.

It would be difficult to exclude foreigners as such from the benefit of the Act since a foreigner might be domiciled in England or Wales and habitually resident in an executive council area, so as undoubtedly to be one of the persons in the area. Further if a visitor from one town in England is covered by the Act in another it is difficult to see how Section 33 can be construed to have this result and yet exclude a visitor from overseas.

## LIMITATION OF DOCTORS' LISTS

### COUNCILS TO TAKE ACTION

The Minister of Health after consultation with the B.M.A., has informed local executive councils that they should, as soon as possible review the numbers on the lists of doctors in their areas in consultation with the councils for adjoining areas where necessary. As soon as reasonably practicable the lists should be brought within the prescribed maxima—4,000 for a principal working alone, 6,400 if he employs an assistant under his own arrangements.

Some lists are inflated by the inclusion of names twice over for on July 5 the names on a doctor's panel list were automatically transferred to his NHS list, and some of these people subsequently had their names put on his list again by means of Form EC1. Executive councils should therefore obtain accurate figures as early as possible.

The Minister suggests that as a first step a doctor with too large a list should be asked not to accept additional persons on his list except relatives of those already on it living in the same house, unless he is joined by a partner or employs an assistant or in some other way brings the list within the appropriate limit. In special circumstances an executive council may apply for the Minister's approval to a higher maximum in individual cases.

## MEDICAL PRACTICES ADVISORY BUREAU INFORMATION SERVICE STARTED

The B.M.A.'s new venture to provide doctors with an information service about appointments available has now been started and will be fully functioning at the end of this year. Running at an ultimate estimated cost of up to £10,000 a year the service is free to members of the Association a charge being made to non-members. The Bureau is under the direction of a member of the medical secretariat and inquiries should be addressed to the Secretary of the Association.

Since the Act abolished the buying and selling of the goodwill of practices many problems have arisen on how to enter

general practice. Many doctors are wondering how to set about putting up their plates. For instance, it is said that there is a shortage of doctors and that many areas are insufficiently served where are these to be found? The Bureau hopes to provide doctors with information such as this and to help them find suitable openings or vacancies as principals, assistants or partners. It will also try to supply locums. When working fully it will provide an information service for consultants and specialists as well.

## PAY-BED ACCOMMODATION

### OPERATION FEES

The Executive Committee of the Central Consultants and Specialists Committee discussed the National Health Service (Pay-bed Accommodation) Regulations (No. 1490) at its most recent meeting and expressed extreme dissatisfaction with regard to the third schedule which classifies major, intermediate, and minor operations.

In general, it was the committee's view that it is both inappropriate and inequitable that a schedule of operations should lay down arbitrarily the degree of severity of an operation without reference to the particular case. The committee felt that the whole schedule should be abolished and this view was confirmed as it discussed a number of examples which demonstrate the schedule's inappropriateness and inaccuracies. It is understood that the Regulations were based on the Nuffield Provident Guarantee Fund classification which was drawn up as a general guide for hospital benefit schemes. This scheme, designed for an entirely different purpose, is not applicable for a total payment. The total ceiling on charges is £75, a sum which includes the cost of consultations, pathological and radiological investigation, anaesthetic fees, and so on. If these services are paid for at specified rates, the amounts left to pay for the operation may be very small. On the other hand if the payments for all the services were proportionately reduced, this reduction would be difficult to determine equitably.

No allowance is made for a series of operations—e.g., thoracoplasty or two stage operations. Some operations are entirely omitted, notably those performed by thoracic surgeons—e.g., pneumonectomy, lobectomy, surgery of the heart, and so on. No mention is made of cases where two surgeons and their assistants operate simultaneously, as in abdomino-perineal excision of the rectum. A number of ENT operations are also omitted—e.g., fenestration, trans-antral ethmoidectomy, dacryo-rhinostomy.

The classification of the operations was also criticized. Why, for example, is an epithelioma of the lip with excision of sub-mandibular glands classified as an intermediate operation while the similar operation on the tongue is classified as a major? There is no reference in either case to the extent and degree of the primary condition. The injection of a Gasserian ganglion and the aspiration of a cerebral cyst are considered minor surgical operations equivalent to the opening of an abscess or removal of sebaceous cysts. An internal sinus operation is not mentioned while the external approach is encouraged as a major operation.

It will be agreed that there is no such operation as simple mastoidectomy for the surgeon must be prepared for anatomical variations or pathological changes which may entirely alter the scope of the operation. Removal of tonsils by dissection without the use of guillotine (18 years and over) is classified as intermediate and guillotine removal of tonsils (18 years and over)—an operation perhaps never performed—is charged as a minor operation. No mention is made of the removal of tonsils and adenoids in children.

The time taken on an operation, difficulties encountered, and a variety of other circumstances should all be taken into account in assessing a charge, and the only satisfactory method is to leave it to the judgment of the surgeon. The Central Consultants and Specialists Committee will consider the report of the Executive Committee at the next meeting.

## LEGAL COMMITTEE ON MEDICAL PARTNERSHIPS

### MAIN FEATURES OF REPORT

1 The Minister of Health announced in the House of Commons on April 8 this year that he had appointed an expert Legal Committee to advise him on the disputed effect of the National Health Service Act on partnership agreements. The Minister added "It seems likely that a short clarifying Bill may be needed as a result of its inquiries."

2 The Committee's report was presented to Parliament on Nov 23 as a White Paper (Cmd 7565). The Committee's principal recommendation relates to the differences of opinion as to the effect of Sections 35-37 upon obligations and options contained in existing partnership agreements. While there was room for these differences of opinion a partner who carried out an obligation to buy or sell a share of a practice under his partnership deed might find himself liable to fine or imprisonment, or both. The Committee recommends that existing difficulties and ambiguities should be removed by a declaration that the sections of the Act relating to the prohibition of the sale of practice goodwill and to compensation shall not render unlawful the due fulfilment of obligations or the exercise of options to purchase goodwill in existing partnership agreements. For this purpose an existing partnership agreement is one relating to a partnership in existence on the appointed day (July 5, 1948) at least one of whose members has his name on the list of an executive council on that day.

3 The Committee recommends that certain modifications should be made in purchase obligations and options except in those cases where the existing partnership agreement makes express provision for the allocation of statutory compensation among the partners. These modifications, however, will not affect restrictive covenants provisions dealing with houses and other property, and other ancillary clauses coming into operation on the sale of a share of a partner's goodwill. For example, where as a result of the modification a sale of goodwill is converted into a free transfer it will be regarded as a sale for the purpose of the agreement, and a restrictive covenant which would have applied to the sale will apply to the free transfer. Thus the free transfer will not affect a clause restraining an outgoing partner from practising within the same area during a prescribed period.

4 The Negotiating Committee of the profession represented to the Minister in November 1947, that acceptance of his interpretation of the Act created two main difficulties:

(a) It is impossible to determine, in advance of the various contingencies which may arise under the usual partnership deed, the amount of compensation "payable to any medical practitioner". Even if it be assumed that the amount of compensation due to a partnership can be calculated it is impossible to calculate the shares of the individual partners.

(b) It is impossible to determine at the appointed day how and to whom interest due on the compensation moneys should be paid.

The Legal Committee clarifies the position by a recommendation that the compensation payable to each partner who is entitled to it, notwithstanding that an existing agreement provides for transfers of goodwill, should be ascertained and attributed to him as at the appointed day by reference to his annual loss as computed under the National Health Service (Medical Practices Compensation) Regulations, 1948. For this purpose the annual loss is based on the partner's share of the average gross yearly receipts of the partnership practice for the last two accounting years immediately preceding the appointed day.

Compensation is normally payable on retirement or death, and the compensation regulations define retirement as meaning retirement from practice as a medical practitioner providing general medical services under Part IV of the Act (or under the corresponding part of the Scottish Act). The Committee considers that this definition should be amended so far as it relates to an inside partner who transfers his share or part of his share of an existing partnership. It accordingly recommends that where the share of an "inside" partner (i.e., one whose name is on an executive council list at the appointed day) is transferred to another partner or partners under an existing

partnership agreement, the "inside" partner should be regarded as having retired from practice in respect of the share so transferred and the compensation attributable to that share should become immediately payable.

5 The modifications of existing purchase obligations and options recommended by the Committee are dealt with under two headings:

(a) *Service partnerships*—i.e., those partnerships existing at the appointed day of which all the partners are "inside" partners,

(b) *Mixed partnerships*—i.e., those partnerships existing on the appointed day of which at least one member is an "inside" partner and at least one member is an "outside" partner (i.e., one whose name is not on an executive council list).

#### (a) Service Partnerships

6 Where in fulfilment of an option or obligation in an existing agreement an "inside" partner acquires the share of another "inside" partner, the contract price of the share "purchased" will be deemed to have been satisfied by the credit to the vendor (or his estate) of the statutory compensation due in respect of that share, and by the payment of interest thereon. The compensation due on the share so transferred will be immediately payable to the vendor, who will be regarded as having retired from practice as regards that share for the purpose of the Compensation Regulations. In brief the partner who would have been the purchaser acquires the share without payment, the vendor receiving immediate compensation in place of the contract price.

#### (b) Mixed Partnerships

7 (i) Where the transfer is from "inside" partners to other "inside" partners only the "free transfer" arrangement will apply, as in the case of service partnerships (under (a) above).

(ii) Where an "outside" partner has the option to purchase a share from an "inside" partner, the option will remain, but where the existing agreement imposes an obligation on the "outside" partner this obligation will be converted into an option. If the option is exercised the "inside" partner will be required to take from the "outside" partner the contract price and this will replace the compensation attributed to the share sold. The "inside" partner will retain any interest (on the compensation sum) that has accrued to him down to the date of the exercise of the option, but the compensation credited to the "inside" partner will be released to the State.

In brief, the "outside" partner under an obligation to purchase a share from an "inside" partner will be relieved of his obligation but will retain an option to purchase the share by paying the contract price, the compensation credited to that share being forfeited to the State. The "inside" partner, if the option is exercised, will receive the contract price and if it is not exercised will retain the compensation already credited to him.

(iii) The Committee points out that it is not clear whether Section 35 prohibits the sale to a third party of the goodwill of an "inside" partner after it has lawfully passed to an "outside" partner. The Committee thinks that there is no reason why an "outside" partner, if the last survivor should not be free to sell the whole goodwill of the partnership practice or so much of it as vests in him, however he has acquired it though it is recognized that he could not transfer to a purchaser any right to the State patients of the practice.

The Committee recommends that it should be made clear that the provisions of the Act prohibiting the sale of goodwill shall not apply to an "outside" partner (or his personal representative) in relation to the goodwill of the partnership which is vested in him (or in his personal representative).

(iv) Where the transfer is from an "outside" to an "inside" partner only, the "inside" partner will remain bound to pay the contract price but will become entitled to be paid compensation out of a Supplementary Compensation Fund. The compensation so payable must not exceed the contract price, but with this reservation it will be assessed proportionately to the compensation already allocated to the "inside" partner's share of the partnership. It is recommended that for the purpose of the Supplementary Compensation Fund additional moneys should be provided by Parliament.

This recommendation meets the Negotiating Committee's criticism that in fulfilling his contractual obligations a practitioner might have been required to buy a partner's private

practice which he could not sell and in respect of which no compensation was payable from the moneys provided under the original Act

#### Arbitration

8 The Committee believes that the foregoing recommendations will in general enable an equitable result to be secured as between the members of existing partnerships, but as the application of the principal Act and any amending Act may in certain cases produce special hardships which it is not possible to foresee it recommends that provision should be made for dealing with such hardships as follows

(a) Every existing partnership agreement shall be deemed to contain a clause providing that where a member of the partnership claims that he has suffered or is likely to suffer hardship from the effect of the Act or the proposed amending Act or Regulations upon the partnership agreement, he shall have the right to proceed to arbitration to have the question of hardship determined

(b) Where the parties do agree the question will be referred to a single arbitrator nominated by or on behalf of the partners

(c) Where the parties do not so agree the question will be referred to a Committee of Arbitration consisting of a chairman with legal qualifications and a qualified accountant, both nominated by the Minister, and a medical practitioner who is or has been in general practice nominated by the President of the British Medical Association

(d) It is recommended that the agreed arbitrator or the Committee of Arbitration should be empowered

(i) To modify the terms of an existing partnership agreement and to modify the application thereto of the Act or of the proposed amending Act or Regulations in any manner which he or the Committee thinks equitable for removing or preventing hardship

(ii) To direct the payment or repayment of money but not to increase or diminish the aggregate compensation attributable to the partners in accordance with the terms of the agreement as they existed at the appointed day

(iii) To recommend that an existing partnership should be dissolved. This recommendation will be evidence\* that dissolution is a just and equitable solution in any proceedings by a partner for the dissolution of the partnership instituted within, say, three months of the arbitration award

A partner who has not submitted his hardship claim to arbitration will be precluded from relying on such hardship as a ground for dissolution of the partnership by the Court under the Partnership Act, 1890

#### New Appointed Day for Entry to Service for Members of Existing Partnerships

9 Having regard to the difficulties which arose about the interpretation of the Act, the Committee considers that it would be fair that every member of a partnership existing at the appointed day should be allowed a short period after the coming into operation of any amending Act during which he may, after considering his position in the light of its terms, apply to be included in a medical list on the same terms as would have applied had he done so before the appointed day

It is recommended that a partner who makes application within a period prescribed and in the manner specified by the amending Act shall be entitled to be included in the medical list of the executive council for any area in which he practises and for the purposes of Sections 34 and 36 of the Act shall be deemed to have made such application before the appointed day 'and to be and always to have been an 'inside' partner'

In effect this means that a partner entering the Service before the new appointed day will have the right to be included in the list of the area(s) in which he is practising, whatever the views of the executive council or the medical practices committee as to the medical needs of the area and will qualify for compensation as if he had joined the Service before July 5, 1948

This recommendation justifies and meets one of the main criticisms of the Negotiating Committee—that members of partnerships had a right to know before the appointed day how the Act would affect them. Only those who entered the Service by July 5 1948 were entitled to compensation yet the Minister expected members of partnerships to decide whether or not to enter the Service without knowing whether in fact the rights and obligations in partnership deeds were nullified by the Act

\*The recommendation will be prima facie evidence if made by a single arbitrator and conclusive evidence if made by the Committee of Arbitration

#### Changes of Status after the New Appointed Day

10 There remains to be dealt with the position of a partner who enters the Service for the first time after the new appointed day to which reference has been made in the last paragraph. For convenience this partner, who up to the present has been referred to as an 'outside' partner, is referred to by the committee as a 'new listed' partner. The committee recommends

1 That where an 'inside' partner has an obligation or option to purchase the share of a 'new listed' partner the contract shall remain in full force subject only to the modification that the purchase price shall be either the contract price or the compensation payable from the Supplementary Compensation Fund, whichever is the less

This differs from the recommendation applicable to the purchase by an 'inside' partner of a share from an 'outside' partner (paragraph 7 (iv)), in which case the 'inside' partner remains bound to pay the contract price—which may be more or less than compensation—receiving from the Supplementary Compensation Fund a compensation payment not exceeding the contract price

2 That where an 'outside' partner has an obligation to purchase the share of a 'new listed' partner the obligation shall be converted into an option, where there is an option to the same effect it should remain unaffected. If the option is exercised the contract price shall be payable

The same conditions are to apply when a 'new listed' partner has an obligation or option to purchase the share of another 'new listed' partner

3 That where a 'new listed' partner has an obligation or option to purchase the share of an 'inside' partner he should receive a free transfer on the same principles as those set out in paragraph 6, the compensation due on that share becoming immediately payable to the 'inside' partner

4 That where a 'new listed' partner has an obligation or option to purchase the share of an 'outside' partner the contract shall remain in full force and effect

#### Partnerships Other than Service or Mixed Partnerships

11 In the case of a partnership existing at the appointed day none of whose members was on that date or on the new appointed day on an executive council list but one of whose names is included in such a list after the new appointed day the Committee recommends that the provisions of the partnership agreement shall remain in full force except that any obligation to purchase the share of a partner who has joined the Service shall be converted into an option

#### An Inside Partner Who Ceases to be Included in a Medical List

12 Where the name of an 'inside' partner ceases to be included in an executive council list the Committee recommends that his position shall remain unaltered in relation to purchase obligations and options in the partnership agreement except that after his name ceases to be on an executive council list he shall not become entitled to compensation out of the Supplementary Compensation Fund

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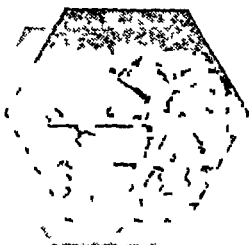
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References: *Lancet* 1944 247 pp 175 and 176 *British Medical Journal* 1946 1 p 50 *Pharmaceutical Journal* 1945 155 p 245  
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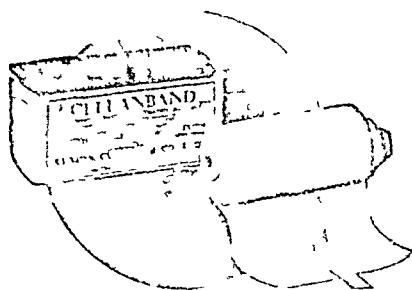
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## CONFERENCE OF LOCAL MEDICAL COMMITTEES

### REMUNERATION OF PRACTITIONERS

The Annual Conference of Local Medical Committees, summoned by the Insurance Acts Committee, was held in the Great Hall of B.M.A. House, London, on Thursday, Nov 25, under the chairmanship of Dr J A BROWN (Birmingham). The main document before the Conference was the report of the Insurance Acts Committee (*Supplement* Oct 16, p 135), to which was appended a report of matters dealt with by the General Practices Subcommittee of the Negotiating Committee.

Certain proposals for the rectification and improvement of the representation and procedure of the Conference were made and remitted to the new committee.

After a motion by Dr J G THWAITES (Brighton) criticizing the arrangements for publishing the agenda had been moved, it was agreed that in future the agenda should be published in advance and circulated to members of local medical committees.

### The Organization of Practitioners

Dr E A GREGG (chairman of the Insurance Acts Committee) moved that the annual report be received, and also moved approval of the proposal to rename the I.A.C. the 'General Medical Services Committee' and leave unchanged, at the outset, the constitution of the new committee.

Dr A W GARDNER (East Sussex) moved that the General Medical Services Committee be requested to review the mode of election and representation to the committee and to report thereon.

Dr GREGG said that the new committee would review the whole representation and bring forward a report to the Conference.

Dr S JOHNSTON (Halifax) moved that the new committee be constituted to form the executive body of all general practitioners grouped within the framework of the B.M.A. into areas corresponding to B.M.A. Divisions, that representatives should be elected directly by votes of practitioners each constituency corresponding to the area of each Branch Council, and also by the Central Conference, further that the Executive Body should be subject to no other body by veto or otherwise in matters which had been decided by a Central Conference, and that the committee should have direct access to the Minister of Health.

Dr J A PRIDHAM hoped the Conference would not pass this resolution. The way the old I.A.C. was elected was a better way and gave a fully representative committee.

Dr F M ROSE (Preston) said that their organization had been built up from the unit which was the Local Medical Committee. The I.A.C. in the past had been subject to no other body and the same would be true of the new committee.

Dr GREGG hoped that they would not lightly break up the old arrangement. The old Panel Committees were units which had the advantage of regular meetings and accumulated experience, and one of the characteristics of the I.A.C. had always been that each member of the committee was a person of sound knowledge and experience of the matters with which he had to deal.

Dr JOHNSTON replied that his criticism was not directed against the I.A.C., but now that they were in a national service they should be organized in some manner which would ensure that the Minister could have no possible jurisdiction over them.

It was agreed to refer the whole question to the General Medical Services Committee.

Dr A W GARDNER (East Sussex) moved that the committee should state fully the scope of its ability to protect general practitioners in the N.H.S.

Dr WAND proposed that this and other resolutions dealing with the question of organization should be referred to the committee.

This was seconded by Dr J A IRELAND and agreed to.

The proposal that the new committee be called the General Medical Services Committee was also agreed.

### Remuneration

Dr GREGG moved approval of the parts of the report dealing with remuneration.

Dr J B MARSHALL (Kent and Canterbury) moved the following resolution:

"That this Conference considers (1) the present capitation fee of 18s. to be grossly inadequate in that

(a) the amount of work imposed upon the doctor by the inclusion of the whole population instead of the workers only has been very greatly increased, and

(b) whilst in certain parts of the country the doctor's financial position may have improved there remain very large areas in which his income has been halved or even further reduced,

and calls upon the General Medical Services Committee, as a matter of the utmost urgency, to take all possible action to secure an adequate over-all increase in order to relieve the serious hardship resulting from the new Service."

He had taken a census of his own practice, which was a rural one, and had asked other doctors to do the same. From July to October, 1948, there had been a 34% increase in visiting as compared with the corresponding period last year. The population of Kent was 1,458,000, the number of persons on doctors' lists was 1,373,000, and the doctors taking part in the Service, including 9 assistants numbered 667. Out of 600 doctors, 102 had lists of over 3,000, and 72 of these had lists of over 4,000, but the average number of patients per doctor in Kent was 1,660, and the income for 5/6ths of the doctors worked out at an average of only £1,500. He urged that there must be an increase in the capitation fee so that doctors with small lists could receive an economic remuneration, or else the capitation fee for the first 1,000 or 2,000 on the list should be made very much higher.

Dr R W COCKSHUT moved to substitute the word "immediate" for "all possible" in the Kent resolution. It would be found that some members of the profession could not keep body and soul together and large numbers would be found pressing for the basic salary, not because they agreed with the principle of it, but because it was necessary for the support of their families. At the root of their difficulties was the rate of pay. The capitation fee was inadequate. He was profoundly distressed by what was happening in Middlesex to-day. There were just over 1,500 patients for each doctor in the Service. He instanced the case of Willesden, where there were 186,000 people with 210 doctors. It was quite impossible to implement the Service in Middlesex at a capitation fee of less than 30s. a year. That was the first thing they had to go for—an adequate capitation fee—and that must be obtained immediately. There would have to be some redistribution of doctors, and the Government must finance such distribution by making up the loss that some men had suffered.

Dr N E WATERFIELD (Surrey) gave statistics collected from about 20 doctors in varying semi-rural areas of his county. These figures indicated the serious losses which Surrey doctors were suffering. There were 800 doctors in Surrey and 1,300,000 patients. A little calculation showed that it was impossible for many of these 800 doctors to make anything like a reasonable living. When one deducted people who had got a full list there was not the number of patients in Surrey to give an average of more than 1,200. Obviously later on there would be a certain readjustment, and wherever a doctor dropped out the General Practices Committee was being told that there was no need to replace him.

Dr W F HUDSON (Oxfordshire) said that general practitioners, particularly in rural and semi-rural areas had had a very raw deal, and unless immediate action was taken the matter would go from bad to worse. The global sum was not only inadequate in amount but unfair in operation. The general practitioner was tied down to a quite inadequate figure. The basic salary took on an entirely new aspect when the giving of it meant taking it away from one's fellows' remuneration.

Dr T O JONES (Denbigh and Flint) said that in his area the average number of persons on doctors' lists was just over 1,400. There was a large coastal belt with a great many chronic sick and there were some doctors who had only about 700 on their lists. They had previously been making a good income, but now their incomes were very small indeed. One would like to shake the complacency out of the Ministry of Health. Whenever this question was referred to, the Ministry spoke of lists of 4,000 and the man who had got a list of only 1,000 was disregarded.

Dr S JOHNSTON (Halifax) said that in asking for an adequate capitation fee they were doing no more than demanding the implementation of the promise which was given them.

before this Service was inaugurated. Very few doctors could achieve 4,000 on their list and surely 4,000 was an almost impossible figure. What they had to do was to go all out for a bigger capitation fee.

#### STATEMENT BY CHAIRMAN OF COUNCIL

Dr H GUY DAIN (Chairman of Council) speaking on the motion by Kent and Canterbury that the Conference considered the present capitation fee to be grossly inadequate said that it had been obvious that this particular motion would be an important one in today's proceedings. "That brings immediately to the surface the difficulties that we are in these early days. We have two difficulties—namely, the demands on the doctors made by the patients, and the insufficient pay for the doctors for the demands made upon them. The fact that we have these two difficulties, I hope, will not prevent us from doing—as we have undertaken to do—our utmost to make the Service satisfactory." It was interesting that that morning there had been no suggestion of interference with their clinical freedom.

If the profession had not taken its stand there would now have been a vast impairment of the doctors' freedom. We have attained clinical freedom, freedom of speech, freedom of choice both ways, for patients and doctors, and freedom to do private as well as State work. We are free to regulate our lists, we need not take more than we like, and we can practise where we like if the area has not been declared an over-doctored one. We have attained in this framework of the new Service a definite position of freedom very fairly established. It is for us to see that it is maintained. There is a new organization called the Fellowship for Freedom in Medicine, and if they can assist us in any way to maintain the freedom we have got we shall be only too glad of their help.

I have said all this because it may possibly not be given full value. We want of course, and must have the full support of the doctors in the Service in any action that may require to be taken. Because we are in a difficulty over basic salary we must not go back on our principles that we are opposed to a basis of salary altogether. We have always been in favour of free enterprise. Doctors in one area after another are asking to have areas closed. We are against the principle of closed areas and I hope we shall not spoil our position in the Service by demanding the closure of areas. But there would be fewer requests for closed areas if we were getting enough money. We warned the Government beforehand that there was not the man power in the medical profession or the nursing profession nor the hospital beds available to implement this Service. Our warning was not heeded and now we are reaping the unfortunate consequences.

It was not difficult to foresee the extra work which would fall upon the doctor. It would be a strange mother nowadays who when the doctor was in attendance did not ask him to look at other members of her family. It is now a question not of visiting a patient but of visiting a family. It is overwhelming us and in the forthcoming winter may cause a complete breakdown of the whole Service. (Hear hear.)

'On the question of pay, not only is the capitation fee insufficient but it is not properly distributed. We should insist that any doctor who can show that he is suffering hardship or even serious diminution of income should have an immediate claim to be paid out of special funds. Such doctors should not be penalized because the Service is not yet properly constructed or its financial side. We have put it to the Ministry that the Special Inducements Fund should be immediately opened and payment should be made to any doctor who can show that he is suffering serious diminution of income.'

"On this question of diminution of income I think that many doctors do fear a greater diminution than may in fact be found at the end of twelve months. If proper payments are made it will not be the fact that your first quarterly payment multiplied by four will be your income for this year. We are investigating methods by which a doctor can be paid so that we shall be able to form some idea of the total sum available for all doctors. The capitation fee must be reassessed in order to make certain that it implements the Spens recommendations and we must have a large percentage for the alteration in value. The betterment factor of 20% is a thing that has most obviously spoiled the present position. The 'Whitley' machinery shortly to be

established will have before it all the facts we can accumulate on the way in which this payment question is working and a claim will be made for an increase. (Applause.) We are now in the position that we are no longer handicapped by the fear that we may lose our compensation, and if we do not get satisfaction quickly it will not be beyond the bounds of possibility to withdraw our services, not entirely because we are not getting enough money, but because under the conditions obtaining we cannot properly deliver the goods. (Applause.)

#### Demand for Capitation Increase

Dr J A PRIDHAM (Dorset) hoped that the committee would press for the distribution of the Inducement Fund and the removal of the ceiling of £400,000.

Dr FRANK GRAY (London) moved to delete from the resolution the stated grounds for the inadequacy of the fee so that it became a straightforward demand for an increase. Before the war there was a good deal of argument about the number of services rendered and their relation to remuneration but later they had the Spens Report with its entirely different approach—namely that of a fair remuneration for the profession as a whole and a proper distribution of that remuneration. There was now proceeding in a large area a detailed inquiry into whether or not the findings of the Spens Report had been implemented. If it was found—as it almost certainly would be found—that they had not, it would furnish the strongest possible case for going forward to the Ministry.

Dr GREGG said that the ground had been broken with the Ministry the previous week. In view of reports from all over the country they could not wait for further details before putting forward a claim for improvement in remuneration, and it was essential to draw the attention of the Ministry at once to the existing conditions. In rural, semi-rural, suburban, and certain special areas doctors had realized their incomes were vanishing. In many such areas it was impossible to have a list which would enable the doctor to maintain his previous economic position. All this had been laid before the Ministry. One outstanding point was that there should be an immediate use of the Special Inducements Fund that there should be no attempt to divide it, looking forward to future commitments but that full and immediate help should be given to the doctors concerned, and that they should be encouraged in every way to make application for such increases in remuneration as their present position justified.

On the question of mileage rural practitioners were entitled to a much more generous interpretation of the mileage payments. As to the basic salary they were against it in principle, though they understood the importance of it in some cases. The matter was causing much heartburning. It meant taking money from those with diminished incomes in order to give it to others. This 18s capitation fee was a delusion, it was 18s and then so many things were clipped from it. They had told the Minister they had got to get down to a capitation fee they could understand. He asked the Conference to contemplate quite seriously the position that had been described by some speakers already. It was quite possible that as they went into this question of remuneration they might have to tell the Ministry that if there was not a satisfactory improvement the question of refusing to continue to work in the Service must be put to the profession. (Hear hear.)

The global sum had been based on 17,900 practitioners participating in the Service. The actual number to-day was about 19,400 and financial provision must be made in proportion to that increase.

Dr H H GOODMAN (Newcastle upon Tyne) said that to-day the income of doctors bore no relation to the work they were doing. To resort to the Inducements Fund was not sufficient; they must get down to the capitation fee.

Dr SMITH POOL (Glasgow) said that the failure to implement the Spens findings was the crux of the difficulty.

Dr A M WESTON (Dudley) considered that the Inducements Fund was a form of charity which none of them should be prepared to accept.

The Canterbury and Kent motion, the phrasing of which had been amended in various respects, was carried unanimously in the following form:

"That this Conference considers the present capitation fee to be grossly inadequate, and calls upon the General Medical Services Committee, as a matter of the utmost urgency, to take immediate action to secure an adequate over all increase in order to relieve the serious hardship resulting from the new Service."

Dr J B MARSHALL (Kent and Canterbury) further moved That, concurrently with an adequate increase in the capitation fee, the upper limit of patients should be drastically reduced

Dr R W COCKSHUT considered that this was one of the remedies for relieving symptoms which would do more harm than good. They had no mandate to interfere with the free choice of doctor. It would introduce a levelling which would pave the way to a salaried service, and it would not deal with the real problem, which was the capitation fee.

Dr W D STEEL (Worcester) suggested that this point be referred to the new committee.

Dr GREGG accepted the reference.

It was agreed to refer the motion to the committee.

Dr J A IRELAND then moved that the whole of the remaining motions on remuneration be similarly referred to the committee for sympathetic action.

This was agreed to.

A separate motion by Dr C W MARSHALL (Exeter) calling for an increased capitation fee in the case of children under 14 and adults over 65 was lost.

### Mileage

Dr W FRASER (Cumberland) moved

That the Conference views with alarm the straitened financial circumstances of many rural practitioners, as a result of the present totally inadequate mileage payment, which in no way covers the cost of motoring, and urges the General Medical Services Committee to press for an immediate upward revision which will meet the needs of those concerned.

Mileage payment had sometimes been spoken of as 'income'. It was not income at all, but a practice expense and in rural practice a very heavy one. Another consideration was the time factor.

Dr R ROSE (Berkshire) said that rural practitioners could not possibly reach what to town doctors would be considered an adequate number on the list. Dr A C MACDONALD (Banff, Moray, and Nairn) said that the mileage fund should be entirely separate from the capitation fee.

Dr GREGG said that the Conference had agreed that morning to a broad general statement that the capitation fee was inadequate. The mileage fund even now was also inadequate. Therefore it would be wise to pass a resolution to that effect in order to strengthen the hands of those who had to negotiate this matter with the Ministry. He hoped that throughout the country there would be applications for a share in the Inducements Fund, which was not a charity, but a right.

The motion was carried.

Dr J E RUSBY (Leeds) moved that payment for mileage should not be a deduction from the Central Practitioners Fund, but should be provided from a separate fund.

This was supported by Dr A BEAUCHAMP (Birmingham). Dr J O McDONAGH (Perth) said they had always been dissatisfied with the amount received by way of mileage grant, particularly taking into consideration the time factor. But even if they did succeed in getting higher payment for mileage out they would, as matters now stood, only be taking something out of the general pool. Dr J C PEARCE (Norfolk) said that the Rural Practitioners Subcommittee wanted to obtain figures from rural practitioners as to their running costs and mileage covered.

The motion was carried.

### Certification

A motion by Kent and Canterbury asked the Conference to declare that the requirement of Section 33 (2) (d) of the National Health Service Act to make a free issue of a wide variety of certificates was unjust, and to request the committee to take all possible steps to secure its withdrawal and to arrange for the payment of an adequate standard fee for all such certificates in the case of statutory notification of infectious diseases.

Dr S WAND (Birmingham) said that a year or two ago the Association set up a Certification Committee, of which he was chairman, and evidence was prepared for submission to a departmental committee. That evidence was brought in summary before the Annual Representative Meeting and, with some amendments, approved. It was to be presented on Dec 15. The question of the adequacy of the standard fee for certificates would depend upon the results of their deliberations, but

the idea that was before the Association committee was to eliminate as many certificates as possible, leaving a few 'omnibus' forms.

It was agreed to refer all the resolutions on this subject to the General Medical Services Committee, with the assurance that they had received or would receive the attention of the Certification Committee.

### Expenses of Local Medical Committees

Dr C H STEWART-HESS (Wallasey) moved that in view of the wider functions of local medical committees (including statutory obligations with regard to over prescribing and record keeping) the expenses of these committees should be borne by the Ministry and not by individual practitioners.

After Drs D F HUTCHINSON, A W GAPNER, J O McDONAGH and F E GOULD had spoken, Dr J A IRELAND (Shropshire) proposed a rider to the Wallasey resolution but that a voluntary levy fund be also set up for disposal by the local medical committee.

Dr GREGG hoped they would throw the resolution out and the rider too.

The Wallasey motion and the rider were rejected 'almost unanimously'.

Dr D C WILSON (Inverness) moved that the expenses of members attending local medical committees should be met by a statutory payment from Government funds and should not be borne by the local practitioners' pool. The total expenses in travel each time a meeting was held were between £55 and £60.

Dr GREGG accepted the reference of the matter to his committee.

### Basic Salary

Dr A H JACK (Eastbourne) moved that in the amending Bill it should be enacted that all basic salaries should be drawn from a separate central pool created for the purpose and not from local pools.

Dr HOWIE WOOD (Isle of Wight) spoke of the difficulty of resisting claims for basic salary because the applicants put forward good grounds for the concession in almost every instance.

Dr F GRAY (London) said that this was one of the most difficult questions with which they had to deal. They had already agreed that the most important thing was to ensure that the central practitioners' pool was adequate. Basic salary might be paid (1) out of the local practitioners' pool, (2) out of the central practitioners' pool, or (3) out of a separate fund if one could be created. But supposing a proposal for the creation of a separate central fund were made, was it not likely that the Ministry would say, "This is part of the remuneration going to practitioners," and that that factor would be taken into account in dealing with any claim that the practitioners' central fund should be increased? In fact it would be impossible to create a separate fund. But if they went to the Ministry and said, "This is a difficult and arduous and unfortunate business, will you take it over from us and do it for us?" no doubt the Ministry would very readily do that and distribute basic salaries very widely indeed, for it was the Ministry's policy to have the basic salary established. In his view the profession should not shirk the task because it was unpleasant or arduous. The profession had been given certain powers in the present set-up and power always entailed responsibility. Harm would be done to the profession if it were said, "We do not want this power and this responsibility, we want to hand it over to somebody else." How could any body of doctors know whether the cases put before it were sound if such cases came to them from all over the country and they were unaware of the details of the local area? He believed it was right that this should be a charge on their funds. Those assembled in that Conference were by the nature of things experienced practitioners, and they had to consider the position of young practitioners who had been promised so many things by the Minister but in fact had had a raw deal. These young practitioners were told that they would not have to buy a practice, but the Minister had made it almost impossible for them to get a practice. It was part of the duty of the profession to undertake these payments in a spirit of fairness, and they should shoulder their responsibilities themselves and not seek to put them on to somebody else. (Applause)

Dr J T McCUTCHEON (Glasgow) felt that means should be found of establishing a fund for fixed annual payments from a source separate from central and local pools

Dr H H GOODMAN said that he was afraid this question of basic salary was going to split the profession

Dr GREGG said that he found it very difficult to answer Dr Gray's speech. It was true that the effect of this basic salary was very bad for the whole profession and was tending to create cleavage. But he could see that a solution which was obtained by handing the matter over to the Minister was likely to create probably an even more serious position. The Ministry would be pleased to have an opportunity to hand out basic salaries all round and to go back on the position reached when they got away from universal basic salary. One of the worst points about the present position was that there was an appeal to the Minister who could grant appeals and hand out money that was not his money. The best solution might be to press that these appeals be determined by a professional body.

It was agreed to refer the whole matter to the committee in the light of the discussion.

Dr R W COCKSHUT urged that they endorse what Dr Gregg had stated. Let them keep their eyes fixed on the capitation fee and all other things would be added unto them.

On the motion of Dr GRAY all the motions on the agenda dealing with basic salary—some twelve of them—were referred to the committee.

### Elections

Dr Brown had intimated that he could not allow his name to go forward again for the Chairmanship of the Conference, and on a ballot Dr Walter Jope (Blantyre Lanarkshire) was elected.

The following were elected by the Conference to the General Medical Services Committee: Dr A Beauchamp, Dr J A Brown, Dr I G Innes, Dr J A Ireland, Dr J A Pridham, and Dr F M Rose.

### Specialist Services

It was agreed on a motion by Worcester that in the event of the Ministry agreeing to payment for performance of services of a specialist character by general practitioners, the remuneration therefor should not be a charge on the Practitioners' Fund.

Dr E L K SARGENT (Surrey) moved

'That it is essential, in the interest of medicine, that some degree of specialization in general practice should be encouraged and provision made for it, and in particular, that the General Medical Services Committee be urged to continue to press the Minister in order to secure his recognition of specialist services by general practitioners such as were dealt with under National Health Insurance by means of form G P 45.'

Dr HOWIT WOOD (Isle of Wight) spoke in support of the motion. The position of the part-time general practitioner specialist was far from secure.

Dr J C PEARCE (Norfolk) said that one of the difficulties which they were up against here was the regional hospital board.

Dr W H HAYES (Bristol) said that if these general practitioner specialists were withdrawn and all the work they had to do fell upon full-time specialists, the full-time specialist service already strained, would break down immediately.

The Surrey motion was carried.

A motion by Walsall was agreed to that a special fee of £1 should be payable to medical practitioners for attendance in emergency for the arrest of haemorrhage after dental extractions and that this payment should be made from the same source as dental payments for the same service.

A motion by Perth was also agreed to that in addition to the fee for the administration of an anaesthetic for a dental operation an agreed mileage fee should be payable.

### Maternity Medical Services

A motion by Bath was agreed to that in the case of obstetric emergencies the general practitioner should be allowed to call in an obstetric specialist under the Act for patients in private nursing homes as he would for domiciliary visits in the patients' own homes.

Dr K J T WILSON (Dorset) moved

That this Conference considers that the continuing experience of general practitioner-obstetricians is in the public interest and there-

fore asks the General Medical Services Committee to oppose vigorously the exclusion of these practitioners from attendance on patients in maternity beds that are administered by Regional Hospital Boards.

He said that social conditions had driven women more and more into institutions for their confinements, and many beds formerly available to private practitioners had been taken over by Regional Boards, the work being done by an obstetric specialist or by the house surgeon or midwife with the specialist somewhere in the background.

The motion was carried.

Dr D SAKLATVALA (West Bromwich) moved that the payment of a fee for maternity medical services should not be made dependent upon the carrying out of any examination on a particular date. He said that it was right to make some effort to have this examination carried out on the date stated but the fee should not be conditional upon such a requirement.

The motion was agreed to.

Dr D H A GALBRAITH (Cornwall) had a motion urging that the obstetric fee should be subject to some extra allowance in rural areas in view of the distances to be travelled. The ordinary mileage payment did not meet the case, and some special arrangement should be made in rural cases.

This also was agreed to.

A further motion by the Isle of Wight was also agreed to, expressing the opinion that clerks of executive councils should when payments were made give details as to how maternity fees were made up.

A motion by Surrey, that a medical record card should be provided for the use of practitioners on the obstetric list in respect of patients accepted for maternity medical services, was referred to the committee.

### Provision of Medicines for Private Patients

A motion by Kent and Canterbury was proposed in the following terms:

That this Conference is of opinion that in the public interest private patients should be entitled to receive any drugs and prescribed appliances necessary for their proper treatment at the cost of the Service.

Dr H H GOODMAN (Newcastle-upon-Tyne) said that a couple of years ago the Minister said in Parliament that any patient could avail himself of the whole Service or of any part of it. The speaker took 'any part of it' to include pharmaceutical benefits. Many patients were prepared to pay for the personal services of their family doctor but were not able or willing to pay for impersonal services such as the pharmaceutical benefits. The position might be met if some patient issued a writ against the Government with a view to ascertaining the legal position of the private patient in this respect under the Act.

The CHAIRMAN hoped it would be borne in mind in considering this matter that it was the public interest they were seeking and not private interest.

Dr H H D SUTHERLAND (London) said that the other side of the picture had not been stressed. Apart from the economic pressure put upon certain sections of the public to compel doctors to take them as public patients, the difficulty was that many patients would say to their doctor, 'I can afford your fees, but I cannot afford the drugs.'

Dr J A IRELAND drew attention regretfully, to the provision of Section 38 of the Act, and said that he was afraid the Minister was covered by the Act.

The motion by Kent and Canterbury was carried unanimously.

### Superannuation

Dr R ROSE (Berkshire) moved to ask the committee to investigate the 35% and 50% respectively allowed for practice and mileage expenses and to endeavour to see that both these percentages were raised before further deductions were made towards the Superannuation Fund. He said that this motion had been put down for the purpose of promoting discussion.

Dr GREGG pointed out that superannuation was on net income. The higher the practice expenses the lower would be the superannuation. The Berkshire resolution was an example of a motion which had not been sufficiently thought about.

Dr A W WESTON (Dudley) considered that the figure to be taken for expenses should be the figure which the Inland

Revenue would allow one to charge. He did not know any practice where 35% expenses would be allowed by the Inland Revenue.

Dr S WAND said that if the expenses were fixed at a higher rate than 35% superannuation would be reduced. The superannuation scheme as it stood was a very good one. In addition to what was contributed by members of the profession a contribution was made by the Government. The suggestion that it should be based on income tax returns was just fantastic because it meant that superannuation arrangements and deductions would have to be made for each individual practice. He asked the Conference to leave this matter alone.

It was agreed to pass to the next business.

The Conference agreed without discussion to a motion by Middlesex deploring the addition of foreign visitors to the population at risk without any additional payment being made into the central fund to cover their treatment while temporary residents in this country. The committee was urged to continue to press the Minister to take action in this matter.

### Vaccination

Dr A B DAVIES (Walsall) moved

"That vaccination and immunization carried out under Section 26 of the Act shall carry a proper fee for work done."

It had been their experience in Walsall that the local authority had refused to shoulder responsibility for vaccination for all cases apart from infants. This was entirely opposed to the sense of Section 26 of the Act to the statement (Section 86) in the White Paper, and also to the instruction given local authorities in Circular 66. Unless there was some definite arrangement about vaccination and the local authority did shoulder responsibility it would mean that once again the general practitioner would be doing the job without receiving any payment.

Dr WAND said that in the discussions it was understood that vaccination and immunization would be carried out by general practitioners and that some suitable fee would be arranged. Practitioners had been encouraged by local authorities to carry out diphtheria immunization. A conference was held at the Ministry a few weeks ago, and the sum of 2s 6d was offered for the purely clerical work of filling in a form. This was refused out of hand, and it was insisted that the work carried out under Section 26 of the Act should carry an appropriate fee. The Association Committee which had been dealing with this matter had made its own assessment of the value of vaccination and immunization and the payment for the liability of the practitioner for carrying out these services. He asked the Conference to pass the Walsall resolution and to be a little patient with the committee because it had not so far had a reply to its representations.

The resolution was carried.

### Domiciliary Consultations

Dr F E GOULD (Birmingham) moved

"That this Conference strongly objects to any method of obtaining the services of a consultant for a domiciliary consultation which interferes with the normal personal relationship between a general practitioner and a consultant."

He produced an instruction from the Birmingham Regional Hospital Board to a hospital management committee. The question at issue was the formation of a consultants bureau, that is to say, a bureau to deal with requests from general practitioners for domiciliary visits to patients. He himself was not concerned with the rights or wrongs of such a bureau, but he objected to the following paragraph: "Each specialist named will be on a list under the bureau and the services of any particular specialist will be obtainable through that bureau only." That was a gross interference with the liberty of the general practitioner and had impaired his previous happy relationship with the consultants. He added that the matter was to be brought before the Central Consultants and Specialists Committee.

Dr GREGG said that it might be desirable to hear what their consultant friends had to say on this matter before proceeding any further. He asked that this be left in the hands of the committee, which would take the opportunity of obtaining the consultants' views.

It was agreed to leave it to the General Medical Services Committee on this understanding.

### Treatment of Private Patients at Health Centres

Dr D F WHITAKER (Surrey) moved

"That provision should be made for the treatment of private patients in health centres."

The Minister had said that private patients would not be treated in health centres. This would mean that a doctor would have to have two centres for consultation, one for his private and the other for his public patients.

Dr A BEAUCHAMP (Birmingham) said that they wanted the private patient to go to the health centre if he so desired.

Dr GREGG said that it might be wise for the committee to look into the matter again.

It was agreed to pass to the next business.

### Other Motions

Dr KENNEDY (Isle of Wight) asked the Conference to express the opinion that the Ministry should be responsible for the provision of suitable locumtenents for practitioners while away on holiday, and for the payment of the fees of the locumtenent and his maintenance and support.

Dr GREGG said that he hoped they were not going to slip into the position of handing over to the Ministry all sorts of things which concerned themselves.

The Isle of Wight motion was lost.

On a motion by Middlesex supported by Lancashire, the Conference expressed the view that practitioners should have direct access for their own patients to the x-ray and pathological departments of hospitals.

Dr GREGG made a brief statement on the report, just issued, of the Legal Committee on Partnerships. The report completely justified all the criticisms the profession had made. There was good reason to be satisfied with the action taken in this matter.

The Conference adopted a motion by Staffordshire expressing 'regret and dismay' that practitioners not participating in the National Health Service had been excluded from rendering service, as they had done in the past, to their own patients in local cottage hospitals. The mover, Dr R W RAR, said that in one cottage hospital in his area two doctors who had not entered the Service had been regretfully refused the hospital. Dr GREGG said that if detailed information were given the committee would take up the matter directly with the Ministry.

A few motions remained on the agenda, but the Conference having already sat from 10 a.m. to 6.45 p.m. it was decided to refer them for sympathetic consideration to the new committee.

### CONFERENCE DINNER

At the close of the Conference the representatives dined together under the chairmanship of Dr J A Brown. The health of the Insurance Acts Committee was proposed by Dr A W Weston, of Dudley, who spoke in particular of Dr Gregg's ten-year record as chairman. Dr Brown also paid a tribute to Dr Gregg, saying that both in the chair of the committee and in negotiations with the Ministry he had shown outstanding quality. Dr Gregg in response said that there was a certain sadness in the present occasion, for the organization which had taken shape shortly after the introduction of National Health Insurance had now reached the end of its existence. No other body associated with the profession deserved greater praise than the Insurance Acts Committee, which had sustained the position of the insurance practitioner over a period of some 35 years. He himself became a member of the committee about 1920, and had been its chairman since 1938. It had been a wonderful experience and training, and he had learned the mind of the general practitioner as he could have done in no other way. The General Medical Services Committee was now in the shaping and he was sure that it would prove as capable of looking after the interests of practitioners as the old 'IAC' had been. Dr Gregg concluded with an appeal on behalf of the *Dain Fund* for the education of the children of doctors in needy circumstances. A collection taken at the tables resulted in the record sum of £158 10s.

Dr Walter Jope, chastened by the thought that he was to be his successor, proposed the health of Dr Brown on his



retirement from the chair of the Conference after holding the position for five years. Dr Brown, in reply said that his work had been a labour of love, and he praised the work of the secretarial staff at B M A House. Dr Hill, on behalf of the recipients of basic salaries, from central, not local, funds' made a brief response to which Dr Stephenson, Deputy Secretary, who will be in charge of the new General Medical Services Committee added a few graceful words.

## REMANDS FOR EXAMINATION OF CERTAIN OFFENDERS

The Committee on Psychiatry and the Law recommends increased use of the power to remand for the examination of certain offenders after conviction but before sentence. The Committee which is a Joint Committee of the Association and the Magistrates Association, has been studying the Criminal Justice Act, 1948, and is anxious that the best results shall be derived from those sections which provide for the mental and physical examination of certain offenders. The Lord Chancellor and the Home Secretary have been informed that in the Association's opinion the best results will not be gained from these sections of the Act unless all magistrates' courts and Courts of Quarter Sessions grant to such offenders, after the finding of guilt and before passing sentence, a remand long enough to permit the necessary social and medical examination to be carried out in the full knowledge of the decision of the court on the facts. The Council of the B M A has suggested that the arrangements of the work of a court should be altered, where necessary, to make such remands possible.

## Questions Answered

### Maternity Medical Service

**Q**—*What number of antenatal examinations are required to enable a fee to be claimed under the maternity medical service arrangements and what fees are payable?*

**A**—The maternity arrangements cover antenatal care throughout pregnancy (including the initial antenatal examination and one at the 36th week), attendance at the confinement if the doctor thinks it necessary or he is called in by the midwife, attendance during the puerperium and post-natal care of the mother including a pelvic examination at the 6th week after confinement. The inclusive fee for this service is 7 guineas if the practitioner's name is on the obstetric list and 5 guineas if it is not. Where the complete service is not given the fees payable are as follows:

Services	Fee for Doctor on Obstetric List	Fee for Doctor not on Obstetric List
Period I Where the doctor gives the initial antenatal examination and subsequent supervision to the end of pregnancy including an antenatal examination at the end of the 36th week.	3½ gns	2½ gns
Period II Where the doctor is responsible for attending at the confinement (where necessary) and for post natal supervision including pelvic examination at 6 weeks after confinement.	4½ gns	£3 7s 6d
Other services (where payment for Period I or II not applicable) (a) antenatal examination only (b) post natal supervision only (including pelvic examination at 6th week)	10s 6d 1 gn	7s 6d 15s 0d

### Superannuation of Assistants

**Q**—*I am a principal in general practice and on the list of an executive council. I employ an assistant whose name is not on the list of an executive council. As the assistant's name is not on the list has the executive council any authority to require him to contribute to the superannuation scheme?*

**A**—The Superannuation Regulations apply to an assistant practitioner whether or not his name is on the list of an executive council, provided his principal's name is on the list and

provided the assistant is wholly or mainly engaged in assisting his principal in the treatment of National Health Service patients.

### Partnerships and Superannuation Payments

**Q**—*In Questions Answered (Nov 13 p 174) under the heading of Partnerships and Superannuation Payments it is stated that where the particulars of the partnerships are disclosed the deductions can be made according to the shares of the partners in the practice. Is the consent of both (or all) partners required for this? Any one partner who desired this arrangement could disclose the respective shares.*

**A**—The appropriate regulation states:

If the practitioner is a party with any other practitioner or practitioners to a partnership agreement, and particulars of the agreement are disclosed to the executive council, his remuneration shall be deemed to be such proportion of the total remuneration of such practitioners as the proportion of his share in the partnership profits bears to the total proportion of the shares of such practitioners in those profits.

It appears from this that particulars of the partnership agreement could be disclosed to the executive council by one partner with or without the consent of his other partner(s). The Insurance Acts (G M S) Committee is making representations to the Minister with a view to securing any alteration which may be necessary in the regulations to make it clear that there must be agreement between the partners before the executive council can be authorized to assess the superannuation contributions on the basis of the partnership shares.

## HEARD AT HEADQUARTERS

### Moscow Calling

Moscow has discovered that all is not well with our Health Service, and the other day took the trouble to tell us so in plain English. A broadcast asserted that the Health Bill came to nothing because "the Right Labourites surrendered to the capitalist Medical Association without even a fight" (Listener Nov 18). The Labour Government was blamed for not having nationalized the pharmaceutical industry, quackery still exists and doctors have become "merchants" in association with the commercial chemists resulting in the neglect of the sufferings of the people. We hasten to print this analysis of events lest Moscow accuse us again of misrepresentation. Eighteen months ago the *Meditsinsky Rabotnik* (Medical Worker) reminded us that "from time to time one finds in the *Journal* lines of which it is difficult to decide which is the greatest in them—malicious slander or limitless ignorance."

### B M A Film Library

The Association has started to build up a library of medical films, and it will soon be possible to borrow them. An excellent film on angina pectoris has been obtained which will be shown at B M A House in the New Year and will then be available for Divisional meetings. It is a full length film in colour with a spoken commentary and runs for about 80 minutes. Another film, "The Medical Motion Picture," which was presented by the American Medical Association depicts the advance of the film in the teaching of medicine from the early days of cinematography. This is also in colour and has a sound track.

### Free Treatment at Hospital

There is very widespread feeling that private patients ought to be allowed to obtain drugs and appliances free of charge under the National Health Service, and the B M A has repeatedly taken up the matter with the Ministry. The Minister has declared, however, that prescribing is inseparable from treatment, and that if general practitioner treatment is obtained by a private patient he must also pay for what is prescribed. A general practitioner tells us that he wrote to the Ministry asking whether his private patients could attend hospital and receive free treatment there under the Service. The Ministry agreed that they could. They would be entitled to free provision of any necessary drugs or appliances prescribed by the specialist responsible for their treatment.

## Correspondence

### Immediate Demands

SIR,—Reading the correspondence in the *BMJ* for the last few months it is clear that general practitioners are worried mainly by too much work and too little pay. While I agree with the opinions expressed in letters from Drs R J K Fleming (Sept 11, p 119) and D W Mayman (Oct 16, p 143) that a salaried service would be best for all parties, would facilitate work at health centres, and would avoid "head hunting," yet a salaried service alone cannot overcome our difficulties, and moreover is a solution as yet unacceptable to the bulk of practitioners and contrary to the promised amending Act. Others have suggested limiting the number of patients on a doctor's list to 2,000 or 2,500, and a capitation fee on a sliding scale two to three times the present size.

I feel it is time to decide on a definite policy capable of solving our problems within the framework of the Act. Having decided on such a policy it should be pursued relentlessly and vigorously until it has been achieved. For a campaign of this nature I suggest that we must avoid polemics on principles, which can only delay by tedious and fruitless discussion the practical changes we want. Equally we must avoid attempting to include every desirable change (and there are many changes which must be made in such matters as widows' pensions and the supply of drugs and dressings for surgeries, etc) in a campaign policy. We should select the major essential points to make the GP service a success, and to rescue it from its present precarious condition. In my opinion our immediate demands should be as follows:

(1) The training of new doctors should be such as to increase the number of GPs to, and maintain it at, 1 per 1,500 of the population. This should mean that no doctor need have more than 2,000 patients on his list, and should allow for locums during holidays, sickness, postgraduate study, etc.

(2) The maximum number on any doctor's list should be reduced progressively as the number of doctors permits to 2,000 (or 2,000 per doctor where there are partners and/or assistants).

(3) The capitation fee should be based on the Spens Report, taking into consideration the year when the figures deduced were a true reflection of doctor's incomes. Proportionate increases should be made for all subsequent increases in the cost of living and for decreases in the maximum number of patients permitted on the list.

(4) The basic salary should be really voluntary, and should not be drawn from a pool in such a way that it decreases other practitioners' capitation fees.

(5) The building of health centres should be implemented without delay. They have a very important part to play in easing the doctor's work, increasing his efficiency, and making his work more interesting by increasing its scope. From the doctor's point of view health centres should provide: (a) secretarial staff, who would keep records in order, make appointments, deal with telephone messages, type letters, etc.; (b) nursing staff, who could deal with minor injuries and give various forms of treatment under the doctor's general supervision and assist in his clinical work at surgeries; (c) adequate facilities and apparatus for minor operations and other treatment or investigations not requiring specialist skill but difficult for single-handed practitioners in their own surgeries; (d) assistance, by relaying telephone calls and/or in other ways in the organization of off-duty times for the doctors as mutually agreed between them.

—I am, etc,

Brighton

R S SAXTON

### The Bad New Days

SIR,—Bewildered at first when the first cheque arrived and believing there must be some mistake, and then angry and resentful as the realization grew on me of the enormous injustice that has been perpetrated on the profession as a whole, I have now reached the stage of near rebelliousness. Overworked we all are now, doing our bit to implement our side of the bargain. Having leaden hearts as we visit our patients trying to cheer them up, we ourselves are laden with a sense of injury and frustration, wondering how we are going to pay the rent, the bills, the children's education, the loans, and the overdrafts. We entered the Service with an idea of our duties, an outline of our remuneration, and "an eve of battle" address which said, Co operate and we shall enter into an era of prosperity and good health for doctor and patient alike.

We have done our duty, and what has been our portion? Interim payments which leave us little better off than manual labourers, if not worse in some cases, an announcement of further interim payments on the same scale, and nothing else. We have kept our side of the bargain. What about the other side? Not even the most gloomy prophets imagined a state of affairs as exists at present. We had misgivings, but we felt that if we worked in co-operation life would not be so bad—that if we did our bit to the best of our ability we could expect the Minister to do his, and that our profession would still be in honourable one and respected. Can any one of us look back on the "bad" old days and remember going on our bended knees to a patient and begging that our fees be paid? Can we feel honourable and respected when we have to crawl to the Minister and plead with him to honour his spoken pledges?—when we have to lay bare our poverty to the executive council and plead with it to consider us for the basic £300.

The patient is getting a square deal most definitely, but when is the Minister going to be told that it is not the Government that is at present providing this square deal? When is he going to be told that the doctor is working twice as hard for about two thirds of the pay he used to get, and that he is keeping the Service going out of his own capital and in many cases by means of loans and overdrafts on which he has to pay interest?—all this because the Minister delays in fulfilling his promises and furthermore withholds from us payments due. Is he going to pay us interest on the sums that he withholds? Is he going to pay the interest on the overdrafts and loans some doctors have been forced to raise to tide them over? It boils down to the fact that at present the doctors, chemists, dentists, and opticians are subsidizing the National Health Service out of their own private resources. The National Health Service is rapidly becoming for the doctors a horrible nightmare, penal servitude literally and metaphorically. What joy is there in work when one is worried to death at home? Where is the pleasure to be got out of employment when one has the feeling that the employer is ready to repudiate his commitments at the slightest provocation and go back on his spoken word? A farcical state of affairs exists. Assistants are actually receiving twice the remuneration of employers. Employers are receiving one half or two thirds of what was formerly considered fair pay, and all of us are working overtime.

The British Medical Association is very depressed. It admits that "it is up to the Government to meet promptly the causes of discontent which now prevail" (*Journal* Nov 13, p 864). We are fobbed off with similar statements—"The British Medical Association is bringing the matter to the notice of etc etc." "The Whitley Council is discussing

Negotiations are proceeding" and never do we hear of anything being fixed. All soporifics, but not strong enough to overcome the insomnia due to the worry and anxiety most of us feel. Why can't we have a definite lead from our central organization, or is it afraid to emulate the Medical Practitioners' Union with its screaming headlines for 30s capitation fee etc? We all know what is fair and just remuneration—viz Spens Report, 1939 plus 100% cost-of-living increase with none of these crazy deductions from a central pool infinitesimal mileage payments, and shoddy means tests for the basic £300. We need to present some such proposals to the Government and if they are turned down we can resign, emigrate or become dentists. The standard of work is bound to become lowered. If the Minister wishes a really good service he will have to pay for it. We cannot continue the subsidy indefinitely—I am, etc,

Buckie Banffshire

A W McHARRIE

### Threaten to Resign

SIR,—I wish to add my protests to the many others regarding the unsatisfactory remuneration under the NHS. Like many of your correspondents' my practice is in a small semi-rural town where a once healthy private practice has disappeared to be replaced by a very busy, badly paid NHS practice. This seaside town houses a very high proportion of elderly retired people who require more attention than is normal in an industrial area where the population is active, working and where absence from work means loss of money. In addition our elderly patients expect visits to their homes and are averse to braving the inclement winter weather to visit a surgery. Consequently our expenses in running a car are increasing rather than decreasing.

It is therefore not surprising that I can only view with mounting anger and disappointment the timidity with which the question of increased remuneration is being tackled by our representatives on the Insurance Acts Committee. I note in the *Supplement* of Nov 20

182) that the above committee are proposing to start negotiations with the Minister for a proportionate increase in the capitation fee to offset the actual number of practitioners in the NHS—viz 19 400 as against the Minister's estimated 17 900. What a puerile suggestion to propose! Cannot the members of this committee realize that the present situation is not just a question of a slight readjustment of remuneration but is one full of the utmost urgency and calls for bold decisive action? If such action is not taken a great many ex-Service doctors like myself who have purchased practices and homes at heavy financial outlay in these post war years and whose commitments are heavy, will not survive a long wrangle with the authorities nor will an increase of a few shillings in the capitation fee be of any value in relieving their desperate position.

It is obvious that we are all grossly underpaid and that many of us are heavily overworked. The answer is simple—the implementation of the Spens Report and this means a capitation fee of no less than 35s with a curtailment of lists to 2 500 or at the most 3 000. Whether the capitation fee is arrived at by a sliding scale or not is immaterial the important point is that an average figure of 35s must be paid by the Government and that in retrospect to July 5.

It is time too that we realized that in joining the NHS we have not weakened our position, on the contrary we have strengthened our practices. A 90% resignation from the NHI scheme was organized when the Government refused to raise the capitation fee to 15s 6d, and it can again be organized just as effectively as previously.

Let the Insurance Acts Committee make their demand at once and back the demand with the threat of the wholesale resignation of the profession from the scheme unless our demand is met in full. We need have no fear now of loss of compensation or victimization. We hold the whip and the Minister must dance at our pleasure. If we do not take this action at once and back it with the threat of resignation we cannot expect the Minister to have any respect for our business ability and we can expect at some future date to arrive at the financial level now occupied by the teaching and clerical professions.

I conclude by reminding the profession that our auxiliaries the opticians, dentists, and pharmacists, are now reaping a golden harvest while we take a back seat and allow the Government to pay these auxiliary professions with funds to which we should have prior claim. What the medical profession requires is a "fiery cross" and some of the brass neck of the miners and dockers. Let us take drastic action now before it is too late—I am, etc.

Largs Ayrshire

WILLIAM R. MACKIE

### Capitation Fee

SIR—Judging by the correspondence on the unsatisfactory capitation fee, many of us have not yet realized that the State is not under contract to pay any particular fee to the doctors. I have signed a paper agreeing to do certain work for the Minister of Health but I hold no document stating that the Minister of the other party will pay me any particular salary and/or capitation fee and I have not heard that the BMA or any other body holds such a document on my behalf.

So far speaking for myself I have received (on account) for three months' work a capitation fee of 5s, which for a rural practitioner covers the supply and dispensing of ordinary drugs and dressings etc. and I am unofficially notified that I shall receive the same for this quarter. The fee or salary is based on an 'if'. If so much in the pool, so much the capitation fee as near as possible to 15s per annum suggested by the Spens Committee on which presumably the BMA was represented. True though it be that the Spens Committee suggested fee was related to NHI, but NHI was so close to NHS that it automatically set the NHS fee.

As a profession we have been taken for a ride. Now that a State service is a fully established going concern, what is the position and/or function of the BMA secretariat and executive in the Service? Are they in the Service as our representatives? Are they in as a Government public relations organization? Are they outside the Service and still trying to represent us? Or are they outside the Service negotiating for and representing those not yet in? Our economic position inside the Service is anything but rosy, both as regards remuneration and compensation for our business in spite of the nonsense talked about men with 4 000 patients earning £800 a year. If there are any of those they will not be long with us.

It is perfectly obvious that some newly formed representative body or the old one will have to take the strongest line of

action to get us a just if not adequate remuneration for the work we are called upon to do. At the moment I am doing twice the amount of work—not including forms etc.—that I did before NHS and my income is the same, and naturally my running expenses have increased. As far as I can gather from my colleagues the same applies to them. Mr Bevins exhortation to the public not to make too much use of the Health Service is very significant in more ways than one, he realizes that we are overworked, but will he realize that we are underpaid?—I am, etc.

St Osyth Essex

R. E. CLARKE

### Specialists' Appointments

SIR,—Could you or your readers help my insomnia? I lie awake at night worrying over my finances. I qualified 10 years ago and have spent this period, including four years in the Forces in obtaining higher qualifications and considerable experience as a first assistant. But there are no senior appointments advertised in my specialty.

In my region one of the most senior administrators proclaims his belief that the work of the "GP specialist" is 'every bit as good' as that of the full time consultant, and he practises what he preaches for many GPs here blossom as surgeons, physicians, anaesthetists, etc., one after noon a week to add £200 a year to the practice funds. These posts are not advertised before they are filled. An RSO is made a full-time assistant surgeon by his benevolent administrator (privately arranged), a consultant at one hospital has been appointed to another as well (nobody knows exactly how)—and all since July 5. A GP friend of mine who bought a share of a practice which also gave him the right to beds in his local hospital tells me that he is waiting to learn the scales of remuneration before he decides whether to be a consultant or GP. He decides, it appears although he has never had any training in his specialty. Am I foolish in looking at your advertisement pages? Is it better to get to know someone and be quietly appointed?

The other attitude which worries me is very prevalent. "Poor old Smith, he's a terrible anaesthetist, but he has been on at his local hospital for so many years that one can't appoint a younger man, however more experienced and skilful—it might hurt Smith's feelings. (You be quiet, you're only the patient!)" A young dental friend with no house appointment, just out of the Services having made over £100 in his first week's work in the Scheme, wonders why I tried to get further experience after qualifying—he didn't.

Once all would be well on July 5. Now I am assured all will be properly arranged by March 31. I seem to have heard that before—I am, etc.,

Birmingham

REGISTRAR

### Employment of Assistants

SIR—Few could have expected before July 5 last that the NHS would have played the role of fairy godmother to the extent of providing us with assistants free of charge and I have no recollection that this was one of the Minister's inducements as suggested in Mr Donald M. O'Connor's letter (*Supplement* Nov 13 p 177).

Mr O'Connor appears to lose the whole point of the Training of Assistants Scheme. Surely it was never intended to subsidize the practice which needed an assistant in this way. If there was one on the pay roll of a principal on July 5 he must have been sufficiently trained to disqualify him from participating in the scheme as a trainee at the present time. The necessary qualifications for participation appear reasonable to me. Without them the whole project would be open to graft of the worst kind. One can imagine a state of affairs where two doctors "worked" a list of a few hundred patients in their spare time if these regulations did not exist.

For my part I regard the proposed scheme as the only oasis in this vast desert. I will be very disappointed if I am not recognized as a "trainer" even on the present terms. If the grant and allowances barely cover the cost of the assistant how refreshing it will be to welcome a flow of young enthusiasts into one's rather humdrum existence in a country practice where contacts with fellow practitioners are few and far between. The mutual advantages far outweigh financial considerations provided the latter are adequate. The training

process should hardly lead to premature cerebral arteriosclerosis in any of us. What a help it will be to have someone to take a few of these endless surgeries, give one a night or two in bed with the telephone switched off, and an occasional week-end in the company of one's family, and all for nothing with perhaps a few pence pocket-money left over—I am, etc.,

Brenchley Kent

W B HOWELL

### Intolerable Conditions

SIR,—In the Birmingham area I am led to believe that we are being paid 3s 11d per patient per quarter. Six to seven hours per day (and sometimes more) are taken up with "treating" patients who attend surgery. The remainder of the "eight hour day" is available for visiting patients. Night duty, of course, is extra.

It is very clear that medical practitioners in general are appalled at the remuneration of the National Health scheme and the amount of work it has given to doctors already over-worked. Conditions in general practice under the National Health scheme are intolerable, and I suggest that instead of constant and long drawn out negotiations the profession agrees to cease serving on a certain date, under the existing terms pending an immediate increase in capitation fee—I am etc.

Birmingham

G A POWELL-TUCK

### Charge Patients for Service

SIR,—With regard to the numerous letters regarding remuneration, may I suggest that a charge of 1s per service payable by the patient to the doctor irrespective of the service involved would solve many of our difficulties? As I see it this would produce these benefits: (1) Reduce considerably those calls on surgery time for minor and trivial complaints, (2) increase our remuneration to a more reasonable figure, (3) give some feeling of economic satisfaction at the end of the day, a busy day tending to be regarded as a good day instead of a bad one as at present, (4) reduce the cost of the Service to the Government.

I have no doubt but that this would be opposed for political reasons, but I feel sure that the majority of us would agree that some such idea shows the common-sense way to overcome our two main troubles—overwork and underpayment—I am, etc.,

Leeds

S A SMITH

### No Hearing-aids

SIR,—It is really heartbreaking that in spite of what the Minister of Health has stated in the House of Commons all my patients who are in need of deaf-aids are, in response to their applications, receiving letters such as the following:

"In view of the fact that the Hearing Aid Clinic has not yet opened due to the complete absence of hearing aids, and as we now have the requisite number of patients to enable the Clinic to keep going for the first two months of its existence, we are not now making any further appointments for specialist examinations."

Having promised so much, so little has in fact been accomplished, with the result that those who need appliances are condemned to suffer not only disappointment but the knowledge that they must continue to do without until such time as the Government can fulfil its promises—I am, etc.

Sidmouth Devon

C J ST CUN

### Remuneration of G.P.s

SIR,—In the bulletin of the Oxford University Institute of Statistics for July–August, 1948, Mr Seers calculates the middle-class cost of living index for May, 1948, as 190% of the 1938 average. The calculation is based on the Ministry of Labour's new interim index of retail prices. The 1938 figures are substantially the value of money on which the Spens Report was based.

On this cost-of-living index the Spens Report figure for 50% of G.P.s in the age group 40–50 years becomes £2,470 net, and this at 35% of gross income for expenses gives a gross income of £3,800 per annum. The corresponding figures which 25% of the same age group should get are £3,040 net and £4,675 gross. The Spens Report also said there should

be no maximum sum. In listing the sources from which a G.P. might get income under the Service your annotation (July 17, p. 143) included interest on the sum to be paid for goodwill. I do not think this should be so included—I am, etc.

DAVID A PRIMROSE

\*\* The annotation states: "In addition the practitioner will receive yearly 2½% interest on the capital value of his practice as estimated for the purpose of compensation." This interest is not reckoned as part of the doctor's remuneration for work in the Service—Ed. B.M.J.

### A Sample Budget

SIR,—With so many theories being voiced as to the financial needs of a general practitioner I thought my own budget might be of interest. I am married with two children, a third expected in the spring, and with the hope of eventually four. My estimates for next year based on prices obtaining at present are as follows:

Housekeeping (food, etc.), £250, domestic help (with insurance) £130, mortgage, £235, clothes, £100, insurances, £150, car (at 6d a mile to include depreciation), £300, holiday, £75, secretary or receptionist, £100, telephone, £35, rent and rates (house), £140, rent of surgery, £50, heating and lighting, £50, superannuation, £90, income tax (approximately), £400, incidentals, £100. Total, £2,205.

The incidentals include charity, gifts to family and relatives and the many repairs and replacements needed in house and practice. Last year the actual amount was £268 but it was perhaps exceptional. It will be noted that there is no provision for capital saving, by that I mean trying to build up a bank balance now for a personal allowance to my wife. Being a non-drinker and non-smoker there is of course no provision in the budget. But what of the education of my children? There are no schools locally and I am faced with council schools or a bill of something between £400 and £500 a year for boarding-school fees.

It really comes down to this, that if the general practitioner is to be able to live a decent life and educate his children as he would like to, a minimum of £3,000 a year gross is necessary, for it must be remembered that the £400 income tax in the budget will be nearer £700 if this gross income is achieved.

My figures are based on actual experience. I will be only too happy to furnish any committee or board of inquiry with receipts for the past two years if any proof is considered necessary—I am, etc.,

P D

### Subsistence Allowance for Applicants

SIR,—Generosity in paying out-of-pocket expenses is to have no place, it seems, in the treatment of applicants for posts under the regional hospital boards. I have been asked to attend for interview for a post some considerable distance away, and it has been made clear to me that although I shall have to stay overnight (probably two nights) no subsistence allowance is payable according to a Ministry of Health ruling. Surely this is an unnecessary and niggardly departure from custom. I would point out that subsistence allowance is payable in the Services. It would appear that this is an example of economy strained to injustice—I am, etc.,

Oxford

G GORDON LENNON

### Compensation

SIR,—With reference to Dr A. R. Thatcher's letter under the heading "Independence of Government" Dr Thatcher states, "Not one of us has had a pennyworth of compensation yet nor knows what he will get." I think this statement sweeping, and perhaps to some degree damaging. I sent a letter claiming compensation on Oct. 9 and on Nov. 18 I had a Payable Order which was "an advance on account of the compensation to which you are entitled" (the quotation is from the Ministry of Health, Whitehall, S.W.1).

I trust publication will be given to this letter. We cannot quite outlaw the question of "fair play" which still remains one of the "freedoms" we Englishmen enjoy—I am, etc.

Southampton

R FRANKING

## POINTS FROM LETTERS

## Capitation Fee

Dr E B ALLAN (Englefield Green Surrey) writes I write to urge for support of Dr S T Pybus's letter on capitation fee (*Supplement* Oct 16, p 143). The Insurance Acts Committee will be meeting shortly and with their help something could be accomplished. If the rural practitioner is not to be forced out of practice he must have the unanimous support of all his NHS colleagues and others for a resolution demanding the immediate increase of the capitation fee (along the lines suggested by Dr Pybus and others) to be made retrospective to July 5 1948, coupled with the implied threat of mass resignation to take effect on April 1, 1949, if the Minister has not seen fit to meet his just demands. The matter is urgent, and we must of necessity act immediately if the statutory notice is to be given to the local executive councils by Jan 1, 1949. There is much work to be done to organize the mass action which alone will bring about the desired result. The practitioners of rural and sparsely populated areas are left no choice but to take some such action unanimously or face financial suicide by accumulating bank overdrafts to subsidize the rural NHS. These practitioners can count to a very large extent on the support of their urban colleagues, because without it mass migration to the more populated areas would result, and consequently with their lists also reduced the urban doctors would then be in the same pitiable plight as their rural colleagues. The latter now find themselves with doubled duties with income cut to one half or one third—and in some cases without sufficient income to meet running expenses.

## Size of Lists

"DARE QUAM ACCIPERE" writes I would like to protest against the ideas put forward by many of your correspondents about the restriction of a doctor's list in the NHS. My partner and I with an assistant had 10,800 acceptances at the last check. We practise in an industrial area in a university town with a large and well known medical school. Within a radius of half a mile there are at least eight other principals not counting assistants. I specialize in one subject and have official appointments in it, our assistant has his L Med (Rotunda), my partner has been described to me by one of the honorary staff of the main hospital as one of the best types of family physician he knows. The reason we have a big practice is because we do not refuse calls. We examine our patients when there is an indication to do so and we take an interest in their families—sometimes our surgeries last 4-5 hours. It seems to me a very bad step to take to discourage keen men and encourage the man whose attitude is that he will only do as much work as will earn him what he considers a suitable income. The country can never be really served by such a policy. Who can judge better than his patients what service a doctor gives? If people prefer to wait 2-3 hours to see a particular doctor, whereas they could see someone else in half an hour, they must have a good reason. No, Sir, to my way of thinking let each man do what he can. I do think the country practitioner needs special terms, because of course no matter how keen and good he is he cannot make a living out of 2,500 or so patients and his idleness is not due to choice. The answer is a very generous mileage and drug allowance to subsidize him. The sluggish thinker will have time to do his work.

## The Doctor's Wife

A Doctor's Wife writes This is a widespread country district and the number of patients on our list compares unfavourably with a town practice. On the facts so far known to us about the new Service we can expect to be reduced to about half our previous income. The work has rather increased than diminished and no cut in our heavy expenses seems possible, especially where car and telephone are concerned. I have no resident help in the house, and any assistance I require to keep house or garden in order I have to employ by the hour—a very expensive way, but the only one available to me. This means of course, that I have to work very hard. If at any time I wish to leave the house I have to make elaborate arrangements on the same hour basis for somebody to take my place in case of telephone messages. In the past I have at least felt that intermittently I could afford to do so but in view of our balance sheet under the new scheme we are forced to cut down all expenses in every possible way to keep our heads above water. We still owe money on the original purchase of our practice, but we are informed by our accountant that we are not considered a hardship case. It does seem however unfair in the extreme that we should continue to pay interest of 4½% while the Government is only prepared to refund us 2½% on our debt. The sum total of my new experience under State medicine is that, while my unpaid service in it is taken for granted my task is made much harder through constant financial worries and the diminishing prospect of adequate remuneration for my non-stop duties. I am in fact working under conditions which would be quite unacceptable to any employee or union member.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar

*Non County Borough Councils*—Dartford, Radcliffe (limited to future appointments), WallSEND

*Urban District Councils*—Denton, Droylsden, Houghton le Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley

## Association Notices

## OPHTHALMIC GROUP COMMITTEE

The following have been elected to the Ophthalmic Group Committee as representatives of non members of the Ophthalmic Group who are on the General List of Practitioners entitled to participate in the Supplementary Ophthalmic Service: R G Simpson, C M Stevenson

## Diary of Central Meetings

DECEMBER

9 Thurs Journal Committee 2 p.m.

## Branch and Division Meetings to be Held

**CITY DIVISION**—At St Leonard's Hospital, Nuttall Street, London N, Tuesday, Dec 7, 8.30 p.m. Clinical lecture by Dr Leonard Simpson 'Thyrotoxicosis and its Treatment'

**EAST HERTS DIVISION**—At Lister Hospital, Hitchin, Thursday Dec 9, 9 p.m. Joint meeting with South Bedfordshire Division. Clinical cases will be shown.

**GUILDFORD DIVISION**—At Royal Surrey County Hospital, Guildford, Wednesday, Dec 8, 8.30 p.m. Dr W P H Sheldon 'Stomatorrhoea in Childhood'

**HENDON DIVISION**—At Hendon Hall Hotel, Wednesday, Dec 8 Dr J Purdon Martin 'Penicillin and Streptomycin in Neurology'

**MONMOUTHSHIRE DIVISION**—At St Mellons County Club, St Mellons, near Cardiff, Monday Dec 6, 8 p.m. Annual Dinner Dance

**NUNEATON AND TAMWORTH DIVISION**—At Red Lion Hotel, Atherton, Tuesday, Dec 7, 8.30 p.m. B.M.A. Lecture by Mr Harold Dodd 'The Vancosities'

**PORTSMOUTH DIVISION**—At Kimbells Corner House, Commercial Road, Portsmouth, Tuesday, Dec 7, 8.30 p.m. Dinner Meeting. Address by Dr C Keith Simpson 'Some Difficulties in Scientific Crime Detection'. To be illustrated by lantern slides and followed by a discussion.

**SOUTH ESSEX DIVISION**—At Old Church Hospital, Romford, Friday, Dec 10, 9 p.m. Clinical meeting. Interesting cases will be shown.

**SOUTH WALES AND MONMOUTHSHIRE BRANCH**—At Royal Gwent Hospital, Newport, Monmouthshire, Thursday, Dec 9, 3.30 p.m. Clinical meeting.

**TUNBRIDGE WELLS DIVISION**—At Kent and Sussex Hospital, Wednesday, Dec 8, 8.15 p.m. Dr C J C Britton 'Diagnosis and Treatment of Anaemia'

## Meetings of Branches and Divisions

## BIRKENHEAD AND WIRRAL DIVISION

At a well attended meeting of the Division on Nov 7 a paper on 'The Proposed Formation of a Medical Trade Union' was read by the chairman Dr H S Pemberton. This was followed by a long discussion. It was felt that the kindly negotiating machinery of the British Medical Association was no longer sufficiently adequate to put forward and attain the just claims of the medical profession. The following resolution was passed unanimously: 'That this Division recommends the formation of a trade union within the framework of the British Medical Association, this being in our opinion the best way of safeguarding our interests'. The secretary was instructed to circulate a copy of the memorandum and resolution to all Branches and Divisions and also to B.M.A. Headquarters.

## GENERAL MEDICAL COUNCIL

Owing to the restrictions on our space we have had to hold over until next week our report of the 174th session of the General Medical Council.

## PROPHYLAXIS OF VIRUS INFECTIONS, WITH SPECIAL REFERENCE TO THE USE OF VACCINES

By

C H ANDREWES, MD, FRCP, FRS

National Institute for Medical Research London NW 3

When discussing the prevention of virus diseases we should consider both non-specific hygienic measures and specific prophylactic vaccination. I will not deal with the hygienic aspects, which for some viruses may be more important than inoculation. It may, however, be noted in passing that with regard to some of the more important viruses we are still ignorant of the relative importance of various modes of transmission and therefore do not know upon what hygienic measures to rely. There is still dispute about how the poliomyelitis virus most commonly spreads—by manual or fly-borne contamination or by inhalation. Even in the case of the big group of air-borne upper respiratory infections we know less than we thought we knew some years ago. Are the minute droplet nuclei most important? Or the coarser particles which fall quickly and dry up, and which are then re-dispersed as dust? Or the infected particles spread by the shaking of handkerchiefs and the shaking of hands? I must leave this matter now, except to plead for more fundamental work on modes of transmission as a necessary first step to putting effective hygiene into operation.

### Immunity in Virus Diseases

In 1931 I gave a lecture on immunity in virus diseases (Andrewes, 1931). The matter has been discussed many times before and since then, but there seem to be no new principles to bring to your notice. With the old principles you are doubtless familiar enough. Many viruses are conveniently adaptable, patient search and chance have placed in our hands modified viruses attenuated enough to be capable of being used with safety in the living state yet sufficiently unchanged antigenically to give potent and sometimes enduring immunity. Yellow-fever vaccine, which is in this class, sets us a standard to which we would like all vaccines to attain—a single dose which causes no inconvenience, or at most a slight headache, and an immunity so long that we may almost say, "It may be for years, it may be for ever." The modified yellow-fever virus, 17D, now used for making such vaccines, turned up somewhat fortuitously, deliberate attempts to produce another, equally useful, variant virus failed. Lately, so many viruses have been grown and attenuated by growth in fertile eggs that we may hope for more conveniently modified variants to be discovered.

Some viruses can be inactivated, apparently irreversibly, by formaldehyde or other means and still immunize. Large doses must be given in order that enough antigen may be introduced, and these large doses may cause local reactions. A limit may thus be imposed on what can be conveniently

given. Immunity after the giving of killed vaccines is much less durable than after the best of the live attenuated vaccines, raised immunity for a year is the sort of result to expect. Formaldehyde is the most generally used inactivating agent, but others, particularly ultra-violet irradiation, are proving to have advantages in some instances. For reasons obscure to us, inactivated vaccines immunize fairly well against some virus diseases—for example, influenza—and very poorly against others—for example smallpox.

I now turn to discuss two general aspects of virus-prophylaxis: the importance of serological strains of viruses, and the possible application in practice of the so called interference phenomenon. Influenza affords the best illustration in both instances.

### Serological Races of Viruses

We are increasingly forced to realize that many viruses, like many bacteria, have serological races differing enough to affect the results of attempted vaccination. This is true of influenza and poliomyelitis among human diseases. The variations among the influenza and poliomyelitis viruses are far from being understood. Fortunately, variola, yellow-fever, measles, mumps, and some other virus infections are, so far as we know, not apt to vary in antigenic make-up in such a troublesome way. There are two distinct influenza viruses, A and B, believed to be antigenically unrelated to each other. A seems to be the more important. It is within these two groups that minor variations occur to vex us. There are certain classical strains of influenza A studied in laboratories all over the world—the original WS, the PR8, and the Melbourne strains. Whenever in a fresh outbreak new A strains are isolated they are found to differ in serological and cross-immunity tests from these classical strains, and usually, so far as has been tested, from strains recovered from other epidemics. There are always significant cross-reactions, and any two strains may be fairly close together or rather wide apart. Unfortunately there has been no detailed comparison of strains collected from outbreaks in different years in any one country or from different countries in the same year. Therefore we do not know whether there exist limited numbers of types, as with pneumococci and other bacteria, or whether the influenza A virus is capable of an indefinite number of biochemical modifications of a basic structure.

The antigenic variations are important from the points of view of vaccine preparation and of epidemiology. Vaccines have been made in the United States from fluids of infected hens' eggs. In the autumn of 1943 against an A epidemic, and in 1945 against a B outbreak, these vaccines gave most encouraging results. In 1943 the vaccine—in five out of six centres at any rate—apparently reduced the

\*Read in opening a discussion in the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association, Cambridge, 1948.



incidence of A infection fourfold (Commission on Influenza 1944). In 1945 a tenfold to twentyfold reduction of B influenza seemed to have been achieved (Francis *et al* 1946, Hirst *et al* 1947). The 1943 trial was favoured by two factors: first the epidemic hit the communities under observation only a week or two after the vaccinations, and secondly there had been incorporated in the vaccine a very recently isolated strain obtained from a local outbreak in the previous spring. There was a rather rapid assumption that the problem was solved: over 5 million doses of vaccine were given to American troops in 1943-4, and still more in 1945-6. Doubtless the influenza virus chuckled to itself, and quietly mutated to a sufficiently distinct form. At any rate numerous American trials of vaccine in 1947 showed a total absence of protection against the 1947 brand of influenza (Francis *et al* 1947). Tests in this country were almost equally discouraging (Mellanby *et al*, 1948). I have been told that vaccines now being made in the U.S.A. contain recently isolated strains, but I fear that the virus is still chuckling, and that until we know more about its possible range of variation it is useless to produce vaccine on a vast scale. Trials of aspects of vaccine making and testing, other than those concerned with antigenic variants, are of course needed all the time.

Influenza A in America and over here has a 2-3-year periodicity. Influenza B, which is probably a more effective antigen, has a longer, 4-6-year cycle (Commission on Acute Respiratory Diseases, 1946). The fact that the cycles have any regularity at all probably depends on a regular rate of waning of herd-immunity. The periodicity is unfortunately not so regular that we can prophesy with confidence that any particular year will or will not have an influenza epidemic. This lack of precision is perhaps due to this same faculty of the influenza viruses for antigenic variation. If a mutant happens to turn up unusually remote from previous strains it will be able to spread widely and initiate epidemics earlier than would otherwise be the case. In 1945-6 there was good evidence that influenza B was unusually active all over the world, beginning in the mid-Pacific, spreading south to Australia, east to the Caribbean, to North and South America, and later to Europe (*Bull. U.S. Army med. Dept.* 1945). In 1947 at least one of the novel antigenic types of A which successfully defied the vaccine in America proved to be identical with strains current over here at the same time. All this suggests that the epidemiology of influenza needs to be studied on a world-wide basis.

The World Health Organization has accordingly obtained the consent of the Medical Research Council to set up at the National Institute for Medical Research at Hampstead a World Influenza Centre. This will gather information about the doings of influenza all over the world, and will collect from and distribute to interested laboratories strains of virus. It is hoped that regional influenza laboratories in other countries will collaborate, particularly in collecting local strains, and that we may in time obtain some picture of the behaviour of influenza on a canvas which is really world-wide. If it should appear that new strains are in fact globe-trotters, the possibility exists of anticipating their arrival from abroad and greeting them with really homologous and therefore effective vaccines.

The occurrence of poliomyelitis outbreaks seems related in part to the hygienic conditions of a country and to the opportunities for exposure to virus during infancy. But on top of this is the likelihood that serological variants of poliomyelitis may be spread about distinct enough to be able to infect people with good resistance to a local strain. The epidemiology of both influenza and poliomyelitis is complex: common to both is a major cause of the complexity is the problem of antigenic variation. We have

not yet got a vaccine of real promise against poliomyelitis, even if we had one, we should still have to sort out the antigenic variants of the virus.

### 'Interference' as a Prophylactic Measure

Against a rapidly spreading influenza pandemic of a new type the most rapid vaccine production might well be much too slow. On this account Burnet and Foley (1940) have urged that we should seek attenuated viruses which can be given in the living state by the respiratory route: these could be given in relatively much smaller dose and thus be prepared for large populations much more rapidly. Unfortunately trials with such attenuated influenza viruses in man have not yet given encouraging results. An approach similar to this involves the attempted practical application of the so-called "interference phenomenon". Virus-workers have known for over a decade that certain viruses will interfere with or suppress the activity of other viruses inoculated at the same time or shortly before. The two viruses may be variants of one species, as in the interference of neurotropic with viscerotropic yellow fever (Hoskins, 1935), or two antigenically related species or even two antigenically unrelated species. Possibly similar effects are dependent on different mechanisms in different instances.

The phenomenon can most easily be studied as it concerns the exclusion of a phage particle from attack upon a bacterium by another phage which has got there first. Apparently even one phage particle can so modify the bacterium, perhaps its surface, perhaps its enzyme equipment, that particles arriving later are unable to enter and have to stay outside and starve (Delbruck, 1945). The phage arriving first can still exclude the one arriving second though the former has been inactivated by ultra-violet irradiation. The phenomenon as regards animal pathogenic viruses is most easily studied in those which grow in the fluids of infected fertile eggs. Is it, one wonders, something of purely academic interest, invented to amuse virus workers in their laboratories, or does it play a part in epidemiology in real life and can it be applied to the control of disease?

Interference by one influenza virus with another can be shown very readily in infected eggs, but in my experience is much less easily demonstrated in infected mice. Lately my colleague, A. W. Gledhill, and I have been carrying out experiments in ferrets with more success. We used a strain of influenza B which caused practically no fever or symptoms in ferrets. This was given to ferrets intranasally and followed one, two, or three days later with a dose of virus A which produced severe symptoms in control animals. In the B-treated ferrets no fever or symptoms developed either from the B or subsequent A infection, and the ferrets were later immune to both viruses. The B by itself induced no true immunity to A, for if the interval between giving the B and the A viruses was extended to a week or more the A infection pursued its normal course or was even worse than usual. The interference is thus effective for a very limited period, presumably while an actual though inapparent, B infection is in progress. As yet we have been unsuccessful in interfering with an A infection by means of an attenuated A strain. Our results are brought a step nearer to practical application by the finding that B infection also protected ferrets against A when they were exposed for two days to contact with other A-infected ferrets. Controls were readily infected by such contact. These experiments can be repeated regularly but only within rather narrow experimental limits, and possible practical application depends on the results of much further work. It seems however, worth while to

draw attention to the possibility of preventing virus disease in the future by means rather different from orthodox immunological methods

### Recent Progress in Prophylaxis of Other Virus Infections

I will conclude with some very brief items of news concerning other viruses not already mentioned

**Mumps**—Mumps virus has now been grown in fertile eggs and has been shown to resemble influenza A and B, fowl-plague, and Newcastle disease of fowls in its ability to agglutinate red blood cells of certain species. These five viruses seem to form a natural group. Like influenza, mumps can be modified by egg passages, and there are hopes that an attenuated virus suitable for immunization of man may be developed (Enders *et al* 1946). Gamma-globulin prepared from mumps convalescent serum has been stated to be of value in preventing orchitis when given early in the disease (Gellis *et al* 1945).

**Measles**—Measles virus has also been cultivated in eggs, but its presence can be recognized only by transfer back to rhesus monkeys or human volunteers. Egg-passage attenuates it for children but one cannot yet advocate its practical use for immunization. Its attenuation is not quite enough to satisfy us, on the other hand the immunity produced is far from complete (Stokes *et al* 1943). Prevention or attenuation of measles by immune serum is an old story. It may be noted, however, that for this purpose concentrated gamma-globulin is better than placental globulin (Greenberg *et al* 1945).

**Rubella**—This has not yet been transmitted to laboratory animals, and the gaining of knowledge about it lags accordingly. Literature is piling up (Editorial, 1947) concerning the occurrence of congenital abnormalities such as cataract in babies born of mothers who suffered from rubella in the early months of pregnancy. Common sense will warn us to shield such mothers at all costs from unnecessary risk of exposure to the disease.

**Rabies**—It has been claimed that animals may be experimentally protected against rabies more effectively by concentrated immune rabbit serum than by traditional vaccines (Habel, 1945). Many people wonder whether if Pasteurian vaccines do prevent rabies the effect is not due to something like the interference phenomenon I discussed earlier rather than to immunization in the usual sense. I say advisedly if they are effective, for I note with surprise how little notice is officially taken of the late L. T. Webster's (1942) challenge in his book on rabies. He maintained that there was very slender scientific evidence that such vaccines prevented rabies at all when given after infection.

**Smallpox**—Experience in the recent war confirms our belief that because of varying susceptibility and immunizability, vaccination cannot be depended upon to protect an individual but (and may no one quote the first half of this sentence away from its context) vaccination is still a reliable means of preventing and controlling smallpox outbreaks since it will protect most subjects. It has been known for some years that vaccinia grown in tissue cultures or in fertile eggs can be obtained free from all bacteria, and that such a vaccine will immunize man (Buddingh 1943) but this method of vaccine manufacture has not yet been taken up and seriously tested in comparison with calf or sheep lymph.

**Encephalitis**—Viruses cause several forms of mosquito-borne encephalitis in America and the Far East. There is, also in Russia a tick-borne encephalitis related to the louping-ill of sheep which occurs on the Scottish borders. Against all of these infections formalized vaccines seem to confer a considerable degree of protection. The cause of sporadic encephalitis in this country is unknown.

**The Common Cold**—Work on the aetiological agent at the common cold research unit at Salisbury continues. We have not yet succeeded as two groups of American workers claim to have done, in growing a virus in eggs. Nor I need hardly say, have we yet produced a vaccine.

More virus vaccines in the future are likely to be made in fertile eggs. At present yellow-fever vaccine, so grown is of proved value so is influenza vaccine within the limits I have discussed. Nearly all the development in this field is going on overseas. I believe that far-sighted manufac-

turers of biological products in this country would do well to gain experience in this field and contribute their share to its development.

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## STREPTOMYCIN RESISTANCE IN PULMONARY TUBERCULOSIS

BY

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Strains of *Mycobacterium tuberculosis* isolated from patients before treatment are remarkably uniform in their sensitivity to streptomycin (Middlebrook and Yegian 1946, Youmans and Feldman, 1946, Medical Research Council 1948c). However, during the course of treatment strains often develop a variable degree of resistance to the antibiotic (Youmans *et al*, 1946, Report to Council on Pharmacy and Chemistry, 1947, Canada, 1947, Hinshaw and Feldman, 1947, Fisher, 1948, Sadusk and Swift, 1948, Medical Research Council, 1948b). A controlled series of cases of pulmonary tuberculosis has been treated with streptomycin under the auspices of the Medical Research Council, and the result of these trials is reported elsewhere (Medical Research Council, 1948a). Among the group of patients receiving streptomycin, 13 were treated at the Brompton Hospital, and from these were obtained sufficiently detailed data on the development of streptomycin resistance to justify a further report.

### Method of Investigation

**Type of Case**—Patients were aged from 15 to 30 years and suffered from acute progressive bilateral pulmonary tuberculosis of recent origin. Cavitation was present in all. Before treatment 11 had numerous acid-fast bacilli in direct smears of the sputum, 2 had acid-fast bacilli present only in sputum concentrated or in small numbers in direct smears. There were 10 women and 3 men.

**Dosage of Streptomycin**—Every six hours 0.5 g. was given intramuscularly. In the earlier part of the trial treatment was continued for six months but this was later

\*In receipt of a grant from the Medical Research Council

modified to four months. As a result, of the 13 cases 8 had four months' treatment, 3 had between four and five months' treatment, and 2 had between five and six months' treatment.

The observation period was six months, except for one patient from whom a resistant strain of *M. tuberculosis* was isolated for the first time during the seventh month.

**Clinical Data**—Clinical examinations were made on each patient at monthly intervals and included an x-ray examination of the chest. Patients were weighed weekly, except some who were very ill, and the erythrocyte sedimentation rate (Westergren) was measured fortnightly.

**Assessment of Clinical Progress**—Each patient's progress was assessed by scoring based on the clinical data and on the temperature. As a measure of x-ray progress the independent verdicts of the Medical Research Council panel were taken. Marks were awarded as follows:

	Great Improvement	Improvement	No Change	Worse	Much Worse
Cough		+1	0	-1	
Quantity of sputum		+1	0	-1	
General condition	+2	+1	0	-1	-2
X-ray film	+4	+2	0	-2	-4

**Temperature**—This was based on the average of evening temperatures each month.

Fall from over 100° F (37.8° C) to under 99° F (37.2° C) +2

Over 1° F (0.55° C) fall +1

1-2° F (1.1° C) rise -1

More than 2° F rise -2

**ESR** (In all relevant cases the initial ESR was 40 mm/hour or over)

Reduced to under 50% +1

Increased by over 100% -1

**Weight changes in a two months period**

Gain of 10 lb (4.5 kg) or over +3

" " 7 to 9 lb (3.17 to 4.08 kg) +2

" " 3 to 6 lb (1.36 to 2.72 kg) +1

Loss of 3 to 6 lb -1

" " 7 to 9 lb -2

" " 10 lb or over -3

No doubt many will differ about the importance allotted to the various clinical observations, but the method does form a basis of comparison between cases, and it provides a clinical scale for correlation with the development of streptomycin resistance in the strains of *M. tuberculosis* isolated.

**Degree of Cavitation**—The estimate of the degree of cavitation shown on the initial x-ray films was made by Dr Peter Kerley for the Medical Research Council.

**Sputum Examinations**—These were made at short intervals, often twice a week and never less than once a month. During the period at which streptomycin-resistant strains first occurred many cultures failed to grow *M. tuberculosis* so that the intervals between positive cultures were longer than had been hoped for.

**Technique of Testing for Sensitivity to Streptomycin**—The sputum was treated with 4% sodium hydroxide, centrifuged and neutralized, and the deposit inoculated on to Lowenstein-Jensen slopes, which were incubated for nine weeks. The strains of *M. tuberculosis* isolated were sub-cultured into a synthetic medium containing Tween 80 (Honeywell and Stein, St James's Square, London) and albumen (Dubos and Davies, 1946), and an inoculum from this was put into bottles of the same medium containing streptomycin. The minimum level of streptomycin inhibiting growth after 10 days incubation was taken and compared with the level necessary to inhibit a standard strain (H37Rv), which was treated in the same manner. When, for instance, the concentration of streptomycin inhibiting the organism under test was 32 times that inhibiting the

standard strain the streptomycin resistance of the test organism was said to be 32 times that of H37Rv. This comparison is taken as the basis of the measurement of the degree of resistance. The technique is fully described elsewhere (Medical Research Council, 1948c).

**Degree of Resistance**—In order to obtain comparative figures in analysing our results we have taken the degree of resistance as the average (actually the geometric mean) of all the resistance tests carried out on each case after a plateau level, as described below, had been obtained.

**Date of Development of Resistance**—By 'date of development of streptomycin resistance' we mean the first day of streptomycin treatment on which a culture was obtained that proved to be four or more times less sensitive to streptomycin than H37Rv. To compare the different cases we have thought it best to take the mean between the last day on which a sensitive culture was obtained and the first day yielding a resistant culture. We have called this the "mean day of resistance development".

## Results

**Strains Isolated before Streptomycin Treatment**—From most cases two positive cultures were obtained before streptomycin treatment. These strains were either two times less sensitive than H37Rv, two times more sensitive, or equal in sensitivity, except one strain, which was four times less sensitive.

**Development of Streptomycin Resistance**—The times taken for resistance to develop and the degree of resistance attained are recorded in Table I, and examples are illustrated in Fig. 1. Certain comments can be made on these

TABLE I—Degree of Streptomycin Resistance and the Time at which it Developed

Case No	Last Day when Sensitive Culture was Isolated	First Day when Resistant Culture was Isolated	Mean Day of Resistance Development	Degree of Streptomycin Resistance	Clinical Progress Before Development of Streptomycin Resistance	Clinical Progress After Development of Streptomycin Resistance
87	22	42	32	251.2	-1	+2
100	36	42	39	309.2	+3	+5
86	37	47	42	97.9	+6	+6
92	40	46	43	10 000 or more	+5	+5
97	35	51	43	10 000 or more	+4	+5
94	33	61	47	85.1	+7	+4
99	36	60	48	10 000 or more	+2	+7
83	47	49	48	77.6	+6	+7
79	56	76	66	31.6	+7	+9
95	56	77	66.5	40.7	+7	+7
82	65	74	69.5	3.4	+6	+6
89	28	189	108.5	64.0	+11	+6

The mean day of resistance development is the mean day between the last sensitive and the first resistant culture. The degree of streptomycin resistance is the average of all the tests done after resistance had risen to a plateau level; the figures are in multiples of the streptomycin resistance of the control strain (H37Rv) and were obtained by taking the antilogarithms of the average of the logarithms of the original figures. The method of assessing clinical progress is described in the text.

results. In all cases there was a period following the beginning of treatment during which the strains of *M. tuberculosis* remained sensitive to streptomycin. In 12 out of 13 treated cases there was later an indication of increased resistance to streptomycin. In 11 out of these 12 the strains were 32 or more times less sensitive. In the twelfth case (Case 82) the strains remained approximately four times less sensitive over a period of more than six months after beginning treatment. Subsequently 1 ml of an eight-day growth in Dubos-Davis medium of a strain isolated from this case before treatment was started was inoculated into a 25-ml quantity of the same medium containing 1,000 µg of streptomycin. From this flask a strain was obtained after six weeks' incubation which, when tested by the technique used in this investigation, was 2,000 times less

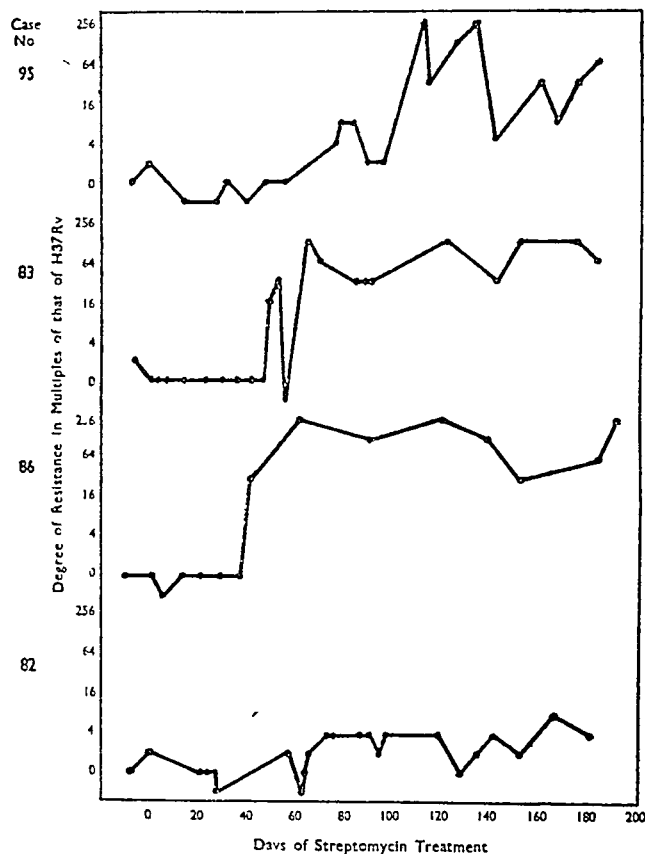


FIG 1—Examples of development of streptomycin resistance in cases under treatment. Note that Cases 82 and 95 are included as unusual examples. Cases 83 and 86 are more typical.

sensitive than H37Rv. This work was performed by Miss M E Davies at the Postgraduate Medical School of London. It is thus clear that this strain is potentially capable of producing highly resistant variants. The thirteenth case, in which resistance was not observed to develop, yielded a sensitive culture on the 59th day and subsequent cultures were negative. A further case (No 89) yielded a sensitive culture on the 28th day. Repeated cultures were then sterile till the 189th day, when two grew strains 64 times less sensitive than H37Rv. Since then all subsequent cultures have failed to yield *M. tuberculosis*.

In most cases the level of resistance rose fairly rapidly to a maximum value and then remained at about the same level. After resistance first appeared isolated sensitive strains were obtained in three cases within 15 days, but not after that time. One of these (Case 97) was of special interest. The first resistant culture was obtained on the 51st day of treatment, and was over 4,000 times less sensitive than H37Rv. The sputum was then negative for a fortnight, at the end of which it became blood-stained. This specimen of sputum was noticeably more purulent than previous specimens and contained numerous acid-fast bacilli. On two occasions cultures yielded strains which were sensitive. After this the sputum became negative by smear and culture, and has remained so for a further 14 months.

Streptomycin resistance was observed to develop in cultures from three patients whose sputa subsequently became negative (Cases 79, 89, and 97).

**Numbers of Tubercle Bacilli in the Sputum and Development of Resistance.**—Fig 2 shows that, if bacilli persisted in the sputum, in most cases the number diminished under treatment to a minimum occurring at or after the time that resistance developed. After this the number again increased.

**Additional Notes on the Development of Resistance.**—In one case (No 92) sensitive tubercle bacilli were cultured from urine after more than three months' treatment and after the strains from the sputum had been consistently highly resistant for six weeks. In Case 99, dying eight days after finishing treatment and whose sputum cultures had been at least 4,000 times less sensitive than H37Rv, 18 cultures were taken post mortem from different parts of the lungs and all showed the same high degree of resistance.

In two cases resistance tests were done on individual colonies from cultures which routine tests had shown to be resistant. In the first case (No 92) the culture was the first one shown to be resistant, and was obtained seven days after the last one known to be sensitive. By the routine test the culture was 128 times less sensitive than H37Rv. The growth was a heavy one, and from it nine colonies were selected and tested individually for sensitivity. Four were of the same sensitivity as H37Rv, two were four times less sensitive, two were 64 times less sensitive, and one was 128 times less sensitive. In the second case (No 94) the culture was the second one shown to be resistant. It was obtained 33 days after the first resistant culture and 61 days after the last sensitive one. Growth was moderate, and the culture was 64 times less sensitive than H37Rv by

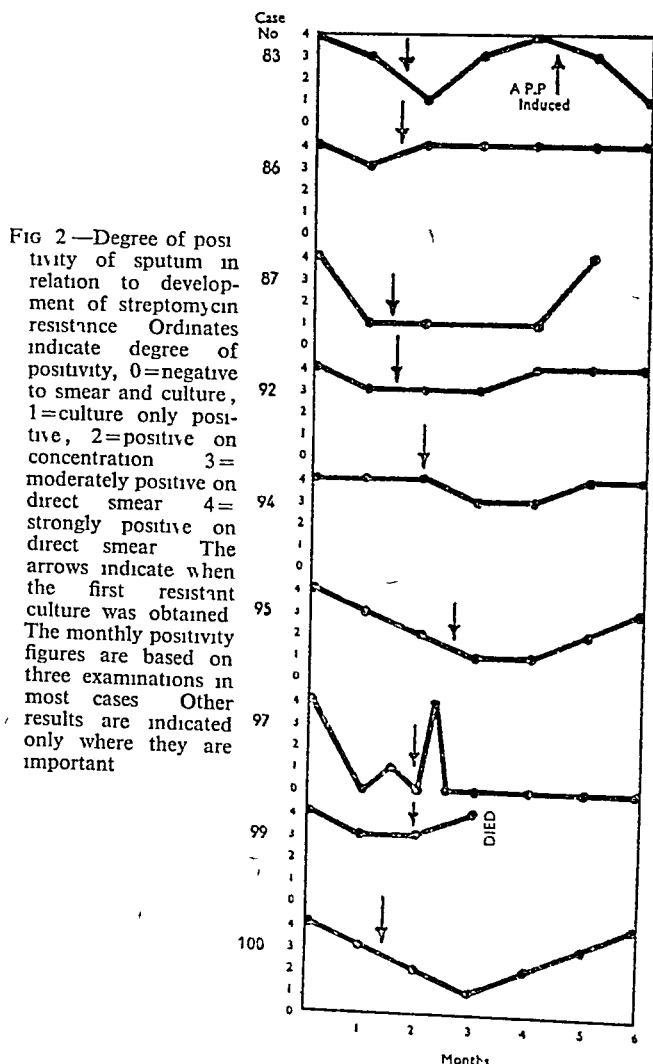


FIG 2—Degree of positivity of sputum in relation to development of streptomycin resistance. Ordinates indicate degree of positivity, 0=negative to smear and culture, 1=culture only positive, 2=positive on concentration, 3=moderately positive on direct smear, 4=strongly positive on direct smear. The arrows indicate when the first resistant culture was obtained. The monthly positivity figures are based on three examinations in most cases. Other results are indicated only where they are important.

the routine test. Fifteen colonies were selected for individual testing. One was 16 times, 5 were 32 times, 8 were 64 times, and one was 128 times less sensitive than H37Rv. It is of interest that in this case, where the culture was obtained at least a month after resistance had developed

higher proportion of the colonies were resistant than in the first case, where the culture was the first one shown to be resistant

### Analysis of Results

An attempt was made to correlate the mean day of development of resistance, the degree of resistance attained, and the clinical progress both before and after the development of resistance. Using the system of scoring previously described, Spearman's rank correlation coefficient was calculated and a test of significance applied, making the appropriate adjustment for the small number of cases. Student's  $t = \rho \sqrt{\frac{n-2}{1-\rho^2}}$  (Kendall, 1943). The results are indicated in Table II. This coefficient was used rather than the usual

TABLE II—*Correlation of Streptomycin Resistance of Tubercle Bacilli with Certain Factors*

Correlation between	Cases including Case 89		Cases excluding Case 89	
	Correlation Coefficient $\rho$	Probability of Occurrence by Chance	Correlation Coefficient $\rho$	Probability of Occurrence by Chance
Progress before resistance development and mean day of resistance development	<b>0.6713</b>	<b>0.02-0.01</b>	0.5727	0.1-0.05
Progress after resistance development and mean day of resistance development	0.4056	0.2-0.1	0.2727	0.4-0.3
Progress before resistance development and degree of resistance	<b>-0.7133</b>	<b>0.01-0.001</b>	<b>-0.7091</b>	<b>0.02-0.01</b>
Progress after resistance development and degree of resistance	-0.3497	0.3-0.2	-0.2182	0.6-0.5
Mean day of resistance development and degree of resistance	<b>-0.6748</b>	<b>0.02-0.01</b>	<b>-0.6318</b>	<b>0.05-0.02</b>
Progress before resistance development and progress after	<b>0.6014</b>	<b>0.05-0.02</b>	0.5182	0.2-0.1
Average temperature before treatment and mean day of resistance development	-0.2815	0.4-0.3	-0.1932	0.6-0.5
Average temperature before treatment and degree of resistance	0.5000	0.1-0.05	0.4796	0.2-0.1
Degree of cavitation and mean day of resistance development	-0.3776	0.3-0.2	-0.2273	0.5-0.4

Not —Correlation coefficients in bold type are considered statistically significant since the probability of their occurrence by chance is less than the conventional 1 in 20.

correlation coefficient, since it seemed possible that the degrees of resistance developed were not arranged in a normal distribution. One of the determinations of the mean day of development of resistance was obtained only within very wide limits (Case 89). Two sets of figures are given, one excluding and the other including this result. There was an apparent relation between the mean day of resistance development and the clinical progress before development of resistance if the values include results from this case. If, however, these results are not included the correlation coefficient is only suggestively high. Cases which did poorly developed resistance early (Fig. 3).

There was a definite relation between the clinical progress before resistance developed and the degree of resistance that eventually occurred (Fig. 4). Those cases doing well in the early stages of treatment developed a low degree of resistance, while those doing poorly produced more highly resistant organisms. This correlation was significant. There was also a significant correlation between the mean day of resistance development and the degree of resistance eventually achieved. The higher the degree of resistance the more rapidly did it appear (Fig. 5).

There was no significant correlation between the mean day of resistance development or the degree of resistance that developed and the clinical progress after that development, nor was there any demonstrable relation between the time at which resistance developed and the general con-

dition on admission as assessed either on general clinical grounds or as the average evening temperature before treatment was begun. A dot-diagram suggested a possible relation between the degree of resistance and the average evening temperature: those with higher average temperatures tended to develop higher degrees of resistance and vice versa. This relation was not, however, statistically significant. There was no significant relation between the

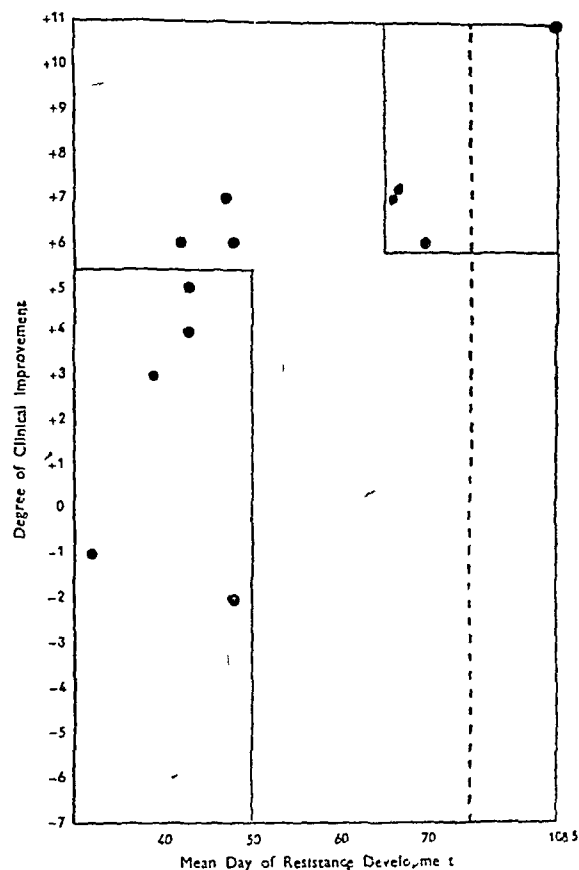


FIG. 3—Relation of mean day of resistance development to clinical progress before resistance had occurred. The boxes indicate the main groups into which the cases fell.

mean day of resistance development and the extent of cavitation before treatment, though there was some suggestion that those with lesser degrees of cavitation developed resistance later, and vice versa. No relation could be shown between the degree of resistance and the extent of the cavitation. Our failure to demonstrate these relations is not, however, conclusive owing to the small number of cases.

**Clinical Effect of Resistance Development**—The clinical progress of our individual patients during their streptomycin course before and after the development of resistance, is shown in Fig. 6. It will be seen that in only two cases did any great change in the clinical course coincide with the first demonstration of streptomycin resistance (Cases 83 and 86). In Case 82, in which there was an apparent change, resistance did not rise above four times that of H37Rv during the relevant period. Two cases which went downhill from the start (Nos. 87 and 99) perhaps showed some slowing in the deterioration before resistance developed and thereafter deteriorated more rapidly, but one cannot say that this acceleration might not have occurred if no streptomycin had been given.

**Factors other than Streptomycin Resistance which may affect the Response to a Course of Streptomycin**—As we have not in most of our cases been able to demonstrate

a close relation between the development of resistance and the subsequent clinical course, we have considered what other factors might be involved. Two obvious factors are persistent cavitation and the patient's own defences. This latter factor is very difficult to assess, but we have attempted a rough estimate by comparing the patient's progress before streptomycin treatment with the extent of his disease as

shown radiologically. We have tried to assess for each patient the relative importance to the outcome of the streptomycin course of residual cavitation, the patient's own defences, and, where it occurred, streptomycin resistance. Such an estimate can, of course, be only very rough, but it may serve to suggest the different factors involved.

In three of the eight cases doing well the patient's own defences were thought to have contributed significantly. In four, however, residual cavities made the ultimate outlook doubtful. In the seven cases whose organisms developed streptomycin resistance this did not seem to have affected the issue.

Of the five cases doing relatively badly the development of streptomycin resistance was of obvious importance in two and residual cavitation of importance in one of these and in three others. In two cases streptomycin treatment seemed to have resulted in a slight degree of improvement, in two we thought it had perhaps retarded a downhill course, and in one we were unable to attribute to it any significant benefit.

### Discussion

Theoretically there seem to be two possible mechanisms by which strains of tubercle bacilli resistant to streptomycin might appear in the sputum. On the one hand the entire surviving bacterial population might become gradually adapted to growth in the presence of the drug. On the other hand the patient's population of tubercle bacilli before treatment with streptomycin might contain organisms with varying degrees of resistance, the more highly resistant being few in number. Under treatment these would have an advantage over the sensitive strains and might gradually come to replace them.

The first hypothesis presupposes that all strains of tubercle bacilli are initially of equal sensitivity to streptomycin but are capable of gradually adapting themselves to growth in its presence. This adaptation would be most likely to occur if the organisms were exposed to concentrations of streptomycin small at first but gradually increasing. Such conditions would exist if there were parts of the lung, such as cavities, in which streptomycin did not act. Radiating from these areas there would be gradients of antibiotic activity, and strains of tubercle bacilli initially sensitive might little by little grow outwards from the protected areas as they became adapted to higher and higher concentrations of streptomycin. In its pure form this hypothesis is improbable. Not only has such a mechanism been excluded in the development of resistance to penicillin (Luria, 1947) but Pyle (1947) and Davies (personal communication—1948) have shown that strains of tubercle bacilli isolated from the sputum before treatment are not of uniform streptomycin sensitivity, if sufficiently large inocula are used strains highly resistant to streptomycin can be obtained.

If the other hypothesis is correct and streptomycin-resistant organisms come to dominate the patient's population of tubercle bacilli by a process of selection of a few strains innately resistant, we need not presuppose gradients of antibiotic activity. Nevertheless if there were areas relatively protected from the effects of streptomycin, in these the general population of tubercle bacilli would continue to increase and there would therefore be more chance of resistant strains emerging. In addition it might be that gradients of antibiotic activity favoured the growth of moderately resistant strains, and that in these strains selection of highly resistant forms was more likely to occur. Whether such gradients exist is of practical significance, for only if they do is it worth while searching for streptomycin derivatives with a greater diffusibility or a greater activity at low pH.

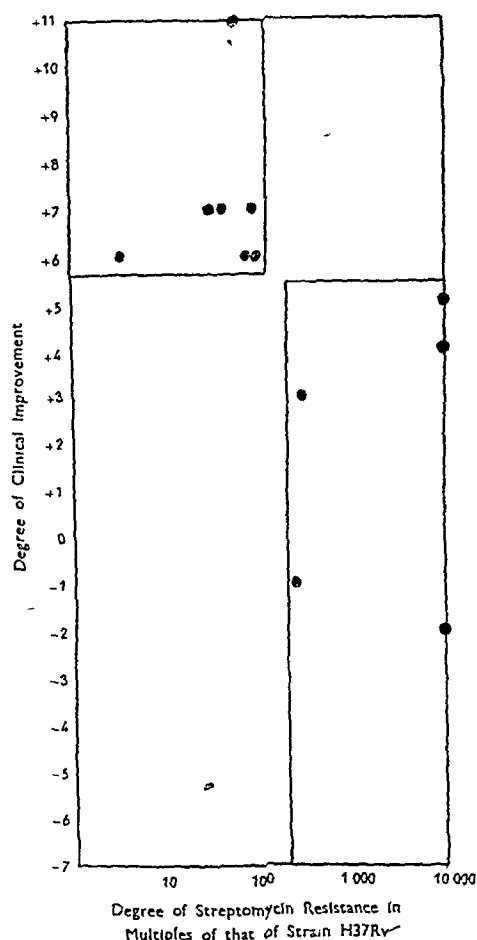


FIG 4—Relation of degree of streptomycin resistance to clinical progress before resistance occurred. The 'boxes' indicate the groups into which the cases fell.

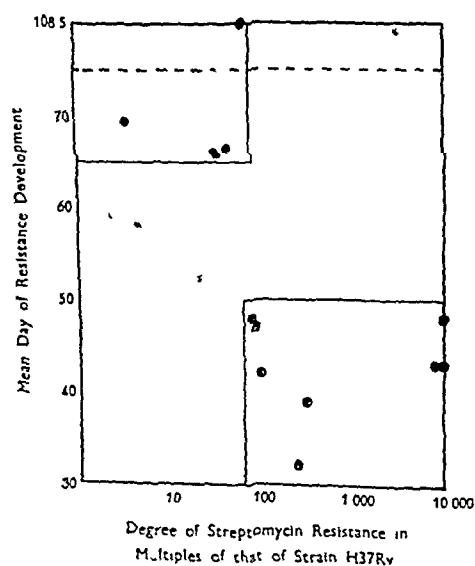


FIG 5—Relation of degree of streptomycin resistance to mean day of resistance development. The 'boxes' indicate the groups into which the cases fell.



There is no direct evidence that there are gradients of streptomycin activity in certain areas of the tuberculous lung, but observations have suggested that streptomycin resistance occurs more readily under the physical conditions associated with human pulmonary tuberculosis. Streptomycin-resistant organisms are rarely isolated from treated cases of tuberculous meningitis. Of 15 cultures obtained from the Medical Research Council series after the second month of treatment only three showed a rise in streptomycin resistance (Medical Research Council, 1948b). The technique of estimating the degree of resistance was identical with that described in this paper, and in a number of cases the strains were retested by one of us. In guinea-pig tuberculosis treated with streptomycin the development of drug

If bacteriostatic levels of streptomycin are attained within cavities the continuing isolation of sensitive bacilli from the sputum in the early stages of a course of streptomycin might be due to the presence of dormant viable organisms which are coughed up owing to physical factors such as the disintegration of caseous masses. Although streptomycin seems to have a bactericidal effect on a rapidly growing culture at approximately the same level as it is bacteriostatic, it does not appear to be bactericidal to bacilli suspended in a non-nutrient medium (Middlebrook and Yegian, 1946; Garrod, 1948).

There is another factor of possible importance in the development of streptomycin-resistant strains and the assessment of their clinical significance. It may be that strepto-

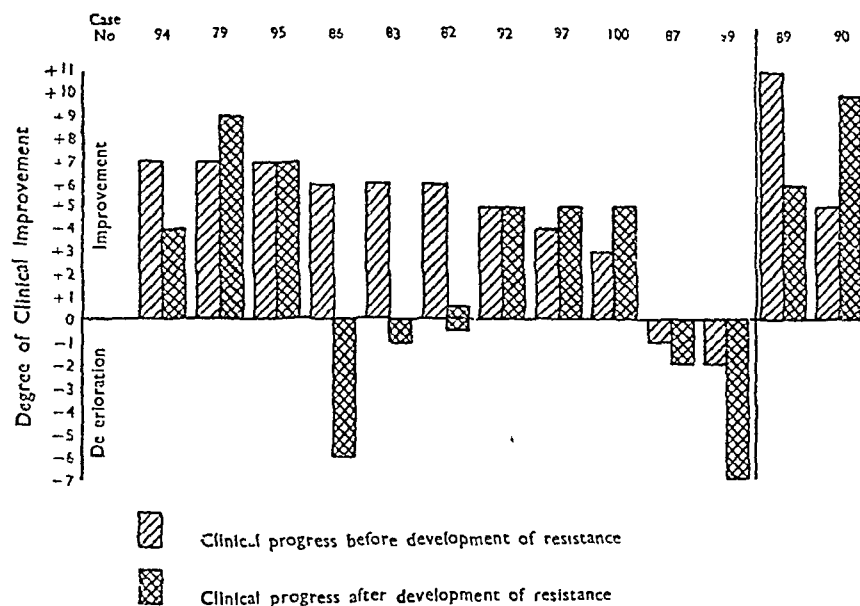


FIG. 6—Clinical progress before and after development of streptomycin resistance. The figure covers a four months period from the beginning of streptomycin treatment. With Case 89 in which resistance was shown to have developed only on the 189th day, and with Case 90, in which the sputum became negative before resistance occurred, clinical progress in the first two months is compared with that in the second two months.

resistance has so far been reported in only two of the many experiments carried out (Feldman *et al.*, 1947, 1948). The contrasting findings might be due to the existence in human pulmonary tuberculosis of foci of bacilli in caseous areas or cavities less readily penetrated by streptomycin, though in tuberculous meningitis there are often regions isolated by fibrous tissue from the streptomycin circulating in the cerebrospinal fluid (Smith *et al.*, 1948). Another, and perhaps more probable, explanation is that the local aggregates of bacilli tend to be larger in human pulmonary tuberculosis, thus increasing the chance of a resistant strain being present.

There is also some evidence that streptomycin does in fact penetrate cavities. Steenken and his colleagues (1947) found a concentration of streptomycin averaging  $7.7 \mu\text{g}/\text{ml}$  in fluid from Monaldi drainage, the average blood concentration being  $13.3 \mu\text{g}/\text{ml}$ . In our experience the strain H37Rv is inhibited by about  $1 \mu\text{g}/\text{ml}$  when growing in Dubos-Davis medium adjusted to pH 6, so that it seems likely that the streptomycin concentration in cavities is adequate for bacteriostasis in spite of the acidity of tuberculous pus. It must be remembered that Steenken's figures relate only to a type of cavity suitable for treatment by Monaldi drainage. Schwabacher (1948), however, claims that sputum inhibits the action of streptomycin; in addition it may be that tubercle bacilli are unaffected by streptomycin when growing within cells (Barsky, 1948).

The resistant organisms, on the other hand, would be affected by the patient's defences alone. This differential effect might account both for the late development of resistance in cases doing well initially and, if highly resistant strains were rarer than moderately resistant, for the high degree of resistance found in organisms from patients with poor initial response. Alternatively it may be that the clinical condition is affected, even in the early stages of treatment, by a proportion of resistant organisms as yet insufficient to show in our test.

If, on the other hand, the development of streptomycin-resistant strains is facilitated by gradients of antibiotic activity within the lungs, it may be that the lesions present in those of our patients who showed a poor initial response favour the rapid production of resistant organisms. Our results suggest a possible correlation between the initial degree of cavitation and the time at which resistant strain appeared. The same physical conditions might also favour the evolution of highly resistant organisms, though here we have not been able to demonstrate a correlation.

From this discussion it is plain that at present we can only make tentative suggestions about the mechanism by which streptomycin-resistant strains of tubercle bacilli appear in the sputum of cases of pulmonary tuberculosis under treatment with streptomycin. The problem is perhaps best summarized in the form of questions which still await a definite answer.

1 Are there gradients of streptomycin concentration or antibiotic activity within the lung? If so, do these favour the development of resistant strains?

2 Is there in the tuberculous patient a competition for survival between sensitive and insensitive organisms? In the absence of streptomycin treatment have the sensitive strains any advantage?

3 Do the sensitive bacilli isolated from the sputum in the early stages of a course of streptomycin represent a population actively increasing? If growth has ceased, do the viable bacilli in the sputum represent dormant organisms coughed up owing to physical factors such as the disintegration of caseous masses? What proportion of bacilli seen in a sputum smear are actually viable at different phases of treatment?

4 What is the proportion of resistant tubercle bacilli in the sputum when resistance shows in our tests? What is the proportion of bacilli resistant at the end of treatment, and does this correlate with clinical progress?

5 What is the distribution curve of resistance in the pre-treatment population of tubercle bacilli? Does this vary from case to case, and how does it change during the course of treatment?

The clinical significance of the development of resistance is still uncertain. In only two of our cases was there a clear change for the worse coinciding with the isolation of resistant organisms, whereas resistant strains were obtained from three cases in which cultures subsequently became negative. Other cases continued to improve in spite of the isolation of streptomycin-resistant organisms. In the main M.R.C. series, of which our cases formed a part, a considerable proportion of the treated cases continued to improve after the second month, the mean date of emergence of resistance being the 53rd day. This continued improvement might be due to the streptomycin continuing to act on a residuum of sensitive organisms or to the patient's defences taking over when the streptomycin ceased to be effective.

### Summary

Increased resistance to streptomycin was observed in strains of tubercle bacilli isolated from 12 out of 13 cases of severe bilateral pulmonary tuberculosis treated with 2 g of streptomycin a day for four months or more.

The rise in resistance varied from 4 to over 4,000 times that of the control strain H37Rv. Resistant strains were isolated from the 42nd day of treatment onwards. In the individual case resistance usually rose fairly rapidly to a plateau and then remained at about the same level.

When bacilli persisted in the sputum the numbers at first fell but after resistance had developed tended to rise again.

Streptomycin-resistant strains were isolated from three cases which subsequently became sputum-negative.

The time at which resistance developed and the degree of resistance attained were related to clinical progress before, but not after, resistant strains had been found. In cases which did poorly at first resistant strains were usually isolated early and attained a higher degree of resistance.

The higher the degree of resistance the more rapidly did it appear.

Only two cases showed any great change in clinical course coinciding with the time when resistant strains were first found.

The bearing of these results on the problem of the mechanism of development of streptomycin resistance and its clinical significance is discussed.

We are grateful for the co-operation of the physicians of the Brompton Hospital under whom these patients were admitted, and would like to thank the nursing staff of the hospital for cheerfully sustaining the added burden of work. Dr J. W. Clegg, pathologist at the Brompton Hospital, has given us much help and encouragement, and Miss R. Weitz has done some of the laboratory investigations. This work was assisted by a grant from the Medical Research Council.

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## STREPTOMYCIN IN GONORRHOEA

### WITH ITS EFFECTS UPON DARK-FIELD POSITIVE LESIONS OF SYPHILIS

BY

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In the field of venereology streptomycin has great potentialities which have yet to be adequately explored. It apparently has some action against syphilis, but venereologists hope that this will prove slight, for streptomycin will then assume many of the present indications for sulphonamides in the treatment of venereal diseases in which syphilis is suspect but not proved (Willcox, 1948). Moore (1947) considers that the drug is unlikely to be clinically useful in syphilis, and points to the work of Dunham and Rake (1946), who found that the antisymphilitic effect of penicillin G was 3,000 times greater than that of streptomycin, though Herrell and Nichols (1945) treated four cases of early syphilis with doses of 1.2–10 g of streptomycin and obtained a temporary absence of treponemata from the dark-field. Herrell (1947) later believed these results to be inconclusive and considered that so far there was no indication that the drug should be used in the treatment of this disease. Fisk and Gruhitz (1946) gave rabbits 1,000–3,000 subtilis units of streptomycin in three divided doses daily for 13–20 days and found no evidence whatever of any antisyphilitic action.

These observations are of considerable interest, for all reports indicate that streptomycin is particularly effective against gonorrhoea. This disease is at present being well controlled by penicillin and there is no clinical evidence of the development of penicillin resistance by the gonococcus on any substantial scale. Many of the suspected cases so far reported have proved on investigation to be due not to the gonococcus itself but to a simultaneously acquired non-specific urethritis (Parkhurst *et al.*, 1947). The possibility that penicillin treatment of gonorrhoea might modify or mask an incubating syphilitic infection has been prominent in the minds of clinicians for some years, and indeed has been responsible for prolonging the period of

surveillance after treatment of gonorrhoea in this country. Such delayed syphilis is not often seen. This matter has been well discussed by Leeming (1947), though Cronin (1947) found little evidence to support this concept.

However, even though the masking of syphilis by penicillin should prove only a minor problem, if streptomycin will cure gonorrhoea in a single dose and at the same time leave the dark-field positive lesions of syphilis untouched it will still have a very definite place in the treatment of gonorrhoea. Especially will this be so in those cases with undiagnosed genital lesions or suspected false positive blood tests, in those persons with gonorrhoea who are known to have had recent intercourse with a syphilitic person, in the re-treatment of relapsing patients who showed Herxheimer-like reactions after the first treatment with penicillin, and in fact in all cases of gonorrhoea in which the risk of existing but undiagnosed concomitant syphilis is greater than the average. It may also be of value in cases in which it is desired that the period of subsequent surveillance should not exceed three months.

Streptomycin is effective against chancroid both in the experimental (Mortara and Saito, 1947) and in the human infection (Hirsch and Taggart, 1948a). In addition, most striking cures have been obtained in granuloma inguinale (Greenblatt *et al.*, 1947a, 1947b, Kupperman *et al.* 1948, Marshak and Rodriguez, 1948, Hirsch and Taggart, 1948b, Barton *et al.* 1947, Zimmerman and Smith, 1948). First reports of its action on non-specific urethritis are hopeful but equivocal (Pulaski, 1947, Kane and Foley, 1947), and my own experience will be the subject of a further paper. The drug has also been widely used in the treatment of urinary infections by Wilson (1948), Schwarz and Lazarus (1947), Keefer *et al.* (1946b), and Finland *et al.* (1946) with upwards of 50% success. In all cases failure seems to be due to a resistance which is very rapidly acquired, but better results, both experimentally and clinically, are obtained in an alkaline medium (Knop, 1946, Kane and Foley, 1947).

Resistance to streptomycin, once acquired, seems to be permanent. Murray *et al.* (1947) found that it continued through more than 100 transfers in a streptomycin-free broth, and Miller and Bohnhoff (1947) noted that two or three transfers in media containing increasing concentrations of streptomycin sufficed to permit the meningococcus to grow in a concentration of 50,000  $\mu$ g of streptomycin per ml where's no fewer than 147 such subcultures were required for the same organism to grow in a concentration of only 5,000 units per ml of penicillin.

One injection of streptomycin may cure gonorrhoea, and provided the dose is adequate the question of resistance does not arise, though streptomycin-resistant strains of the gonococcus may well appear in the same way as with the sulphonamides. Chinn *et al.* (1947) had all of 25 cases of gonorrhoea cured by a single injection of 0.5 g of streptomycin, all of 10 with 0.4 g, and 15 others with 0.3 g. Though three out of five failed with doses of 0.1 g there were only two failures out of 22 treated with single injections of 0.2 g, and toxic reactions were negligible throughout. It is noteworthy that two of these patients developed Herxheimer-like reactions at the time of treatment, and both were later shown to have syphilis. Pulaski (1947) treated nine cases of apparently penicillin-resistant gonorrhoea, and had complete success in seven. The two failures were improved clinically, but the complications of prostatitis and epididymitis were not resolved.

After a single injection of 0.5 g of streptomycin the peak level in the blood is reached within an hour (Molitor, 1947), and effective levels are still present at eight hours.

For continued administration Loewe and Altire-Werber (1947) consider that six-hourly injections should suffice. The drug is excreted in the bile and urine, and may be recovered from the latter (Lamensans *et al.* 1947).

The toxic effects of streptomycin include histamine-like reactions, headache, flushing of the skin, neurological disturbance, vertigo, paraesthesiae, and hypersensitive skin reactions, and there may be an eosinophilia (Keefer *et al.* 1946a). There may also be renal impairment with cylindruria, which is possibly prevented by alkalis. These reactions are not usual after single injections of the drug, and, even with more prolonged administration, McDermott (1947) considers 3 g the maximum safe daily dose. Skin sensitization, developing in a few months in those handling the drug, has also been reported (Strauss and Warring, 1947).

Streptomycin is given intramuscularly in aqueous solution. Preliminary tests have shown no advantages in a peanut-oil-beeswax suspension as with penicillin (Kolmer *et al.* 1946), neither is the action of the drug satisfactory if it is administered orally. However, up to 0.1 g in aqueous solution has been successfully given by the hypodermic (jet injection) (Hirsch *et al.* 1948).

### Case Histories

The following case records confirm the claim that a single dose of streptomycin in aqueous solution is capable of curing gonorrhoea as effectively as penicillin—possibly more effectively—and that the same dose will not adversely influence the dark-field positive lesions of syphilis.

#### Syphilis

*Case A*—The patient, a white man aged 23 had a typical penile chancre of two weeks duration. Characteristic left inguinal adenitis was also present, and the Wassermann and Kahn reactions of the blood were strongly positive. The first dark-field examination was disappointingly negative, but two days later *Treponema pallidum* was visualized without difficulty. He was then given a single intramuscular injection of 0.6 g of streptomycin in 6 ml of isotonic saline, 24 hours later the sore had not altered in appearance and the responsible organism was still readily recoverable.

#### Case 1 Acute Gonorrhoea in the Male

A white man aged 27, the husband of Case 2, was first seen on Sept 11, 1948, with a purulent urethral discharge of three days' duration. Gonococci were observed in the smear and the urine was hazy only in the first glass. He denied other than marital intercourse, which last took place four days previously. The only treatment given was a single intramuscular injection of 0.6 g of streptomycin in 2 ml of normal saline. Two days later the discharge had vanished, smears and cultures from the urethra were negative for the gonococcus, and the urine was quite clear. No gross upset was noted from the injection, though he did comment that when driving his car home from the clinic after the injection he had experienced an odd sensation as if objects were flying past at an abnormal speed.

The following day, however, the discharge recurred though he denied further exposure or the taking of alcohol. His wife (Case 2) was also infected, and both consistently denied any extramarital relations but the possibility of reinfection cannot be entirely excluded. A week after the first visit the discharge was as profuse as before and gonococci were once again present in the smear. A second dose of 0.6 g of streptomycin (this time in 6 ml of normal saline) was given intramuscularly. No untoward disturbance was noted on this occasion, apart from a transient headache four hours afterwards. The discharge again disappeared within 24 hours. At 48 hours the urine had completely cleared and gonococci were not obtained in urethral smear or culture.

A week after the second injection the findings were still negative and no abnormalities were detectable in the prostatic

dead or prostatic culture. Two days later he was allowed alcohol and protected intercourse with his wife (Case 2), who had also been treated with streptomycin. Actually, unprotected intercourse began the following night, but one, three, and eight weeks later no ill effects were reported by either partner.

#### Case 2 Acute Gonorrhoea in the Female

A white woman aged 27, the wife of Case 1, denied other than marital intercourse, which last took place six days previous to her attendance as a contact, she being quite symptom-free. On examination however, a pronounced urethritis and a cervicitis were found, though erosion was not present. Smears of the discharges showed gonococci in both the cervix and the urethra. She was given a single intramuscular injection of 0.6 g of streptomycin in 2 ml of isotonic saline. Two days later no visible discharge was apparent in either cervix or urethra and, though some pus was still evident microscopically in smears from both sites, no gonococci were observed and none were found on culture.

The patient reported that she had slight pain at the injection site on the day of the injection, and that she had experienced symptoms of influenza two days later. Serum tests for syphilis, however, remained negative in both husband and wife. One week and two weeks later the urethral and cervical smears and cultures were completely free from pus and gonococci, and, as a test of cure for both partners, protected intercourse with her husband was urged. In actual fact unprotected intercourse took place the following night, and this was succeeded immediately by a menstrual period. When seen at the conclusion of this, three weeks after treatment, and again one and six weeks later, the smears and cultures from both urethra and cervix were still negative.

#### Case 3 Penicillin Relapse

This patient, a white man aged 28, was first seen on Sept 6, 1948, when he presented an acute gonococcal urethritis of two days' duration which was treated with a single intramuscular injection of 300,000 units of penicillin in oil-beeswax. Five days later there was no discharge and the urine was clear, but on Sept 20 the discharge, which contained an abundance of gonococci, was again profuse, having relapsed four days previously. No history of fresh exposure or alcoholic excess was admitted. He was then given a single intramuscular injection of 0.2 g of streptomycin in 2 ml of normal saline and the discharge disappeared within 24 hours. Nine days later he continued well, the urine was entirely clear, and no gonococci were found in urethral or prostatic smears and cultures. Further prostatic smears and cultures taken two weeks after treatment were also negative.

#### Case 4 Gonorrhoea of Long Standing

The patient, a white man aged 23, developed an acute urethral discharge on July 8, 1948, and gonococci were isolated in the smear. Surprisingly, he left for the Continent the next day without receiving any treatment, and remained untreated until Sept 24 when the discharge was as profuse as ever and many gonococci could be seen in the smear. No complications had developed. He then received a single intramuscular injection of 0.3 g of streptomycin in 3 ml of normal saline. Two days later there was no discharge, and the urine, previously hazy, was now quite clear. The urethral smear showed a trace of pus but no gonococci, and the culture was also negative. Eight days later prostatic smears and cultures gave entirely satisfactory results. He then moved elsewhere, but seven weeks after treatment wrote saying he was well.

#### Case 5 Gonorrhoea Sulphonamide Relapse

This patient, a white man aged 23, was first seen on July 17, 1948, having received 36 g of sulphapyridine over 12 days from his own doctor for a urethral discharge the aetiology of which was never determined. Apart from some dampness of the urethra there was no discharge and the urine was clear. No treatment was advised but he was kept under observation until Aug 28 when he was still symptom-free, the urine being clear and the prostatic secretion free from pus. On Sept 27 he attended with a slight mucopurulent discharge of one day's

duration. He denied fresh contact, yet gonococci were observed in the smear. The urine was still clear, but there were many threads in the first glass. He received a single intramuscular injection of 0.4 g of streptomycin in 4 ml of normal saline. One, two, and seven weeks later there was no discharge and the urine was clear and free from threads, urethral and prostatic smears and cultures were also entirely negative.

#### Case 6 Complicated Gonorrhoea Cowperitis

A negro man aged 30 was successfully treated for gonorrhoea in 1945, in August, 1947, and in September, 1947, when he was given 200,000 units of penicillin. On the last-mentioned occasion he relapsed two days later, developing an abscess of the left Cowper's gland which ruptured exteriorly. On July 29, 1948, he again developed an acute gonorrhoea which was successfully treated with a single injection of 300,000 units of penicillin in oil-beeswax, but five days later the left Cowper's gland was palpable as a small tender nodule and he was given a course of sulphadiazine in addition.

He defaulted from observation, but returned on Sept 29 with yet another apparently fresh attack of gonorrhoea. Gonococci were present in the smear, and the urine was grossly hazy with threads. The left Cowper's gland was just palpable and was acutely tender. It was decided to treat him with streptomycin, though the very small dose of 0.2 g in 2 ml of normal saline was the only amount available. This was given intramuscularly, and when seen 24 hours later the discharge had gone though there was still some urethral dampness, a smear of which showed a moderate amount of pus cells but no gonococci. The urethral culture was also negative, the urine was clear and contained a few threads in the first glass only, and a rectal examination revealed no perineal tenderness.

Though the initial success of even this small dose was truly spectacular, not surprisingly it proved insufficient for two days later the discharge again recurred, and when he attended a week after treatment there was a gross urethral discharge with gonococci present in the smear and a fluctuant left perineal abscess the size of an olive. This was aspirated, some 3 ml of yellow pus being removed, and he was then given eight daily injections of 600,000 units of penicillin in oil-beeswax. Improvement was immediate, steady, and complete, and has been maintained.

#### Case 7 Uncomplicated Gonorrhoea

This patient, a white man aged 43, had a profuse urethral discharge of three days' duration when first seen. Gonococci were present in the smear, and the urine was hazy only in the first glass. Twenty-four hours after a single injection of 0.2 g of streptomycin in 2 ml of normal saline the urethral discharge had entirely disappeared. At 48 hours only epithelial cells were recoverable from the smear, and the urethral culture was also negative. The urine, too, was quite clear and free from threads. After one, two, and five weeks his condition continued to be satisfactory, the prostatic bead was free from pus and no gonococci were obtained in smear or culture.

The gonorrhoea cases, none of which showed any clinical or serological evidence of syphilis, are summarized in the following Table.

No	Type	Sex	Dose	Initial Result	Later Events	Final Result
1	Simple	M	0.6 g	Success	Recurrence after 3 days re treated with streptomycin	Success 56 days
2		F	0.6 g		—	Success 63 days
3	Penicillin relapse	M	0.2 g		—	Success 14 days
4	Protracted gonorrhoea	M	0.3 g		—	Success 49 days
5	Sulphonamide relapse	M	0.4 g		—	Success 49 days
6	Complicated Cowperitis	M	0.2 g		Relapsed after 2 days re treated with penicillin	—
7	Simple	M	0.2 g		—	Success 35 days

## Summary

Seven cases of gonorrhoea (six males and one female) of which six were uncomplicated and one was complicated by Cowperitis have been treated with single intramuscular injections of 0.2-0.6 g of streptomycin in an aqueous medium. In all cases the initial response was at least as dramatic as treatment with penicillin in watery or oil-wax media. One patient given 0.6 g apparently relapsed after three days but was successfully re-treated with the same dose of the drug. Another complicated by Cowperitis, received only 0.2 g, and after a satisfactory initial response relapsed two days later with abscess formation in the gland and was then treated successfully with penicillin.

One patient with dark field positive primary syphilis was given a single intramuscular injection of 0.6 g of streptomycin and twenty-four hours later *T. pallidum* was still recoverable without difficulty from the dark-field.

Apart from possible mild cerebral effects in Case 1 and mild pain at the site of injection in Case 2, no toxic effects were recorded.

It is concluded that streptomycin will be of the greatest value in venereology for all cases of gonorrhoea in which syphilis is more than usually suspect. As it appears that its use may not mask an incubating syphilitic infection, it is probable that only a three months post treatment period of surveillance to exclude syphilis will prove necessary for gonorrhoea treated with streptomycin as compared with the six months usual after treatment with penicillin.

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LARYNGEAL PARALYSIS ASSOCIATED  
WITH CARDIAC HYPERTROPHY

## REPORT OF FOUR CASES

BY

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The association of laryngeal paralysis with aneurysm of the aortic arch is well known. That the left recurrent laryngeal nerve may be damaged in cases of cardiac enlargement is, however, less well recognized. The paralysis usually occurs in association with mitral stenosis, but recently some instances have been recorded of vocal cord palsy in cases of hypertension with cardiac failure. The present communication is based on four cases of laryngeal paralysis attributable to a coexisting cardiac lesion.

## Case Reports

**Case 1**—A woman aged 26 was examined in consultation with Dr James Richard on account of huskiness of a few months' duration. Laryngoscopy revealed complete abductor paralysis of the left vocal cord. The physical signs in the chest were those of cardiac enlargement and mitral stenosis with incompetence. The apex beat was 4 in (10 cm) from the midline and the right border of dullness was at the right border of the sternum. There was slight oedema of the ankles. Her compensation was fairly good for a quiet life but failed on any exertion. Since the age of 19 she had been troubled with dyspnoea on exertion, palpitations, and oedema of the ankles. At the age of 7 she had had chorea followed by sub acute rheumatism, at 10 peliosis rheumatica, at 14 tonsillitis and at 19 subacute rheumatism.

**Case 2**—A woman aged 51 was admitted to Dr George Allan's wards in the Western Infirmary complaining of breathlessness and insomnia for three weeks and also of pain in the left leg and foot. During the previous two years her health had been poor—she was easily fatigued and had slight breathlessness. There was no history of rheumatism or other major illness. The lips and cheeks were cyanosed and there was considerable dyspnoea, which was increased even by speaking. The voice was hoarse. Both ankles were oedematous, the left one being tense and tender. The cardiac rhythm was regular at 150 and the pulse was of poor volume and tension. The blood pressure was 135/100. The arteries were not palpable. The apex beat was diffuse and visible and most forcible to palpation in the sixth interspace at 5½ in (13.3 cm) from the mid sternal line. The borders of cardiac dullness were at the third rib, the mid sternal line, and 5½ in from the mid sternal line. A loud musical murmur replaced the first cardiac sound and was conducted all over the praecordium and into the axilla. The second pulmonic sound was markedly accentuated. Laryngoscopy revealed complete paralysis of the left vocal cord. Examination of the fundi revealed slight arteriosclerotic changes. The patient died three weeks after admission. Permission for necropsy was not obtained.

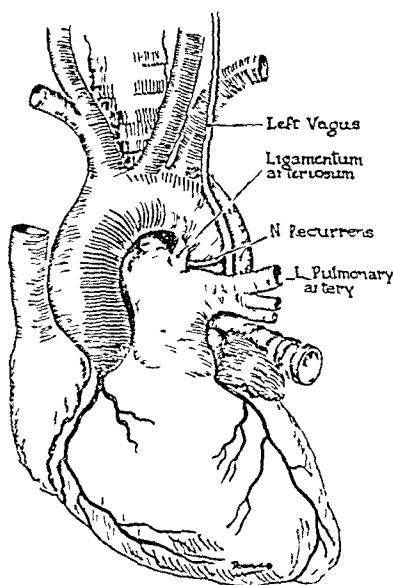
**Case 3**—A married woman aged 53 was admitted on May 19, 1933, to the Western Infirmary suffering from severe abdominal and left thoracic pain, tachycardia and slight jaundice. She had had cholecystectomy for gall stones in June 1932, but had had recurrent attacks of jaundice during the following winter. The tachycardia was ascribed to auricular flutter, which with digitalis changed to auricular fibrillation and ultimately to regular rhythm. There was no material improvement, pain persisted, and she succumbed to hypostatic pneumonia on July 9. Paralysis of the left vocal cord was observed on laryngoscopy on June 27. The necropsy findings were as follows. The heart weighed 12 oz (340 g). The pericardium was healthy and the left ventricle was of normal size. The left auricle was markedly dilated as were to a lesser extent both chambers of the right heart. The mitral valve was stenosed being 7/10 in (1.78 cm) in diameter. The tricuspid

and arterial valves were healthy and of normal dimensions. The myocardium was somewhat fibrosed. The divided ends of the large vessels were tied off and the heart filled with water. It was noted that the left auricle did not actually impinge on the left recurrent laryngeal nerve, which showed a constriction at the point where, having left the vagus, it passed between the left pulmonary artery and the arch of the aorta. The nerve at the affected point was flattened and much attenuated.

**Case 4**—A man aged 34 was seen in consultation with Dr R G Lendrum at the medical dispensary of the Western Infirmary. Five weeks previously his voice had become suddenly weak, and there had been some precordial pain. There was considerable cardiac enlargement, with signs of mitral stenosis, but no dyspnoea or oedema. The patient had had several attacks of rheumatic fever. Laryngoscopy showed paralysis of the left vocal cord.

### Discussion

Before discussing the mechanism of production of the paralysis, the relations of the structures involved require consideration. The left recurrent laryngeal nerve arises from the vagus to the left of the aortic arch on a level with its lower border. The nerve winds below the arch immediately behind the attachment of the ligamentum arteriosum to the concavity of the arch, and ascends to the side of the trachea. The ligamentum arteriosum, the fibrous cord which remains from the closure of the foetal ductus arteriosus, extends from the upper aspect of the root of the left pulmonary artery to the aorta. The relations of the left auricle, pulmonary artery, and aortic arch are shown in the accompanying diagram.



Ortner (1897) advanced the theory that distension of the left auricle produced paralysis by direct pressure on the nerve, and considered that it was supported by the evidence of necropsy in his two cases. Enormous dilatation of the left auricle was found, great enough to produce pressure on the aortic arch and to squeeze the recurrent nerve where it wound beneath the arch. The nerve was completely flattened and atrophied.

Kraus (1900) encountered a necropsy where this theory appeared to be inapplicable. The heart was well compensated, and dilatation of the auricle was insufficient to exert direct pressure on the nerve. He suggested the following explanation. In a well-compensated mitral lesion in which considerable hypertrophy of cardiac musculature has taken place the heart comes to lie more horizontally with its right border on the diaphragm. In such a case the normal bascule or seesaw action is exaggerated. It is thought

that, during systole, traction on the pulmonary artery is forcible enough to pull on the aortic arch through the medium of the ligamentum arteriosum, thereby stretching the recurrent nerve.

Fetterolf and Norris (1911), however, have thrown doubt on the probability of that explanation. They point out that the ligamentum arteriosum runs more or less horizontally, that the arch is supported at both ends, and that it is slung up by its attachment to the cervical fascia. They maintain from their studies of formalin-hardened sections of the thorax that dilatation of the auricle acts indirectly by forcing upwards and backwards the pulmonary artery, which itself is often dilated.

King, Hitzig, and Fishberg (1934) reported three cases of hypertension and arteriosclerotic heart disease with failure of the left ventricle. Coronary thrombosis had occurred in two of the cases, and in all three the left recurrent nerve had been paralysed. They regard the dilatation of the pulmonary artery produced by the engorgement of the lesser circulation as the cause of the compression of the nerve against the arch of the aorta and the ligamentum arteriosum. They conclude that the hypertension in the lesser circulation is an important factor in the production of laryngeal paralysis complicating mitral lesions. The evidence available at necropsy in one of our cases lends support to this explanation, which appears to be the most probable one. Hypertension in the pulmonary artery is a constant feature in mitral lesions before failure of the lesser circulation has occurred, whereas, according to the findings in the limited number of necropsies which have been performed in these cases, the relation of the dilated left auricle or its appendage to the recurrent nerve is very variable.

To judge from the literature, the syndrome is infrequently encountered, and it is to be noted that many of the recorded cases have not been substantiated by necropsy. Since attention was first drawn to it by Ortner in 1897 about 80 cases have been recorded. Osler (1905), however, had seen only two instances and referred to the possibility of confusing aortic aneurysm with mitral stenosis when vocal-cord paralysis also exists. In the systematic examination of 20 cases of mitral disease Ceraulo (1907) found the left vocal cord paralysed in four. Garland and White (1920) reported nine cases collected from the records of the Massachusetts General Hospital during a period of eight years. In a series of 50 cases of advanced cardiac disease with hypertrophy we encountered two with associated laryngeal palsy (Cases 2 and 3), and it therefore seems probable that the condition occurs more often than is suggested by the scarcity of recorded cases.

I wish to acknowledge my indebtedness to my medical colleagues for clinical notes and for the opportunity of examining cases in their wards.

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Occupation centres provide for mentally defective children unable to attend school because they are incapable of receiving education there. Local authorities have recently been asked to submit plans for the training of defectives at home and in the centres, and the National Association for Mental Health has recently published an interesting survey entitled "Occupation Centres for Mentally Defective Children" which may serve as a guide to the problem. Detailed information, as well as the pamphlet (price 9d), may be obtained from the National Association at Maurice Craig House, 39, Queen Anne Street, London, W 1.



## PURPURA HAEMORRHAGICA AS A COMPLICATION OF PREGNANCY

BY

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Purpura haemorrhagica is generally regarded as a rare but very grave complication of pregnancy. Patterson (1946) collected from the literature reports of 62 cases from 1867 up to the date of his paper. To these he added a further case. He found the maternal mortality was 55%. Mosher (1923) also studied the recorded cases and believed the maternal mortality to be almost 100%, the commonest cause of death being post-partum uterine bleeding. He described the common association of purpura with premature delivery at the sixth to seventh month and noted that infection was usually superimposed. The foetal mortality in his series was in the region of 50%. Rushmore (1925) collected a series in which the maternal mortality was 58% and the foetal mortality 64%. He quoted as typical the case described by Puech in which premature labour occurred at the sixth month and death on the second day of the puerperium from exsanguination as a result of prolonged and persistent uterine bleeding following delivery.

### Clinical Picture

In most of the cases in Patterson's series there was no evidence of purpura before the pregnancy, but haemorrhages into the skin and mucous membranes developed at various times during the course of the pregnancy. In addition epistaxis, haemoptysis, or haematuria may be present. The platelet count is lowered and the bleeding time prolonged. Anaemia is usually present, and there may be a personal and a family history of bleeding, as in Patterson's case. This patient's great-grandmother and grandmother were known to have been bleeders, and her mother, when she herself was born, suffered from post-partum haemorrhage and required transfusion. The patient herself had had symptoms of purpura from the age of 4 and in spite of advice to the contrary had become pregnant. Hess's tourniquet test may be positive. The spleen may or may not be enlarged, and Polowe (1944) described a case of splenoma in which extensive areas of necrosis were present in the spleen.

Pregnancy usually continues uneventfully, and labour may be normal until the third stage is completed, when difficulty may be found in controlling the continuous haemorrhage which tends to occur from the uterus and which may lead to death after some days or perhaps hours. Haemorrhage may take place not only from the uterus but also from lacerations of the cervix, vagina, or parametrium, and haematomata may form deep to the vaginal wall as a result of trauma from the passage of the foetal head or from forceps application. When purpura is present pre-eclamptic toxæmia is particularly dangerous owing to the special risk of placental separation and massive intra-uterine haemorrhage. In this connexion Titus (1940) states that some fulminating types of placental separation may be due to purpura.

The bleeding time and platelet count may be normal, but acute attacks of purpura may occur during pregnancy if the platelet count is low. The infant is sometimes affected but, according to Polowe (1944), more commonly it escapes. Siegler (1934), however, has recorded a case where the mother survived but the infant died of haemorrhage. Patterson distinguishes between chronic purpura,

in which pregnancy is a risk so grave that it should not be undertaken, and acute purpura arising during the pregnancy. In the latter type of case, similar to the one described below, complete recovery may take place and the bleeding time and platelet count, together with the other blood findings, may return to normal before the onset of labour, with or without specific treatment.

### Treatment

The treatment most generally advocated is the use of repeated small transfusions of about 200 ml of fresh blood in an attempt to improve the blood's condition. Iron and calcium may sometimes be given with advantage. Vitamin K will often help to restore bleeding and clotting times to normal. Polowe, who quotes a successful case operated on in the eighth month of pregnancy, advocates splenectomy in all cases, but Patterson considers that this should be reserved for those cases in which conservative treatment fails or in which definite splenomegaly is found.

Interruption of the pregnancy during the acute stage is contraindicated, since this will merely open another channel for haemorrhage. Every effort should therefore be made to keep the pregnancy going until the acute stage is over and to improve the platelet count. Delivery should be carried out with as little interference as possible, since the trauma of an instrumental delivery may lead to extensive bleeding in the paravaginal tissues even in the absence of vaginal laceration. Episiotomy and perineal tears are a further possible source of bleeding and should be avoided.

Bleeding at delivery is not usually excessive, but it continues for hours or days afterwards. Patterson recommends that the uterus and vagina should be packed for 48 hours if there is any bleeding after completion of the third stage. At the end of 48 hours the pack should be removed, but it should be reinserted if bleeding recurs and again removed after a further 48 hours. In view of the danger of infection, treatment with penicillin or sulphonamides may be indicated. When bleeding cannot be controlled by other means hysterectomy may be necessary, but there are strong reasons for not operating on these patients if it can be avoided.

As the infant may be affected by the disease a platelet count should be done as soon as possible after birth and the child should be observed carefully for evidence of haemorrhage. If necessary transfusion should be undertaken.

### Prognosis

The very high mortality rate for both mother and foetus shows how serious is the outlook, but in cases of transient purpura complete recovery may take place before labour begins. A distinction should therefore be made between patients in whom the platelet count is low at the onset of labour and those in whom labour follows some time after all evidence of purpura has disappeared. The following case report shows that the condition may be mild and need not give rise to anxiety.

The patient a doctor's wife aged 29 years, was first seen at the 35th week of her second pregnancy, the morning after the appearance of a purpuric eruption on the face, neck, and shoulders. Her first pregnancy had been normal in every respect, and her general health had always been good. There had never been any evidence of a tendency to bleeding. Menstruation was always normal and menstrual loss not excessive. During her pregnancy she had been well, and her diet had been adequate. The day before being seen by me she had vomited some undigested food in the evening but no blood had been noticed in the vomited material. Following this a purpuric rash had been noted on the face, neck, and shoulders. The left forearm gave a positive response to Hess's test, her husband

having taken her blood pressure as soon as the purpuric rash appeared. There was no corresponding rash on the opposite forearm or any sign of bleeding elsewhere. The pregnancy appeared to be normal, the vertex was presenting and the head was still free. Blood pressure was 110/70, and no albuminuria was found.

The patient was brought into hospital, where she was seen in consultation with Professor Stanley Alstead, under whose supervision full blood investigation was carried out. The most significant finding here was a platelet count of 101,500 per cmm—i.e., about 40% of the accepted minimum standard. There were some red blood cells in the urine, singly and in small clumps, and clotting time was prolonged to 14 minutes. In a few days however, without any specific treatment, the rash disappeared and no new ecchymoses were observed. The pregnancy seemed to be progressing normally. There was no evidence of toxæmia, so it was decided to await events. She was discharged from hospital and returned to her home.

A week before term full blood investigation was repeated and appeared to be normal in all respects. The platelet count was 562,320 per cmm and the clotting time 6 minutes 45 seconds. The foetal head was by this time engaged in the pelvis, and the pregnancy seemed to be normal. As a precautionary measure it was decided that she should have a small transfusion of fresh blood at the onset of labour and that vitamin K should be given at the same time. A week later there was a small "show," and a slow transfusion of 250 ml of Group IV blood was given together with vitamin K (kapilon," 4 ml). A few hours after this labour began, it was completed in about three hours with the delivery of a live female child weighing 8 lb. Immediately after the birth of the shoulders ergometrine, 0.5 mg, was given intravenously and the placenta and membranes were delivered complete without any apparent haemorrhage. There were no lacerations and the uterus contracted well. After the completion of labour bleeding was normal in amount and gave rise to no anxiety. The puerperium was uneventful, and on the fifth day the platelet count was found to be 340,000, the other blood findings also being normal. The child made good progress being fully breast fed, and did not seem to be affected by purpura, its platelet count on the twelfth day being 346,000. Both mother and child were discharged home in good condition on the 14th day, and subsequent progress has been uneventful.

### Discussion

In 63 previously reported cases of purpura haemorrhagica complicating pregnancy the mortality in both mother and foetus has been alarmingly high, the most recently recorded figure for the former being 55%. The commonest cause of death is prolonged haemorrhage after the completion of the third stage. The case quoted above was mild and transient. Special precautions were taken before and after labour, no undue haemorrhage was observed and the puerperium was normal in all respects. The infant was unaffected. This case confirms Patterson's opinion that there are two different types of case—namely, the chronic, which is associated with all the dangers giving rise to high mortality, and the acute, in which the abnormality may pass off before labour begins and there is no particular danger. The prognosis is good in the acute case unless the acute phase and the onset of labour should unfortunately coincide, but it is not possible to give a prognosis regarding recurrence in a subsequent pregnancy. In view of the very small number of cases recorded it is unlikely that recurrence is common.

### Summary

Purpura haemorrhagica is a rare complication of pregnancy. The literature in which there are records of 63 cases, has been reviewed. A further case is now added.

In the case recorded the purpura was acute and transient, and labour was unattended by any complication.

Treatment should be directed to restoring the blood picture to normal before the onset of labour. If this is impossible special measures for the control of post-partum haemorrhage may be necessary.

The prognosis in the acute cases is good, but there is grave danger of maternal death in the chronic cases.

The foetus is commonly involved, and may die of haemorrhage or of prematurity associated with the early onset of labour in a considerable proportion of these cases.

I am indebted to Dr H J R Kirkpatrick, Dr Elemer Forrai and Dr Edgar Moyes for the blood investigations in this case, and to Professor Stanley Alstead for his advice in the management of it.

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## POLIOMYELITIS

### EFFECT OF EXERTION DURING THE PRE-PARALYTIC STAGE

BY

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A history of great physical exertion immediately preceding the onset of severe paralysis in attacks of poliomyelitis has often been recorded, but until recently no statistical evidence was available to determine whether such instances were more frequent than chance would dictate. Russell (1947) made a very careful statistical analysis of the degree of physical activity and resulting paralysis in 44 cases of poliomyelitis, and concluded "Physical activity of any

TABLE I—Effect of Physical Activity during the Pre-Paralytic Stage on the Severity of Paralysis in 30 Cases of Poliomyelitis. P indicates onset of Paralysis.

No	Age	Sex	Day After Onset of Pre-paralytic Symptoms							Paralysis on Admission	Residual Paralysis at 3 Months
			+1	+2	+3	+4	+5	+6	+7		
1	8	M	Nil	Nil	2	2	P	—	—	C	B
2	33	F	1	1	1	1	P	—	—	B	A
3	14	F	1	1	1	1	P	—	—	B	B
4	7	F	2	2	2	2	P	—	—	B	B
5	26	F	2	2	2	2	P	—	—	B	B
6	3	M	Nil	Nil	1	1	P	—	—	C	A
10	14	M	2	2	Nil	Nil	P	—	—	C	B
11	4	F	1	1	—	—	—	—	—	C	B
13	23	F	Nil	3	3	P	—	—	—	C	B
15	7	F	1	1	1	P	—	—	—	C	F
16	5	F	1	1	2	2	—	—	P	C	B
17	34	F	Nil	Nil	Nil	P	—	—	—	C	B
18	12	F	Nil	Nil	P	—	—	—	—	D	C
19	12	M	2	P	—	—	—	—	—	F	A
21	17	M	Nil	Nil	Nil	Nil	Nil	P	—	F	A
22	2	M	Nil	Nil	Nil	Nil	Nil	P	—	F	A
23	17	M	1	1	1	1	P	—	—	F	A
25	1	F	1	1	P	P	—	—	—	B	A
26	14	M	1	1	1	1	—	—	—	B	A
27	14	F	1	1	Nil	Nil	P	—	—	B	A
28	9	M	Nil	1	1	1	P	—	—	B	A
31	28	F	1	1	1	1	Nil	P	—	B	A
32	5	F	Nil	Nil	P	—	—	—	—	E	C
33	5	F	1	1	P	—	—	—	—	E	C
35	34	F	1	1	Nil	P	—	—	—	B	A
36	35	M	3	3	1	1	Nil	P	—	B	A
37	22	M	2	2	3	3	—	—	—	F	F
40	30	F	1	Nil	P	—	—	—	—	F	C
41	35	M	3	2	P	—	—	—	—	F	C
42	21	M	3	3	1	Nil	P	—	—	F	F

Degree of physical activity.—Nil = in bed. 1 = not more than  $\frac{1}{2}$  day light work (e.g. resting in house with short walks). 2 = Average light work (e.g. secretarial housework, school). 3 = Average or heavy manual work (e.g. factory labourer, athletic sports).

Severity of paralysis.—A = No paralysis. B = No severe paralysis, probable recovery to full function. C = Moderate paralysis—i.e. moderate multiple paralysis or severe paralysis of a few muscles in one limb. D = Bilateral severe paralysis at any level including trunk or gross paralysis of one limb. E = Severe and extensive paralysis such as trunk and both lower limbs or severe paralysis of all limbs. F = Fatal.

kind during the pre-paralytic stage increases the danger of severe paralysis. Complete physical rest in bed during the whole of the pre-paralytic stage seems to protect the patient from severe paralysis."

A similar analysis of cases of poliomyelitis occurring in Cornwall during 1947-8 is shown in Table I. The cases are selected in so far that only those giving a clear history of a pre-paralytic meningeal stage of the illness are included. The standards adopted for the criteria of meningeal involvement, the severity of physical activity, and the degree of paralysis are the same as used by Russell, differing only in that the degree of paralysis in my cases is estimated after three months treatment instead of on admission. Two of the cases (Nos 34 and 38) had travelled to Cornwall by road during the pre-paralytic stage of the illness. In both cases the patient had personally driven his car 250 miles or more.

TABLE II—Showing Maximum Physical Activity in any one Day following First Meningeal Symptoms and Severity of Paralysis

Paralysis at 3 Months	No of Cases	Physical Activity Showing Maximum Activity in 24 Hours			
		Nil (Bed)	1 Slight	2 Moderate	3 Severe
None (A)	9	6	1	2	—
Slight (B)	9	1	3	5	—
Moderate (C)	4	1	3	—	—
Severe (D)	1	1	—	—	—
Very severe (E)	1	1	—	—	—
Death (F)	6	—	—	1	5

Table II shows the maximum activity in a single day and the severity of the resultant paralysis. It will be noted that patients who took to their beds with the onset of initial symptoms proved to be relatively mild cases, six of the ten cases having no residual paralysis after three months of treatment, whereas severe activity in the pre-paralytic stage of the disease led to a very grave prognosis: five of the six fatal cases had undertaken severe mental or physical strain in the days immediately before the onset of paralysis.

TABLE III—Showing Aggregate Physical Activity in Pre-paralytic Stage and Severity of Paralysis

Paralysis at 3 Months	No of Cases	Physical Activity—Total Incidence									
		0	1	2	3	4	5	6	7	8	
None (A)	9	6	1	—	—	—	1	1	—	—	
Slight (B)	9	1	—	3	2	2	—	—	—	1	
Moderate (C)	4	1	2	1	—	—	—	—	—	—	
Severe (D)	1	1	—	—	—	—	—	—	—	—	
Very severe (E)	1	1	—	—	—	—	—	—	—	—	
Death (F)	6	—	—	1	—	—	1	1	3	—	

Table III shows the degree of paralysis plotted against the aggregate of physical activity during the pre-paralytic period. It will be seen that the maximum exertion in any one day is a more important indication of the prognosis than the aggregate of physical activity during the period.

### Summary

The effect of physical or mental exertion during the pre-paralytic stage of poliomyelitis on the ultimate prognosis is analysed in thirty cases of the disease which occurred in Cornwall during 1947-8.

The findings support those of Russell (1947)—namely, that severe physical activity during the pre-paralytic stage is associated with grave prognosis. Severe mental strain such as driving a car over long distances, appears to be equally disastrous, whereas paralysis tends to be mild in cases confined to bed during the pre-paralytic stage.

I wish to thank Dr J G M Molony for granting me facilities to examine these cases during their stay in the County Isolation Hospital.

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## Medical Memoranda

### A Case of Tetanus Treated with *d*-Tubocurarine Chloride

The use of curare in tetanus was described by Hunter (1878) and later by Hale White (1901). More recently Florey, Harding and Fildes (1934), Cole (1934), Mitchell (1935), West (1936), Isacson and Swenson (1941) and Cullen and Quinn (1943) using various preparations of curare, were of the opinion that beneficial effects were produced by the use of the drug in this disease. It is felt that the following case history may be of interest now that a derivative of curare (*d*-tubocurarine chloride) is readily available.

#### CASE HISTORY

A lad aged 16 was admitted on April 23, 1948. Pain and stiffness in the lumbar muscles and jaw had started 36 hours previously. Owing to repeated injuries at football the incubation period of the disease is uncertain. On admission his temperature was 97.2 F (36.2 C), pulse 90, and respiration rate 24. His general condition was good and he weighed 8 stone (50.8 kg). On his right shin there was a scabbed sore  $\frac{1}{2}$  in (1.9 cm) in diameter, together with a few scratches. Risus sardonicus and trismus were present, and he was unable to separate his incisor teeth more than half an inch (1.25 cm). There was marked hypertonus of his spinal and abdominal muscles, with slight opisthotonos, and hypertonus of the muscles of his right leg. He was given 240,000 units of antitetanic serum—200,000 units intravenously and the rest intramuscularly. On the day after admission the wound on his shin was excised.

For nine days from the time of admission the patient was kept more or less continuously under the influence of bromethol or paraldehyde. Bromethol per rectum was used for the first three days, an initial dose of 5.1 ml of bromethol fluid being followed by a maintenance dose of between 2 and 3 ml. Following this, paraldehyde, in a 10% solution in saline, was given per rectum for six days in doses of 2 to 4 dr (8-15 g). The frequency of dosage with each drug (about every six hours) was governed by the patient's degree of somnolence. In all, 21.1 ml of bromethol fluid and 57 dr (200 g) of paraldehyde were given.

From the start of treatment, in view of the anticipated prolonged sedation, 5% carbon dioxide inhalations for a few minutes, and coughing exercises, were given six hourly.

During his first night in hospital, and again on the second day when his wound was being dealt with, the patient had a cramp-like exacerbation of his muscular spasm. By the third day his condition had deteriorated in spite of sedation. His body musculature was more rigid, and he was having a good deal of pain. He had a further exacerbation of spasm and was complaining of some difficulty in breathing.

It was then decided to try the effect of *d*-tubocurarine chloride. As we were uncertain of the degree of muscular paralysis which would be required to give relief, we brought to the ward a Drinker respirator and anaesthetic trolley with accessories. *d*-Tubocurarine chloride in solution was given slowly by the intravenous route, and after a dose of 8 mg the patient's face relaxed. He remarked that his muscle pains were quite easier. There was some diminution in the spasm of his lumbar and abdominal muscles, and he was able to separate his incisor teeth  $\frac{1}{2}$  in (2.5 cm) compared with  $\frac{1}{4}$  in (0.8 cm) beforehand. Immediately afterwards a further 6 mg of the drug was given by subcutaneous injection. After this we gave *d*-tubocurarine chloride in solution by intramuscular injection in doses ranging from 7.5 to 12.5 mg every few hours, the frequency of administration being adjusted so as to control the pain and exacerbations of spasm. The patient received *d*-tubocurarine chloride for six and a half days at intervals of from two to six hours, the total amount given being 252 mg.

During this time he remained free from exacerbations of spasm and comparatively free from pain, except when the action of curare was wearing off. At these times severe interscapular, lumbar, and abdominal pain would recur, associated with increased hypertonus, cyanosis and a rise in the pulse rate from about 80 to between 120 and 150 a minute.

By the ninth day in hospital the pain, spasm, and cramps were diminishing and we stopped the administration of sedatives and curare. In the ensuing few days the residual stiffness wore off and he felt well and hungry. He lost 4 lb (1.8 kg) in weight during his illness.

On June 20 he wrote to us saying that he felt fit and was back at school.

We are reluctant to draw far-reaching conclusions from the treatment of one case, but we feel that *d*-tubocurarine chloride, when combined with other measures, may find a useful place in the treatment of tetanus.

We wish to thank Dr H Arwel Thomas, medical officer of health for Denbighshire, for permission to publish this case.

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R J WHITING MB, BS DA

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### Cardiac Arrest Modified Technique of Cardiac Massage

Cardiac massage has become standard treatment for heart failure during anaesthesia, and a number of lives have been saved thereby. On many occasions, however, the heart does not restart. The following case suggests that a modification of the technique advocated by Hamilton Bailey (1941, 1942, 1946) might be more successful.

#### CASE REPORT

A Bantu woman aged 19 was having a vaginal repair done for a vesico vaginal fistula which she had had for 18 months following a difficult confinement in her village. She appeared to be in a satisfactory condition before the operation. Her heart seemed normal and she was not anaemic.

The operation was performed under gas, ether, and oxygen via an intratracheal tube. It had been in progress about half an hour, during which time there had been very little blood loss, when it was noticed that the oozing from the operation field was dark. This was reported to the specialist anaesthetist in charge, who at once increased the oxygen and stopped the ether and nitrous oxide, but without improvement in the patient's condition the pulse and respiration were fading away. After a few minutes of artificial respiration the anaesthetist reported that the patient's heart had ceased beating, and that cardiac massage was indicated. Meanwhile artificial respiration by means of the anaesthetic bag was continued and an attempt was made to inject adrenaline into the heart. (After cardiac massage had been started it was considered that the needle could not have penetrated deep enough to reach the heart.)

A left subcostal incision was rapidly made and cardiac massage attempted without opening the diaphragm. After a fruitless minute an opening was made in the diaphragm and a thumb was passed through. Massage was then continued for a further eight minutes by rhythmically squeezing the ventricles. This procedure produced no results and the case was considered hopeless.

The hole in the diaphragm was then stretched somewhat and two fingers were passed through. By stretching the diaphragm upwards they could easily reach the upper part of the heart. Then with some idea at the back of my mind of imitating the path of the normal impulses passing down the bundle of His I stroked the heart firmly in a downward direction. It immediately responded with a weak beat and after a few further strokes it was beating well. Natural respiration restarted shortly afterwards, and within five minutes the blood pressure was 120/85.

The patient, however, did not recover consciousness completely and showed evidence of cerebral damage. She became very spastic and made repeated infantile sucking movements. She would however open her eyes when called by name. Death occurred 30 hours after the heart had restarted beating.

It was felt that if this manoeuvre had been tried earlier the outcome might have been more satisfactory. Perhaps it will prove useful to other surgeons placed in these unpleasant circumstances.

My thanks are due to Professor O S Evans for his advice and help.

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## Reviews

### ASEPTIC TECHNIQUE

*The Aseptic Treatment of Wounds* By Carl W Walter A B, M D. Illustrated by Mildred B Coddington, A B, M A. Macmillan Surgical Monographs (Pp 372 £2 5s) New York and London The Macmillan Company 1948

Asepsis is to-day so much the atmosphere in which the surgeon has his well-being that few of us spend many moments in thinking actively of its details. Our aseptic technique is so ingrained as to be a form of reflex behaviour rather than an intentional code of conduct. With the advent of chemotherapy, indeed, the miracle of asepsis is largely obscured by what is now the more dramatic miracle of the *neo antiseptics*. It is a healthy, an instructive, and in some ways a humiliating experience for the surgeon to turn his attention to the full details of the aseptic methods as they are so admirably illustrated in this book, which covers in an almost encyclopaedic way the whole subject of asepsis. It would form an admirable textbook of asepsis for the medical student, it will serve the practising surgeon, however rigid and educated his technique, as a work of reference for numerous details of operating-room technique which are not available elsewhere.

The sterilization of the more modern materials, the packing of sponges and gowns for sterilization, the structure, management, and servicing of sterilizing apparatus, the management of the operating-room atmosphere, and the structure of hospital water supply are only a few subjects which are fully covered and delightfully illustrated by line drawings. The author discusses clearly the distillation and sterilization of water, the cleaning of glassware, and the preparation of fluid for parenteral administration and for blood transfusion, as well as the technique for achieving asepsis in the nursing of infectious fevers. He even considers operating-theatre technique to some extent, and describes the towelling of patients for various operative procedures, and methods of restraining them from breach of asepsis by their own movements. This is a most unusual volume unique of its kind and as a reference work must find a place in every hospital, however small, and in every medical library however specialized.

IAN AIRD

### ENDOCRINOLOGY AND METABOLISM

*The 1947 Year Book of Endocrinology, Metabolism and Nutrition*. Endocrinology edited by Willard O Thompson, M D. Metabolism and Nutrition edited by Tom D Spies, M D. (Pp 575, illustrated \$3 75 or 21s) Chicago Year Book Publishers, Inc. London H K Lewis and Co 1948

This annual review is invaluable for those who have not the time to follow the original literature at first hand and is particularly useful to the clinical endocrinologist, for the endocrine section is written by a clinician by no means lacking the scientific approach. In the section on the pituitary there is a review of the Boston School's demonstration of the *in vitro* inactivation of pituitary thyrotrophic hormone by iodine, due presumably to the formation of an iodo-complex of the hormone, which can be reversed by reducing agents, particularly goitrogenic ones, and an account of the work of Thorn and colleagues showing that adrenocorticotrophic hormone causes (particularly in hypopituitarism but also in normal man) an increase in the urinary excretion of 11-oxysteroids, 17-ketosteroids, uric acid, nitrogen, potassium, and phosphorus, with a decrease in sodium excretion.

A series of papers prove the usefulness of estimating protein-bound iodine in the serum as a reliable index of thyroid function: the low values seen in myxoedema and cretinism being more truly indicative even than the BMR and serum cholesterol. A case of congestive heart failure due to myxoedema and responding to thyroid extract is described. Several papers on propyl thiouracil, which is the form used now in the U.S.A., in cases of thyrotoxicosis are informative. The interesting work of Rawson and McArthur is referred to—namely, on successive biopsies of the thyroid gland in thyrotoxicosis, showing that thiouracil increases slightly the height of the acinar cells, whereas if iodine is given with thiouracil the height is reduced to half its size. Radioactive iodine studies show that thiouracil prevents the thyroid gland from utilizing iodine when iodine

is also given. The authors believe that iodine can cause involution of the thyroid gland of the patient on thiouracil without iodination of the hormone precursor, and that the involuting action of iodine on the thyroid is independent of its iodinating action.

The section on the adrenal gland sets out the most interesting recent knowledge with skill and discrimination. In particular the work of Venning and Browne at McGill University has turned our attention to the high excretion of glycogen corticoids (diabetogenic and anti-insulin) in Cushing's syndrome, and their tendency to disappear in Addison's and Simmonds's diseases. It is no longer sufficient to study only the 17-ketosteroids or androgens and it is hoped that colorimetric methods of assay of glycogen steroids will be added to the assay by glycogen deposition in adrenalectomized rats and help to make the results of these studies more easily available to the scientific clinician. The account of hypertension in children due to pheochromocytoma, their cure by its removal, and the diagnostic test of histamine injection will interest the paediatrician.

The work of an English paediatrician, Professor R. W. B. Ellis, on physiological standards of growth and puberty is rightly considered important to the endocrinologist in the section on the sex glands. Gynaecomastia associated with cirrhosis of the liver and due to inability of the liver to inactivate oestrogens is described. An account of twins with descent of one testis on opposite sides (mirror reflection type) reminds one of two eunuchoid brothers with similar unilateral descent shown by the writer at the Royal Society of Medicine (*Proc. R. Soc. Med.* 1946, 39, 511). The value of biopsy studies in male sterility is indicated. The importance of oestrogens and androgens in the osteoporosis of post-climacteric age and in the healing of fractures at this time should be better known to orthopaedic surgeons. Disorders of menstruation, synthetic oestrogens, and pregnancy tests are widely reviewed as well as masculinizing ovarian tumours. The association of vascular damage, retinitis, and hypertension is discussed as are the changes in mineral metabolism in diabetic coma; there is a wide range of clinical studies in therapy. A case of refractoriness in a young diabetic woman to 5,000 units of insulin in 24 hours is stated to be a record. An account of pancreatic islet cell tumour hypoglycaemia and glycogen disease ends an excellent section on the pancreas. The second section of the book covers the alimentary tract: fat absorption in sprue, folic acid, the haemopoietic system, the cardiovascular system, the brain and nervous system, 'agenized' flour, the genito-urinary system, and dermatology. The whole book is excellently set out and deserves high praise.

S. LEONARD SIMPSON

### DISORDERS OF SPEECH

*L'Aphasie et la Désintégration Fonctionnelle du Langage* By Th. Alajouanine and P. Mozziconacci (Pp. 156 illustrated, 450 francs) Paris: L'Expansion Scientifique Française, 23 Rue du Cherche-Midi.

The literature on aphasia is outstanding by reason of the general high level of the contributions. Alajouanine and Mozziconacci's little work is a modest but distinguished newcomer. The authors follow the common practice of considering in some detail the history of the development of our knowledge of speech disorders—an approach which is of particular value in this subject. One or two features in the subsequent chapters will perhaps be unfamiliar to English students. They give due credit to Baillarger's teaching on the dissociation between voluntary and automatic (or spontaneous) utterances. There is a good account of the intellectual level of aphasics and the appropriate methods of investigation by means of non-language tests, and they consider artistic realization in aphasics in a brief but interesting manner. The authors relate aphasia to apraxia and the agnosias, the points of correspondence and of distinction being clearly discussed. One of the most important and at the same time original conceptions in the book is the study of aphasia from a philological viewpoint. Under the term 'syndrome de désintégration phonétique' the authors discuss the elocutionary disorders in aphasia which they believe to have interesting analogies with the first usage of speech in the infant. Seven detailed illustrative case reports conclude this very successful monograph. From the point of view of the student and young neurologist there exists no better clearer or more up-to-date presentation of the subject.

MACDONALD CRITCHLEY

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Liver Injury* Edited by F. W. Hoffbruecker, M.D. (Pp. 95, 51, 50.) New York: Josiah Macy, 1948.

Papers and discussion on such subjects as radioactive methionine, portal hypertension, the effect of platinum on the liver and serum lipids in liver disease.

*Sterilisation und Sterile Aufbenahrung von Spritzen und Hohladeln* By E. Baumann, 2nd ed. (Pp. 120, 750 Swiss francs) Basle: Benno Schwabe, 1948.

A monograph with references on maintaining sterility of syringes and hypodermic needles.

*Income Tax Simplified* By A. and E. E. Fieldhouse, 19th ed. (Pp. 98, 2s. 6d.) London: Simpkin Marshall, 1948.

A short exposition specially for the business man and student of accountancy.

*The Medical Annual 1948* Edited by Sir H. Tidy, M.A., M.D., F.R.C.P., and A. Rendle Short, M.D. B.S., B.Sc. F.R.C.S. (Pp. 414, 25s.) Bristol: John Wright, 1948.

Articles by various authorities on modern treatment in medicine and surgery, with references to the literature.

*Ætiological Principle of Pyæmia in Ancient Egyptian Medicine* By R. O. Steuer (Pp. 36, \$1.50) Baltimore: Johns Hopkins Press, 1948.

A short study issued as a supplement to the *Bulletin of the History of Medicine*.

*Annual Review of Biochemistry* Edited by J. Murray Luck, Vol. 17. (Pp. 801, 36s.) London: H. K. Lewis, 1948.

Includes papers on the chemistry of penicillin, lipid metabolism, clinical application of biochemistry and the biochemistry of carcinogenesis.

*Nouveaux Traitements de L'Insuffisance Hépatique* By J. Cottet and N. Dobo (Pp. 210, No price) Paris: Flammarion, 1948.

A discussion of the diet and its constituents required for treating hepatic disorders.

*Der Ausdruck von Stimme und Sprache* By F. Troyen, Vol. 1. (Pp. 219, Sch. 25) Vienna: Wilhelm Maudrich, 1948.

An analysis of speech for phoneticians and speech therapists.

*La Spasmophilie de L'Adulte* By H. P. Klotz (Pp. 157, No price) Paris: Flammarion, 1948.

The author describes a syndrome of neuromuscular and mental hyperexcitability with hypocalcaemia.

*Corazon Pulmonar* By J. Govea (Pp. 178, \$4.00) Havana: M. V. Fresneda, 1948.

A monograph on pulmonary heart disease.

*Lehrbuch der inneren Medizin* By T. Brugsch, Vol. 1. (Pp. 764, M. 40) Berlin: Urban und Schwarzenberg, 1947.

This volume includes sections on infectious diseases, physiotherapy, disorders of metabolism, and the cardiovascular system.

*The Queen Charlotte's Textbook of Obstetrics* By Members of the Clinical Staff of the Hospital, 7th ed. (Pp. 572, 28s.) London: J. and A. Churchill, 1948.

This edition includes new chapters on foetal physiology and the rhesus factor.

*Les Varices et leurs Associations Pathologiques* By L. Gerson, 2nd ed. (Pp. 259, 850 francs) Paris: G. Doin, 1948.

A clinical account of the treatment of varicose veins and ulcers.

*Critical Studies in Neurology* By F. M. R. Walshe, M.D. F.R.S. (Pp. 256, 15s.) Edinburgh: E. and S. Livingstone, 1948.

Includes papers on the anatomy and physiology of cutaneous sensibility, the motor cortex and pyramidal tract and the notion of the 'discrete movement' in skilled motion. Reprinted from *Brain* with a lecture on the integration of medicine reprinted from this *Journal*.

## BRITISH MEDICAL JOURNAL

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STREPTOMYCIN RESISTANCE IN  
TUBERCULOSIS

The Achilles heel of streptomycin is acquired bacterial resistance. All species are liable to develop this to a degree which renders further treatment quite fruitless, and the rapidity with which it occurs varies with their rate of growth. Resistance has been observed only one day after the start of treatment, and it is quite common among most bacteria within two or three days. The slowly growing tubercle bacillus, on the other hand, has not usually been found to react in this way in less than one month. The frequency, extent, and rate of this change are of vital importance in deciding how to treat tuberculosis with streptomycin, particularly in connexion with the length of the course. In cases of pulmonary tuberculosis the sputum often continues to provide experimental material, and several studies of resistance have been made. Sadusk and Swift<sup>1</sup> found that out of 16 cases, 14, 11, 7, and 6 respectively still had bacilli after one, two, three, and four months of treatment. Only 2 strains had begun to be resistant after one month, after two months, 7 out of 11 were resistant, after three, 6 out of 7, and after four, all 6. The degrees of increase in resistance varied from 5- to over 1,000-fold. These authors were not able to correlate the behaviour of the bacilli with the response to treatment. On p 1009 of this issue Drs J Crofton and D A Mitchison describe a similar study in 13 patients at the Brompton Hospital, the results of which are carefully analysed in an attempt to arrive at such a correlation. In 12 out of 13 patients the bacilli were shown to have increased in resistance, and in two-thirds of them this change occurred within 48 days. With one exception the change was of such a degree that the concentration of the drug attained in the tissues can no longer have been capable of preventing the growth of such bacilli.

Several conclusions can be drawn from the details of these findings. The sooner resistance develops, the greater is its ultimate degree. The amount of clinical improvement during the early stages of treatment is also related to this factor, patients in whom resistance develops late and to a limited extent making better progress. It also appears that the development of resistance is apt to be followed by an increase in the numbers of bacilli in the sputum. On the other hand, the development of resistance is by no means invariably followed by clinical deterioration. 8 patients continued to improve after the change had occurred, 2 continued to deteriorate having been on this road before, and in only 3 was progress arrested or reversed. The authors' discussion of the significance of these facts and of the further questions which arise will be read with interest. As the facts stand they are by no

means unaccountable. There is much to be said for the view that all the good that streptomycin can do is going to be done in six or eight weeks. If at the end of that time the destruction of the bacilli and the resolution of lesions have reached a certain stage improvement may well continue even though continued administration of the drug is having no effect whatever on the surviving bacilli.

It would be useful if further studies of this kind could be pursued on a larger scale, but anyone undertaking them has to face a formidable task. Apart from the ordinary difficulties in working with a fastidious and slow-growing organism a special difficulty in this connexion is the heterogeneity of the bacterial population. There appears to be no doubt that resistant organisms are derived from mutants originally possessing some degree of abnormal resistance, and there may well be small numbers of these in any population. This has been clearly shown by Alexander and Leidy<sup>2</sup> for *H. influenzae* and by Klein and Kimmelman<sup>3</sup> for dysentery bacilli. Vennesland and his colleagues<sup>4</sup> have even shown that the classical strain of *Mycobacterium tuberculosis*, H37Rv, commonly used as a control in tests of streptomycin resistance, includes a minute proportion of cells capable of growth in 100 times the normal inhibitory concentration. Under the influence of streptomycin it seems that individual cells acquire resistance at different rates, and a population develops which includes elements possessing widely different degrees of resistance. Crofton and Mitchison demonstrated this in two of their cases and it is abundantly evident from the elaborate study made by Marjorie Pyle,<sup>5</sup> who repeatedly cultivated the organism obtained from the sputum of patients under treatment on plates of a medium containing seven different concentrations of streptomycin, often obtaining a diminishing number of colonies over a considerable range of concentrations. If such a procedure as this is not adopted it must always be uncertain how far a result reflects the properties of the majority of bacilli in the specimen. Finally, there is some uncertainty about the significance of results obtained with the Davies-Dubos medium. This is delightfully convenient to work with, but according to Fisher<sup>6</sup> one of its constituents, Tween 80, greatly exaggerates the bacteriostatic action of streptomycin on some strains, making them appear sensitive when in fact they are highly resistant as judged by tests in other media. This of course does not detract from the significance of results in which a high degree of resistance has been demonstrated.

It is clear from Crofton and Mitchison's findings that the development of streptomycin resistance is not incompatible with recovery. Three out of their cases with resistant bacilli became sputum-negative. On the other hand, it is equally certain, though so far as we know not yet actually proved, that such bacilli if transmitted to another individual would produce disease resistant to streptomycin treatment from the start. There would be none of the benefit obtained in the first patient before resistance had been acquired. This is a very grave danger for the future.

<sup>1</sup> *J. clin. Invest.*, 1948, 27, 278<sup>2</sup> *J. exp. Med.*, 1947, 85, 329, 677<sup>3</sup> *J. Bact.*, 1946, 52, 471<sup>4</sup> *Science*, 1947, 108, 476<sup>5</sup> *Proc. Mayo Clin.*, 1947, 22, 465<sup>6</sup> *Amer. Rev. Tuberc.*, 1948, 57, 59



and the strongest of several reasons for restricting the use of streptomycin to those types of case most likely to benefit from it. The result of making the drug more widely available will be an insistent demand for it from many patients in whom its use is unlikely to have any but a transient effect, and it will be the duty of the profession to resist such demands firmly. To treat a chronic advanced case with cavitation can have little effect but to convert the patient into a much more dangerous source of infection for other people. There is no evidence whatever that a tubercle bacillus—or indeed any other organism—which has acquired streptomycin resistance can lose it again. So far as is known the change is permanent.

### EARLY RISING AFTER OPERATION

To make patients get out of bed a day or two after operation is not a new idea, and though this practice is rapidly becoming more popular there is still considerable opposition to it in many parts of Britain. Emil Ries<sup>1</sup> is reputed to have been the first advocate of early post-operative ambulation in America. His paper was presented at a meeting of the American Medical Association in 1899 and was given a most favourable reception by all the succeeding speakers except one. It is, therefore, rather surprising that Ries's advice was not widely accepted. Perhaps it was because tradition and habit die hard in medicine, and this is especially true of methods sanctioned and advocated by great authorities. In this country we have not lacked distinguished supporters for the therapeutic importance of rest. John Hunter described it as the most powerful aid which the surgeon could bring to disordered tissue, Hugh Owen Thomas stated that "rest must be enforced, uninterrupted, and prolonged", and there are few of us who were not advised as students to read the classical essays of Hilton.<sup>2</sup>

Up to 1939 confinement to bed for ten to fourteen days after a major operation was the usual custom in this country and the United States. Continental practice was more adventurous, and early rising was occasionally advocated in Russia and Germany in a manner which many considered almost barbaric. But shortage of hospital beds during the war and the pressing demands on manpower encouraged a change of view, and there is now a growing and enthusiastic body of supporters of early post-operative ambulation. The majority of patients can readily get out of bed by the third or fourth day after operation, and many of them might with advantage get up even earlier. There is more than historical interest in the fact that Dr Ephraim McDowell, who did the first successful ovariotomy in 1809, found his patient up making her bed on the fifth day after operation.<sup>3</sup>

What are the benefits of early ambulation? First, morale is greatly improved by early rising, and most patients,

having overcome their natural apprehension, are gratified to find how comfortable and fit they are. General health and strength are better maintained, and convalescence is more rapid. Secondly, retention of urine, together with those difficulties associated with the use of the bed pan, is almost entirely obviated, and the work of the nurses is made easier. For patients who are not fit enough to walk to the lavatory the wheeled chair described by Bohmansson and Malmros,<sup>4</sup> which can be pushed over a w.c., is of considerable value. The patient is thereby spared embarrassment and discomfort, while his neighbours avoid those unpleasant odours which are commonplace in hospital wards. Thirdly, as many authors have reported,<sup>5-10</sup> early ambulation diminishes the incidence of post-operative pulmonary collapse, and if collapse does occur it generally resolves more rapidly. Churchill<sup>11</sup> demonstrated an appreciable reduction in the vital capacity after abdominal and hernia operations, while Cutler<sup>12</sup> has shown that the vital capacity returns to normal in half the time if the patient is up and active. As a result of studying the diaphragmatic movements after operation Howkins<sup>13</sup> concluded that so long as the patient had to remain in bed he should be in a comfortable recumbent position with free and frequent movement. Like Spalding,<sup>14</sup> he condemns the Fowler position and advocates early ambulation wherever this is possible. Finally, most workers believe that venous thrombosis and its sequelae are not so likely to occur if early rising is practised.<sup>15-17</sup> According to some reports these complications are lessened tenfold, but most authorities find that the incidence is not reduced by much more than half.<sup>18</sup> It is suggested by others that rising on or after the fourth post-operative day produces little or no diminution in thrombosis and embolism, the greatest reduction in these complications appears to occur when patients get up on the first or second day after operation.

The abdominal surgeon's chief anxiety about early rising has been the integrity of his suture line, and wound disruption and post-operative herniation were much feared. For these reasons metallic sutures, and especially stainless steel wire, have been advocated,<sup>5-19</sup> but operation wounds will heal rapidly and securely even without such desirable aids as non-absorbable sutures. Royster and his co-workers<sup>20</sup> showed that wound healing was as sound in ambulant dogs as in those which had been kept inactive, and Newburger<sup>21</sup> found that wounds healed more rapidly in ambulant rats, thus confirming the earlier work of Kimbarovsky.<sup>22</sup> Experience with human patients supports these findings. There is no published evidence that early rising increases the recurrence rate of inguinal hernia.<sup>23-24</sup>

Contraindications to early ambulation after operation are peritonitis, severe ileus, shock and haemorrhage, cardiac failure, and infective conditions of the legs which preclude

<sup>12</sup> *Proceedings of the International Assembly of the Inter State Postgraduate Medical Association of North America* 1941 p. 232

<sup>13</sup> *Lancet* 1948 2 85

<sup>14</sup> *Ibid* 1946 1 643

<sup>15</sup> Jorpes E. *Heparin in the Treatment of Thrombosis* 1946 Oxford University Press London

<sup>16</sup> Crafoord C. Personal communication 1947

<sup>17</sup> Ochsner A. *J Amer med Ass* 1946 132 827

<sup>18</sup> Allen A. W. et al. *ibid* 1945 128 397

<sup>19</sup> Abel A. L. and Hunt A. H. *British Medical Journal* 1948 2 379

<sup>20</sup> *Surg Gynec Obstet* 1948 86 565

<sup>21</sup> *Surgery* 1943 13 692

<sup>22</sup> *Nor khil Arkh* 1935 35 57

<sup>23</sup> Blodgett J. B. and Beattie E. J. *Surg Gynec Obstet* 1947 84 716

<sup>24</sup> Pratt G. H. *ibid* 1948 86 530

<sup>1</sup> *J Amer med Ass* 1899 33 454

<sup>2</sup> *Rest and Pain* 1892, George Bell and Sons London

<sup>3</sup> Haggard W. D. *Surg Gynec Obstet* 1904 58 415

<sup>4</sup> *Lancet* 1947 2 509

<sup>5</sup> Booth J. D. *Corn med J* 1947 11 609

<sup>6</sup> Derrig C. D. *ibid* 1947 11 611

<sup>7</sup> Cornell N. W. and Lin D. T. W. *Surg Gynec Obstet* 1947 85 294

<sup>8</sup> Davison T. C. et al. *J med Res Ga* 1947 36 299

<sup>9</sup> Leithauer D. J. *Arch Surg* 1943 47 203

<sup>10</sup> Leithauer D. J. et al. *ibid* 1941 42 1086

<sup>11</sup> *Surg Gynec Obstet* 1927 44 453

such activity. It is sometimes argued that early rising is undesirable for the tired housewife who needs nothing so much as a good rest in bed. The reply to this is that the housewife need not be strictly confined to bed in order to enjoy a well-earned rest. A very real danger associated with the practice of early rising is the too early discharge of the patient from hospital, this must be strongly resisted. On a number of occasions early discharge from surgical care has been followed by fatal embolism or the development of a "white leg" when the patient was back at home. Some of the undoubted benefits of early ambulation will be lost and the practice brought into disrepute if it leads to neglect of the need for a period of close and careful post-operative supervision. A surgeon would be in a difficult position if he allowed a patient to be discharged on the fourth day after appendicectomy or the seventh day after cholecystectomy (as reported in some American journals) and that patient subsequently developed a fatal embolus in the second week. Although no definite time limit can be set for the development of serious thrombotic complications, it would be wise to keep the patient in hospital for fourteen days after any major operation.

Early ambulation should not be regarded as a procedure to be practised only by surgeons. Patients transferred from a medical to a surgical ward are sometimes found to be suffering from the effects of prolonged bed rest, and it may well be prudent for the surgeon to get such patients up and about for a few days before operation. The dangers of going to bed were described in this *Journal* about a year ago by Asher,<sup>25</sup> who drew attention to the need for changes in wards. Those who recommend early rising after operations will realize the defects of even the most modern hospitals in this respect. There is a serious shortage of comfortable chairs, and most patients would appreciate an adjacent sitting-room or recreation room. Washing and bathing facilities for up-patients are usually inadequate and there is a shortage of lavatories. Those responsible for hospital planning should bear these points in mind when new hospitals are built and existing institutions improved.

## DIET AND THE PRODUCTION OF INSULIN

There have been suggestions that diabetes mellitus is particularly prevalent among those who are accustomed to an unduly generous diet or to consuming large amounts of sugar or fat. While statistics indicate that diabetes is commonly associated with obesity, the evidence connecting its development with excess of a particular food component is less convincing. Thus, while it has been claimed that heavy fat-eaters are frequently affected,<sup>1</sup> it is questionable whether the appetite for fat is developed before or after the pathological changes have begun. Tejning<sup>2</sup> has recently carried out a series of experiments with the object of throwing some light on this important question. He kept groups of rats for about nine months either on a stock diet of rye, meat, milk, and carrots or upon experimental diets rich in carbohydrate, protein, or fat, respectively. The animals were then killed and their pancreases were carefully fixed and freed from adipose tissue. By examining sections cut under carefully controlled conditions and by the application of complicated and laborious mathematical methods

estimates were made of the number, size, and total volume of the islets of Langerhans in the animals of the various groups. Although the insulin contents of the islets were not examined it was assumed, since no pathological changes were found, that the total volume of the islets would give a true indication of the demand made by the diet on the production of insulin.

When the total volumes of the islets were calculated per 100 g of body weight the values for males and females in the group given the natural diet were 0.67 and 0.74 c mm respectively. With the high carbohydrate diet the corresponding values were 0.71-0.89, with high protein 0.59-0.68, and with high fat 0.47-0.50 c mm. If the volume calculated in the group of rats on the natural diet is accepted as normal the diet rich in carbohydrate had little apparent effect on the islets. Their volume, however, was lowered by the diet rich in protein, while the diet rich in fat produced an even greater decrease. Some caution seems necessary in the interpretation of these findings. It is surprising that while the average body weights of male and female rats fed on a diet rich in carbohydrate were 306 and 194 g respectively, weights of only 224 and 168 g were reached with a natural diet. Most workers have found that even when all known vitamins and other nutrients are supplied rats usually grow less rapidly upon artificial than upon natural diets. Further, while the diet high in carbohydrate contained an adequate amount of protein for maximum growth and was well balanced between these types of foodstuff, the diet rich in protein was a "freak" diet containing about 90% of casein. There is some evidence that such a high intake of protein is injurious and the ability of the rats to grow to 227 and 169 g and so equal the performance of the rats upon the natural diet is again hardly what might have been expected. The growth of the rats receiving 76% of their calories as fat to weights of 265 and 194 g calls for the same comment.

It is probably reasonable to accept the hypothesis that the islet tissues respond to dietary changes. It is more doubtful, however, whether the effects of the diets used should be ascribed directly to their richness in carbohydrates, protein, or fats and not to secondary effects on the food consumption and on the general health of the animals. Experiments in which body weights of the rats given the diets rich in carbohydrates and fats could be kept down by restriction of the intake of food to the levels found in the other groups might give useful information on this point.

## ACUTE CORONARY INSUFFICIENCY

Angina pectoris has come to mean an attack of pain in the chest which has a particular quality, site, radiation, duration, and relation to effort, and which is caused by or is closely connected with transient ischaemia of the heart muscle. Cardiac infarction or myocardial infarction signifies necrosis of a substantial segment of heart muscle and is associated with equally well-known clinical features. It is usually but not invariably due to coronary thrombosis. Coronary occlusion, thrombotic or otherwise, means no more than its literal sense implies. It may or may not cause cardiac infarction. So much is clear. What is not so clear is the classification and underlying pathology of those conditions which are neither angina pectoris (as defined above) nor cardiac infarction, but something between the two. Master and his colleagues<sup>1</sup> have proposed the term "acute coronary insufficiency" to describe such cases. The physiological basis for the condition is similar to that

<sup>1</sup> Himsworth H P and Marshall E M *Clin Sci* 1938 2 103  
- *Acta med scand Suppl* 198 1947 128

<sup>1</sup> *J Mt Sinai Hosp* 1947 14, 8  
<sup>2</sup> Wiggers C J *Amer Heart J* 1947 33 633  
<sup>3</sup> Sharpey-Schaffer E P *Brit med Bull* 1944 2 171

for angina pectoris, but the contributing factors may have been present for a relatively long time. For instance, prolonged increase of cardiac work may be due to paroxysmal tachycardia, auricular flutter, hypertensive crises, thyrotoxic crises, and certain drugs, such as an overdose of adrenaline. Prolonged diminution of the coronary blood flow may be due to conditions which seriously lower the cardiac output and blood pressure, such as haemorrhage, shock, massive pulmonary embolism, and vasovagal syncope. Prolonged and relatively sudden interference with the oxygen content of the blood occurs in asphyxia, carbon monoxide poisoning, and acute anaemia. In all these conditions the nutritional demands of the heart may not be adequately met, and subendocardial necrosis in any part of the left ventricle may result. It is believed that the necrosis occurs at this site because of the intramyocardial pressure gradient during systole.

The signs and symptoms may resemble those of cardiac infarction or angina pectoris, but more often they are not quite like either, being too prolonged for ordinary angina yet without many of the features of infarction. Sometimes acute coronary insufficiency is clinically silent. The electrocardiogram shows depression of the RS-T segment in all left ventricular surface leads and therefore usually in all standard leads. The same pattern is common during an attack of classical angina pectoris and may be found in normal individuals when breathing 10% oxygen. Although this conception of Master's has been recognized in some quarters for a long time it is not widely known or accepted, yet there is much to recommend it. Acute coronary insufficiency is believed to be responsible for the occurrence of true heart failure in the later stages of shock<sup>2</sup> and may explain the readiness with which heart failure develops during transfusions in the hyperkinetic stage of severe haemorrhage or anaemia.<sup>3</sup>

### ANTIHISTAMINE DRUGS AND GASTRIC SECRETION

When antihistamine compounds were introduced and found to relieve hay-fever and urticaria, the hope arose that they might be of use in treating hyperchlorhydria, particularly in patients suffering from gastric ulcer, whose gastric juice often resembles the secretion produced by the injection of histamine. This hope has been disappointed, and indeed evidence is accumulating that some of the antihistamine compounds increase the secretion produced by histamine. Emmelin and Frost<sup>1</sup> found that in cats "benadryl" increased the secretion of gastric juice in response to histamine and that in three cats out of four the administration of benadryl alone, without histamine, had a stimulating effect on secretion. Doran<sup>2</sup> observed a large increase in the secretion of free acid in patients given benadryl as compared with the amount secreted without the drug. Benadryl is not a highly specific antagonist of histamine, since it antagonizes acetylcholine as well, this explains the occasional dryness of mouth which it causes. "Neo-intergan" (or "anthusan") has a more specific and stronger action against histamine, and it might have been reasonable to suppose that its effect would differ from that of benadryl. But Howat and Schofield<sup>3</sup> have found that it too acts like benadryl and increases the secretion produced by histamine. Wood<sup>4</sup> has also examined its action in cats and has confirmed Howat and Schofield's findings. The slow intravenous infusion of a mixture of 15 µg anthisan and 5 µg histamine per minute for a period of five hours doubled the volume of juice and rather more than doubled

the amount of free HCl secreted in each 30 minute period. Only when the anthisan was reduced to one-third and the histamine increased four times was there any indication that the secretion of acid was less than with the same amount of histamine alone. It seems that further observations should be made to see whether smaller doses of these antihistamine substances may have the opposite effect to that which has been recorded by all observers hitherto, who, it should be noted, have all used high doses. It is strange that on gastric secretion alone there has till now been no suggestion of antagonism between substances which are antagonists everywhere else. It is likely that there is some simple explanation of this anomaly, which should well repay exploration.

### OVERCROWDING IN MENTAL HOSPITALS

While there has been some recovery from abnormal conditions due to the war, there is still a great deal of overcrowding in public mental hospitals. The report of the Board of Control<sup>1</sup> for 1947 shows that with 128,517 patients in such hospitals there was overcrowding, on the basis of recognized standards, to the number of 14,668. The shortage of accommodation is due to the fact that there has been virtually no building since 1939, to the continuing diversion of some thousands of mental hospital beds to wartime purposes, and to the shortage of nursing staff. The number of beds not in use owing to staff shortage is close upon 2,000, but the shortages are highly localized, and in some parts of the country hospital staffs are nearly at full strength.

The inadequacy of accommodation is more serious than the mere figures suggest, because many mental hospitals have limited admissions to certified cases and have declined to receive voluntary patients—a policy which is clearly detrimental to the whole system of voluntary treatment and causes hardship to persons who voluntarily seek treatment, often in the early stages of their illness, when there is the best prospect of recovery. Nevertheless, voluntary admissions continue to show progress in relation to certified admissions, and last year represented 54.5% of the total. The report states that the health of the patients has been generally good, though there has been a slight increase in tuberculosis (8.8 per thousand, as against 6.5 the previous year and 8.1 as the ten-year average). Among methods of treatment special reference is made in the report to occupational therapy, which has gained wide acceptance in every kind of hospital and is a firmly established form of treatment in mental deficiency institutions for patients of all grades. The report adds, however, that "there are still few hospitals where it can be said that full opportunities are offered to patients as individuals or as members of groups for indoor or outdoor activities which may alleviate illness and point the way to health."

The number of admissions to mental hospitals in 1947 was 46,471. Those discharged recovered or relieved numbered respectively 15,243 and 14,491, 4,002 were discharged not improved and 10,595 patients died. These numbers do not include persons suffering from mental disorder in public assistance institutions and public health general hospitals, or those in receipt of outdoor relief, on whose movements there is no detailed information. Tables are appended to the report with the patients arranged according to class, as private, rate-aided, or criminal, and according to status, whether voluntary, temporary, or certified. The "temporary" patients are very few, only 110 males and 436 females. Rate-aided patients are ten times as numerous as private patients.

<sup>1</sup> *J. Mental Dis.* 1947 13 75

<sup>2</sup> *Lancet*, 1947 2 490

<sup>3</sup> *J. Physiol.* 1948 107 70P

<sup>4</sup> *Br. J. Pharmacol.* 1948 3 231

<sup>1</sup> *Annual Report of the Board of Control to the Lord Chancellor for the Year 1947*  
London: H.M.S.O. 2d net

## TREATMENT OF ADVANCED RHEUMATOID ARTHRITIS

### A FEW PRACTICAL POINTS

BY

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The prognosis of advanced rheumatoid arthritis is nearly always described as being bad. The later stages of the disease are often considered as untreatable. In a recent meeting of the Section of Physical Medicine at the Royal Society of Medicine which was devoted to the treatment of this disorder none of the speakers referred to the advanced stages of the disease. Poynton (1931) has said, 'When the atrophic shrivelling of the tissues supervenes, we realize that recovery of the affected parts is not possible'. In fact, most writers use words reminiscent of Dryden

For all the happiness mankind can gain  
Is not in pleasure, but in rest from pain

In the geriatric unit at St John's Hospital, Battersea, a series of patients of this type have been treated during the past year. By means of a combined assault on the disease the team of nurses, physiotherapists, physician, orthopaedic surgeon, and occupational therapist have been able to make some progress in the majority of cases. Several lessons have been learnt, these are put on record here in the hope that they will benefit others.

#### Preliminary Assessment

This is a very important part of the procedure. After a general physical examination a structural and functional survey of the locomotor system is carried out. It has been realized that a deformed joint can be useful and that a few degrees of movement may form a basis for therapeutic exploitation. X-ray reports on the state of the joints are not given great prognostic weight, for many cases with alarming skiagrams have been capable of clinical improvement. All the patients in the unit have several joints affected, so that the question of priority in treatment is an important one. As a general rule it has been the practice to start with the worst non-ankylosed joint. When both arms and legs are involved walking is considered more vital than manual efficiency, but this is not an invariable decision. Where the arthritis is complicated by another disease this should be dealt with first or therapy will be ineffective. Such conditions as renal calculi, gastric ulcers, fibrositis, and various psychological disorders have all caused either temporary or permanent lack of response to anti-arthritic treatment. It is essential to get a good social history, for there are some patients who, on account of domestic trouble or lack of a home, do not want to leave the shelter of hospital. Such patients need help from the almoner, social welfare workers, and others before any great advance can be made. They use arthritis as a shield against responsibility.

#### Procaine Lactic Acid

The injection of procaine lactic acid (P.L.A.) into and around affected joints has been the first line of attack in all the cases treated. The technique has been described elsewhere. A few minutes after injection the joints are manipulated. Some cases benefit most by a sudden jerk, others do better with steadily increasing pressure. There is probably a maximum to the number of joints which can be manipulated at one time. So far I have never done more than seven, but some patients feel faint if more than three are stretched. A great deal depends on the number of adhesions and the state of the joint capsule. Crepitus alone is not an indication that pain is liable to follow. A rubbing or dry grating like that of leather on a glass surface is a warning of pain to come if too much pressure is exerted. Sometimes the sensation experienced as the needle goes into the joint may be a guide. A feeling as of hard nougat is often associated with much pain during the injection, so that the patient finds it hard to relax afterwards. It is thought that this sensation means the puncture of cartilage. Fibrous tissue grips

the needle, is painful on injection, and may hold the point when the syringe is withdrawn. This often detaches needle from barrel and causes patient and onlookers to get a shower-bath. Unless this hard fibrous tissue is properly penetrated the fluid stretches it painfully, so that the patient does not relax fully when manipulated. On the other hand, if the joint cavity has been properly injected subsequent movement is not difficult. Extreme distension of the joint cavity is painful, but is often followed by clinical improvement. Snapping or cracking sounds in a joint which is being manipulated are not always indications of mobility, although they impress the patient. Rupture of an adhesion seems to cause a single noise followed by increased movement. When bleeding has followed injection, post-manipulation pain often lasts longer than normal. Yet this haemorrhage is usually found in joints which are improving so should not be regarded too seriously.

In two cases procaine has been used in place of P.L.A. Diminution of pain, increase of mobility, and decrease of crepitus are less marked in these patients than in those who have the acid injections. Procaine is most useful where dislocation or subluxation of a joint has occurred and where local muscular tender spots are found. In these two instances it seems preferable to P.L.A. A few patients are found who dread the needle-prick and who cry or moan when injected. When this miserable state is pronounced the administration of "allonal" tablets (Roche) 'somniaesels' (Duncan Flochart) or bromide half an hour before the treatment is a useful measure. It is important to have a relaxed and, if possible, co-operative patient to obtain the best results.

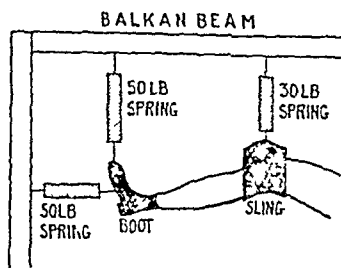
#### Treatment

**Physiotherapy.**—In conjunction with the injection therapy physical methods of treatment are also used. Owing to lack of staff and equipment in the chronic hospital which houses the unit, heat was perforce administered only in the form of infra-red rays and of paraffin wax. This was carried out twice a week as a routine, but some patients occasionally had periods of intensive treatment daily for a week or ten days. A few cases had ultra-violet light. Increase of mobility was the patients' primary need, and this was promoted by class-work in remedial exercises. The spirit of competition which this engendered had an excellent effect on the morale of the patients as well as their mobility. The ward sisters visited the classes from time to time. They observed that almost every patient was capable of much more exertion than expected from their usual behaviour. This resulted in making these cases less dependent on help from the nursing staff than previously. I also learnt a great deal from watching my patients doing their exercises. As a guide to the joint most urgently needing treatment this procedure could hardly be excelled, as a measure of the response to therapy it was admirable.

**Occupational Therapy.**—It was realized that manipulation once a week and exercises twice or three times a week would not be enough to maintain any increased mobility in stiff joints. The use of faradism had definite limits in such cases as these, so occupational therapy was encouraged and developed. First of all, knitting was prohibited, for many an arthritic had knitted day in and day out for many years, steadily getting stiffer all the while. Secondly, all forms of occupation were allocated on prescription only. Knitting and basket work for fingers, heavy looms for elbows and shoulders, table looms or leather work for wrists, were tried as a start. Rug-making and toy making have been added, while patients are encouraged to do some of their work in the wards as well as attending the department twice weekly. There is nothing novel in all this, but the results were better than expected in the chronic arthritics who had never done this type of work before and who were depressed from sitting all day in the same ward week after week.

**Orthopaedics.**—The work of the orthopaedic surgeon is a necessary adjunct to the work on chronic arthritic patients, so many of the cases have multiple deformities through lack of adequate treatment in the past. Manipulation, together with serial plasters and other splintage, has done much to remedy the "hopeless" position of so many limbs. When contracted knees have been straightened walking exercises in a machine

or at the foot of the bed can begin. The outlook of the patient is radically altered by such procedures. One danger must be mentioned, however. The bones of most arthritic patients are decalcified and fragile. It is easy to cause a fracture by over-enthusiastic manipulation especially under a general anaesthetic. One problem which has not been solved is that of



deformed fingers with ulnar deviation and some subluxation. The use of paraffin wax followed by faradic stimulation gives some increased mobility, but not very great improvement. A recent development has been the use of springs with Guthrie-Smith slings and a special shoe to allow traction of contracted legs (see diagram). This is giving promising results but is probably capable of further modification and improvement.

### Results

Let us first take the three failures. One patient refused to have injections after a month's experience. Another was improved to the stage of starting to walk after being in bed for two years. Her arthritis was not severe in degree, but she used it as a means of escape from the difficulties of life outside hospital and did not wish to be cured. The third patient was suffering from a psychosis, which became worse during treatment.

As a contrast three patients who were bedridden a year ago are now able to walk and to dress themselves. One, a man aged 70, needed three nurses to carry him to the bath. He had severe arthritis of both shoulders, both elbows, both wrists and hands, the knees were also involved to a less extent. He can now walk, although his knees are still slightly bent. Both shoulders move freely and the elbows have increased flexion. The left wrist has become mobile instead of being fixed in a flexion deformity. The x-ray film shows little change but the functional alteration is immense for the patient can now go to stay with his daughter for a week-end, needing little help to live a normal life.

The man in the next bed had both shoulders, knees, hips, and elbows involved. He had been bedridden for two years before treatment and was also blind. For six months he gave no response to weekly treatment. Then quite suddenly he began to improve. He can now walk a little, dress himself, raise both arms above his head and extend the left elbow better than before. He has learnt to take himself to the lavatory, and consequently needs little nursing attention. The left hip still shows limitation of movement, but this joint has had only a month's treatment so far.

The third patient, a woman, had also been bedridden for two years. She had both shoulders, elbows, fingers, and knees affected, with considerable limitation of movement. She can now walk and raise both arms level with her shoulders. The elbows retain a slightly flexed position. The left one was manipulated to increase extension, but this procedure resulted in no increase of movement. The arc through which the joint moved was merely transferred nearer extension, while a portion of the previous ability to flex was lost. Consequently the patient can no longer do her own hair.

Seventeen other cases have been treated for periods varying from one month to a year. All show some increase of joint movement. One patient whose hands and wrists were involved has been discharged to her home and can do her own housework. Two remain bedridden still but one of these had twenty-six years without treatment before coming to our notice. Both her arms have been mobilized successfully but the legs show great deformity. As she is a frail old woman of 74

the orthopaedic surgeon feels unable to undertake extensive operative treatment. Her neighbour of 60 who was without treatment in bed for twelve years, is improving steadily. Although both shoulders, hands and knees are seriously affected she has recently become able to feed herself after five years, and the knees have now started to flex again. Another woman whose knees appeared to be ankylosed, has just begun to get flexion in them after eleven months of regular weekly injections with P.L.A. It is surprising how often weeks of apparently fruitless effort will suddenly and unexpectedly produce results. At the moment it appears to me that few cases of rheumatoid arthritis are too advanced to benefit from treatment.

### Summary

An account is given of the methods of treatment used for advanced rheumatoid arthritis at St John's Hospital, Battersea.

The results of a year's use of procaine lactic acid are described.

Apart from three patients with abnormal psychology, all those treated in this way have shown some degree of improvement. Several patients who were previously bedridden are now ambulant.

It is sometimes necessary to wait several months before a patient will show response to the treatment.

It is suggested that this therapeutic procedure has improved the prognosis of advanced rheumatoid arthritis.

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## OPHTHALMIC SURGERY ABROAD

### FACULTY OF OPHTHALMOLOGISTS

Between the two world wars several visits by groups of ophthalmic surgeons to European and American clinics were organized by the late Percival Hay, of Sheffield, on behalf of the North of England Ophthalmological Society. The idea has been taken up afresh by the Faculty of Ophthalmologists and in the spring of 1948 three parties of twenty surgeons visited Holland, Switzerland, and Paris. The travellers are unanimous in their praise of the courtesy they received at all the centres visited. Instruction and information on special techniques and research were freely given, evidently after careful preparation, and the social side was well catered for.

The party to Holland was organized and led by Mr John Foster, of Leeds. Visits were made to The Hague (Dr Vos), Scheveningen, and the old university town of Leiden where Professor van der Hoeve, the doyen of Dutch ophthalmology, together with his assistants Drs Copper, Binckhorst, Kok van Wurnig, and Pieck, read several papers in English and demonstrated a corneal graft operation. At Utrecht Professor Weve performed the operations of intracapsular extraction of cataract, diathermy for detached retina, and dacryocysto-rhinostomy, while Dr Fischer demonstrated the use of a Goldmann contact lens for gonioscopy and showed the museum treasures. At Groningen the eminent professor Dr Roehrl demonstrated his refractometer. Professor Dekking showed a film of a cyclodialysis operation and demonstrated cases of retinitis pigmentosa treated by the subconjunctival implantation of placenta. At Amsterdam Professor Hagedoorn performed two operations and demonstrated an apparatus for measuring orbital incompressibility. Dr Adema read a paper on squint, and some cases were examined showing the late result of corneal graft operations, fascia lata implants, and resection of the ciliary ganglion.

### Zurich and Geneva

The tour of Switzerland was arranged by Mr Muirhead and Mr Nutt of Sheffield. At Zurich Professor Amsler received the party and lectures were given by Dr Verrey on the findings from puncture of the anterior chamber by Dr Huber on fluorescein tests for investigating the blood aqueous barrier and by Professor Amsler on keratoconus and on detachment of the retina. Practical demonstrations were given on the

subject matter of these lectures, and members of the party examined specimens in the pathological department and saw the work done in the photographic department. Further lectures were given by the Professor on his tests for macular function and his technique for corneal grafts. At Berne Professor Goldmann lectured on gonioscopy and demonstrated his subject on cases. He also showed his perimeter and adaptometer and his new red-free lamp. The Haag-Streit works were visited, and next day the Professor lectured again, this time on the slit lamp examination of the fundus with a contact glass and on the location of non-magnetic intraocular foreign bodies.

At Geneva Professor Franceschetti lectured on keratoplasty, and the party was divided into groups to watch operations and demonstrations. On the following day the Professor and his staff performed further operations, corneal grafting and intracapsular extractions while Professor de Watteville, director of the gynaecological and obstetrical clinic of the University lectured on some principles underlying dosage of sex hormones. The final lecture and demonstrations were presented by Dr Bamatter, consultant paediatrician of the clinic the title of his lecture being "Clinical and experimental researches on toxoplasmosis".

The journey to Paris was organized by R. J. Buxton. At the Hôpital XV-XX Dr Schiff-Wertheimer, Dr Dollfuss, and others gave a clinical demonstration and later performed ophthalmic operations. Dr Hartmann at the Hôpital Lariboisière presented an interesting demonstration and later showed his technique of intracapsular cataract extraction. Dr Monbrun showed cases of tuberculous choroiditis treated by streptomycin. Dr Favory and Dr Mèrigot de Treigny demonstrated ophthalmic operations. A tour of the largest dermatological museum in the world was made and a case of leprosy of the eyes shown. A corneal graft operation was performed at another hospital.

## THE NEW HEALTH SERVICES- ADMINISTRATIVE PROBLEMS

### PUBLIC HEALTH CONGRESS

A Public Health and Municipal Engineering Congress was held during the third week of November at Olympia. Sessions were arranged under the auspices of the Institute of Hospital Administrators, the National Housing and Town Planning Council, the Women's Public Health Officers Association, the Board of Control and other bodies. Most of the discussions bore upon problems of administration under the new National Health Service.

#### The Service Developing

The Congress was opened on Nov. 15 by Mr JOHN EDWARDS, Parliamentary Secretary to the Ministry of Health, who said that the popularity of the National Health Service had led many to suggest that it was overloaded and even in danger of breakdown. "Nothing could be further from the truth. Certainly there have been cases, as the Minister said recently, where frivolous and unnecessary use of the Service has been made. But overall its working has been amazingly smooth, and much according to our hopes and expectations." Mr Edwards mentioned some of the tasks which confronted the Ministry of Health before and shortly after July 5, 1948. He said that 18,165 doctors out of 21,000 were now co-operating in the Service in England and Wales, 8,519 dentists out of 10,000, 5,000 ophthalmic and dispensing opticians, and 14,000 chemists. There were over 40,000,000 people on doctors' lists. Prescriptions were being dispensed at the rate of over 140,000 a year (about the rate expected), about 1,700,000 people had already had dental treatment, and about 1,500,000 people had been supplied with spectacles.

#### Communal Health Facilities

In a paper on communal health facilities on housing estates Mr A. R. KERRELL-VAUGHAN gave information concerning

facilities provided or projected on housing estates in various cities. In Birmingham the intention was to establish a health centre under the National Health Service Act in each neighbourhood unit or pair of units, but this policy was not capable of immediate or very early fruition. In Cardiff on each of four new housing estates there was to be a clinic or health centre at a possible cost in each case of £150,000, but here again financial stringency and difficulties concerning labour and materials prevented early materialization of the scheme. At Bristol it was proposed to divide the city into neighbourhood units of about 10,000 population, and communal health facilities were included in the basic planning of all the new housing estates. In Glasgow, in all the housing estates planned by the Corporation provision was made for a community centre where accommodation would be available for local health authority services. At Swansea, on an estate comprising 3,500 houses there was to be a centre with four rooms for doctors' use and two for dental services.

A Manchester councillor who took part in the discussion said that in his city the plan was to have 36 health centres and about 75 subsidiary centres. He pleaded for prefabricated construction, so that in ten years' time, if the needs of the locality have altered, it will be easy to replace the health centres. The chief demand made in the discussion was for houses to be allocated to district nurses and midwives on the new estates. Mobile health centres in rural districts were also suggested.

#### Hospitals under the New Scheme

Hospital administration in the National Health Service was a subject introduced by Mr GEORGE WATTS, secretary of the Oxford regional hospital board. He described regional hospital boards and hospital management committees as an example of real partnership, each partner having fairly well defined spheres of activity but free to look to each other for help and guidance. As this service was likely to cost £150,000,000 per annum there was bound to be very strict central control and the problem was to reconcile such control with local initiative in the regions. At present those concerned were coping day by day with a vast volume of regulations, directives, and memoranda from the Ministry. Nevertheless, a definite pattern was emerging. The Ministry was telling the regions what they must or might do, and leaving them fairly free within certain limits in the way they did it. Mr Watts asked how far hospital management committees should be left free to carry out certain functions, and how far regional board activities should extend into the field of management. If the regional board decided to delegate the maximum amount of work to management committees it must be even more careful in the selection of such committees. In the Oxford region the management committees were settling down, and the difficulty appeared to be not to get them to work but to prevent them from running away with the bit between their teeth.

Many of those interested in the organization of the hospital service felt that the dichotomy between teaching and non-teaching hospitals was a great mistake. In the great London teaching hospitals there was probably a case for special treatment, but everywhere else the separation was a major blunder and would have to be rectified sooner or later. In the Oxford region the medical advisory committee which the board had appointed, and which included some of the most eminent specialists in the region with a leavening of other experienced persons such as general practitioners, had appointed 14 sub-committees to deal with the different branches of medicine, and this enabled the board to have direct access to the collective wisdom and experience of some 150 specialists and others in the region. It had also given the medical men concerned a real sense of partnership with the board.

#### Organization of Psychiatric Services

The prospective mental health services under the new Act were outlined by Dr W. REES THOMAS. It appeared to him that the arrangements for in-patients would be somewhat as follows. Beds would be provided in general hospitals for patients of all kinds who showed no behaviour difficulties and were not otherwise unsuitable. Teaching psychiatric units



would be set up in university centres and would include research departments. Voluntary temporary, or certified patients would be received in mental hospitals, the average number of beds needed being from 3.5 to 4 per thousand of population. Centres might be established for the treatment of patients suffering from neurotic illnesses, they would be staffed primarily by psychiatrists who would work in conjunction with consultants on the physical side of medicine. Buildings would be set aside for the treatment of old people suffering from the degenerative processes of later life. If existing observation wards in public hospitals were to continue in use they should be staffed and equipped as hospitals or psychiatric clinics able to provide immediate skilled treatment. Beds required in institutions for defectives would probably be 2 per thousand of population. Out-patient departments should be established in general hospitals or psychiatric clinics, mental hospitals were generally unsuitable for this purpose. Separate and special arrangements were required for children needing in-patient treatment. Dr Thomas added that the time when psychiatrists existed only in mental hospitals was long past. He hoped they were on the eve of a new era in which all the medical and social staff of the local authority or of the social agency would be trained to work for mental health.

### Homes for the Old

At a special session arranged by the National Corporation for the Care of Old People Sir ERNEST ROCK CARLING described this problem drawing upon the Rowntree and Sheldon reports and the report of the B.M.A. Committee on the Care and Treatment of the Elderly and Infirm. He said that in 1945, out of the 12,200,000 houses in England and Wales, two million were occupied entirely by persons aged 65 or over. Between six and seven million persons in this country were of pensionable age, and the proportion was rapidly increasing. Although the National Health Service was not directly concerned with the housing of those not in need of hospital treatment, it had a direct interest in the provision made for them. Considerable numbers of beds were filled and the time of many nurses was taken up by people who could be better provided for outside hospital. Geriatric units, if given comparable status to that of paediatric units and charged with continued care of incurable patients discharged to small specialized annexes, would also relieve the severe pressure on beds for acute illness. In time they would eliminate the need for long continued bed rest in a great number of cases so treated to day.

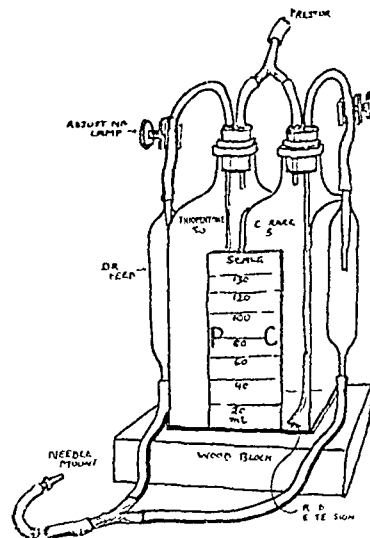
Sir Ernest Rock Carling went on to instance the several different types of hostel and home necessary to meet the phases of ageing and to suit the difference in the educational and nuptial background of the elderly. Speaking of the lowest income groups he said that not many people even now knew the conditions in which the aged had in the recent past dragged out their miserable existence but the sad story had come to light and already after less than a decade, there were very few really black spots left. The task immediately ahead was still further to improve a discreditable state of affairs, but the major problem was to prevent its persistence or recurrence, that was in the hands of the local authorities who had to provide dwellings suited to the physical state and in accordance with the social habit of one-seventh of the population.

On July 1, 1947 I began a new and in all probability the last period of my life. In these words Dr Henry E. Sigerist opens his report to the Yale University School of Medicine. It is reprinted in the Report of the Historical Library 1947-8. Appointed Research Associate in the History of Medicine at Yale University he is now living at Pura, a village ten miles from Lugano, in Switzerland. He had 180 boxes of books shipped across the Atlantic, and in addition he collected 'dozens of large boxes' stored at Basel since 1932 when he went to America. He has now nearly finished three of the four sections that constitute Volume 1 of his *History of Medicine*. This volume is on medicine in prehistoric times and in ancient Egypt and Mesopotamia with a chapter on the medicine of the Hebrews. The volume will include a bibliography of palaeopathology after 1930 and a critical bibliography of histories of medicine. He plans to discuss in Volume 2 the initial phases of medicine in India and China.

## Preparations and Appliances

### ANAESTHETIC APPARATUS FOR CONTINUOUS ADMINISTRATION OF THIOPENTONE AND CURARE SOLUTIONS

Dr R. ATWOOD BEAVER, senior anaesthetist London Chest Hospital, writes: For some time a routine method of anaesthesia for thoracotomy has been the administration of thiopentone and curare via the blood drip. The usual procedure is to puncture the rubber tube with a hypodermic needle, giving divided doses as required. It has been felt that this somewhat unaesthetic procedure results in extremely uneven depth and that continuous administration is preferable.



The simple machine here illustrated has accordingly been developed. It can be made most satisfactorily from the standard blood-bottles, but a neater machine consists of two bottles with flat sides as shown. Pressure is supplied by a hand bulb or, better, from an oxygen cylinder with valve reducing the pressure to 5 lb (2.27 kg) or less. This does not affect the solutions. The mixed fluid is supplied in the ordinary way via a needle strapped into the rubber blood drip tube or on occasion by direct insertion into a vein. The strength of the solutions is such that they can easily be regulated within the desired limits by the pinch-screws. Typical figures are curare 10 mg per 100 ml, thiopentone, 5%. In these dilutions there is no precipitation on mixture. Certain desiderata must, however, be observed:

- 1 The pressure must be sufficient to overcome that of the 'head' of blood from the drip-bottle.
- 2 To this end the area of the rubber stoppers must not be too large or they will blow out.
- 3 The delivery tubes inside the bottles should be prolonged to the bottom by rubber extensions.
- 4 To avoid any risk of air embolism Macintosh type drips should be used but for reasons of clarity they have been omitted from the illustration. If ordinary drips are used the level of fluid should not be allowed to fall below 1 in (18.75 mm) of the bottom of the bottles.

The procedure is to induce with the usual concentrated solutions by syringe and after the preliminaries have been completed to continue by adjusting the drips as required.

For other operations varying solutions may be given, such as thiopentone solution and saline thiopentone solution and adrenaline solution saline and blood.

My thanks are due to Mr T. Holmes Sellors on whose cases the apparatus was developed, and to Dr Roger Wright for his assistance and suggestions.

## Reports of Societies

### BRITISH ORTHOPAEDIC ASSOCIATION

#### ANNUAL MEETING

The annual meeting of the British Orthopaedic Association was held in Belfast from Oct 21 to 23 under the presidency of Mr S A S MALKIN

#### Painful Shoulder

Only pain of intrinsic origin was considered. In an introduction Professor GEORGE PERKINS (London) referred to invariable complete recovery in capsulitis, a generalization denied by subsequent speakers. Mr V H ELLIS (London) found it difficult to fit such conditions as the stiff shoulder complicating coronary disease into a simple classification of extrinsic and intrinsic causes. He described the production of supraspinatus injuries, and pointed out that loss of power in the supraspinatus might be reflex and recover quickly or might be the consequence of a complete tear demonstrable by arthrography. Removal of the acromion facilitated suture of the supraspinatus and hastened recovery. Mr J TULLOCH BROWN (Killearn) had found that in severe cases of the supraspinatus syndrome procaine infiltration was useful in distinguishing patients with loss of movement from spasm, requiring conservative treatment in the first instance, from those in whom structural changes demanded operation.

Mr R J W WITHERS (Belfast) had found 61 cases of capsulitis in 100 cases of intrinsic pain in the shoulder. Two stages might be distinguished: "irritative" capsulitis in which the stiffness was due to spasm and disappeared under anaesthesia, and "adhesive" capsulitis in which stiffness persisted under anaesthesia. The former was treated by rest in a sling, followed by active exercises at the end of about six weeks. "Adhesive" capsulitis demanded primary manipulation followed by exercises. Mr W C SOMERVILLE-LARGE (Dublin) emphasized the value of anaesthesia in distinguishing between muscle spasm and structural change as the cause of limitation of movement. Mr STEWART H HARRISON (Birmingham) had found radiological changes in 30% of patients with pain and stiffness of the shoulder following injury and had found that such cases did not completely recover. Mr F A SIMMONDS (Pyrford) had found in a three-year follow-up that some patients still had slight pain, weakness, and stiffness. Biopsy in the active stage had revealed degenerative changes in the tendinous cuff with a chronic inflammatory reaction but no intra-articular change. The use of a sling and the performance of exercises within the painless range were useful, but he agreed with others that heat was of doubtful value.

Mr J R ARMSTRONG (London) advised excision of the acromion in those patients with the supraspinatus syndrome who did not recover spontaneously. He had found a variety of lesions with similar symptoms: supraspinatus tendinitis, partial and complete supraspinatus tears, calcification in the tendon, and subdeltoid bursitis. Mr G BLUNDELL JONES (Exeter) referred to acute cases of supraspinatus calcification with sudden pyrexial onset, short course, and early dispersal of the calcium deposit. Mr W E TUCKER (London) mentioned focal sepsis and gout as causes of shoulder pain and agreed upon the importance of rest in the acute stage.

Mr C K WARRICK (Newcastle-upon-Tyne) then described three cases of posterior dislocation of the shoulder, and advocated that, unless stereoscopic views could be taken and inspected, the ordinary antero-posterior view should be supplemented by a vertical view with the x-ray tube in the axilla, or a vertical view with a curved cassette in the axilla, or a profile scapular view.

#### Operations on the Hip and Femur

Mr J S BATCHELOR (London) described removal of the femoral head and neck from 50 hips in 44 patients with the object of promoting mobility. In 32 a sub-trochanteric osteotomy also was performed for the promotion of stability. This

might be added to the results of repeated miscarriages treated of the frag way we should like to compare the figures of separate appropose given by Mr Christie Brown

	Malpas	Christie Brown
light skeletal tracas	78.4%	57.8%
spontaneous cure rate	62%	50%
Operation	27%	—
ankylosing spondyliti	6%	25%

of the femoral neck, chronic suppurative arth, that the psychological effect on the 39, unsatisfactory 10, dealg a treatment for six months which instability (3), pain (3), lack should the Fallopian tubes ultimate movement (1), and non-union. There may be so great a vari-

induced by one individual in eight weeks after the performance of plasty for osteoarthritis. The dent before true evaluation of covered with smooth fibrous tissue a, etc., H A BRITAIN showed a film of his opce, etc., arthrodesis. Mr H H LANGSTON (Alto M MOORE WHITE of these operations, without sciatic nerve in, FRIEDMANN union in 5, perforation of the obturator 1, 932 graft in 2 and sequestration of the graft in 1 (Oxford) advocated open operation through a pos reflecting the gluteus maximus upwards and inward had taken place in 16 out of 17 cases. Mr G refractory (Norwich) gave a preliminary communication descrio-lerable illustrating the use of a lag screw in combination with this lous grafting in ilio-femoral arthrodesis. Mr JOHN CHAK the (Manchester) gave an account of preliminary and unsuccessful attempts at arthrodesis by impaction of the tapered femora-head into a hole in the acetabular floor.

#### The Hand

Mr W H GERVIS (Tunbridge Wells) reported 18 cases of arthritis of the first metacarpo carpal joint treated by excision of the trapezium, with good results in all cases of osteoarthritis but with poor results in two cases of rheumatoid arthritis. Mr A DORNAN (Sheffield) had found that conservative treatment gave good results in most cases of Kienbock's disease, so did excision of the lunate (semilunar) bone, even after failure of conservative treatment. Mr GORONWY E THOMAS (Liverpool) had investigated the results of treatment for non-union of the carpal scaphoid carried out three years before. The 28 treated conservatively had done very much better on the whole than 52 patients treated operatively, of whom only 7 were able to return to heavy work. The series were not strictly comparable, however. Backward subluxation indicated a bad prognosis.

A number of other papers were read and Mr NORMAN CAPENER (Exeter) showed a 'lively' splint to allow supported movement of the abducted arms in convalescence from infantile paralysis.

### SOUTH-WESTERN REGION SOCIETY OF ANAESTHETISTS

The second annual general meeting of the society was held at Bristol on Oct 29 and 30. Fifty seven members were present, many of them accompanied by their wives. The chief guest was Dr John Gillies, of Edinburgh, President of the Association of Anaesthetists of Great Britain and Ireland, who gave an address on "Spinal Analgesia—its Present Status". Other papers were read by Mr Geoffrey FitzGibbon on "Problems of Anaesthesia for Plastic Surgery," by Dr T B P Wilton on "Anaesthesia for Thoracoplasty," and by Dr R F Woolmer on "The Explosion Risk". Practical demonstrations were also given at the Bristol Royal Hospital and at the Thoracic Unit, Frenchay. An attractive social programme was arranged for the wives of members.

The Chelsea Clinical Society's second dinner meeting of the session was held on Nov 9 at the South Kensington Hotel, London, SW7, with the president, Mr Nils Eckhoff, in the chair. A paper was given by Mr John Hanby on "The Value of Chiropody in Foot Disabilities," and this stimulated an excellent discussion.

## Correspondence

### Inactivation of Viruses by Heat

SIR—The important communication of Drs H Malmros O Wilander, and B Herner on inoculation hepatitis (Nov 27, p 936) raises the whole problem of the inactivation of viruses by heat. They finally suggest the use of dry heating for routine sterilization of syringes, etc. May I be permitted to submit the result of an experiment in which the effect of moist and dry heating was compared in the case of the virus of vaccinia? One of our sisters at St Bartholomew's had taken service with a mission in Central Africa, and on her leave she sought me out for help about vaccine lymph. The chief disease that they feared at her station was smallpox, which spread there like wildfire among the natives when introduced, and three times over they had found that vaccine lymph coming up from the coast had become inactivated by the heat during its transit.

I was working on vaccinia at the time, and tested the effect of heat on the same virus when suspended in broth in the usual way and when the same specimen had been dried in a desiccator and, after being powdered, resuspended in similar broth. The results were striking. When moist the virus was inactivated completely by exposure for 30 minutes to 65° C, but when dried it not only withstood that amount of heating but even half an hour at 70° C failed to inactivate it, it was not till the same exposure to 80° C was used that it became inert. Before she left I sent the sister some of this dried vaccinia virus, but I never heard if she got it or not.

The great merit of half an hour's exposure to 65° C as a routine is that it can be used easily by having an ordinary covered vaccine-bath such as most laboratories possess. Moreover, should any tubercle bacilli be present they are destroyed, as I have verified again and again by the guinea-pig test with glands removed for biopsy—I am, etc,

Molesley Surrey

M H GORDON

### The M'Naghten Rules

SIR—I was impressed by the wisdom of your brief comments on the M'Naghten rules (Nov 13, p 882) and am sorry that Dr Clifford Allen (Nov 27, p 955) protests at your "complacent attitude" in a letter which unfortunately is far from showing any real understanding of the matter and its difficulties. His complaint that after the opinion of a competent psychiatrist the issue (of the accused's sanity or insanity) is placed in doubt by the prison doctor's contrary opinion shows that he has not grasped the elementary fact that that issue, just like the issue of a prisoner's guilt or innocence, is a legal problem, not a medical one, and that "Law from Harley Street" is a thing that very rightly has never been, and will never be, tolerated in this country.

Of course the issue is in doubt. That is why it is tried and, fortunately for the interests of justice (and of mercy), the law does not accept the *ipse dixit* of any psychiatrist as a substitute for such trial. I hasten to say that I, for one, should hesitate a very long time before certifying a patient who "stated that his father had been insane and that he himself had impulses to murder children" if that were all I knew about him, and I should greatly like to see the certificate which anyone who attempted the task would produce.

Dr Allen reflects—unfairly and inaccurately in my view—upon the training and experience of prison doctors and proceeds to commit himself to the principle that if a man is medically certifiable he is legally irresponsible. How such a principle could conceivably be accepted by anyone who had spent even a month or two as a resident physician in a mental hospital passes my comprehension.

I have given evidence in many murder trials in two of which the prison doctors were strongly and openly opposed to my view, but in these, as in all the others I received not only absolute fairness but very definite assistance from the judge in my efforts to find a form of words which without sacrificing medical accuracy would express the accused's mental disorder in terms of the M'Naghten rules. I have also had the opportunity of repeated private discussion of these rules with some

of the highest legal authorities in the country, and in consequence I know something of the difficulties and dangers which stand in the way of tampering with them. I am also in a position to confirm most confidently the opinion that they work well in practice and to state that Dr Allen's outline of their working in "case after case" is a travesty of the facts.

Full discussion of this matter, which is so often and so grossly misunderstood by our profession would be unsuitable in your correspondence columns. May I repeat once again however, the elementary point that the function of the expert witness is to assist the court in coming to its decisions. If he is not prepared to let the court conduct its investigations in its own way and to give his evidence without protest in accordance with the rules that the law lays down, then his evidence will be largely valueless and he has no right to appear as a witness at all—I am, etc

London W1

HENRY YELLOWLEES

SIR—Dr Clifford Allen (Nov 27, p 955) invites the profession to agree that "if a man is medically certifiable he is legally irresponsible." It is to be hoped that this proposition will not be put forward to the legislature as the view of the medical profession, for in my opinion it is quite untrue. I am not a dyed-in-the-wool psychiatrist or psychologist, but I did spend six war years as medical officer in the mental hospital service, and that experience convinced me that a lot of nonsense is written and spoken about irresistible impulses in the insane. Such things do no doubt occur, but only in a small minority. The bulk of the certifiable insane can and do restrain dangerous impulses if they are given sufficient inducements to do so—i.e., if they are under strict, though not of course harsh or inhumane, discipline—I am, etc,

Tunbridge Wells Kent

HENRY ROBINSON

SIR—About 20 years ago it was a common sight in general hospitals to see police officers sitting by the bedsides of patients who had cut their throats, and suicide was regarded as a crime. Since those days our attitude towards suicide has changed to such an extent that even a suicidal threat is now regarded as sufficient grounds for certification. Alternatively the person may be persuaded to enter a mental hospital as a voluntary patient. In either case the possessors of such impulses are no longer regarded as potential criminals but merely as a danger to themselves.

Perhaps in a further 20 years' time all those who have proved themselves to be a danger to others will also be allowed to live peacefully under supervision in the hospitals provided for that purpose, instead of being prematurely dispatched to another world—I am, etc,

Lancaster

R PAKENHAM WALSH

### Pre-suppurative Amoebic Hepatitis

SIR—The case reported by Mr C F Critchley (Oct 9, p 681) again raises the question whether an amoebic liver abscess can arise in a patient who has never left this country. From a theoretical standpoint it seems possible though recent literature contains no record of such a case. In Mr Critchley's case such a diagnosis would have been established had *Entamoeba histolytica* been found in scrapings taken during sigmoidoscopy and from the cavity wall at operation—an examination which might profitably be performed in any liver abscess of doubtful aetiology.

Certainly the risk of developing amoebiasis in this country must be increasing with the return of Service personnel from endemic tropical and sub-tropical areas. The cyst carrier rate in ex-Servicemen of other countries has been proved to be far higher than that of the indigenous population (5–10%)—e.g., 20% in Italians, 25% in Germans and 26% in Americans.

Lastly, one wonders whether the syndrome of pre-suppurative amoebic hepatitis exists in this country in ex-Servicemen and could arise *de novo* in one who had never left this country. Although based on sound pathology and long recognized by some clinicians (Brown, Rogers) its indeterminate features make it difficult to diagnose impossible to prove, and in consequence many doubt its existence.

Pathologically the solitary liver abscess is preceded by a diffuse amoebic hepatitis secondary to an intestinal lesion which is usually occult. Military abscesses may then form in the liver and may later coalesce to form the solitary large abscess. Symptoms are vague. Patients generally feel off colour and complain of fatigue after accustomed exercise of slight heaviness in the upper abdomen (e.g., after wearing military equipment), or of feeling less like their usual quota of alcohol. Physical findings are also vague. There may be slight tenderness on heavy percussion over the liver, tenderness of the right acromium ("the liver wing") or of the right trapezius muscle. The liver is generally not palpable, and liver-function tests, sigmoidoscopy, barium x-rays, and stool tests usually reveal no abnormality.

On such slender criteria sceptics may well be forgiven, and diagnoses of functional dyspepsia, hepatitis *sine* icterus, etc., are often made. If, however, such cases are given emetine they make a dramatic symptomatic recovery. This treatment has sometimes, though perhaps ill-advisedly, been given to outpatients without other treatment to which recovery might have been ascribed. Similar cases in England might well be given emetine as a therapeutic test, followed by intestinal therapy for successful cases.

Though proof of diagnosis seems impossible in most cases, perhaps the wider use of hepatic biopsy may bring such cases to light. Once diagnosed, treatment is specific and the development of a large abscess prevented. The condition probably occurs at least ten times as frequently as solitary abscess, and, if Mr Critchley's case represents an amoebic abscess then the possibility of pre suppurative amoebic hepatitis must be constantly considered in patients who have never left the British Isles—I am, etc.,

Hadley Woods Herts

JAMES T HAROLD

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- <sup>1</sup> Horster *Dietsch tropenmed Z* 1943 47 299
- <sup>2</sup> Angelini G *ibid* 1943 47 228
- <sup>3</sup> Sapero J J *Nav med Bull Wash* 1939 37 279
- <sup>4</sup> *Amoebic or Tropical Dysentery* 1910 London
- <sup>5</sup> *Bowel Diseases of the Tropics* 1921, London

#### Treatment of the Infertile Marriage

SIR—Mr R Christie Brown's paper (Nov 13, p 851) might encourage the general practitioner to adopt a treatment which has no proper scientific basis. We therefore wish to make a few observations. It has been left open whether his 111 cases "medically treated" were selected or non-selected ones. No patients' ages were given and, more important still, no mention was made as to how many years the patients have been trying for conception, only that all of them had been sterile for more than two years. We accept that all the patients in question had a regular 28-day menstrual cycle, a fact which in itself would not be quite usual if the cases were non-selected.

Does Mr Christie Brown really believe that the success in 13 out of his 38 patients—i.e., 30% of the successes—who have become pregnant one month after the commencement of treatment is due to 0.6 mg of "dienoestrol" and 10 mg "ethisterone" taken daily for not more than 14 days? Is there any explanation why the percentage of successes decreases in the second and third months and reaches its peak six months after the beginning of treatment if, according to Mr Christie Brown, no other than medical treatment alone was given? Or do we take it that the comparatively high figure of successes after six months is due to the fact that investigations were undertaken after three months as well as the medical treatment?

We all know that not all endometria show the same degree of preparation and that it is fallacious to base an opinion on one finding only. There is no record in Mr Christie Brown's article that endometrial biopsies were performed, so that it is difficult to say what percentage of the 38% successful women suffered from incomplete development of the secretory phase. It is difficult to conceive that such a small dose of progesterone taken by mouth can in one, two, or three cycles influence a poorly functioning endometrium.

Oestrone as a sensitizing hormone in the first half of the cycle followed by progesterone alone or in conjunction with small doses of oestrone has been given for a long time by many of us with, unfortunately, disappointing results. Experience has shown that delay in onset of the period could be quite considerable even sufficient to suggest a pseudopregnancy, only to be excluded if a temperature record has been kept.

With regard to the results of repeated miscarriages treated in the same way we should like to compare the figures of Malpas<sup>1</sup> with those given by Mr Christie Brown

	Malpas	Christie Brown
(1) 2 successive abortions	78.4%	57.8%
(2) 3 " "	62%	50%
(3) 4 " "	27%	—
(4) 5 " "	6%	25%

We do not consider that the psychological effect on the patient is good in continuing a treatment for six months which may be entirely misdirected should the Fallopian tubes ultimately be found to be non-patent. There may be so great a variation in any series of cases conducted by one individual in different years (42% successful pregnancies in one year, 22% in another, as analysed by one of us) that a much larger series of cases would be required to be treated before true evaluation of the treatment can be estimated—We are, etc.,

M MOORE WHITE  
E FRIEDMANN

London WC1

#### REFERENCE

- <sup>1</sup> *J Obstet Gynaec Brit Emp*, 1938 45 932

#### Herpes Zoster Treated by Anthisan

SIR—As any severe case of herpes zoster is usually refractory to all treatment and the pain may become well-nigh intolerable I wish to report a case that responded immediately. As this disease is due to a virus with pathological inflammation of the dorsal root ganglia or Gasserian ganglion and as it is the sensory analogue to anterior poliomyelitis and has the same type of lesions in the nervous system and similar cerebrospinal-fluid changes, the same treatment may be worthy of trial in anterior poliomyelitis.

The patient was a well built, very active man of 64 years who presented himself for treatment on account of severe neuralgia affecting the frontal area of the head, the lower jaw, and the occiput on the right side. Very small vesicles were discernible over the supra-orbital area only. An anaesthetic local application and analgesics were given. The patient was not seen for two days after the first consultation, when he was again seen on account of very severe supra-orbital pain which had prevented him from resting or sleeping for two nights and days. There were large pustules and vesicles corresponding to the supratrochlear and supra-orbital nerves. Oedema was fairly intense and the right eye was closed. There was no involvement of the cornea.

On account of the severe pain not being relieved by the usual analgesics he was given pethidine four-hourly. This gave no relief, and for the next 24 hours he was still in very acute pain and stated that if he had to bear any more he would become distracted. It seemed that he would have to be given morphine. However, it was decided in the afternoon at 3 p.m. to start him on "anthisan," 1 tablet of 0.1 g every four hours. Within one hour the pain had lessened and after the second tablet it had disappeared. Tablets were continued at four-hourly intervals, and he slept all night and all next day, having no pain at all. The oedema rapidly subsided and the pustules and vesicles rapidly healed.

In many cases of herpes zoster pain persists for weeks and even months despite every form of treatment. The above treatment was so immediately beneficial and so dramatic that there is no doubt that anthisan was a specific agent here. "Anthisan" (pyranisamine maleate) is an active antihistaminic agent and has been shown experimentally to possess considerable local analgesic activity. It is stated to be more likely to prove effective in the superficial forms of allergic disorders and in cases uncomplicated by secondary infections and structural changes. In the above case benefit was apparently not due to lessening of oedema and inflammation alone as the oedema and inflammation took 36 hours to subside completely after the first administration. There was probably a specific action on the nervous system and/or the virus—I am, etc.,

Birmingham

MAX HONIGSBERGER.

#### Barbiturate Poisoning and Picrotoxin

SIR—The interesting medical memorandum by Drs R W Bazeley and P H Garrard (Nov 27, p 943) shows again the value of picrotoxin in the treatment of barbiturate poisoning. I agree with the authors that only large doses of picrotoxin are of any use and this fact merits general recognition. With careful observation of the patient picrotoxin overdosage is a remote theoretical danger, the more so as patients in barbiturate

coma can tolerate enormous amounts of picrotoxin. I have used the drug in all cases of coma due to poisoning with different members of the barbiturate group since early in 1946 and have had only one fatality: this was in the case of a woman who was unconscious for longer than 24 hours before starting treatment.

For the drug to have effect it should be given at regular intervals, first by the intravenous route and then by intramuscular injections; it must be persevered with until the first signs of recovery are apparent. Relapses are an indication for a renewal of picrotoxin injections. Nauth Misir<sup>1</sup> treated successfully two cases of barbiturate poisoning with 1,745 mg and 1,024 mg of picrotoxin respectively. However, a total dosage not exceeding 500 mg will be found sufficient in most cases of barbiturate poisoning of marked severity. My own procedure follows the general lines as pointed out by Nauth Misir: the first intravenous injection may range from 6 to 30 mg of picrotoxin, and this is followed 15 minutes later by either more intravenous injections of doses of 6 mg or similar amounts given intramuscularly every 15 or 20 minutes. This treatment is continued day and night until the patient shows signs of coming round. In an article on the subject I have also reported a case of deep coma due to paraldehyde poisoning which responded in a dramatic way to picrotoxin treatment.<sup>2</sup>—I am, etc.,

London W 10

A I SUCHETT-KAYE

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<sup>1</sup> *Lancet* 1946, 2, 381<sup>2</sup> *Pr med* 1948, 56, 495

## Prescription of Barbiturates

SIR—'These tablets are dangerous.' This phrase is now so commonplace as a precedent to the News that it appears past comment. Are we right, however, in prescribing in such large quantities a depressing and wit-dulling drug such as 'feenobarb' instead of the time-honoured aspirin, plain or coloured?

We rightly condemned our Victorian parents for using soothing syrup containing opium to quieten the squalling infant. I am informed by a pharmacist whom I know well that phenobarbitone is now commonly prescribed in doses of  $\frac{1}{2}$ –1 gr (16–32 mg) two or three times a day to infants a few months old and that prescriptions for adults of large quantities of this barbiturate are so numerous as to suggest that half the population is constantly under the influence. Is it not time Sir to reconsider how and when to use these cerebral depressants and to realize that they must be doing considerable harm to the nation?—I am, etc.,

London W 1

T PEARSE WILLIAMS

## Diagnosis of Tuberculous Meningitis

SIR—The introduction of streptomycin in the treatment of tuberculous meningitis renders the early and correct diagnosis of this disease of even greater importance than in the past. I would therefore like to draw attention to the significance of the glucose content of the cerebrospinal fluid in this condition.

The fact that a low value is found is of course well known but the highly specific nature of this finding seems to have escaped attention. I have notes of 65 cases of tuberculous meningitis examined in the laboratory of the Belfast City Hospital in all of which tubercle bacilli were demonstrated in the cerebrospinal fluid and in which the cells, protein, glucose and chloride content were estimated. On classifying these cases the following figures were obtained:

Glucose in mg. per 100 ml	Number of Cases
40–50	2
30–40	10
20–30	18
under 20	35

It will be seen that in only 2 out of 65 cases was the glucose value above 40 mg per 100 ml, in 53 it was under 30 mg per 100 ml and many of the cases described as 'under 20 mg' showed the merest trace of glucose. I would also point out that this fall in glucose is an early sign: sometimes 2 or 3 spinal punctures were necessary to demonstrate tubercle bacilli but the glucose was always low from the first though falling still lower as the case progressed. It is well known that

in other cases of non-purulent meningitis—e.g. polymycolitis, benign lymphocytic meningitis, cerebrospinal syphilis etc.—the glucose content of the fluid is normal, a fact which has been repeatedly confirmed in this laboratory. The chloride content, though often lowered, does not show the same invariable fall and is not reliable in the diagnosis of tuberculous meningitis.

I am now so convinced of the specific value of a low glucose content that I have no hesitation in basing a diagnosis on this fact alone in the presence of a pleocytosis of the lymphocytic type. If the value is below 40 mg per 100 ml the diagnosis is highly probable; if below 30 mg per 100 ml it is certain. On the other hand a value over 50 mg per 100 ml practically excludes the disease. I therefore put forward a plea for the more general adoption of this test in the diagnosis of tuberculous meningitis.—I am, etc.,

Belfast

J T LEWIS

## Intravenous Procaine in Transfusion

SIR—With reference to the medical memorandum on this subject by Drs G S W Organe and C F Scurr (Oct 30 p 787) I found during the war that venous spasm indicating fairly severe shock, was quickly overcome by rapid transfusion of a liberal volume of blood or plasma, using positive pressure. Other important points to be noted are:

(1) Obstruction to the flow of blood into a vein is usually due to blood clot in the leads or needle of the blood giving set, and is relieved by replacing one or both of these.

(2) Vasoconstriction of the vessels supplying the vital medullary centres—the apparent cause of shock—may not necessarily be overcome by replacement of a volume of protein fluid equal to the volume of blood lost; this explains why transfusion of large volumes may be necessary.

(3) This vasoconstriction is mechanically, but entirely temporarily overcome by lowering the head end of the patient. Therefore: in case of shock that is apparently fully resuscitated in the head low position will often require transfusion of several pints more when raised to the horizontal position.

(4) Shock is a major cause of death in abdominal wounds and operations, and since the head low position is found to be effective in the treatment of shock the use of Fowler's position post-operatively must cause a multitude of deaths. Penicillin and sulphonamides not being available to prevent peritoneal infections it remains for some courageous surgeon to treat his abdominal operation cases rationally in the horizontal position post-operatively, having given at the same time liberal transfusion—i.e., six to twelve pints (3.4–6.8 litres)—of protein fluid.

(5) If this is done it may be necessary to give intravenous saline post-operatively only when the gut has to be kept at rest.

(6) Vigilant observation of the respiration rate during transfusion is necessary in abdominal cases to prevent pulmonary oedema; as, in marked contrast to limb-wound cases, the pulse may remain poor after adequate transfusion or even when pulmonary oedema has occurred.

(7) Liberal transfusion so improves a patient's morale that genuine neurotics might benefit remarkably by small transfusions (perhaps three pints) of protein fluid.

—I am, etc.,

London W 14

A. D. MILNE

## Justifiable Laminectomy

SIR—I was interested in Dr J C W Hopkins's memorandum entitled 'An Unusual Trophic Ulcer' (Nov 20 p 905), but a little surprised at his conclusions. Having practically proved that his patient has a prolapsed disk at the lower end of his spine causing a trophic ulcer in his foot, he proposes to leave the *fons et origo malorum* alone and merely "intensify the local treatment to the ulcer." This ulcer will almost certainly get worse as the cause of it has not been removed and a man of 29 is being condemned to numbness of the heel and thigh and at the very least, a progressive ulceration for the remainder of his life. From my experience as an ordinary GP I would make a guess that within a year or so other and far more serious neurological symptoms will occur possibly if bladder complications supervene resulting in the death of the patient. May I take two illustrations from my own practice?

1. Foundry worker, aged now about 44, discharged from ill Services in 1942 for sciatica and lumbago, probably caused by a prolapsed spinal disk. I could get no orthopaedist to tackle his spine.

but he got great relief from 6 months in a plaster jacket. As soon as this was taken off his pains came back. Eventually a skilled orthopaedist decided to deal with the cause, and about 9 months ago he did a laminectomy and removed a prolapsed disk. Since then the patient has had no pain and has gone back to work.

2. Farm labourer, aged about 40. In October, 1942, he developed slight loss of power in both legs, a symptom which increased rapidly. There was weakness of the left hip and knee, loss of left lower abdominal reflexes, and flexor plantars. W.R. and Kahn were negative. He was then discharged and sent home no better. In April, 1943, I sent him to London, where he was thoroughly tested in two famous neurological centres. Pressure paraplegia, due to either an intramedullary or extramedullary tumour, was the verdict. In favour of the former was the Brown-Séquard syndrome of the stronger right leg being the more analgesic. The upper limit of the analgesia faded away gradually from D 12 to D 10. C.S.F. in April, 1943, pressure 100, jumping up briskly on jugular compression, thus excluding spinal block (Queckenstedt). W.R. negative, total proteins 35 mg per 100 ml. Histamine test meal showed plenty of free acid, thus excluding P.A. Lipiodol injection high up in spine showed on x-ray no evidence of spinal block. Everything being negative, he was sent back to me again with instructions to 'carry on with his work as well as he could'. By now he was staggering along on two sticks.

In September, 1943, I sent him to another hospital, as I felt sure, though entirely ignorant, that a laminectomy was the answer. His C.S.F. then showed 55 mg of protein. It was proved later that there was, in fact, spinal block in this case, though manometry did not show it. Increase of C.S.F. protein below the level of the block, or cord compression, is part of Froin's syndrome and is probably due to compression of the spinal veins. As a result the pressure within these veins rises and consequently blood corpuscles and plasma containing much protein exude. By July, 1944, the plantar reflexes were extensor, but Queckenstedt's test was still negative and there was no evidence of block. Dorsal fluid showed cells 9 per ml and protein 30 mg per 100 ml. But in the lumbar region the cells were 1,500 per ml and the protein 225 mg per 100 ml. At long last, in July, 1944, a laminectomy was done, and between D 11 and D 12 a large, hard, prolapsed, calcified intravertebral disk was found and removed. The cord below it was grossly atrophied for  $\frac{1}{2}$  in and displaced to the right. But it was too late. On July 15, 1944, he had a violent haematuria and collapsed and died the next day. Post mortem examination confirmed the operative findings and showed a gangrenous cystitis.

There is no doubt in my mind that if a laminectomy had been done two years previously the life of this hard-working skilled and conscientious farm expert could have been saved. The ordinary G.P. is left wondering: (1) What are the risks of laminectomy? Surely they could not include the death of the patient if the spine was found to be normal? (2) Why do not physicians, if paralysis increases and the patient's condition deteriorates in spite of all negative spinal findings insist on laminectomies?—I am, etc.,

Stowmarket Suffolk.

H S GASKELL

### Peptic Ulcer in Pregnancy

SIR—The excessive rarity of symptoms of peptic ulceration during pregnancy has been stressed by all authorities, and the interesting case reported by James (1948) is therefore a warning that one should be on the look-out for such cases. The fact that though rare the disease is often fatal is all the more reason to pay serious heed to continued symptoms of dyspepsia during pregnancy especially where the patient is a known sufferer from ulceration of the stomach or duodenum.

Bralow Scheinberg and Necheles (1948) have just recorded four more cases from Chicago. Perhaps only one of these could strictly be reckoned a complication of pregnancy in that the patient who was known to have had a duodenal ulcer eight years previously suffered from epigastric pains during the whole term of her pregnancy. Her symptoms entirely disappeared as soon as the pregnancy terminated, nor had they reappeared since, even during a second pregnancy four years later.

There are three main groups of theories to account for the rarity of peptic ulcer in pregnancy—the mechanical, the chemical and the hormonal. As already mentioned by James Hurst was the first to suggest that the rising uterus supported a lax stomach and so induced a better blood supply in the lesser curvature. Both in James's case as well as in one cited by Mulsow and Brown (1936) the major accidents took place at a time when the stomach could not have been lifted much higher—in the later weeks of pregnancy.

Balint (1927) first suggested a general tendency towards increased alkalinity in tissue fluids during pregnancy, and other observers have confirmed that with increased alkalinity there is found a hypo- or even achlorhydria, especially in the first six months of pregnancy, thereafter the acid values began to rise towards normality and might even reach supernormal figures in the puerperium in certain cases.

Crohn (1927) and others noted that peptic ulcers tend to break down in the puerperium. Winkelstein (1940) thought that the agent responsible for the breakdown might possibly be prolactin, the lactogenic hormone of the anterior pituitary. During gestation the formation of prolactin is inhibited by the high blood-levels of ovarian and placental hormones. He made experimental studies on animals with chemically produced peptic ulcers by treating them with the ovarian hormone theelin. The response was good and the ulcers healed within ten days. Abrahamson, Church, and Hunter (1942) treated peptic ulcers in human beings with theelin, and, while getting a slightly better immediate response as compared with a number of controls treated on routine lines, found the long-term results no better.

Of these three theories, then, that of hormonal control would appear to be the most probable. It was seen above how the mechanical theory was apparently disproved by the occurrence late in pregnancy of major complications of ulcer. The chemical theory would appear to be at fault in the following case.

### CASE REPORT

There is at the moment in my wards a woman 34 years old who is suffering from a relapse of ulcer symptoms and whose barium meal three weeks ago showed the presence of a duodenal ulcer. The cause of the present relapse was sought in her personal history, and it is quite reasonably ascribed to the fact that she and her mother-in-law have to live under the same roof. From the age of 18 she had suffered from slight, vague, windy indigestion, to which she paid little heed. In 1943 she was married and later that year became pregnant.

At about the second month of pregnancy she got a bad fright. A kettle of boiling water fell over her sister's foot, the patient witnessing the accident. She has, she says, always reacted strongly to any family accident, having lost her voice on two previous occasions of mishap. On the night of this accident the patient went to bed with a pain in the epigastrium such as she had not previously felt, and she vomited. In such state she continued for the next 36 hours until the pain suddenly became intolerable, and she was admitted to this hospital as an acute abdomen. At operation a perforated peptic ulcer was found and repaired, and the patient's post-operative and subsequent gestational progress was completely uneventful.

Wild surmises of having stumbled across the first case of 'psychogenic' Curling's ulcer were dispelled by the operation notes (Mr G W Duncan) which revealed that not only was the ulcer prepyloric in position—incidentally the commonest position in which a simple benign ulcer perforates—but it appeared from the surrounding induration to be chronic.

Another case was that of a woman of 41 admitted on Aug 25 suffering from severe hypochromic anaemia. She gave a history of intermittent dyspepsia since the age of 24, when she had a severe haematemesis and was ill for the next eighteen months. She had no further trouble until she became pregnant at the age of 28, when she vomited blood on several occasions during her pregnancy and had ulcer pain for a number of weeks. The pregnancy came to a successful conclusion and was followed by a slow return to normal health. For the next seven years the patient was symptom free until, in 1943, she was admitted to Hillingdon Hospital with a recurrence of ulcer pain and haematemesis. Barium meal showed a duodenal ulcer, and six months later, on x-ray, a small ulcer was still seen. In 1944 she became pregnant again and once more ulcer pain and haematemesis recurred. The pregnancy terminated successfully. Since 1944, every six months there have been recurrences of pain and haematemesis. During her present admission she had irregular pain and some tenderness. A barium meal a month after admission failed to show any ulcer. There was no evidence of splenic anaemia or other blood dyscrasia at any time.

—I am, etc.,

Uxbridge Middlesex.

C R BAXTER

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## Treatment of Varicose Ulcer

SIR—I was much interested in Dr S M Rivlin's letter (Oct 16 p 723). I have been treating varicose ulcers since 1928 and my clinic numbers about fifty ulcer patients per week and some thirty or forty cases of varicose veins. I have improved and varied my own technique very considerably as the years have passed and I have watched and noted with interest all other suggestions for the healing of ulcers such as high ligation, multiple division or tributaries, excision of veins, and even lumbar sympathectomy.

One is driven back to the conclusion that ulcers of the legs are due fundamentally to the forces of gravity. The legs become congested either with old age (wearing out of the rubber elastic of the vein walls) or because of varicose veins. I feel most emphatically that the first essential in the treatment of a gravitational or varicose ulcer is tight compression and bandaging of the ulcers and tight bandaging of the lower leg. It is necessary of course to obliterate those veins with retrograde downward circulation which add to the congestion.

I myself get a very high percentage of cures by appropriately placed sites of injection of veins combined with the choice of an appropriate sclerosing fluid in each case, and above all by compression of the injected strip of vein after injection by elastic adhesive strapping applied over the vein.

My own technique in the cure of ulcers consists in putting zinc stearate or sulphamylamide powder into the ulcer base, then covering up the ulcer with "jelonet," applying calamine powder around the ulcer if there be any associated redness of the skin, then bandaging the whole leg from the toes to below the knee with "ichthopaste," placing external to this a pad of wool or sponge rubber over the ulcer site sometimes in a pyramidal manner and then finally elastic adhesive strapping put on from above downwards to prevent rucking up by the stocking, combined with a back stirrup underneath this strapping.

Once the leg has been freed from its oedema it can be kept in this condition by the wearing of an elastic stocking or better still, by an "elastolex" bandage, the latter being an improvement on "elasto crepe" for it has some strands of rubber fibre in it. As the months pass the leg resumes its normal proportions, owing to sclerosing of veins in certain cases, and the patient can sometimes abandon all support for the leg.

Recurrences of ulcers in fat old and middle-aged women are due to the lack of after-care in not keeping these legs supported. Admittedly I had about 5% of out-patient failures. I used to hospitalize these failures and give them open dressings. Certain cases even of these failed, but I succeeded in getting them ultimately healed by putting them to bed with the occlusive dressings above described. Finally I must add that I have recently had some very gratifying results in the small percentage of resistant cases by putting them to bed and treating the ulcers with 'vacutan' fluid.

One cannot emphasize too emphatically that destruction of given veins by any or all methods does not take away from the patient the tendency to have and develop other varicose veins and it is only by appropriate tight and occlusive bandaging that ulcers can be healed and can remain healed—I am, etc.

Liverpool

STUART MCAUSLAND

## Pensions for Diabetics

SIR—Those who like myself take an active interest in the pension struggles of the war disabled and of war widows cannot but be disturbed by the attitude expressed by Dr R D Lawrence in his letter Pensions for Diabetics (Nov 13, p 875). It would seem to close the door finally on all claims involving diabetes.

Dr Lawrence's book *The Diabetic Life* has long been the mainstay used to support these claims at tribunal hearings and High Court appeals therefrom. Now the supports have been cut away by the author himself. To this end he is recanting the phrase, 'When shares go down in Wall Street diabetes goes up' and no doubt the interrelated sentences commencing, 'There is also a large nervous element in diabetes' will be expunged as well. Is one to gather from Dr Lawrence's letter that heredity and previous obesity are the only recognized causes of the disease and that the numerous other factors mentioned in his book—infectious diseases, mumps, diseases of the liver, etc.—must now join nervous tension in the dustbin of discarded factors? As a matter of logic worry may be excluded as a cause because 'otherwise the majority of humanity would become diabetic,' but it would be equally

logical to exclude of non purulent meningitis—e.g. poliomyelitis. The cases of *public meningitis, cerebrospinal syphilis, etc.*—the complications may be of the fluid is normal, a fact which has been rather than lack of need in this laboratory. The chloride content, the article by Drs and does not show the same invariable fall (July 24 p 194) dealing the diagnosis of tuberculous meningitis in diabetes mellitus of the specific value of a low glucose thus afflicted and war of hesitation in basing a diagnosis on disease that diabetes is presence of a pleocytosis of the lymphocytoid or support? is below 40 mg per 100 ml the

With commendable frankness, if below 30 mg per 100 ml in chapter on Causation" in a value over 50 mg per 100 ml thus 'To the majority of cases I therefore put forward a diabetes I have to answer that I am of this test in the diagnosis, this of itself will be sufficient to, etc., any reasonable doubt to which they warrant—I am, etc.,

Boscömbé Hanis

J T LEWIS

## Marxist Genetic Transfusion

SIR—Dr C D Darlington's "review memorandum on this Lysenko's pamphlet, *Soviet Biology* see F Scurr (Oct 30) lamentably short of the standard of objectivity spasm indicating a scientific journal. The reviewer gives no rapid transfusion criticisms of contemporary biology. I remember positive pressure my first MB) that evolution is due to mutations! 'due to chance'. When I began to read about, usually due to membranes I remember how odd the doctrine seems set, and is germ plasma is independent of the soma, though the separated by membranes of greater or less permeable medullary Lysenko's Marxism leads him, as it does, to deny the over inadequate doctrines so much the better for Marxism, of the larger

Dr Darlington does not even indicate that Lysenko tend to establish links between germ plasma soma and ment. He does not mention his experimental work. Therefore a he strays from the exact subject of the book he is supposed to be reviewing he does not indicate what is emphasized when example by Professor Eric Ashby, that in Russia the peas have so far lost their traditional conservatism (which and restricts development in our own dominions and colonies) they welcome Lysenko's innovations with enthusiasm.

I do not presume to argue about biological theory but I can see plainly that Dr Darlington's review is not intended to give readers a chance of knowing the issues. I only conclude that it was written with a political purpose, it was "pure propaganda," and therefore that it was much suitable for the sensational newspapers than for the *British Medical Journal*—I am, etc.,

London SE 24

H M R

SIR—Dr Ashley A Robin's letter (Nov 27, p 955) Marxist genetics makes strange reading. I certainly would interested to see a report of the speeches of Lysenko's at the Russian congress and I would be even interested to know if the opposition was pre-arranged" or if it were genuine what happened to the opponents of Marxist genetics at the conclusion of the congress. I wonder if Dr Robin has seen the letter from Sir Henry Dale in *The Times* of Nov 26 announcing his resignation of the honorary membership of the USSR Academy of Science and making special reference to Lysenko. According to Sir Henry, 'Lysenko's own claims and statements make it clear that his dogma has been established and enforced by the Central Committee of the Communist Party as conforming to the political philosophy of Marx and Lenin. Dr Robin styles himself not a geneticist but as one who can read.' Might I respectfully suggest that he read some more—I am, etc.,

London W 4

JOHN C C LANGFORD

## Glamorous Labels

SIR—The section of our profession concerned primarily with the conflict between man and his total environment rather than with the unfortunate results thereof seems determined to pour that good old wine hygiene, from a multitude of new bottles bearing such eye-catching and glamorous labels as social medicine, human biology, human oecology or, in the ultimate and less stylish ranges, preventive medicine and public health.

but he got great relief from 6 months in a plaster as this was taken off his pains came back. Even age such thrusting orthopaedist decided to deal with the cause and, but hygiene despite he did a laminectomy and removed a prolapsed al desires of V D pro-patient has had no pain and has gone back to vendors, remains for me 2 Farm labourer, aged about 40. In October 1943 and of the enhancement slight loss of power in both legs, a symptom seems to cover the whole. There was weakness of the left hip and therefore I would like to see abdominal reflexes and flexor plantaris of these subjects enunciated negative. He was then discharged and in other words, what are their April, 1943, I sent him to London, where in two famous neurological centres either an intramedullary or extramedullary appreciate an agreed table of. In favour of the former was the fact by this fraternity. In reaching stronger right leg being the more must be purged of vague political analgesia faded away gradually from loose-thinking—in fact, cleansed of 1943 pressure 100, jumping up with a woolliness in expression which excluding spinal block (Quebec) prominent feature in the thought disorder 35 mg per 100 ml Histamin.

thus excluding P.A. Lipiodol, the highest authority is itself an offender. X-ray no evidence of spinal disease. The Ministry of Health for the year ended sent back to me again with the principles of the World Health as well as he could." B 109, the principles of the World Health.

In September, 1943 declared. The first two are "Health is a though entirely ignore physical, mental, and social well-being and C.S.F. then showed absence of disease or infirmity," and, "The was, in fact, spirit the highest attainable standard of health is one show it. Increased mental rights of every human being, etc" (my or cord compre-

due to compression immediately present themselves (1) What within these absence of disease or infirmity? One cannot leave plasma containing logical vacuum. (2) When, in fact, is disease or reflexes were really absent except in a state of complete physical, and protein and social well-being? (3) If health is a complete were 1,500, how can one reach the highest attainable standard of it? in July, 1943, Gowers says in *Plain Words*, "It is a sign of D 12 a lay thinking to qualify words that have an absolute and remain."

he had short, the laudable fashion for plunging excitedly Postmaster the virgin jungle of health would be followed more show factorially by the man at the periphery if those already

submitted to this pastime appeared to know of each other's stance, to have correlated their plans of campaign, and to be speaking the same language when broadcasting their situation. The reports—I am, etc,

Morden Park Surrey

DENIS H D BURBRIDGE

### Jelly-fish Stings

SIR,—The interesting letter from Dr Frank R Neubert (Nov 6, p 839) on the subject of jelly-fish stings recalls a paper on this subject published by Stuart and Slagle. These authors point out that, contrary to popular belief, the sting of a jelly-fish can be extremely dangerous, even fatal, and add that the effects are usually much more serious in tropical waters. They give the following description of the symptoms:

"Pain of a burning character at the site of contact, with redness followed by an urticaria like weal about 10 minutes later, muscle spasms before the rash is well established, involving most of the body muscles and sometimes mainly in the extremities, a flushing of the skin, moderate dilatation of the pupils, congestion of the respiratory mucous membrane, a profuse, thin, mucous nasal and bronchial secretion, profuse lacrimation in severe cases, incessant cough with expectoration, spasm of respiratory muscles, leading to difficult respiration, and probably accounting for the patient's fear and anxiety which is frequently thought to be hysteria, and marked pain in the abdomen and back, where large muscle groups are stony-hard with spasm."

Wade reported the case of a patient who died from suffocation within a few minutes of being stung on the lower extremities, although he had never been submerged. There was visceral congestion and status lymphaticus.

As treatment Dr Neubert used tincture of *Urtica urens* with apparent success though it seems possible that the first sting may have conferred an immunity against subsequent ones. Slagle gave morphine by injection and states that the native remedy was sugar internally and vinegar externally. Stuart and Slagle (loc cit) describe two patients who were stung by a "Portuguese man-of-war." In addition to an urticarial rash both men had severe muscular cramps, great difficulty in breathing and oppression of the chest. Each was given an intravenous

injection (10 ml) of 10% calcium gluconate, with almost instantaneous relief of the dyspnoea and muscle cramps.

Apparently nothing is known about the nature of the toxic substances, although the above authors state that it is injected by means of tiny barbs which are contained in thousands of trigger hairs on the tentacles and which protrude on contact. The urticaria, the extremely rapid onset of generalized symptoms, and the equally rapid action of calcium injections certainly suggest an allergic reaction, but there is an opportunity for an interesting piece of research here analogous to the recent investigation of nettle stings.—I am, etc,

BRUNO PLOTKE

Basle Switzerland

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## POINTS FROM LETTERS

### Plain Words on Nursing Shortage

Mr L H HORNSBY (Ministry of Labour and National Service) writes of Mr W S Brindle's comments (Oct 30, p 800) one word *Touché*

### Breast feeding

Mrs V BENNETT (London, N 8) writes. I think Dr Rachel Pinney (Nov 13, p 878) has made a very valuable point in suggesting that one of the major causes of lactation failure is outside interference in the tender emotional partnership of mother and newborn baby. I was a practising midwife for many years, and since my marriage and the birth of my own two children I have taken several private maternity cases. I did so on the understanding that the mothers under my care allowed the breast-feeding to be conducted after my own method, which is simplicity itself. Immediately after the birth and washing (the mother being fit enough) the baby is put to the breast, where usually it takes hold and gains comfort enough to sleep cosily in the crook of its mother's arm. A cot stands by the head of the bed so that, if the mother wishes, the sleeping baby can be put down within her reach. Both usually sleep for an hour or two. When the baby next awakens and cries it is again given to the mother with the instruction to give it the breast if it appears to be mouthing around for food. I find this feeding can be conducted in a semi-recumbent position, it being necessary for the nurse only to assist in making the pillows comfortable and supporting. This goes on day and night, with the baby regulating its own feed times and sleeping all the time between. Before three days the baby seems well satisfied with the colostrum it receives and even goes three or four hours without attention. I find there is very little breast engorgement on the third day, and I have never had a breast abscess from over-congested breasts or a failure to feed the whole nine months. The baby, needless to say, is relaxed and happy and never cries unless hungry or cold.

### Fumes and Colds

Dr T H DURRANS (Bourton-on-the-Hill, Glos) writes. I have read with interest the letter from Dr G C Pether (Nov 13, p 879), and I think it may be of interest to him and other doctors to relate an experience covering over thirty years. In a chemical factory with which I was concerned we made among many other chemicals products from sulphur dioxide, and the air in the plant buildings where these sulphur dioxide products were made was always heavily charged with the gas. It was continuously found that the workmen in this plant were markedly free from the common cold and from "influenza." It therefore seems probable that the presence of sulphur dioxide in the saliva for periods of 8 hours or more daily has a protective effect. It should be noted that other workmen working in parts of the factory remote from the sulphites plant did not enjoy the immunity.

### Tendon Rupture and Rheumatoid Arthritis

Dr PETER LONDON (London, SW 15) writes. Dr G D Kersley's report (Nov 27, p 942) of the spontaneous rupture of a deep flexor tendon in a patient suffering from rheumatoid arthritis prompts me to report a similar experience of my own in a woman of 66. In this case, however, rupture was traumatic, being due to the patient's jabbing petulantly at a push button on her radio set, though such a stress seems inadequate as a cause of rupture of a normal flexor tendon. In her case the tendon was the deep flexor to the right middle finger, it was explored, as her left hand was almost useless and she was anxious to regain if possible fuller control of the digit. Rupture had occurred just proximal to the digital synovial sheath and as there was no sign of fraying of the tendon it must be assumed that rupture was due to some other sort of weakness. Simple suture was carried out, but the amount of movement regained was very small.

## Obituary

### J H SEQUEIRA, MD, FRCP, FRCS

Dr James H Sequeira, who was for many years consulting physician to the Skin Department of the London Hospital, died in Kenya at the age of 83. He had a world wide reputation as an authority on diseases of the skin.

James Harry Sequeira was born in London on Oct 2, 1865, and educated at Kings College School. Entering the London Hospital with a science scholarship in 1884, he qualified in 1889, graduated MB in 1890, and proceeded MD a year later. He was a dresser to Mr Frederick Treves, as he was then and he was also much influenced by Sir Stephen Mackenzie, whose house-physician he became. He took the FRCS in 1893, the year in which he won the Hutchinson Prize and he was elected FRCP in 1905. Dr Sequeira studied at Vienna some years after qualifying, and subsequently he worked under Niels Finsen in Copenhagen. He was responsible for translating Finsen's book on phototherapy in 1901, and at the London Hospital, where he was appointed assistant physician in 1902, he set up a light therapy department which was the first of its kind in this country. He also wrote at this time some of the early reports on the treatment of epitheliomata by x rays and radium. In 1905 Dr Sequeira published *An Elementary Treatise on the Light Treatment for Nurses*. His well known textbook *Diseases of the Skin* appeared in 1911 and reached a fifth edition in 1947. Dr Sequeira was for many years editor of the *British Journal of Dermatology and Syphilis* and he contributed many papers to the medical press.

When he retired from the active staff of the London Hospital in 1927 Dr Sequeira went out to Kenya but continued to take an interest in medical work of all kinds and particularly in leprosy. He was president of the Kenya Branch of the British Medical Association in 1930-1 and again in 1933-4. He was also editor for over ten years of the *East African Medical Journal*. When war broke out in 1939 his services were again in demand. In the 1914-18 war he had acted as consultant in dermatology to the military hospitals in London. During the recent war he served in the same capacity hospitals in East Africa. Dr Sequeira was one of the most active members of the late Lord Trevethin's Committee on Venereal Disease, and was at one time chairman of the executive committee of the Society for the Prevention of Venereal Disease. He was also president of the Section of Dermatology of the Royal Society of Medicine in 1925-7, and a corresponding member of the French and Danish dermatological societies.

Dr W J O'Donovan writes. Between the two wars a frequent sight in the London Hospital was the short, very sturdy, white-haired figure of Dr Sequeira walking gravely from bed to bed or across the gardens to the out-patients. Throughout his professional career Dr Sequeira was distinguished by the qualities of gravity and leadership and his clinical acumen was outstanding. From Johannesburg to Toronto, in Leeds, Charing Cross, the Royal Free, and in the London Hospitals his teaching is a tradition carried on by his own professional sons. Before taking up dermatology—and he was the first dermatologist appointed as such to the London Hospital—he was fully trained in both medicine and surgery and was almost unique in holding later the fellowship of both the ancient Colleges. His textbook was an early classic of modern dermatology and when it appeared was unusually lavish in well chosen illustrations.

Dr Sequeira was a master of the treatment of lupus and a pioneer in this country in the clearance of the school population from *unna capitis* by an organized mass x-ray attack upon infected heads in East London. These were the cases ascertained and sent for treatment by the London School Medical Service in its earliest days. He was a pioneer in light therapy, in x-ray therapy and in the use of radium for skin diseases and dermatologists trained by him in this technique have maintained his special interest and competence in radiotherapy. Dr Sequeira served his generation as secretary of the learned

societies and presided with great urbanity and decorum when presidential chairs fell to his lot. He maintained the friendliest of relations with French and Danish colleagues and was frequently visited at his clinic by American dermatologists. His patience in teaching generation after generation of undergraduates was his outstanding virtue. His regularity in hospital attendance was a model of conscientious attention to his voluntary duties. So valued was his teaching that it was common for budding specialists to attend his out-patients clinic twice a week for two years to gain his cachet and to absorb some of his experience and diagnostic methods. His judgment of others was always kindly, and he was ceaseless in encouraging the youngest of his juniors to make original observations and to try whilst they had the opportunities of hospital life to add to knowledge.

At a time when the London Hospital staff included men of outstanding metropolitan distinction Dr Sequeira fully held his own and his memory is revered by hundreds of practitioners and in countless of homes for his benignly judicial and kind personality made a lasting impression on all who met him. Coronary disease attacked him in his eighties and to his wife and his two adopted children we offer our deepest sympathy.

Dr John T Ingram writes. The portly figure and gentle courtly manners of Dr Sequeira reflected his quiet pride in his ancestry. He was the sixth, in direct descent of a line of doctors, and he wore on his little finger the 'morning ring' of one of his doctor ancestors born in the year of the Great Fire of London. When Napoleon invaded Portugal a great grandfather of Sequeira came to London in the train of the Prince Regent of Portugal and was physician to the Portuguese Embassy to the Court of St James. Sequeira was born and educated in London and was immensely proud of his association with the London Hospital. He had wished to be a physician, being particularly interested in cardiology, but circumstances fortunately determined his being asked to establish a department of dermatology. In his training he had attended lectures by Sir Jonathan Hutchinson and had clerked for Hughlings Jackson. He had little money but he achieved a remarkable postgraduate education. He held resident appointments under Stephen Mackenzie, Warren Tay, and Herman, and was for four years demonstrator in anatomy under Arthur Keith and Wood Jones. He followed this with two years as medical registrar and two years as medical tutor, an apprenticeship of eight years' teaching appointments. He was proud of his associations with Leonard Hill and Lindemann (later Lord Cherwell) and recalled with pleasure tea-parties with William Bulloch and Paul Fildes in the bacteriological department.

Two great milestones in medical history influenced Sequeira's work—the physiotherapeutic advances of Finsen and the researches of Ehrlich. He spoke with affection of the interest and encouragement of Sidney Holland (Lord Knutsford) at the London Hospital, and he soon attracted disciples from all over the world and especially from the Dominions and Colonies. He was meticulous in his attention to hospital duties, and kind and generous and helpful to all who worked with him. He would have liked a full-time post at the London Hospital, for he disliked the monetary side of medical practice, but the offer came too late. He was however, strongly opposed to a whole time medical service for the nation. Sequeira greatly admired Radcliffe Crocker's textbook, but his own work was the first to leave the morphological approach to skin diseases and attempt an aetiological classification. He was fond of music, and though he remained a busy man to the end, alert and interested in even new dermatological work, he greatly appreciated the opportunities for indulging his interest in music which came with retirement. He said that he owed everything to two women—his mother and his wife. The devoted affection of his wife undoubtedly enabled him to contribute from his wisdom the work he loved into a ripe old age.

### E LEWIS LILLEY MB, FRCS

Dr Ernest Lewis Lilley who was 72 died quite suddenly in his consulting room on Nov 22 from coronary occlusion. I was a member of an old Leicester family and was educated at the Wiggeston School Leicester. He obtained an entrance scholarship at Charing Cross Hospital and qualified in 1885 graduating MB BS in 1901 and taking the FRCS in

years later He was successively house-surgeon, "house-physician, and RMO at Charing Cross Hospital

In 1904 Dr Lilley came to Leicester, taking over the practice of Dr C Nuttall In his early years he took a great interest in x-ray work, and this stood him in good stead during the first world war He was in charge of the Leicester and Leicestershire Maternity Hospital at its opening in 1904, and he remained in control till it was taken over by the Leicester Royal Infirmary in 1940 In addition to the ordinary routine work of the hospital, including many difficult cases, he trained and lectured to succeeding generations of maternity nurses and midwives Dr Lilley was a member of the board of management of the Leicester Public Medical Service, later becoming chairman, and finally president in 1938, which post he held until his sudden death He was a member and later vice-chairman of the Local Medical and Panel Committee from 1911 He was also a member of the Local Insurance Committee under the NHI He joined the Leicester Medical Society when he started practice, and was elected president in 1928-9

During the first world war Dr Lilley was surgeon to the Fifth Northern General Hospital, Leicester, and later went to Egypt, where he was radiologist to the Citadel Military Hospital, Cairo At the end of the war he returned to Leicester and continued his work until his retirement from general practice in 1939 He was then appointed chairman of the Leicester Recruiting Medical Board He also continued to act as anaesthetist to the Leicester School Clinic and actually gave several anaesthetics on the morning of his death Dr Lilley was an examining factory surgeon and medical referee under the Workmen's Compensation Act and National Insurance Act He was always a keen supporter of the British Medical Association, and was a member of the Council from 1931-43 and of the Insurance Acts Committee from 1921-46 He was chairman of the Leicester and Rutland Division in 1927-8 and he was a member of the Journal Committee from 1921-32 He also served on the Therapeutic Substances and National War Formulary Commission of the Ministry of Health, and became its chairman He was a member of the council of the Medical Defence Union

Dr Lilley, as a member of the council of Leicester University College, was largely responsible for the foundation of the music department there, especially the music library, to which he constantly added fresh books He was on the council of the Leicester Literary and Philosophical Society and became president in 1932 Only a fortnight before his death he read a paper on "Inductive Reasoning" to the philosophical section Apart from medicine his greatest interest was music He was president of the Leicester Chamber of Music and a member of the Philharmonic Society He had been choirmaster and organist at the Great Meeting Unitarian Chapel, Bond Street, Leicester, for about forty years Dr Lilley was an outstanding personality with unbounded energy He was always ready and anxious to do his best for anyone in difficulties He was generous both with his time and money, and went out of his way to help others His advice was often invaluable and always based on a considered and sound judgment  
—E W H

Dr C L Somerville writes With the death of E Lewis Lilley the medical profession in Leicester has lost the most outstanding personality among the older generation of doctors Endowed with an iron constitution and tremendous energy, his capacity for work was a source of amazement to lesser mortals Unfailingly cheerful his chuckling laugh punctuated his conversation His mental calibre matched his energy and together with an acutely retentive memory made him master of a great diversity of subjects from pure science to higher mathematics Fifty years after his days as a demonstrator of anatomy he still had a clear grasp of abstruse details which few practising surgeons of to-day could approach, let alone equal As was to be expected from a man of such attainments his pursuits and hobbies were intellectual, and of these music held first place Outdoor sport had no attractions for him, and I doubt if he ever went for a country walk The live theatre and cinema saw him but seldom, but he rarely missed the concert hall or chamber music recital or the Three Choirs Festival and he knew the organ lofts of churches and cathedrals up and down this country and abroad

In medical matters Dr Lilley's opinion was sound, but in later years he tended to be rather conservative His wide medical knowledge and vast experience were everywhere recognized, and his simple and likable traits endeared him to an immense number of patients and friends He was probably at his heyday about the time of the BMA Annual Meeting in Australia in 1935, and many colleagues will remember him on the tour across Canada and the USA Though he retired from general practice in September, 1939, he kept on several appointments, and throughout the war years he undertook long days of exacting work as chairman of recruiting boards

#### F H S CURD, Ph D, B Sc

Francis Henry Swinden Curd, who died on Dec 2 in Stockport Infirmary at the early age of 39 as a result of a railway accident, was not a member of the medical profession but a chemist on the research staff of Imperial Chemical Industries His death is a serious loss to chemical research and to chemotherapy in this country, for since 1933 he had been engaged on the production of new chemicals, and during the war he was the leader of the team which synthesized the antimalarial drug proguanil or, as it was formerly called, paludrine This compound is the least toxic of the known antimalarials, and, though its potentialities are not as great as was at first hoped, its chemical structure represents an entirely new departure in drugs with an action in malaria Its synthesis was developed by logical steps from mepacrine, the pyrimidine nucleus being first substituted for the acridine ring, later the pyrimidine structure was replaced by a guanidine, leading finally to the formation of  $N_1$ - $p$ -chlorophenyl- $N_3$ -isopropyl-biguanidine These investigations Curd and his colleagues reported at length in a series of important communications to the *Journal of the Chemical Society* and in the *Annals of Tropical Medicine and Parasitology* In 1947, with D G Davey and F L Rose, he was awarded the Gold Medal for Therapeutics of the Worshipful Society of Apothecaries Before joining the staff of I.C.I., Curd worked for a time in the laboratories of the School of Hygiene and Tropical Medicine, and it was here that his interest was originally aroused in the chemotherapeutic control of tropical diseases

Dr John Kerr writes There was no greater personality in the County Palatine of Chester than Dr Lionel James Picton, of Holmes Chapel Physically a man of rotund build, he had the stoop of the scholar, a kindly countenance with eyes which looked straight at you, and a mental and physical alertness which belied his years The statement in your excellent obituary (Nov 27, p 960), 'though he never published a book,' is incorrect, for his book *Thoughts on Feeding* was published by Faber and Faber in 1946 As secretary of the Local Medical and Panel Committee he instituted an investigation by the committee into maternal morbidity in the county of Cheshire Consequent upon this investigation and the written evidence of Sir Robert McCarrison relative to the important part nutrition played in maternal fitness, the Local Medical and Panel Committee decided to proclaim to the people of Cheshire that the main factor in maintaining health was sound nutrition Dr Picton's natural genius produced the 'Medical Testament' in which he reviewed their experience of twenty-eight years of medical benefit under the National Health Insurance Act He proved that the Act had failed in one of its main objects—the prevention of sickness Dr Picton was an agriculturist of repute and contributed much valuable work on the rearing of livestock Picton was an advocate of raw milk, and maintained that the great nutritional need of the community was an ample supply of clean, fresh raw milk, which could be obtained by the hygienic handling of milk from the healthy cow to the consumer Picton was also deeply interested in soil fertility He contended that, in so far as human health is dependent upon the quality of the food which the body requires, so is the food, whether animal or vegetable, dependent on the soil which sustains it He has shown that the method of composting and returning the whole of the animal and vegetable refuse produced in the activities of a community to the soil results in the health and productivity of crops and of the animals and men who feed thereon To this end he organized on behalf of the Panel Committee, a county garden competition for cottage gardens and allotments to inculcate the much greater use of vegetables in the food of the people Dr Picton's gift of lucid and interesting exposition as a writer enabled him to undertake on behalf

of the Panel Committee the editorship of the *Compost News Letter*. This quarterly was the outcome of much correspondence from all over the world consequent upon the publication of the 'Medical Testament'. It is by men such as Lionel J. Picton, with their scholarship and broad culture, that village life in England is made so delightful. The village of Holmes Chapel, in Cheshire with its fourteenth century church, its inn, and its ancient traditions, has indeed been fortunate. Dr Picton leaves a widow who all through her married life devoted herself to his care. She bore him three sons and three daughters, and two of the sons are now following the profession of their father, one of them carrying on the practice in Holmes Chapel.

Dr SAMUEL ROBERT HUNTER, who died on July 9, was born in Belfast on March 3, 1877, and was educated at the Royal Belfast Academical Institution and Queen's College, Belfast. He took his B.A. degree in the Royal University of Ireland in 1899 with honours in chemistry and physiology, graduated M.B., B.Ch. in 1902, and proceeded M.D. in 1905. He was resident house-surgeon and extern surgeon in the Royal Victoria Hospital, Belfast, before settling down in private practice at Dunmurry. Here, by his genial personality and charming manner, Dr Hunter quickly built up a large practice which extended far beyond the boundaries of his immediate district. He took a great interest in local medical affairs, was a life-long member of the B.M.A., and a fellow and president of the Ulster Medical Society. He volunteered for service with the R.A.M.C. in the first world war, and served most of the time in Salonika and the Middle East. On demobilization Dr Hunter returned to Dunmurry and espoused the cause of the ex-Serviceman. He was president of the Dunmurry Branch of the British Legion from its inception until his death. His leisure was mainly devoted to golf, and he was a past captain of the Dunmurry Club. Dr Hunter's health finally broke down under the stress of work, and in 1945 he retired from active practice and spent his days overlooking his beloved golf-links. He leaves a widow, two sons (Dr G. A. C. Hunter and Lt.-Comdr. Hunter, R.N.), and one daughter.—J. G. J.

Dr LOUISA HAMILTON, who died on Nov. 24, went to the London School of Medicine for Women in 1893, and during her first year began the course for the L.S.A., as the Royal Colleges were not open to women. In 1900 she obtained the M.B. B.S. degree of London University with honours in medicine and obstetrics and in 1906 she proceeded M.D. For a few months after qualification she attended the out-patient and in-patient clinics at Great Ormond Street Hospital for Sick Children. She became a house surgeon at the Elizabeth Garrett Anderson Hospital in 1901, house-physician there in 1902, and house-physician at the Royal Free Hospital a year later. In 1903 she was appointed demonstrator in anatomy at the London School of Medicine for Women. She started private work in 1905 at first in general practice. She worked for seven years in Brunswick Place and in 1912 moved to Nottingham Place, where she was well known for twenty-one years as a physician. She held the post of part-time pathologist at the Elizabeth Garrett Anderson Hospital and later was appointed a member of the staff of that hospital, first as assistant physician, then physician, and finally as senior physician. This post she held till 1936, when she retired. In addition, for many years Dr Hamilton was medical officer to the North London Collegiate School for Girls, the C.E.Z.M.S., and the Methodist Missionary Society. When she retired she went for a trip to Jamaica in 1937 and on the return journey contracted the illness which ultimately proved fatal. Dr Hamilton had many friends and interests. She had the Scottish tenacity of purpose that is satisfied only with the best. This was shown in her medical work but also in the gradual development of her lovely garden in Buckinghamshire. She was an excellent hostess and excelled at cooking. Many generations of students and house-physicians will remember her generous hospitality. Writing as colleague, friend, and patient I can speak from personal knowledge of Dr Hamilton's loyal and sane help. She took a wide view of her patients' needs, and infused into them some of her own courage and common sense. She knew that a great deal goes to the remedy of the ills that we meet, and by her wisdom and sanity she helped many people in many different places, and they all have cause to remember her with gratitude. Louisa Hamilton played a losing game for years with heroic courage. Her loyalty, helpful common sense, and generosity will be remembered.—E. B.

A memorial service for the late Dr Louisa Hamilton will be held at St. Pancras Church, Upper Woburn Place, London, W.C., to-day (Saturday, Dec. 11) at 11.30 a.m.

## Medico-Legal

### TOO SHORT A GESTATION PERIOD

The period of 349 days was recently accepted as a possible gestation period by the Court of Appeal.<sup>1</sup> Subsequently Mr Justice Ormerod, in a case heard in the Divorce Court on Nov. 17, accepted expert medical evidence that it was impossible for a normal child to be born after 340 days.<sup>2</sup> On Nov. 26 Mr Justice Vaisey had to consider what appeared to be a short period of gestation. This was a case under the Guardianship of Infants Acts 1886 and 1926 in which he allowed an appeal from an order of a Metropolitan magistrate making an order for payment by a husband of maintenance for a child. Mr Justice Vaisey allowed the appeal<sup>3</sup> on the ground that on the evidence from an Army records office, and from hospital case-sheets, the husband against whom the maintenance order was made could not have been the father of the child. He returned from two years' service overseas on Jan. 29, 1945, and had intercourse with his wife on Jan. 31. The wife was delivered of a child on Aug. 8, 1945, an alleged period of gestation of 188 days. Evidence was given that the child was perfectly normal. His Lordship was therefore driven to the conclusion that the child could not have been the offspring of the husband, and the order for maintenance was therefore discharged.

### BERYLLIUM AS A CAUSE OF DEATH

What is said to have been the first fatal case of beryllium poisoning in Great Britain was recently the subject of an inquiry by the East London coroner, Mr W. R. Heddy.<sup>4</sup> A physicist aged 36, employed by a firm at Edmonton, had been working with beryllium oxide from December, 1941, to December, 1942. He was engaged in work on the development of fluorescent lighting. He remained apparently well until 1945. He then complained of a cough and loss of weight and was eventually admitted to the London Hospital, where he died on Nov. 4. Necropsy showed that death was due to beryllium poisoning.

Beryllium, which was discovered in 1797, was very little known before 1916 and has been of prime economic importance only since 1940. The toxic hazards of beryllium were discussed in an annotation in this *Journal*<sup>5</sup> and subsequently in a leading article<sup>6</sup> an account was given of cases of beryllium poisoning reported from America. At that time among 170 cases of poisoning the chief manifestations were dermatitis, chronic skin ulcer, and inflammatory changes in the respiratory tract, producing in extreme cases a diffuse pneumonitis. A chemical pneumonitis developed in 38 of these workers, of whom 5 died.

<sup>1</sup> *British Medical Journal* Nov. 6, p. 840.

<sup>2</sup> *Ibid.* Nov. 27, p. 962.

<sup>3</sup> *The Times* Nov. 27, 1948.

<sup>4</sup> *Ibid.*, Dec. 6.

<sup>5</sup> *British Medical Journal* 1943, 2, 460.

<sup>6</sup> *Ibid.* 1946, 2, 231.

## Medical Notes in Parliament

### National Service

The *National Service (Amendment) Bill*, which was read a first time without debate in the House of Commons on Nov. 24, proposes to increase the period of whole-time service of men called up under the National Service Act, 1948, from twelve months to eighteen months but to reduce their total period of whole time and subsequent part time service in an auxiliary force from seven years to five and a half years. It is further proposed that registered medical practitioners and persons registered in the *Dentists' Register* under the *Dentists' Acts*, 1878-1923 shall be liable to be called up under the National Service Act up to the age of 30 instead of only up to the age of 26, which applies generally.

### Inadequate Remuneration

Mr BEVAN told Sir ERNEST GRAHAM-LITTLE on Dec. 1 that he was not aware of severe hardships suffered by doctors as a

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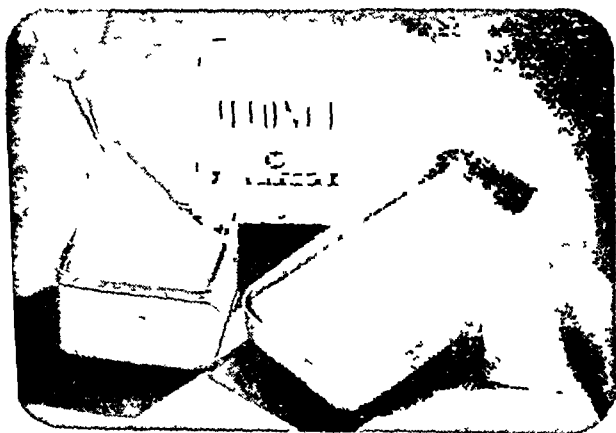
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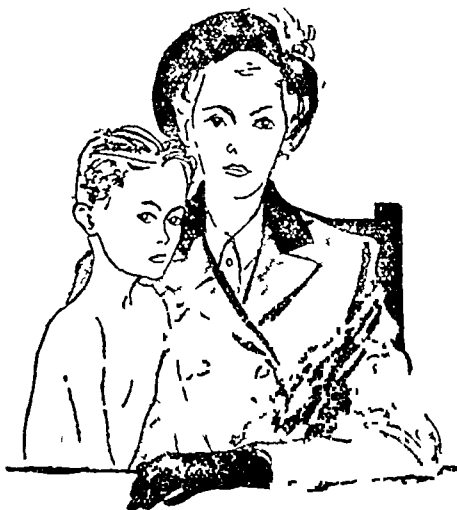
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consequence of inadequate remuneration under the National Health Service. He added that this remuneration was based on the recommendations of the Spens Committee and had been agreed upon with the profession. The initial distribution of the total amount of money made available was giving rise to temporary difficulties. These he was discussing with representatives of the profession.

Sir ERNEST GRAHAM-LITTLE also asked Mr. Bevan if he knew that his directive to executive councils to the effect that it was not his intention that payments from the Inducement Fund should be made in cases where difficulty could be met by a fixed annual payment would in fact result in a general lowering of the capitation grant, and whether he would withdraw this directive and allow such payments to be met from the Inducement Fund.

Mr. BEVAN replied that he saw no reason to alter these arrangements.

#### Amending Bill

Mr. BEVAN replying on Dec. 2 to Sir HENRY MORRIS-JONES said the matter of an amending Bill to the National Health Service Act had been under discussion with representatives of the medical profession. When full agreement had been reached—or when full agreement had not been reached—a Bill would be presented to the House. Sir Henry asked whether the amending Bill would deal with anomalies in the Act which had been clearly demonstrated. Mr. BEVAN said Sir Henry had better wait the Bill.

Mr. SOMERVILLE HASTINGS asked if Mr. Bevan knew of the many expressions of satisfaction received from all sections of the community.

Mr. BEVAN said that undoubtedly many millions of people had already benefited under the Act. He hoped that when the report of the Ministry of Health came to be presented to Parliament it would give an objective review of what had happened.

Sir HENRY MORRIS-JONES gave notice that he would raise his matter on an adjournment of the House.

*The Doctor's Bag*—Sir WALDRON SMITHERS on Nov. 30 asked the Chancellor of the Exchequer, in view of the extra pressure of work placed on doctors under the new Health Act, to exempt from purchase tax articles necessary for the use of doctors in their professional duties, especially the doctor's bag. Sir STAFFORD CRIPPS refused to do this. He said it was not possible to give doctors special privileges for the few chargeable articles they used professionally.

*Certificates for Spectacles*—Dr. SANTO JEGGER on Dec. 2 asked the Minister of Health whether, in view of the pressure of work on doctors, the long waiting in doctors' waiting rooms, and the formal nature of the certificates involved, he would remove the necessity for patients requiring to have their eyes tested by opticians to obtain doctors' certificates saying so. Mr. BEVAN replied that this requirement was instituted in the light of advice received from the medical profession. He would not feel justified in abolishing it except on professional advice.

## The Services

Surgeon Lieutenant Commanders R. E. King, W. I. D. Scott, and T. Gaunt, R.N.V.R., have been awarded the R.N.V.R. Decoration.

The President of the USA has conferred the Bronze Star Medal on Lieutenant Colonel (Temporary) E. Samuel, Major (Temporary) Noble, M.C., and Captain (Temporary) R. W. Preston, R.A.M.C., in recognition of distinguished services in the cause of the Allies.

The King of the Hellenes has conferred the following decorations in recognition of distinguished services in the cause of the Allies:

*Grand Cross of the Royal Order of the Phoenix*—Major-General C. A. Dowse, C.B., C.B.E., M.C., late R.A.M.C.  
*Commander of the Royal Order of the Phoenix*—Captain A. M. and R.A.M.C.

The Prince Regent of Belgium has conferred the following decorations in recognition of distinguished services in the cause of the Allies:

*Officer of the Order of Leopold*—Colonel (Temporary) J. P. J. and R.A.M.C.

*Croix Militaire 1st Class*—Major F. H. Newland, Major (Temporary) C. E. James, and Captain S. Howe, R.A.M.C.

*Croix Militaire 2nd Class*—Major (Temporary) W. Barnes, R.A.M.C.

## DEATHS IN THE SERVICES

Sir Matthew Fell, K.C.B., C.M.G., writes: My old friend, Lieut-Col. J. C. JAMESON, R.A.M.C., died last July after a long illness patiently and philosophically borne. He was the eldest son of the late Surgeon General J. Jameson, C.B., K.H.S., who was Director-General of the Army Medical Service at the outbreak of the South African war, and was a graduate of Edinburgh University. I met him first at the Orange River Bridge in November, 1899, when Lord Methuen's Force was concentrating for the advance on Kimberley, and after that he continued under the same commander until 1902, wandering throughout the West of the Orange Free State and Western Transvaal. Jameson had previously served in the Afrikan Campaign on the North West frontier of India, and was later to serve with me throughout the first world war. But it was the close daily contact of three years on the veldt that formed our friendship, which lasted without a break to the time of his death. He was a keen golfer and also a fisherman, and after his retirement we had many happy days together. He never married, but children and young people loved him. Having the limelight, self-effacing, careless of his appearance, almost hyper-conscientious in his professional work, anxious to give of his best at work or play, he was a truly lovable character, and the world is the poorer for his passing.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

In a Congregation held on Nov. 27 the degree of M.A. was conferred on James Wilson Millen, M.D., University Demonstrator in Anatomy. The degree of M.D. was conferred on T. St. M. Norris (by proxy) and D. S. Short.

### UNIVERSITY OF DURHAM

Sir Henry Dale, O.M., F.R.S., will give the fourth Rutherford Monson Lecture in the Royal Victoria Infirmary, Newcastle-upon-Tyne, on Thursday, Jan. 20, at 5 p.m. His subject is 'Physiology and Surgery'.

### UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

POSTGRADUATE DIPLOMA IN PSYCHOLOGICAL MEDICINE—*With Mental Diseases (Psychiatry)* in Part B: I. R. C. Batchelor, D. D. Howell, D. W. Liddell, D. L. Murti, Rao, A. J. P. Oldham, J. W. T. Redfern, Ethel E. Robertson, I. T. Robinson, D. Stafford Clark, A. C. Tait, R. W. Tibbitts. Part A: E. T. Elmahy, E. S. Goller, Joan I. Hallinan, J. M. Macdonald, J. Merry, H. R. Morton, P. Pinkerton, I. M. Shepherd, J. Todd, L. P. Varm.

THIRD MB B.S.—Elizabeth Bennett, 14p. Chadwick, 13k. M. Citron, 15B. Creamer, 15A. A. Eley, 15H. J. A. Hahn, 12Cherry, D. Heath, 15Joan E. Jermyn, 15G. D. Starke, M. S. M. Adams, Maureen B. Adams, C. P. T. Alexander, A. M. Angel, Marion M. Ashforth, R. N. H. Askham, D. S. G. M. Bailey, J. R. Ballantyne, T. W. Barnes, Barbara Baxter, S. J. Beales, M. D. Beesley, S. Benaim, G. C. Blake, Hazel C. Blomfield, W. R. Bodenham, Edda L. I. Boesen, J. M. N. Boss, J. H. Boydell, Margaret L. M. Bridges, Ethel A. V. Brooks, P. D. Bryant, R. Buri, F. P. Cassidy, I. Chance, J. A. Cheese, D. W. Clark, P. S. Clarke, I. H. Colley, A. A. Collis, A. J. P. Crowden, Mary E. Curling, H. W. D. Davies, I. H. Davies, T. D. L. Davies, L. R. Davis, E. Li. Dawe, D. C. Deuchar, Daphne M. Dowlen, E. M. Edwards, Evelyn S. Elliott, Hilary J. Elphick, D. M. Evans, E. Evans, D. C. Faulk, K. J. Fisher, D. G. Fleck, C. A. Foster, P. B. Foxwell, K. Froome, G. G. Garlick, Phyllis A. George, A. M. Goldthorpe, K. C. D. Gordon, D. B. Goss, R. L. Guthrie, E. W. Graham, A. M. Griffiths, N. W. J. Grummitt, D. B. Gunasekara, June M. S. Harrington, D. F. N. Harrison, R. D. C. Hart, G. E. Haward, P. W. Head, J. L. Herbert, D. A. Hodgson, E. R. Hodgson, Todd, H. D. A. Hope, Pamela C. B. Hopkins, D. A. Howell, F. H. D. Hunter, A. H. Jack, D. W. James, Barbara J. Jeffrey, F. H. W. Johnson, C. R. Jolly, D. H. Jones, E. F. Jones, J. S. Jones, C. Joseph, D. H. Judson, G. Kaufman, R. A. Keable, Elliott, Zee, T. Kelly, H. R. Ker, M. R. R. Khan, F. R. S. Knight, P. Lancer, B. H. Lawrence, J. C. S. Leventon, D. C. Lindley, R. H. Longton, G. N. Lumb, B. Lytton, W. E. Macbean, R. P. C. MacDonald, T. McKendrick, D. Mendel, René L. Mendez, Leela Menon, Marie D. Merchant, D. K. Morgan, Elizabeth M. Mostyn, J. G. Neville, Margaret C. Newmark, P. B. O'Neill, M. W. Price, V. G. Radcliffe, G. S. Ratnavale, G. W. Piper, D. G. Price, E. R. Price, K. J. P. Rhys, B. W. Richards, H. R. C. Riches, Janet P. Rickard, P. P. Rickham, J. E. G. Rossdale, D. P. Rough, D. G. Rushton, M. V. Salmon, A. C. E. Sandiland, B. Schwarz, M. L. J. Segall, J. C. Sherris, B. Skinner, J. F. Skone, G. B. Smith, D. B. Spanton, Diana H. Spears, Rosemary Stephens, S. Sternberg, M. T. Sweetnam, Hilda J. Tanner, D. G. Taylor, T. Taylor, Anita J. Thomas, O. G. Thomas, J. V. Thurston, P. H. Tribe, A. A. Turner, R. J. Vale, J. Vance, P. R. Wagner, Daphne M. L. Walters, Mary B. Watson, F. E. Weale, Joan C. Wells, Margaret M. Whitaker, H. Williams, W. J. Williams, M. B. Wingate, Mary I. Wray, J. Zamlar.

1 With honours. 2 Distinction in hygiene and forensic medicine. 3 Distinction in medicine. 4 Distinction in applied pharmacology and therapeutics. 5 Distinction in surgery.

Dr. E. R. Boland has been elected Dean of the Faculty of Medicine for the period 1948-50.

The title of Reader in Experimental Pathology in the University has been conferred on Peter Alfred Isaac Gorer, D.Sc., M.R.C.S., L.R.C.P., in respect of the post held by him at Guy's Hospital Medical School.

## UNIVERSITY OF WALES

The following candidates for the degrees of MB, BCh at the Welsh National School of Medicine have been approved at the examination indicated

**MEDICINE.**—Sarah A Chard N V Chivers D P Davies G J Davies E H Evans E J Hargadon J M E Hyde T D Jones Lilian M Morgan G M Reynolds J M Richards Esme S Rogers Mary C Sumption G Thomas J A Wilkinson

**PHARMACOLOGY.**—Joyce M Bennett (with distinction) L V Chubb S I Davies Nansi G Gwynne C W J Hunt D T Jones Rachael B J Lewis Mary I Lloyd J E Merrell Janet M Moffat Elizabeth M M Price T B N Richards A P Thomas D S Wood

## ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a meeting of the College held on Dec 2 Dr W D D Small was elected President and Dr W A Alexander was nominated Vice President.

## ROYAL COLLEGE OF PHYSICIANS OF IRELAND

The following were admitted to the Membership of the College on Nov 5 P B B Gatenby, M Ghosh, R J Kernohan, R M Peet, R W Temple

## ROYAL COLLEGE OF SURGEONS IN IRELAND

The following have received the Fellowship of the College D V Kneafsey, J J O Shaughnessy, C I Wilkinson, W H de W De Wyt

## ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council of the College held at College House, on Nov 27, with the President, Sir William Gilliat, in the chair, the following were formally admitted to the Membership of the College T M Abbas, Agnes U Campbell Margaret Fitzherbert, R A Irani, Mary S Jolly, P M Naidu, C G Nairn, M S Qureshi, Helen M Russell S A Siddiki, P de S Wysekera

The William Meredith Fletcher Shaw Memorial Lectureship for 1949 was awarded to Professor R W Johnstone of Edinburgh Leverhulme Scholarships tenable for one year were awarded to F Reid, for research into x ray diagnosis of placenta praevia, the relation between foetal position and the placental site, and an attempt to develop a new method of amniography, and to C J Mackinlay, for research into the investigation of chronic infections of the vulva

The following were granted the Diploma in Obstetrics of the College

T R Aggarwal Patricia M Aikman Emma M H Albinson N Alders Beryl G Anscombe D J Atherton R K Banerjee A S Barling J W Bartrum K S P Blachley V Y Bockner Mary M M Boyd Mollie A Brown Joan M Burrill M Byrne G S Cuthness Elspeth S K Campbell Harriett A Cawthorpe Dorothy B Charlton G R Clare M H Clark Nancy G Clegg Shirley Clifton Smith G R Connolly Margaret M Coughlan Vivienne A Croxford P N Cunliffe R G Dewhurst J J B Dias Mary Douglas Aileen P M Dring E W Duncan Violet M East W M Edwards Louise E Elbert Mary R Ellis W I Emslie C J Farr T R Farrimond Mary E G Feetham G S Foster Frances M Fountain Maud M Frankland T P S Frew S Galande H J B Galbraith P D Gange H L Gardner Joy M Gardner W F T George M Gold D S M Graham F G Grant Jean A Grant Violet H Gray C R H Green A G Grossett M J L Hassall J K Hawkey Josephine M R Heber F W Henderson J Hendry Mary M Herley J T Heron S R Hewitt Rachel M Hickinbotham H F Hills J D Holdsworth J A G Holt P D James R Johnston Daphne M E Kayton R G M Keeling W P Kelly R F S Kirkham Mary E Larg Helen M J Lawn J F Leaver Joyce R Lewis L E Lotimer R St J Lyburn I Macdonald A M Mackenzie T E L J McNair J D H Mahony Dorothy M Marshall K bin M O Megat Rene M Michelmore J L Middlemiss P D V Moni Valerie N Nairn W LeV Needham L P A Newborne T A O'Donnell Ann K O May D G O'Sullivan H P L O'Zorio L J Page J H K Parker M L Paterson A S S Playfair P K Pybus B O Reed Dorothy M Ridout D A Road Joan M Robinson Heather J S Ross H A Rowley J L D Roy A O Sankey E Sheehan Pamela M Smith J A Sodipo T A Solomon F V Squires P J Stack A Starratt, J Stohlnner Doreen M J Stracey A S Subramani Elaine M Sunderland W F Sunderland W D G Tellam Dorothy E M Thomas S W Thomson G M Turner R N H Vann L Varma A S Wallace Alice M Waters P Watson P W Wells P Wen-chiee Mao (Moore) D B B Whitehouse Edith J Whitelaw Alice R E Widdows H A G Winter Ursula E Zander H T Zborowski

## CONJOINT BOARD IN SCOTLAND

The following candidates having passed the final examinations, have been admitted L R C P, Ed, L R C S, Ed, L R F P & S Glasg

D S Anderson R A Atherton G J Bagley P M Brazil P Freeman J H Gentles H Gerber L H Geronimus Susan MacA Gillies T E Grant J C O Iwenofu J Jochnowitz, A Logan L C Luck, K E M Melville M Metz A W P Millard A J Mone W McIlwraith Monica B Macnamara, Eleanor D M Pierce D Pride R F Reid Ellen M Rosenthal D Simon, P H Slade R A Spalding Helen L Steven D Stewart J A Turner R Wilson J Winning J S Wood M J Zimmerman

Dr Thomas D Dublin has been appointed executive director of the American National Health Council For the last six years he has been professor of preventive medicine at the Long Island College of Medicine, Brooklyn The National Health Council was founded in 1921 by a group of national health organizations It has recently received a grant of \$225,000 from the Rockefeller Foundation

## Medical News

## Advisory Committee on Medical Nomenclature and Statistics

The Registrar General has set up an Advisory Committee on Medical Nomenclature and Statistics The function of the committee will be to consider from the medical point of view and to advise upon questions affecting the international statistical classification of diseases, injuries, and causes of death and many other matters concerning medical nomenclature or statistics which may from time to time be referred to it The chairman is Sir Ernest Rock Carling and the members are Sir Allen Daley, Professor Ernest Finch Dr F H K Green, Dr C F Harris, Professor A Bradford Hill, Professor A J Lewis, Dr A Massey, Dr P L McKinlay Professor N C W Nixon, Dr W N Pickles, Dr A H T Robb-Smith, Dr Percy Stocks, Professor R E Tunbridge, Sir Lionel Whitby, and Dr A Louise Winner The secretary of the committee is Mr L M Feery, General Register Office, Somerset House London, WC2

## Industrial Health Research Board

The following have accepted the invitation of the Medical Research Council to serve as members of the Industrial Health Research Board during the next three years Sir Frederic C Bartlett, FRS (chairman), Sir Charles J Bartlett, Professor R V Christie, FRCP, Mr C R Dale, Dr A N Drury, FRS, Sir Luke Fawcett, Professor T Ferguson, MD, Sir Claude Gibb, FRS, Professor A Bradford Hill, Professor Esther M Killick, MRCP, Professor R E Lane, FRCP, Dr A Massey, Dr E R A Merewether, Dr J M Rogan, Dr Donald Stewart, and Dr Joan M Faulkner (secretary) The Board is appointed by the Council to advise and assist it in that part of its research programme which relates to occupational health The detailed consideration of research work is in the hands of scientific committees dealing with such subjects as occupational medicine occupational physiology, occupational psychology, industrial pulmonary diseases, toxicology, and statistics These committees report directly to the Council for purposes of immediate action The function of the Board itself is that of a reviewing body considering general policy with regard to research over the whole field

## The Royal Society

At a meeting of the Royal Society, held on Nov 30, the following officers were elected for the ensuing year President Sir Robert Robinson, Treasurer Sir Thomas Merton Secretaries Sir Edward Salisbury and Professor D Brunt Foreign Secretary Professor E D Adrian, OM, MD Fifteen other Fellows were elected to the Council of the Society, including the following members of the medical profession Professor G R Cameron, FRCP, Dr C H Kellaway, FRCP, and Professor S Zuckerman, MD

## Higher Pay for Hospital Domestic

Agreement has been reached by the Ancillary Staffs Council of the Whitley Council for the Health Services (Great Britain) on revised rates of pay for domestic and manual workers in hospitals and institutions They will also apply to residential establishments controlled by local authorities The revised rates for the basic grades are 106s for men and 82s for women in London, 100s for men and 75s for women in urban areas, and 97s for men and 74s for women in rural areas These new rates will in general result in increases ranging from 1s to 8s a week for men and from 2s to 7s a week for women, and are based on a 48 hour week About 130,000 employees are affected

## Advisory Council on Child Care

The Home Secretary has appointed the Advisory Council on Child Care provided for in the Children Act The members are Professor Alan Moncreff (chairman), Lady Allen of Hurtwood Dr Muriel Barton Hall, Mr R Beloe, Miss S C Bertie, Mrs F M Brown, Mr P B Dingle, Mrs K W Jones Roberts, Mr P T Kirkpatrick Mrs Dermot Morrah, Miss L M Rendel, and Mr David Smith Departmental representatives of the Home Office and the Ministries of Education, Health, and Labour have also been appointed

## One Man's Story

'One Man's Story' is a film which has been produced for the Foreign Office by the Central Office of Information with the object of telling people, in this country and overseas about British achievements in public health It is a description of the work of the late Dr G C M M'Gonigle who was medical officer of health for Stockton-on-Tees from 1925 until his death in 1939, and it illustrates the manifold duties which medical officers of health are called upon to perform The film in particular brings out M'Gonigle's observation that in spite of the transfer of half the residents of a slum area in Stockton to a model housing estate their health did not show the

expected improvement, and at the end of five years the death rate was rising in spite of better housing. The simple reason was that the people, having to spend rather more on rent, spent rather less on food and the lesson was drawn home that social improvement was not to be brought about by attention to only one factor in the situation. The part of M Gonigle in the film is taken by Murray Mathe son, but apart from one other there are no professional actors in the film, the cast consisting of members of the council and citizens of Stockton, where nearly all the filming was done. Perhaps the desire not to make too long a film—it runs for only 26 minutes—has resulted in some aspects of M Gonigle's work being passed over lightly. But it is a very human presentation. It brings out the two sides of a medical officer of health's work—the control of hygiene and the personal services. It is produced by the Horizon Film Unit in association with the Film Producers Guild, and Dr M Gonigle's successor at Stockton-on-Tees, Dr H J Peters, has co operated.

#### World Federation for Mental Health

The report of the International Preparatory Commission of the Congress on Mental Health, which met in London in August, has been issued under the title "Mental Health and World Citizenship". It is obtainable for 1s (1s 2d post free) from the World Federation for Mental Health, 19, Manchester Street, London, W 1.

#### Literature of Food Investigation

The Department of Scientific and Industrial Research has issued the *Index to the Literature of Food Investigation*, Vol 17, No 1, June, 1945 (HMSO 6d). Short notes on the contents of each article follow the reference to it.

#### Wills

Mr Robert Ollerenshaw, of Didsbury, Manchester, left £104,071. Dr Robert Haslam of Bolton, left £24,823. Dr Charles Albert Ernest Griffiths, of Meopham, Kent, £5,281. Dr Charles Dainty Hatrick, of Hadley Wood Middlesex, £5,081, and Surgeon Rear-Admiral James Herbert Fergusson, late R.N., £1,483.

### COMING EVENTS

#### Congress of Comparative Pathology

Titles of papers to be presented at the Fifth International Congress of Comparative Pathology (Nov 20 p 923) at Istanbul should be sent by Dec 15 to Mr R E Glover, Royal Veterinary College, London, NW 1. The papers should be sent by Feb 20 1949, to Pr N R Belger, Taksim, Siraserviler 75/3, Istanbul, Turkey.

### SOCIETIES AND LECTURES

#### Monday

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W—Dec 13, 8.30 p.m. *Therapeutic Application of Anticoagulants*. Discussion to be introduced by Dr Paul H Wood and Mr A Dickson Wright.

#### Tuesday

CHADWICK TRUST—At Royal Society of Tropical Medicine and Hygiene 26 Portland Place, London, W, Dec 14, 2.30 p.m. *The Rise and Fall of the First General Board of Health* by Mr S E Finer.

CHELSEA CLINICAL SOCIETY—At South Kensington Hotel 47, Queens Gate Terrace London SW, Dec 14, 7 for 7.30 p.m. Discussion *Films and their Influence*. To be opened by Mr Sidney Gilliat (J Arthur Rank organization).

INSTITUTE OF DERMATOLOGY, 5, Lisle Street Leicester Square London WC—Dec 14 5 p.m. *Histopathology of the Skin* by Dr I Muende.

INSTITUTE OF UROLOGY—At St Paul's Hospital Endell Street, London WC Dec 14 11 a.m., *Cerebrospinal Fluid Tests for Syphilis* by Dr R Thomson at St Peter's Hospital Henrietta Street London WC Dec 14, 5 p.m. *Congenital Defects of the Testicle and Epididymis* by Mr Harland Rees.

PHYSIOTHERAPISTS ASSOCIATION OF GREAT BRITAIN—At Charing Cross Hotel Strand London WC, Dec 14 8 p.m. *Physical Medicine in Diseases of the Endocrine Glands* by Dr A P Cawadiaz.

SOCIETY OF CHEMICAL INDUSTRY FOOD GROUP LONDON SECTION, AND AGRICULTURE GROUP—At Main Chemistry Lecture Theatre, Royal College of Science Imperial Institute Road London SW, Dec. 1—5.30 p.m. Joint meeting. Address *World Cereals To-day* by Mr C A Loombe.

#### Wednesday

INSTITUTE OF DERMATOLOGY 5, Lisle Street Leicester Square, London WC—Dec 15 5 p.m. *X-ray Technique* by Dr, C W McKenna.

INSTITUTE OF UROLOGY—At St Paul's Hospital Endell Street London WC, Dec 15 11 a.m. *The Toxic Manifestations of Treatment in Syphilis* by Dr W N Mascall, 5 p.m. *Tumours of the Testicle* by Mr W K Irwin.

#### Thursday

EDINBURGH CLINICAL CLUB—At BMA Scottish House, 7 Dicheugh Gardens, Edinburgh, Dec 16 8 p.m. *The Therapeutic Use of the Minerals* by Dr A G Badenoch.

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street London, WC, Dec 16 11 a.m., *The Toxic Manifestations of Treatment in Syphilis* by Dr W N Mascall at St Peter's Hospital, Henrietta Street, London, WC, Dec 16, 5 p.m., *Injuries and Disease of the Testicle and Epididymis other than Tumour or Tuberculosis* by Mr Harland Rees.

ST GEORGE'S HOSPITAL MEDICAL SCHOOL Hyde Park Corner, London SW—Dec 16, 4.30 p.m. *Neurology and Psychiatry*. Lecture demonstration by Dr Anthony Feilung.

#### Friday

LONDON CHEST HOSPITAL, Victoria Park, E—Dec 17, 5 p.m. *Clinical and Cardiographic Methods in the Diagnosis of Coronary Syndromes* by Dr K Shirley Smith.

MAIDA VALE HOSPITAL MEDICAL SCHOOL, Maida Vale London, W—Dec 17, 5 p.m. Case demonstration by Dr E A Blake Pritchard.

### APPOINTMENTS

BRINDLE T W, M.B. Ch.B. Full time Medical Officer for Central Area of Flintshire.

GEE A C MRCS LRCP DPH Medical Officer of Health Lowestoft.

GREITON WATSON B G M.B. B.Chir. DPH Deputy Medical Officer of Health for Cheshire.

HOSPITAL FOR SICK CHILDREN Great Ormond Street London WC—Resident Assistant Physician D N Lawson M.B. B.Chir. MRCP House physician F S W Brimblecombe M.B. BS MRCP House surgeon H R Jolly M.B. B.Ch. MRCP Supernumerary Medical Registrar F W Nash M.B. BS MRCP Supernumerary Registrar to Department of Physical Medicine, D C Arnot M.B. BS DCH.

RHYDWEN R DSC M.B. BS, DPH, Full time Medical Officer for Western Area of Flintshire.

THOMPSON B A MRCS LRCP Assistant Pathologist Watford Peace Memorial Hospital North West Metropolitan Regional Hospital Board.

THORBURN A L M.D. DPH Divisional School Medical Officer and District Medical Officer of Health for the Urban and Rural Councils of Nantwich Cheshire.

### BIRTHS, MARRIAGES, AND DEATHS

#### BIRTHS

Child—On Nov 28 1948 at the General Hospital Newcastle upon Tyne to Margot wife of Dr J P Child a son.

Darcus—On Nov 27 1948 at Churchill Hospital Oxford to Mary wife of Howard Darcus B.M. a son.

Ebbage—On Nov 29 1948 at Highgate to Margaret (née Cunnison) wife of Geoffrey Ebbage a son—Jan.

Miller—On Nov 24 1948 at Belfast to Noel (née Gardiner) wife of Geoffrey Miller MRCP I Riversley Banbridge Co Down a daughter.

Smith—On Dec 1 1948 at the Barratt Maternity Home Northampton to Sheila (née Macbrar) wife of Alastair W Smith MBE LRCP & Sed L R F P S Glas a daughter.

Stevenson—On Nov 28 1948 at King's College Hospital London S.E. to Marjorie (née Ferguson Wood) wife of John Stevenson MRCS LRCP a son.

#### DEATHS

Chambers—On Nov 23 1948 at The Winnats St Helens Isle of Wight Wilfrid Metcalfe Chambers MD aged 66.

Drew—On Nov 27 1948 at White Lodge Fleet Charles Milligan Drew DSO M.B. Ch.B. retired Colonel A.M.S. aged 68.

D Rosario—Recently Wilfred James D Rosario MRCS LRCP of Carlisle Cumberland.

Ferguson—On Nov 28 1948 at Braeside Bishop Auckland Co Durham Tom Entwistle Ferguson LRCP & Sed L R F P S Glas.

Grove—On Nov 28 1948 William Reginald Grove MD of St Ives Hunts aged 79.

Hamilton—On Nov 24 1948 Louisa Hamilton MD of Aylesbury Bucks.

Liley—On Nov 22 1948 Ernest Lewis Liley FRCS of New Walk Leicester aged 72.

Linklater—On Nov 24 1948 at City Hospital Edinburgh George James Irvine Linklater OBE M.D. Ed.

Macrae—Recently at Worcester South Africa Duncan Mackenzie Macrae M.D.

Moncreiff—On Dec 1 1948 at 8 Queen's Road Hendon London NW Agnes Moncreiff M.B. Ch.B.

Parsons—On Dec 4 1948 at Nuffield House Guy's Hospital London S.E. Frank Bett Parsons MD FRCP of 77 Grange Road Cambridge aged 46.

Rawlings—On Nov 23 1948 at Cambridge Grahame Rigby Rawlings M.B. B.Chir. late of Calcutta.

Reid—On Nov 29 1948 at Ashleigh Linthorpe Middlesex borough Yorke John Bernard Reid M.Ch. FRCS Ed. aged 48.

Rooke—On Nov 26 1948 at Woodhouse Head ex Newbury Berks Frederick James Faulkland Rooke MRCS LRCP L.D.S. aged 77.

Scott—On Dec 1 1948 at Craig's Barns Frensham Vale near Farnham Surrey John Livingstone Scott M.B. Ch.B.

Sequeira—Recently in Kenya James Harry Sequeira MD FRCP FRCS aged 83.

Stuart—On Nov 26 1948 at Westwood Oakfield Road Harpenden Herts Emily Gertrude Stuart M.B. formerly of the C.E.Z.M.S. Hospital Quetta aged 76.

Topham—On Nov 28 1948 at Folkestone John Arthur Topham MRCS LRCP formerly of Chatham aged 74.

Whiteman—On Sept 23 1948 John Wells Whiteman MRCS LRCP aged 68.

No 47

## INFECTIOUS DISEASES AND VITAL STATISTICS

The print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov 20

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland. Figures of Births and Deaths recorded under each Infectious Disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland. A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	32	2	14	—	—	30	2	21	1	—
Diphtheria Deaths	154	14	58	11	3	220	23	46	23	2
Dysentery Deaths	49	10	49	1	—	141	17	15	—	—
Encephalitis lethargica acute Deaths	—	—	—	—	—	3	—	—	—	—
Erysipelas Deaths	—	—	42	5	4	—	—	24	12	1
Infective enteritis or diarrhoea under 2 years Deaths	22	2	9	37	—	57	8	16	39	3
Measles* Deaths†	6 923	135	153	69	54	2 233	120	178	258	5
Ophthalmia neonatorum Deaths	36	3	7	—	1	48	3	4	—	—
Paratyphoid fever Deaths	4	—	8(B)	—	—	4	—	—	—	—
Pneumonia influenzal Deaths (from influenza)‡	732	52	1	3	5	503	31	5	2	4
Pneumonia primary Deaths	15	3	2	1	—	10	1	—	—	—
Polio-encephalitis acute Deaths	249	46	225	23	7	47	292	14	11	8
Poliomyelitis acute Deaths§	6	—	—	—	—	3	1	—	—	—
Puerperal fever Deaths	46	4	5	3	1	142	13	25	6	3
Puerperal pyrexia Deaths	3	1	—	—	—	2	—	—	—	—
Relapsing fever Deaths	—	—	—	—	—	1	—	—	—	—
Scarlet fever Deaths†	1 835	117	325	174	41	1 812	132	311	52	44
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	9	2	1	4	1	3	—	—	5	—
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2 680	168	110	68	8	1 183	86	46	31	2
Deaths (0-1 yr) Infant mortality rate (per 1 000 live births)	323	47	43	18	7	359	52	85	33	11
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	5 063	846	647	168	117	4 822	799	684	197	142
Live births Annual rate per 1 000 persons living	7 148	1107	880	364	237	7 465	1163	950	309	242
Stillbirths Rate per 1 000 total births (including stillborn)	222	27	29	—	—	198	37	34	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales (London (administrative county)) will no longer be published.

‡ Includes primary form for England and Wales (London (administrative county)) and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales (London (administrative county)) are combined.

Includes puerperal fever for England and Wales and Eire.

## EPIDEMIOLOGICAL NOTES

## Type "J" Typhoid Fever

There is reason to believe that three patients, suffering from typhoid fever, one at Plinston, one at Romford, and one at Lyme Regis contracted the infection while en route from Australia to the United Kingdom where they arrived in the first week of November. The organism responsible appears to belong to Vi phage type 'J' which is not indigenous in England and Wales. It can be fairly assumed that type 'J' infections appearing here at the present time come from a common source and it is suggested that practitioners caring for patients suffering from typhoid should make a special effort to see that strains of the infecting organism reach the National Public Health Laboratory Service. M O S Herring of other patients who may be associated with the incident are asked to send details direct to SMO, Med III, Ministry of Health, Whitehall.

## Poliomyelitis in Iceland

An outbreak of infantile paralysis has occurred in Akureyrri, in the North of Iceland. Up to Nov 24 160 cases had been reported, the majority in children. All schools in the town have been closed and public meetings forbidden. Mild outbreaks of 'influenza' and 'gastritis' are also reported from Akureyrri.

## Discussion of Table

In England and Wales an increase in the number of notifications was recorded for scarlet fever 385 whooping cough 199, and acute pneumonia 153 and there was a decrease for dysentery 84 and acute poliomyelitis 14.

A small rise in the incidence of scarlet fever was reported from every region, the largest local rises were Lancashire 46 and Yorkshire West Riding 45. The largest fluctuations in the local trends of whooping cough were increases in Southampton 39 and Warwickshire 38 and a decrease of 53 in Lancashire. Notifications of measles for the whole country increased by 13, but there were considerable variations in local returns, the largest increases were Yorkshire West Riding 103 and Durham 46 and the largest decreases were Derbyshire 130 Suffolk 64 and Lincolnshire 49. Only small changes were recorded in the local incidence of diphtheria. An increase of 37 in the notifications of acute pneumonia in Lancashire was the only change of any size in the local trends.

Of the 9 cases of typhoid fever 3 were notified in Liverpool CB. No further cases of dysentery were notified from the outbreak in Essex Hornchurch UD, where 60 cases occurred last week. The largest returns of dysentery were Lancashire 12 and London 10. The largest returns of acute poliomyelitis were London 4, Middlesex 4, Gloucestershire 4, and Yorkshire West Riding 4.

In Scotland a rise occurred in the incidence of infectious diseases and increases in the number of notifications were reported for measles 34 acute primary pneumonia 25, and scarlet fever 23. In the city of Aberdeen 6 further cases of paratyphoid fever were notified, this makes a total of 29 cases in the past three weeks. The notifications of diphtheria in the city of Glasgow were 5 more than in the preceding week.

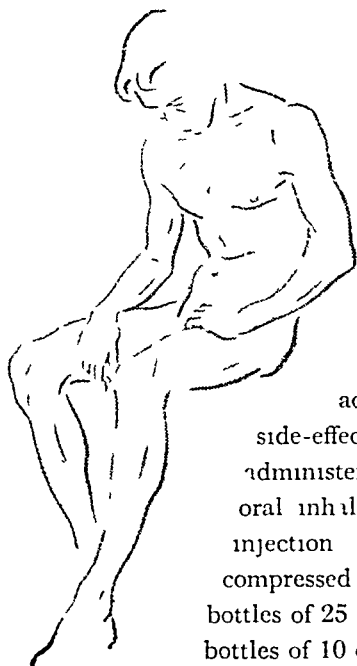
In Eire rises occurred in the notifications of measles 19 and whooping cough 12, while decreases were reported for scarlet fever 33 and diarrhoea and enteritis 17. An outbreak of measles affecting 26 persons was notified from Tipperary, Nenagh RD. The decline in diarrhoea and enteritis was due to a fall of 17 in the number of notifications in Dublin CB.

In Northern Ireland an increase of 8 was recorded in the notifications of measles from Belfast CB.

## Week Ending November 27

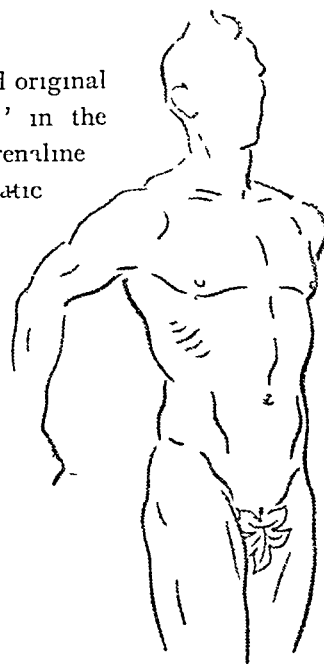
The notifications of infectious diseases in England and Wales during the week included scarlet fever 1 544, whooping cough 2 747, diphtheria 141, measles 8 547, acute pneumonia 716, cerebrospinal fever 36, acute poliomyelitis 42, dysentery 72, paratyphoid 1, and typhoid 3.

Dr C H Andrewes, FRS, who since 1927 has been a member of the Scientific Staff of the National Institute for Medical Research left Britain recently to lecture in Hungary for the British Council on 'The Common Cold' and 'Recent Work on Influenza'. Dr Andrewes is in charge of the Medical Research Council's scientific investigations into the common cold at Salisbury and was one of the team which first isolated an influenza virus in 1933.



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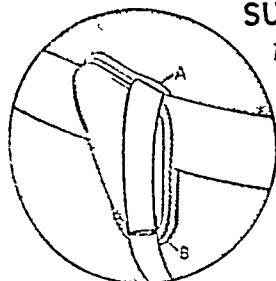
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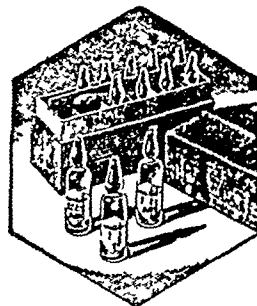
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## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Lobeline and Asphyxia Neonatorum

**Q**—What is the value of an injection of lobeline in an asphyxiated newborn baby? Is it specific in these circumstances? If not, what percentage of success can be obtained?

**A**—Lobeline hydrochloride given by injection is reputed to stimulate the respiratory centre in the medulla and to increase its sensitivity to carbon dioxide. However, it cannot be regarded as a specific remedy for asphyxia neonatorum, its effect being very inconstant. Many authorities now doubt whether it is of any value at all, and American writers in particular are sceptical. It is argued—and there is some animal experimental work in support—that in severe anoxaemia the respiratory centre is incapable of being stimulated by lobeline, which in such circumstances may even be harmful. In these cases the real need is for oxygen. Even though such an extreme view is not widespread in this country it is generally recognized that the use of lobeline hydrochloride and other stimulants is of secondary importance in the treatment of asphyxia neonatorum. It should be added that traditional views on the action of lobeline hydrochloride are now disputed, and it is suggested that the drug increases respiration by exciting the carotid sinus reflex. Even if it has such an effect, however, it is admitted that this is both transient and variable.

### Anaesthesia for Tonsillectomy

**Q**—What is the best method of anaesthesia for dissection of tonsils in children aged 4 to 8? I have used ethyl chloride but the duration of anaesthesia is limited and not always sufficient.

**A**—A variety of anaesthetic techniques are in use for this operation. The commonest, and one that gives excellent results, is as follows. The child is given an injection of atropine, as well as a sedative consisting of a moderate dose of "seconal" or morphine. Anaesthesia is induced with ethyl chloride on an open mask followed by drop ether. When the jaw is relaxed and the child is well under, the mouth is opened and the particular gag of the surgeon's choice inserted, anaesthesia is maintained by insufflation of ether vapour with air or oxygen into the mouth and pharynx. Dissection of tonsils in children is generally a short operation, and no difficulty will be encountered in keeping the child under by the means described. The shortness of the operation, the ease with which the larynx in a child of this age may be damaged, and the satisfactory anaesthesia obtained by insufflation of the vapour alone normally make the insertion of an endotracheal tube unnecessary, although some experienced anaesthetists do it as a routine.

### Post-traumatic Neurosis

**Q**—Two years ago a man aged 42 hurt his back when lifting a bag of potatoes on to a cart. Three days later he found he could not walk without pain. No x-ray evidence of damage has been found and the patient has been pronounced neurasthenic. Under treatment he shows no conflict whatever regarding compensation etc. He drops his left leg after him, refusing to bend knee or knee joint. What further treatment do you recommend?

**A**—The writer is not wholly satisfied from the description given that the case is necessarily neurotic. The exclusion of organic causes by x-rays is of course important and necessary, but the prevalent habit of diagnosing a case as neurotic simply on the grounds that no organic condition is found should be avoided. The fact that an organic cause cannot be found does not always mean there is not one. No doubt before the discovery of the vitamins many cases of depression due to vitamin deficiency were read as psychogenic because no organic cause could be found. Neuritic and hysterical conditions are to be

diagnosed on positive as well as negative grounds, and the patient's psychological history and his personal problems, conscious and unconscious, at the time of the trauma, as well as the events of the accident, must be investigated. In this case one such positive factor has rightly been taken into consideration—that of compensation. But there may be other reasons for resorting to a hysteric symptom. In the occupational neuroses, for instance, there is a latent desire to escape from work which the patient finds uncongenial but which he is compelled to do either from necessity or from some moral obligation (Telephone-girl's deafness and the "war neuroses" of soldiers are instances of such occupational neuroses). But there are many other problems of an infinitely more complicated nature which may be at the bottom of the neurosis (if this is one).

Repeated suggestion under narcosis may be of service, but it has the weakness of all suggestive treatment—namely, that it may be working against the patient's unconscious wish to be ill, as in the occupational neuroses. It is a case of the physician's suggestion versus the more deeply rooted autosuggestion of the patient. The number of treatments therefore depends on the strength of the unconscious resistance of the patient against cure, as well as on the toxicity of the drugs. Analysis under drugs we should expect to give the better results, since emotional problems often emerge under narcosis, but this is by no means an infallible method, and often draws a blank. In any case, the patient should be left to reveal his own problems even under narcosis. If that fails, analysis under free association by an expert medical psychologist, which is longer but surer than the other methods, should be resorted to, if such treatment can be obtained.

### Syringing Ears

**Q**—Is there any contraindication to the use of soap substitutes in syringing ears for wax?

**A**—There is no contraindication to the use of soap substitutes, but these are not necessary. Plain warm water is quite effective, provided it is directed along the postero-superior meatal wall, when quite a powerful jet will cause no discomfort. Bicarbonate of soda may usefully be added to the water.

### Cysts of the Breast

**Q**—A woman of 44 has had cysts in her right breast for three or four years. They are not adherent to any tissue. Lately they have become somewhat harder on palpation. Could dienoestrol which is being taken for menopausal disorders in any way affect the pathology of the cysts? Would surgery be advisable?

**A**—If the cysts are part of what is known as chronic mastitis, the condition would be aggravated by dienoestrol and ameliorated by testosterone. As some of the nodules are said to become harder on palpation, a surgical opinion on their innocence should be sought. Should malignancy be excluded, it is probable that surgery would not be called for. On the history malignancy seems unlikely.

### Stammering

**Q**—My small son aged 3½ has recently developed a bad stammer. This is getting worse. There appears to be no mental conflict and he is healthy and happy. He is an only child of rather above average intelligence, and he is more right-handed than left-handed. He has not heard anyone else stammer and playing with other children makes no difference. Is this a phase which will pass? If not, what steps can I take to cure the condition before it becomes well established?

**A**—It is difficult to be sure about the cause of the stammer in this case without knowing more of the factors associated with its onset. It might be connected with some change in the child's life such as starting a nursery school or an alteration in the environment. It may also be that his ideas are outrunning his verbal powers, so that he thinks more quickly than he can speak. One may detect the latter condition by noticing the kind of stammer, which would probably be of the repetitive type, as if he were "tumbling over his words." If so, it would help him if he were spoken to slowly and in as simple language as possible. He might also learn to use speech more comfortably by associating this with rhythm in rhymes and songs. If his

stammer is of the blocking, explosive type he should see a speech therapist, and should do so in any case if the stammer does not clear up within the next few months

### Arterial Disease

**Q**—What drugs have any effect on endarteritis or atheroma in a man of 62 with normal blood pressure and electrocardiogram and with a negative Wassermann reaction? He has pain over the carotid and bronchial arteries but negligible angina

**A**—Points which need to be considered are the aetiology, position, and extent of the endarteritis, the location of the atheroma and whether the pain is spontaneous or occurs on pressure or with exercise. Unless endarteritis is due to syphilis or chronic suppurative lesions, we know of no drug that will affect it. Similarly there is no known therapeutic agent for atheroma. The circulation can be improved by coronary vasodilators and undue cardiac strain avoided by limiting exercise to the point of anginal pain or breathlessness.

### Delousing Heads by "TIFA"

**Q**—I recently read an American article describing the Todd insecticide fog applicator (TIFA). Could you tell me if anything comparable to this machine exists in this country, and if so its approximate cost? I contend that children with pediculosis capitis might be passed through a room containing a suitable proportion of DDT fog applied with the TIFA or the like at regular intervals. Could I have your advice?

**A**—The TIFA fog insecticide disperser has been tested in this country but, so far as we are aware, is not manufactured here. It is a rather wasteful method of dispersing very large quantities of insecticide rapidly and over large areas. It might have advantages in large scale field treatments, where, for example, it is desired to eradicate tsetse flies from large areas of African bush or to destroy rapidly all the mosquitoes in a small town or a large camp site. It is difficult to see why one should employ such a large, elaborate machine for the exceedingly simple procedure of applying insecticide to verminous heads. Several excellent preparations are available such as "Iethane special" (*British Medical Journal* 1942, 1 464) DDT emulsion (*ibid.*, 1945 1, 409), or gamma-BHC (*Med. Officer* March 20, 1948). All of these are better applied by hand than by a fog in the air.

### Care of the Hair and Scalp

**Q**—(a) What happens to the hair and scalp if left unwashed for a long time say two years? (b) Is water or washing inimical to the health of the hair? (c) What are the most healthy materials for washing hair? (d) What is the best treatment for dandruff?

**A**—(a) Provided brushes and combs are washed frequently, and the hair is well brushed daily a healthy scalp and hair need not be washed for years.

(b) Hard water and alkaline soaps are not good for the hair. With proper care there is no objection to frequent washing. This is not advisable except where the hair is very oily or the scalp has much dandruff.

(c) Rain water, soft water, and any good soap are best for the purpose. For the many methods which are harmless consult a book on dermatology.

(d) Dandruff (pityriasis capitis) is too big a problem to answer without examining the patient. If left alone, the next stages—pityriasis steatoides and circinata, with redness, exudation, and crusting—may develop. For simple dandruff use salicylic acid, gr 8 (0.52 g) and/or liquor carbonis detergens,  $\frac{1}{2}$  to 1 drachm (18 to 35 ml) to the ounce (28.4 ml) of industrial spirit and water equal parts. Some respond better to mercurial preparations. For severe cases the same drugs may be used in ointment form.

### Penicillin and Tuberculosis

**Q**—Tuberculous abscesses after penicillin injections have been described. Is the incidence of tuberculous infection following penicillin injection higher than after other types of injection? Does penicillin favour the growth of *Mycobacterium tuberculosis*?

**A**—When tuberculous abscesses have resulted from therapeutic injections they have usually been due to the use of a contaminated syringe. The kind of material injected is likely

to be of little consequence if it contains living tubercle bacilli and presumably this occurrence is not so common that the incidence of tuberculous infection after penicillin and other injections can be compared statistically. According to Ungar and Muggleton (*J. Path. Bact.*, 1946, 58 501) penicillin stimulates the growth of *Mycobacterium tuberculosis* in culture. Rivière Thély, and Grutron (*C. R. Acad. Sci. Paris* 1947 224 1856) have reported that penicillin treatment accelerates death from tuberculosis in the guinea pig, and Hruduroy and Rosset (*Ann. Inst. Pasteur* 1948, 75 67) who have repeated these experiments believe such deaths to be caused simply by penicillin itself which is far more toxic to guinea-pigs than to any other animal.

## NOTES AND COMMENTS

**Ulceration of Mucous Membranes**—Dr JAMES M. CANNING (Mitcham, Surrey) writes: With reference to the above subject, on which questions and answers have previously appeared in the *Journal* ('Any Questions?' Aug 21, p 408; March 15, 1947, p 365; June 15, 1946, p 940; Dec 25, 1943, p 839), I should like to advance a suggestion which may in some cases be of assistance to those practitioners who have had the disconcerting experience of endeavouring to alleviate this notorious and frequently quite intractable malady. I have observed within the past two months a definite and very dramatic improvement in three cases of recurrent ulceration of mucous membranes from the exhibition of 'benadryl'. In all three cases, which were female, the ulcers appeared chiefly on the mucous membranes of the mouth, tongue, gums, and fauces and in these sites the lesions were either identical with or very similar to those described as recurrent aphthous or vesicular stomatitis. In each case the well known menstrual exacerbation was noted. In two cases the lesions appeared simultaneously on the vaginal and labial mucosa, and in one case there was a co-existing idiopathic erythema multiforme affecting chiefly the anterior surfaces of both lower limbs. The patients had previously been treated at various times with vitamins and tonics, intravenous arsenicals, chorionic gonadotrophin, mouth washes, and local chemical cauterization, with very disappointing results. The use of benadryl was instituted having in mind the recent suggestion advanced by Zondek and Bromberg (*J. Obstet. Gynaec. Brit. Emp.*, 1947, 54 1) that the condition may sometimes be an allergic manifestation to one or other hormone. The initial dose of the drug employed was 200 mg daily, in each case relief of local pain and tenderness was observed in 24–36 hours, and the ulcers had disappeared within 4–6 days, returning in 1–3 days after withdrawal of the drug. The lesions have since been held in abeyance by an arbitrary dose of—at present—50 mg daily. In these cases familial manifestations of allergy (bronchial asthma, paroxysmal rhinorrhoea) could be traced and it may well be that the mucosal lesions were an unusual expression of an otherwise clinically dormant allergic diathesis.

**D.F.P.**—With reference to our annotation (Oct 16, p 719) on the subject of abdominal distension and D.F.P., Messrs Allen and Hanburys, Ltd (Ware, Herts) inform us that they supply a sterile 0.1% solution of D.F.P. in arachis oil for intramuscular injection, and 0.05 and 0.1% solutions in sterile arachis oil for ophthalmic use. The allied anticholinergic drug, tetraethylpyrophosphate (TEPP) can also be supplied for parenteral and oral administration.

### Corrections

Sir HENRY DALE writes: In my opening statement at a discussion on the physiological basis of neuromuscular disorders, at the Annual Meeting at Cambridge, a sentence on p 890 of your issue of Nov 20 (line 19) begins: 'It is incompatible, accordingly etc.' The passage should read: 'It is compatible, accordingly'.

Dr J. M. RUSSELL, Divisional Medical Officer of Health for the West Riding of Yorkshire refers to 12 cases of diphtheria notified as from Hoyland Nether Urban District ('Epidemiological Notes' Dec 4 p 1004). This is an error which has now been corrected by the Registrar General. In the Weekly Returns of Infectious Diseases for the week ending Nov 13 sent to the Registrar General the figure 12 appeared under the heading 'Diphtheria' instead of in the next column headed 'Measles'.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: All letters for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1 on receipt of proofs. ADVERTISEMENTS should be addressed to the Advertisement Manager, B.M.A. House, Tavistock Square, London W.C.1 (hours 9 a.m. to 5 p.m.). TELEPHONE: EUSTON 2111. TELEGRAMS: *Brimedads* 11, *everyday* London. MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association, EUSTON 2111. TELEGRAMS: *Medicora* 11, *everyday* London. B.M.A. SCOTTISH OFFICE: 7 Drumchey Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 11 1948

## THE SECRETARY REPORTS

### THE MEDICAL PRACTICES COMMITTEES

There is still a good deal of confusion about the role of the Medical Practices Committees. These bodies, it will be recalled, were appointed by the Minister and the Secretary of State, one for England and Wales and one for Scotland, with certain defined functions. Their main role is to consider applications for inclusion in the medical list of an area after consultation with the local executive council which in turn consults the local medical committee. The only ground on which the Medical Practices Committee can refuse an application is that the number of medical practitioners on the list in the area is already adequate. If the number of candidates exceeds the number required in an area it falls to the Medical Practices Committee to select the successful applicant. Unsuccessful applicants have a right of appeal to the Minister or the Secretary of State, as the case may be. The Medical Practices Committee, in granting an application, is empowered to lay down conditions defining the area in which the successful applicant should practise.

The Minister gave certain assurances to the profession about how the Medical Practices Committee would undertake its work. Certain areas would be deemed and named to be sufficiently doctored. It is convenient to call such named areas "closed areas" and to call other areas, not so named, "open areas". The Minister promised that in open areas the Medical Practices Committee would automatically give approval to applicants for inclusion in the list. In closed areas the Medical Practices Committee might approve an application, everything depending on the circumstances.

It is within the framework of both their legal obligations and the Minister's promise that the Medical Practices Committees are acting. Few areas have so far been designated as closed areas. Information is being gathered on the doctor-adequacy issue, and in a few months' time the committees will have a fairly complete picture of the country as a whole. It may be that with this information available a larger number of areas will be declared closed, but for the moment the number is relatively small.

#### Admission to List

Any practitioner seeking to secure admission to a list in an 'open area' and sending the appropriate form (EC 16) to the local executive council for the area is entitled to have that application forwarded to the Medical Practices Committee and to secure the automatic approval of that body. Neither the local executive council nor the local medical committee is legally entitled to declare an area closed or to hold up an application. This general consideration holds whether or not there is a vacancy caused by death or retirement. In the absence of such a vacancy the procedure is simple and should be swiftly completed. Where however there is a vacancy caused by death or retirement the local executive council should consider first whether the vacancy should be filled. It may decide that it is unnecessary to fill an adequately doctored area or patch the local practitioners being able to undertake the work. If it does follow this course it will seek the approval of the Medical Practices Committee. It may be that a block transfer should be made to a local practitioner already on the list. Bearing in mind that a practitioner already on the list does not need to apply to the Medical Practices Committee for inclusion in that list and that the local executive council is the body which determines to whom a block transfer of the outgoing practitioner's

patients shall be made, the one thing which needs to be referred to the Medical Practices Committee is the issue of whether permission can be given to not filling the vacancy from outside the area.

In other cases the local executive council will decide to advertise, to interview, and to make a provisional selection. While this procedure is being followed it is still open to any practitioner seeking inclusion in the list to send in the appropriate form of application for this purpose (EC 16) whether or not he is an applicant for the vacancy. There is no authority to hold up or to decline the application unless and until the area has been declared closed by the Medical Practices Committee. In due course the local executive council makes a recommendation to the Medical Practices Committee which makes a selection, subject to appeal by the unsuccessful candidate(s) to the Minister. It is open to the Medical Practices Committee at any time before or after it determines the issue to decide whether or not to make the area a closed one. It might for example, decide that, this particular vacancy having been filled, the area is sufficiently doctored. From that moment permission to other applicants is not automatic. But if it does not take this step the position remains that anyone making the appropriate application for inclusion in the list is entitled to automatic acceptance. Incidentally, the form of application for inclusion in the list differs from the form of application for a particular vacancy.

A number of difficulties have arisen. A number of local executive councils have asked for their areas to be declared closed. This can hardly be described as a difficulty, because it is clear that only the Medical Practices Committee can decide such a question, contrary to the belief of some local medical committees.

The form of application for inclusion in the list (EC 16) has caused trouble because it has meant that anyone desiring to put in a valid application has been required to find appropriate professional accommodation first. The question of modifying the form of application so as to require applicants to undertake to obtain suitable accommodation if selected is now being considered.

Occasionally difficulties have arisen because the Medical Practices Committee, with whom the decision lies, has not approved the recommendation of the local executive council. We understand that wherever the procedure is faithfully followed the Medical Practices Committee will approve the decision of the local executive council. But where as has been demonstrated in some cases, the local procedure has been skimped the Medical Practices Committee may well reach a different decision. In one case the interview of local candidates consisted of a telephone conversation with the clerk of the executive council.

#### Block Transfer of Patients

Another difficulty arises because under existing law the local executive council, not the Medical Practices Committee, is the body which decides to whom the block transfer of patients shall be made in the case of a declared vacancy while it is the Medical Practices Committee, not the local executive council, which determines—subject to appeal to the Minister—who shall fill the vacancy. It could happen therefore that the Medical Practices Committee selects one practitioner and the local executive council makes a block transfer to another practitioner. Most people will agree that these two decisions should be in one pair of hands, and the General Medical Services Committee

at its meeting last week expressed the view that the block transfer of patients should automatically follow the selection by the Medical Practices Committee

Another and rather unexpected point has emerged. There is no authority under the Act for a local executive council or anybody else to remove from the medical list a practitioner no longer practising in the area if the practitioner has not himself withdrawn his name or the Tribunal has not removed his name. Clearly this is an omission which should be rectified in the amending Bill or regulations.

An impression has been gained that the Medical Practices Committee is concerned with the approval of the employment of assistants. This is true only in so far as the assistant is on the list for the Medical Practices Committee is concerned with all practitioners seeking entrance to the list, whether principals or assistants. The responsibility for approving the employment of assistants rests on the shoulders of the local executive council. Incidentally it is difficult to see why principals should want their assistants to have their names on the list for under the regulations responsibility remains with principals for the acts and omissions of their deputies and their assistants.

It may be that principals with large lists feel that for all the patients to be on their own list will lead them to look to the principal and to the principal only, for their medical service. Apart from this there seems to be no sufficient reason why the assistant should be on the list. Bearing in mind that until the position is altered a practitioner on the list cannot be removed

except on personal request or by the Tribunal, the case against inclusion of assistants in the list is even stronger. Finally it is as necessary as ever it was for a proper agreement or bond to be entered into by an assistant.

### Public Health Remuneration

For months we have been ready to open negotiations for a new and greatly improved scale of public health remuneration applicable to the whole time officers of local health authorities and local authorities not local health authorities. The negotiating machinery sometimes called the Whitley machinery has been adapted to meet our point that the Medical Functional Council should be autonomous in the field of terms and conditions of service of medical practitioners. The idea is that there should be three subcommittees, one of them a public health subcommittee, the "management side" representing the Departments and the Associations of Local Authorities for England and Wales and Scotland.

The Government interpretation of both Spens Reports has now been issued. Our proposals are ready and we are ready to proceed. We understand that it is the Associations of Local Authorities which are finding some difficulties. One has heard a rumour that these Associations, possibly with one eye on Spens, have been seeking to interview the Chancellor of the Exchequer. We are pressing for negotiations to be opened and it is hoped that it will be possible to do so in the next few weeks.

## National Health Service

### AREAS CLOSED BY M P C

#### FIRST LIST

The Medical Practices Committee has decided that the number of doctors providing general medical services in the following places in England and Wales is adequate

Beer district (Devon)  
Chester  
Iford and Christchurch district (Bournemouth)  
Mayfield district (East Sussex)  
Pelton district (Durham)  
Solva district (Pembrokeshire)

### SPECIAL INDUCEMENTS FUND PROVISIONAL PAYMENTS

The Ministry of Health announces (E.C.L. 108) that applications indicating special hardship will be dealt with forthwith on a provisional basis. In making these provisional payments, claims from sparsely populated areas will in general be given special consideration. When the final decisions are made on the disposal of the fund all the applications will be reviewed to determine if any payments should be increased or others made.

General practitioners applying for a payment from the fund should obtain a form from the local executive council. They will be required to give particulars of their practice income and expenses as well as other details.

### RADIOGRAPHY OF EMIGRANTS NOT A FREE SERVICE

Several regional boards have caused strong resentment among radiologists by instructing them to perform x-ray examinations on emigrants to Canada and Australia as part of their duties in the National Health Service. This is not in accordance with any instruction issued by the Ministry of Health. The x-ray examination of emigrants is a requirement imposed by the Canadian and Australian Governments. It has never been suggested that the ordinary clinical examination of intending emigrants should be performed by general practitioners as part of their terms of service within the National Health Service,

and it is hard to see why radiologists should be treated differently. Representations to this effect have been made to the Ministry of Health.

### CLAIMS FOR COMPENSATION

The closing date for the submission of claims for compensation was Oct. 31. The Minister is empowered to grant extension only where he is satisfied with the reasons for delay. Any doctor who has not sent his claim to the Ministry of Health should do so at once, and his return should be accompanied by a statement of the circumstances which made it impracticable to submit the claim by the due date.

### VISIT TO EAST AFRICA FROM HEADQUARTERS

Dr E. Grey Turner, Assistant Secretary of the Association, is to visit the Kenya, Tanganyika, and Uganda Branches in January, 1949. He is due to arrive at Nairobi on Jan. 6 and to leave for home from Kampala on Jan. 22. The primary purpose of the visit is to discuss with the members of the East African Branches the proposals of the Colonies and Dependencies Committee for the revision of the terms of service of Colonial medical officers in the light of the two Spens Reports. The visit will also afford an opportunity of discussing the proposal of the Kenya Branch that a Royal Commission on Health and Population in the African Colonies should be appointed. The Council of the Kenya Branch has submitted an impressive memorandum on this subject.

### "PART-TIME SPECIALISTS"

Confusion sometimes arises over the use of the term "part time specialist". It is sometimes used to denote consultants or specialists who are partly engaged in general practice or in some other branch of medical practice. It is also used to denote consultants or specialists who are engaged partly in hospital appointments and partly in private practice. Theoretically, the former definition is probably correct, but in practice the latter is the definition most widely accepted. It would be clearer, therefore, if the use of the term "part time specialist" were restricted to consultants and specialists who are not "whole timers"—i.e., have no private practice.

## REMUNERATION OF MEDICAL OFFICERS IN THE ARMED FORCES

The Armed Forces Committee has made considerable progress in its review of the remuneration of medical officers in the armed Forces in relation to the reports of the two Spens Committees. Detailed tables have been compiled comparing the rates of pay and allowances at present in force in the armed Forces with the Spens recommendations, and a subcommittee is thoroughly investigating these tables.

## INTERNATIONAL HOLIDAY EXCHANGES

A number of doctors on the Continent have inquired about holiday exchanges with doctors over here. If Association members who are interested will send particulars to the Secretary he will, so far as is possible, put them in touch with doctors on the Continent or with the appropriate national associations. The Association cannot give any recommendation about the suitability of addresses obtained under this scheme and the final decision to make an exchange rests with the doctors concerned.

## LOCUMS FOR REPRESENTATIVES ATTENDING ASSOCIATION MEETINGS

At the Annual Representative Meeting a proposal was made by the Kensington and Hammersmith Division that members of the Association might volunteer to do part of the daily work of their colleagues attending as their representatives at B.M.A. executive and other important meetings. The proposal was approved by the Representative Body, and the Council now commends the suggestion to the attention of all members.

## AMERICAN FIGHTING FUND

The American Medical Association has voted to ask each of its 140,000 members for \$25 for a fund to oppose any Government-controlled health programme, reports *The Times* (Dec 3). The fund is for 'a nation-wide campaign of education on the progress of American medicine, the importance of the conservation of health, and the advantage of the American system in securing the widespread distribution of a high quality of medical care'.

## GENERAL MEDICAL SERVICES COMMITTEE FIRST MEETING

The first meeting of the General Medical Services Committee, which takes the place of the Insurance Acts Committee and has for the time being the same constitution, was held at B.M.A. House on Dec 3. Sorrow was expressed at the death of two former prominent members of the Insurance Acts Committee—Dr Lionel Picton and Dr Lewis Lilley. The committee then elected Dr S. Wand (Birmingham) chairman. A warm tribute was paid to Dr Gregg the retiring chairman.

The Scottish Subcommittee, the Rural Practitioners Subcommittee (consisting of the members in rural practice with two urban practitioners Dr G. Waring Taylor and Dr Frank Gray), and the subcommittees dealing respectively with remuneration and with terms of service other than remuneration were re-appointed. Another subcommittee was set up to consider the future constitution of the committee itself. At its next meeting the question of the appointment of an executive committee to screen the heavy agenda and take any necessary action between meetings will be considered.

The meeting considered the many motions referred to it by the recent Conference of Local Medical Committees (*Supplement* Dec 4, p 203). These were noted for either immediate or future action or referred for further consideration to an appropriate subcommittee.

Special consideration was given to a motion from the Isle of Wight that a subcommittee should be set up to watch the interests of general practitioners who were members of hospital staffs and part-time specialists. The fear was expressed that this important minority of the profession was in some danger of falling between two stools, the General Medical Services Committee being occupied with general practitioner interests and the Central Consultants and Specialists Committee with the interests of whole-time consultants. It was agreed to propose to the latter committee that a liaison committee of six members, three on each side, should be set up for this purpose.

The three representatives chosen by the General Medical Services Committee, all of them general practitioner specialists were Dr Talbot Rogers, Dr W. D. Steel, and Dr Howie Wood.

## The Role of the Medical Practices Committee

A long discussion took place on the report of a meeting between representatives of the committee and the medical members of the Medical Practices Committees in England and Scotland. One of the principal difficulties is that the function of the Medical Practices Committee is limited to determining applications for inclusion in the list of an executive council, and on the occurrence of a vacancy the decision concerning the transference of the outgoing practitioner's patients is one for determination by the local executive council and the local medical committee. The following proposal was put forward for discussion.

That the Medical Practices Committee should be given power to make decisions on (a) the filling of declared 'vacancies,' (b) the 'block transfer' of the patients of the deceased or retired practitioner, and (c) the application (if any) for the fixed annual payment (basic salary) by the approved applicant.

Dr Gray said that the proposal, from which he dissented, appeared to be that the power of making the selection should be transferred from the local body, which would have knowledge of the local circumstances, to a central body (the Medical Practices Committee). He submitted that on balance it was better to have the succession to a practice and the 'block transfer' of the patients decided locally.

It was stated that, while some local executive councils were doing their work well, a number were apparently failing to make a careful selection of the candidates applying for vacancies.

The committee expressed the view that the filling of declared vacancies should be followed automatically by the 'block transfer' of patients by one and the same body. Further discussion then took place on whether that body should be central or local. A motion that the selection of a practitioner for a vacancy should be made by the local executive council with an appeal to the Minister was lost by a large majority.

The majority opinion of the committee was that matters should stand as they were—that is to say, that the Medical Practices Committee should have the decision, but that a letter should be circulated to local medical committees reminding them of the duties which should be carried out locally. It was also agreed that, should the Medical Practices Committee reverse the decision of a local executive council, that council should have the right of appeal to the Minister. On the question of decisions on applications for basic salary by the approved applicant, it was considered that the first decision should remain at the level of the local medical committee, and that any appeal should lie to the Medical Practices Committee and not to the Minister.

## Remuneration

The chairman said that they were all agreed as to the inadequacy of the remuneration, and he proposed that all the motions from the Conference of Local Medical Committees with other statements from Divisions and individual practitioners, should be passed to the Remuneration Subcommittee. Motions having to do with mileage were referred to the Rural Practitioners and Scottish Subcommittees.

A short discussion took place on the Special Inducements Fund. It was strongly urged in the committee that grants from the Special Inducements Fund should be made in hardship cases, where a practitioner could prove that he had lost a considerable amount of his income under the Act. Dr Stevenson (secretary of the committee) said that the Ministry's representatives stated that they could not at present take the ceiling off the fund because no claims had yet been considered, but they had added that they would make payments on an appropriate scale when application was made, and it was understood that these would be made without regard to the £400,000 ceiling. The Ministry had since issued a circular to local executive councils announcing its decision to deal with applications indicating special hardship on a provisional basis forthwith on the understanding that all applications received would be reviewed when final decisions are made as to the disposal of the Fund to determine what further payments should be made and whether those already made should be increased.

The Association had not been consulted on the form of this circular before its issue.



It was urged that immediate action should be taken with the Ministry and that practitioners should be advised to make their claims. Three or four categories of practitioners were to be considered—those who were suffering hardship and were essential in their area, those who had an abnormal number of chronic sick patients, and others in special circumstances.

It was decided to ask the Public Relations Department to consider how best the true facts of the case could be publicly presented and that a communication be sent to the Ministry protesting that the circular which had been sent to executive councils was not in accordance with the views of the deputation to the Ministry so far as the form of application was concerned.

#### Other Business

Another point which it was decided should be taken up with the Ministry concerned the medical treatment of overseas visitors. Counsel's opinion had been obtained on this subject, and was laid before the committee.

The question of superannuation from the point of view of the proportion of practice expenses to be deducted when an assistant was employed led to a short but highly technical discussion and it was agreed that the Secretary should go to the Ministry and hammer this thing out.

On a resolution from Durham County Local Medical Committee expressing the opinion that the allowance of 14 guineas for the provision of a locum tenens when the practitioner was taking a refresher course was inadequate, it was resolved to press for 17 guineas.

The committee concurred in a recommendation from the Central Consultants and Specialists Committee that in all cases where requests for domiciliary visits are required to be made through the hospital the diagnosis should not be disclosed, and the reason for the request should be confined to the statement that the patient was "unfit to attend hospital."

It was agreed to make representations to the Minister with a view to facilities being made available for the midwifery treatment in hospital of a patient by her own doctor even though he were not on the staff of that hospital.

## GENERAL MEDICAL COUNCIL

### WINTER SESSION

The 174th session of the General Medical Council opened on Tuesday, Nov. 23. The President (Sir Herbert Lightfoot Eason) was prevented by illness from attending, and Dr Sydney Smith was elected Acting President.

Dr J. J. O'Donnell was introduced and took his seat as representative of the Apothecaries Hall of Ireland for a term of three years.

#### President's Address

In his address from the Chair, read in his absence, the President began by referring to the death, since the Council last met, of Sir George Newman.

"The risk of his service here included seventeen years on the Executive Committee and the same term as a Treasurer and twenty years on the Public Health Committee of which he was Chairman for six years. But no commemoration of him would be adequate without a reference to 'the native wisdom of his advice, to quote the happy expression of my predecessor in the Chair on Sir George's retirement from the Council in 1939. On this wisdom salted as it was with a pungent witness of phrase successive Chairmen of Business and those of whom I was one who were his colleagues as Treasurers drew freely both in our formal deliberations and in the cheerful privacy of the luncheon table.

Senior members of the Council would also have heard with deep regret of the death on Aug. 20 of Professor John Kay Jamieson who represented the University of Leeds from 1928 to 1936. The Council had shown their appreciation of his distinction in the Chair of Anatomy which he adorned in the University and his encyclopaedic knowledge of his subject, by calling him to serve on the Special Committee on the Anatomy Acts in 1929 and of his successful labours as Dean of the

Leeds Medical School by electing him to the Education Committee throughout his term of service and making him a member of the Special Committee on Commonwealth and Foreign Students from 1930 onwards.

They also had to regret that Mr John Charles Flood had again resigned from the Council. He had once more entered a monastic life.

"During his first term of service with us from 1938 to 1943 he was a member of the Pharmacopoeia and Public Health Committees, and when he returned to us in 1946 he served further on the Pharmacopoeia Committee and became a member of the Examination Committee. But we shall remember above all the distinction of his work on the Special Committee on Legislation, which he joined in 1946. The draft Medical Bill owes much to his penetrating intellect and his unsleeping vigilance not only for the rights of the public but for the claims of natural justice in the exercise of professional discipline.

"We shall miss the legal acumen which he always displayed in the consideration of proposals before the Council and in discussion of the decisions which they had to make, and we shall also miss that eloquence in which so many of us on this side of the Irish Sea are lacking. I feel sure that the Council will only wish him peace and happiness in that life which has called to him a second time."

#### Registrations under the Medical Practitioners and Pharmacists Act

The President said that the number of applications received under the Medical Practitioners and Pharmacists Act, 1947, was just over 1,600, and nearly 1,050 applicants had been registered. The primary business of settling on a permanent basis the position of practitioners who had been temporarily registered during the emergency by virtue of Defence Regulation 32B had been substantially completed. Of just under 1,100 applicants in that category nearly 950 had been registered under Sections 1 and 2 on the receipt by the Council of evidence of satisfactory service in a medical capacity while they were temporarily registered.

Nearly 300 applications had been made by practitioners who had been temporarily registered by virtue of Section 5 of the Polish Resettlement Act, 1947. The number of applications under Section 3, which related primarily to persons who after Sept. 1, 1939, had served in a medical capacity outside the United Kingdom in any of His Majesty's Forces (including Dominion, Indian and Burma Forces) and also to persons whose war service in other circumstances had been considered by Parliament equally deserving of consideration, was just under 140. Of these applicants 57 had been registered under Sections 1 and 3, and a decision covering 52 of the other applicants had been taken by the Executive Committee yesterday. There have been 95 applications under Section 4, which related to persons not within the scope of Sections 2 and 3 who before Aug. 4, 1947, had been permitted to enter or to remain in the United Kingdom in view of circumstances attributable to war, and to certain other persons falling within provisions of Section 5 of the Polish Resettlement Act 1947. Of these applicants 39 had been registered under Sections 1 and 4. About 500 applications remained under consideration. There were nearly 100 cases of Polish practitioners registered by virtue of Defence Regulation 32B in which evidence as to service was not yet complete.

The residue of cases, some of which raise questions of difficulty, is therefore small. Parliament has made the Council responsible under the Act for deciding not only whether service in a medical capacity has been satisfactory, or whether medical qualifications furnish sufficient guarantees of professional competence but also such unfamiliar points as what is residence in the United Kingdom otherwise than for temporary purpose (Section 1) did a voluntary organization operate in connexion with His Majesty's Forces outside the United Kingdom (Section 3) was the place where an applicant gave professional care to British subjects or British protected persons a place in a country or territory under His Majesty's protection or suzerainty or in which His Majesty had jurisdiction in circumstances specified in the Act (Section 3) what is a sufficient reason or excuse for making a late application (Section 5)?

"The Council are bound to make demands on the patience of applicants whose cases necessarily involve the examination of points such as these but on the whole the figures show that the back of this very heavy task has been broken since I reported to the Council in my Address in May that the number of registrations under the Act had not reached 200."

### Drug Offences

The Penal Cases Committee had been concerned in the last year or two to note the number of cases reported to the Council of convictions of practitioners for infractions of the Dangerous Drugs Acts and Regulations. While the Council drew a distinction between the purveying of drugs by practitioners to addicts and self-addiction, they felt that members of the profession should realize, to quote the words of a memorandum issued by the Home Office this year, that "in a number of cases doctors who had purchased drugs for the gratification of their own addiction have been convicted of the offences of unlawfully procuring and possessing these drugs." It was therefore clear that the self-administration of dangerous drugs for the gratification of addiction was not one of the necessities for practice for which alone practitioners are authorized to possess and supply such drugs, and the Council felt it right to issue a warning that self-addiction on the part of practitioners might be considered as a grave lapse from the proper standards of professional conduct.

### Disciplinary Cases

Following reports from the Dental Board, the Council considered the case of William Grosart, registered as of Moss Side, Manchester, Dentists Act, 1921, against whom it had been found that he had associated with an unregistered person carrying on the business of dental repair shops who displayed announcements to attract customers, also that he had directly canvassed a person who had entered the shop. The Council directed the Registrar to erase Mr Grosart's name from the *Dentists Register*. A similar course was taken in the case of John Donaldson, registered as of Burns Street, Glasgow, following upon certain convictions for being drunk.

The name of John Henry Port was restored to the *Dentists Register*.

The Council further considered the case of Dr William Francis Hirsch Coulthard, registered as of Aspatia, Carlisle, against whom certain convictions for misdemeanours had been found proved in 1946 and judgment had been postponed for two years. Dr Coulthard now appeared, with testimonials as to his excellent conduct in the interval, and the Council did not see fit to direct the Registrar to erase his name from the *Medical Register*.

The case was heard of Dr Ethel Grundy Toward, registered as of Birtley, Co Durham, who was summoned to appear on the charge that in July last she was convicted at Gateshead of driving a motor car when under the influence of drink or drugs to such an extent as to be incapable of having proper control, and was fined £75 and was disqualified for life from holding a driving licence. It was stated that Mrs Toward had been before the Council on a previous occasion in connexion with a similar charge. On her behalf it was urged that she had taken only a little drink at the end of an extremely busy day, and that she was not at the time of the offence engaged on any professional duty. The Council, after consideration in private, postponed judgment for two years, until November, 1950, but required Dr Toward to attend at the session in November, 1949, with testimonials from professional colleagues and other persons of standing as to her habits and conduct in the interval.

The case of Dr Hugh Boyd Gillespie, registered as of Langside, Glasgow, came up for further consideration. In November, 1947, Dr Gillespie had been found by the Council to have been convicted in the previous March at Glasgow of being in charge of a motor vehicle whilst under the influence of drink, and judgment had been postponed for two years, with the requirement that he should come up at the end of one year with testimonials. Dr Gillespie now appeared and produced testimonials and the Council expressed its satisfaction and required his appearance with further testimonials in a year's time, when the period of probation will expire.

The Council considered the case of Frederic Syson, registered as of Tower Gardens Road, London, N 17, who was summoned on the charge that in 1945 at Todmorden petty sessions and also in the same year at Market Bosworth petty sessions he had been convicted of being drunk, and at Market Bosworth petty sessions of embezzling certain small sums of money received

by him on account of the doctors by whom he was employed. For this last offence he was committed for three months' imprisonment on each of the two charges, the sentences to run concurrently, and the recommendation was made that he should be given special treatment. At six previous sessions of the Council this case had been postponed, Dr Syson having been prevented by illness from being present. On this occasion also a medical certificate was put in stating that he was unable to attend, but the Council decided to proceed with the case in his absence, and, after the facts of the convictions had been stated by the solicitor to the Council, the Council found the convictions proved, but postponed judgment until next session.

The Council concluded its session on Nov 24. The two days were almost entirely occupied with disciplinary inquiries.

The report of the Pharmacopoeia Committee was presented by Dr Campbell. It stated that the number of copies of the *British Pharmacopoeia* 1948, sold since its publication a month or two ago was 31,215. The Pharmacopoeia Commission had restarted its work, various committees had been formed and plans were in progress for the preparation of an *Addendum* which was likely to be published between 1948 and 1953. The next *Pharmacopoeia* in accordance with the Council's decision, would be published five years hence.

Dr Campbell was reappointed by the Council as a member of the Poisons Board under the Pharmacy and Poisons Act, 1933 for a period of three years.

After deliberation *in camera* it was announced that the Council had restored the following names to the *Medical Register*: Alfred Herbert Bartley, David Davidson, Zaky Risk, Graham George Robertson, and Paravasthu Gopaula Sawny.

### Charges Arising from Convictions

The Council considered the case of Reuben Denny, registered as of Twyford Avenue, Acton, who was found to have been convicted of being in charge of a motor vehicle in July last when under the influence of drink.

Dr Denny appeared, and on his behalf it was stated that following the conviction he was admitted to Chiswick House, Pinner, for treatment for acute alcoholism, and a fortnight later left Chiswick House, having recovered. He had been put into touch with 'Alcoholics Anonymous,' an organization for alcoholics who endeavoured to help each other. He had become wholeheartedly interested in this movement, and had not only continued to remain off alcohol entirely but was making every effort, within the organization, to help other people suffering from alcoholism. In the witness box Dr Denny stated that he gave up practice 2½ years ago because of his health. He did not know then, as he did now, what was wrong with him. He believed that his association with 'Alcoholics Anonymous' would enable him to achieve complete sobriety, and he described at the Council's request some of the aims and methods of that organization.

After deliberating in private, the Council, in order to give Dr Denny further opportunity of establishing his resistance to alcohol, postponed judgment for twelve months.

The Council next considered the case of Arthur Mervyn Rhydderch, registered as of Chorley Wood, Herts, who was summoned to appear on the charge that on Aug 10 at Wealdstone he was convicted of driving a motor vehicle at Pinner on July 30 whilst under the influence of drink of a similar offence at Pinner on Aug 2, and again of a similar offence at Harrow on Aug 3.

On each charge he had been committed to prison for two months and his driving licence suspended for five years, the terms of imprisonment to be consecutive and the term of suspension to be concurrent. Dr Rhydderch, in reply to his counsel, said that he had been suffering from depression and anxiety over the purchase of a practice and an overwhelming amount of work. Certain medical certificates were put in.

In announcing the decision of the Council, the Acting President (Dr Sydney Smith) said that "convictions of being under the influence of alcohol on three occasions within a few days indicated a lack of control which is as you must realize, discreditable to you and to your profession and might well be dangerous to your patients." The Council postponed judgment for two years but required Dr Rhydderch to attend at their November session, 1949, with certificates as to his conduct in the interval.

The next case was that of William Melrose registered as of St Paul's Square, Liverpool, who was summoned following two convictions of being in charge of a motor-car whilst under the influence of drink, one at Liverpool in October, 1946 and again at St Helens in July 1948.

On his behalf it was stated that he had always been a man of abstemious habits. He had been at the time of these offences the victim of a series of misfortunes, principally illness in his home, and in a state of great nervous strain and tension he took not an unreasonable quantity of alcohol, which had an undue effect upon him. He had been in practice for twenty years in Liverpool and was held in high respect. During the war he was in charge of the first aid post at the Northern Hospital and did most heroic work during the city's heaviest bombardments, and was publicly commended on numerous occasions. Several testimonials from medical men in Liverpool were put in, speaking in high terms of Dr Melrose's character and service.

The Council found the facts of the convictions proved, but, decided to postpone judgment for twelve months.

The Council next considered the case of Archibald Thomas Macmaster Glen registered as of Telford Avenue London SW, who appeared following convictions at the County of London Quarter Sessions in May, 1947, and in July, 1948 of being under the influence of drink whilst in charge of a car.

Dr Glen was defended by Mr Norman Richards, instructed by Le Brasseur and Oakley, on behalf of the Medical Protection Society. Three testimonials from fellow doctors and from a local clergyman were put in. On neither of the occasions when the offences were committed was he on professional duty. Counsel referred to the heavy punishment he had already suffered. Following the second conviction he had been ordered to be imprisoned for four months—he had been released from prison only on Oct 6—and his driving licence had been suspended for five years.

The Council postponed judgment for twelve months.

The final case was that of Francis Murray, registered as of Evelyn Street, London, SE, who appeared on the charge that on June 15 at the Central Criminal Court he had been convicted of assaulting Gillian Baily, thereby occasioning her actual bodily harm and had been bound over under the Probation Act.

Dr Murray was defended by Mr Norman Richards, instructed by Le Brasseur and Oakley, on behalf of the Medical Protection Society. The Solicitor of the Council stated that Mrs Baily was Dr Murray's housekeeper. On May 26, when he was evidently the worse for drink, he accused her of having "given evidence against him" and attacked her, placing his hands around her throat. She got away and ran to the police station, where she collapsed. The detective-inspector in charge of the case gave the Council an account of Dr Murray's drinking habits at the time in question.

After other evidence had been given, Mr Richards, in addressing the Council on Dr Murray's behalf, said that this was a very unusual case. Dr Murray up to 1941 was engaged in a fairly substantial practice, when he began to suffer from fits of depression during which he took more alcohol than was good for him. In one of these fits he had it on his mind, quite wrongly, that Mrs Baily had said something which had worsened his financial troubles. He was now undergoing treatment, and was prepared to give an undertaking that he would not practise until he was certified to do so. He had evidently been under great mental strain for some time.

After a deliberation *in camera* the Council found the offence proved but decided to give Dr Murray an opportunity to overcome the habit which appeared to have conduced to the disgraceful act of which he had been convicted. They postponed judgment on the case for six months.

## TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization.

*Metropolitan Borough Councils*—Fulham, Hackney, Poplar.

*Non-County Borough Councils*—Dartford, Radcliffe (limited to future appointments), Wallsend.

*Urban District Councils*—Denton, Droylsden, Houghton-le-Spring, Hutton with Roby, Redditch (restricted to new appointments), Tivdesley.

## Questions Answered

We publish here the answers to a selection of questions that seem to be of general interest.

### Fees for Certificates

**Q**—For what medical certificates am I entitled to charge a fee?

**A**—Fees may be charged for all certificates except those issued for the purpose of the following enactments.

Enactment	Purpose for which Certificate is required
Disabled Persons (Employment) Act 1944	To register under the Act
Road Haulage Wages Act 1938	To prove sickness to obtain guaranteed weekly wage
Catering Wages Act 1943	In support of an application for a permit to be employed at a sub-standard wage rate or to obtain guaranteed weekly remuneration or statutory holiday
Councils Act 1945	To claim exemption from a requirement to sit on a jury
Wages (Regulation) Act 1924 to 1947	To claim facilities to vote by post at a parliamentary election
Juries Act 1922	(a) To certify nature of illness and cause of death
Elections and Jurors Act 1945	(b) To certify that a child was born dead in a case of stillbirth
Births and Deaths Registration Acts 1836 to 1926	(a) To certify under Section 55 (8) of the Lunacy Act, 1890 that detention of a person absent on trial is no longer necessary
Lunacy Act 1890	(b) To certify under Section 335 of the Lunacy Act 1890 that a person is incapable of managing his own affairs
Reinstatement in Civil Employment Act 1944	To extend time for making application for reinstatement when prevented by illness
Control of Employment (Directed Persons) Order 1943	In support of claim for changed employment or withdrawal of direction
Defence Regulation 80B	To certify fitness for type of direction
Services and Mercantile Marine Disability Pensions Acts	(a) To assist in determining a claim to war pension or allowance
Personal Injuries (Emergency Provisions) Act 1939	(b) To enable proxy to draw pension
Under Defence Regulation 55	(a) To enable an expectant mother to obtain food benefit or day nurseries to get milk
(a) Welfare Foods Order 1947	(b) To enable invalids to obtain special authorities for supplementary rationed food
(b) Food Rationing (General Provisions) Order 1947	(c) To enable invalids expectant mothers and others to obtain special treatment with regard to goods which are the subject of Government control (rationing or dockets etc)
(c) (i) Control of Rubber Tyres (No 9) Order 1946	
(ii) Control of Leather (No 2) Order 1944	
(iii) Consumer Rationing Order 1947	
(iv) Utility Furniture (Supply and Acquisition) Consolidation Order 1946	
(v) Import of Goods (Control) Order 1940	
(vi) Apparel and Textile Order 1942	
(vii) Miscellaneous Textiles (Manufacture and Supply) Directions 1942	
Coal Distribution Order 1943	To assist people with young children, old people and invalids in obtaining additional supplies of rationed fuels for heating purposes
Control of Motor Fuel Order 1947	To assist claimants for additional petrol allowances on medical grounds
National Insurance Act 1946	To support a claim to benefit
Insurance (Industrial Injuries) Act 1946	
National Health Services Act 1946	To assist a person in obtaining any of the services provided under the Act, e.g. Supplementary ophthalmic services
Family Allowances Act 1945	To enable proxy to collect allowance
Education Act 1944	As evidence that a child was prevented from attending school by reason of sickness when a parent is summoned or is in risk of being summoned for failure to see that the child attends

### Fees for Vaccinations

**Q**—Why have I received no fees for ten vaccinations carried out since July 5?

**A**—No payments for this purpose are being made pending discussions between the profession and the Ministry and the local authority associations with a view to determining an

appropriate fee for immunizations and vaccinations. These discussions are now in progress. The fees, when determined, will be applied retrospectively from July 5.

#### Pension for Part-time Specialist

**Q**—At the outset of the Service I am likely to be getting £2 000 a year as a part-time specialist. In my last few years I am likely to be doing less hospital work and to be receiving say, £800 a year. Why should my pension be assessed on the lower salary of the last few years of service?

**A**—The pension is not assessed on the last few years of service. It is assessed, like that of the general practitioner, on 1½% of the total net remuneration received throughout the years of service. In the case of a part-time specialist, however, who devotes substantially the whole of his time to his specialist appointments in the Service the Minister may direct that the pension and other benefits shall be assessed on the same basis as that applicable to whole-time salaried officers—i.e., on 1/80th of the average remuneration for each year of contributing service. For this purpose "average remuneration" is the annual average of the remuneration received during the last three years' service.

#### Specialist's Travelling Time

**Q**—I am a surgeon attending several hospitals between ten and twenty miles from my home. Travelling expenses are allowed at the rate of 6d per mile but at present no consideration appears to be given for the time spent in travelling which in my case is 1½ hours per day on an average. Is anything being done about this?

**A**—Yes. The permanent contracts are now under consideration and an allowance both for time and for cost of travelling is being sought. At present it has been agreed that travelling time should be included in the hospital session.

### HEARD AT HEADQUARTERS

#### Embarrassing Publicity

A local paper recently reported the resignation of a doctor from the medical list and stated that his patients would have to choose a new doctor. The information was obtained from the proceedings of an executive council meeting, but the report was misleading because in fact the doctor resigned in order to give all his time to a specialty while remaining in partnership with two doctors who are carrying on general practice. A report such as this could easily embarrass the doctors concerned, and they might be tempted into publishing some explanatory announcement in the Press. It would, however, be ethically unwise to do so. As a last resort, where real distress is expected or experienced, the best course is to send patients a short, purely factual statement (in an envelope) of what has happened.

#### Cafeteria Service Proposed

Members lunching in the Common Room have sometimes complained that it takes too long to get a meal. For some years people have been suggesting that it would be simpler to have a "help yourself" service instead of sitting at a table and being waited on. The Kitchen Subcommittee has therefore recommended that the question of a cafeteria service should be looked into, and at its last meeting it examined designs for a long bar where the food would be kept hot and a member would pick up a plate of whatever he wanted, have additions such as vegetables served on to it at the bar and take it to the table himself. However, it is believed that some members would prefer the present more leisurely club-like atmosphere to be preserved, though it is not known how many they are. The subcommittee also considered providing a bar and snack counter in one corner of the dining room. Probably most members would prefer to have the service speeded up in some such way, and the views of all are welcomed. In any case the Hastings Hall will be opened in due course as a lounge to provide a room for conversation, reading a newspaper, or sinking into a well-earned sleep.

### THE DAIN FUND REPORT OF THE TRUSTEES, 1947-8

The number of inquiries and applications for assistance from the Dain Fund has increased considerably during the past year—nine new cases receiving financial help as against five during the year ending August, 1947. The co-operation of local medical and panel committees has made this possible, and the financial assistance in several cases has been shared by the Dain Fund and a panel committee.

**Case 1**—The widow of a medical practitioner who died suddenly during the summer of 1947 applied for assistance with the education of her twins (a boy and a girl) aged 13 years. The widow herself was in poor health and unable to earn sufficient for the education of these children. The trustees felt that they could not assist in both cases, and as it was understood that the boy was anxious to make medicine his career they decided to help with his education. £50 was given by the Dain Fund and the local medical and panel committee contributed £50. It is hoped that the boy will obtain a scholarship to Epsom College in the near future.

**Case 2**—An elderly medical practitioner applied for assistance with the education of his son, aged 14 years, who is expecting to sit for the School Certificate in the summer of 1949 and who is anxious to take up medicine. The applicant is in receipt of a small pension from Epsom College, but this financial help could not be increased, nor was a grant towards the education of his son available owing to lack of funds. The Trustees felt that this was a deserving case and agreed to allow £75. Here again the local medical and panel committee showed great interest and agreed to assist with a grant of £25. The Trustees will reconsider this case next year should further help be necessary.

**Case 3**—The widow of a general practitioner who, prior to his death, had to give up work for four years owing to ill health applied for a grant to help with the education of her daughter, aged 8 years. She herself was working, and the money she was earning was sufficient to support her daughter and herself but she could not afford the school fees. The local medical and panel committee was approached but had no fund which could assist. The Trustees agreed to grant the sum of £60, and the case will be reviewed next year.

**Case 4**—In 1947 a medical practitioner died, leaving his wife with three children. Application was made for £135 to enable the boy to continue at school and to sit for a classical scholarship to Oxford in the spring of 1949. The Trustees decided that this was a case which should have full assistance, and the total amount of £135 was approved, the money being paid in quarterly instalments of £45 during the year 1948-9. The local medical and panel committee was unable to assist, as they had not a suitable fund.

**Case 5**—A practitioner who had been in practice for eighteen years and who died at the beginning of this year left his widow with two little girls aged 11 and 9 years. The widow asked for £100 to help with their education. The local medical and panel committee was approached and agreed to contribute £50, the Trustees of the Dain Fund also deciding to give £50 and to review the case annually.

**Case 6**—The widow of another practitioner who died this year made application for £100 to assist with the education and maintenance of her daughter aged 14 years and her son aged 11 years. The girl was attending a non-fee-paying school, but the boy's fees amounted to approximately £78 per annum. After considering this case, the Trustees decided to allow the sum requested, the balance between the two amounts to be used for clothing, etc. This case will also be reviewed next year.

**Case 7**—The mother of a boy aged 20 years who had gained a place at the university under the Further Education Scheme applied for assistance with the expenses of his clothing, railway fares, etc., for two years, the sum involved being £40 per annum. The local medical and panel committee was consulted and gladly agreed to give £20 for this year, and the Trustees also decided to grant £20, thus making the £40 requested for the year 1948-9. This case will be reconsidered during the spring of next year.

**Case 8**—Application was made by the widow of a practitioner for assistance with the education of her children, a boy and girl aged 10 years and 12 years, respectively. The sum applied for was £135. The Trustees felt that they could not assist with the education of both these children and that as the boy was only 10 years old he should try for a scholarship at Epsom College. They did, however, agree to help with the education of the girl, and a gift of £81 was granted—the case to be reviewed next year.

**Case 9**—The widow of a practitioner who died in 1940 made application for financial assistance with the education of her daughter aged 8 years. As in a similar case, the mother was working but her income was insufficient to allow her to pay the school fees for the child. The local medical and panel committee contributed £80 to cover these fees, and the Trustees contributed a further £80 to help

with the initial outlay for school equipment, clothing, etc. This case will be reviewed for the Trustees next year.

The Trustees when reconsidering these cases, will have before them a report from the head master or head mistress of the school which the child is attending and also will be informed of any changes in the applicant's financial position.

It will be seen from the above that £561 has been given in grants to new applicants. In addition, £445 has been used in continuing assistance to six cases who have received help in previous years.

A total sum of £1 006 has therefore been allocated throughout the year (September, 1947–August, 1948), a considerable increase over the amount of £565 given in grants last year. It should be noted that the present income from investments amounts to £180 per annum, but it is due to the continued interest and support of both individuals and committees that the Trustees have in fact been able to use their donations to help such a large number of cases up to a total value of over £1 000. The Trustees realize that many of the cases which they have been able to assist will continue to require help throughout the school life of the child concerned, and thus further financial assistance to the Fund is most urgently needed.

Although all inquiries do not result in application for help of a financial nature, advice on many questions is given by the secretary. Certain applications have to be refused or postponed mainly on account of lack of funds, but every effort is made to transfer the applicant to an appropriate benevolent society or association.

It is the desire of the Trustees, while gratefully acknowledging the help received during the year, to appeal once more to the profession for their continued support of the Dain Fund.

H GUY DAIN,

*Chairman of the Trustees*

## Correspondence

### Hospital Costs

SIR—Before the outbreak of war in September 1939, the cost of maintenance of a bed in any one of the best of the voluntary hospitals in London was about £5 per bed per week. I am informed on very good authority that the corresponding cost to day is about £15 per bed per week, and that it is still rising. I have also heard of one hospital where the cost is approaching £20 per bed per week and is still rising. In pre-war days the cost of a bed in the best of the LCC hospitals was also about £5 per bed per week and is now, I understand, nearer £10 per bed per week, and no doubt is also rising.

I do not know how these costs in London hospitals compare with similar hospitals outside the County of London, but, bearing in mind that according to Lord Shepherd (House of Lords, *Hansard* Nov 9) there are 582,000 hospital beds in this country, it becomes obvious that their total cost to day must run into something like £200 million per annum and is still rising. Add to this figure the cost of all the other free medical services provided for the community generally by means of the National Health Service Act 1946 and it will at once become apparent that the total cost will come to a positively staggering amount, probably far in excess of the estimated cost before the Act came into operation on July 5, 1948.

I do not suppose that the Minister of Health worries about the cost of the National Health Service Act, 1946, but I do wonder what our Chancellor of the Exchequer will say when he is faced with the cost of this service for the financial year 1949–50. It might, therefore, be well worth while for such eminently experienced bodies as the Council of King Edward's Hospital Fund for London and the Nuffield Provincial Hospitals Trust to be invited to carry out a thorough survey of hospital costs in order at least to ensure that every effort is being made to combine economy with efficiency in one of the most important branches of the National Health Service. If some drastic steps to reduce hospital costs are not immediately taken the enormous cost may have serious repercussions on the medical services other than hospital work—I am, etc.,

London W 5

FREDERICK MENZIES

### Doctors' Freedom

SIR—I do not like criticizing my superiors but I cannot allow Dr Guy Dain's remarks on the doctors' freedom (*Supplement* Dec 4 p 204) to pass without comment. After all the happenings of this year I have never read such a travesty of the truth.

I have spoken to and received letters from general practitioners all over England, Wales, Scotland, and Northern Ireland, and all I can say is that Dr Guy Dain's conception of freedom must be very different from the rest of us. Freedom to me means everything in life that is worth living for and it was my grave doubts that the BMA and the Minister of Health would ever give us this freedom in medicine that decided me to resign from general practice in 1944. I know now that it was the wisest decision of my life.

Lord Horder wisely stressed that the Fellowship for Freedom in Medicine was prepared to work with any organization which had this object in view. To accomplish this we must all speak the same language and understand what we mean by freedom in medicine. I disagree absolutely with Dr Guy Dain when he says "if they can assist us in any way to maintain the freedom we have got". One of the first duties of the Fellowship for Freedom in Medicine is to try to regain the freedom which has been lost to us by others—I am, etc.

London NW 3

H V DEAKIN

### Large Lists

SIR—There have been, in my way of thinking, far too many correspondents in your columns advocating doctors to take fewer patients (begrudging the more successful doctors). I can not help feeling it is the old struggle between the "haves" and the "have nots". A practitioner, generally speaking, acquires a big list because he is successful and does his work well, and he deserves suitable remuneration for his efforts. The numbers of patients very soon begin to dwindle if he cannot do his work properly to the satisfaction of his patients. In other words, the number of patients a doctor may have is governed by his ability to look after them.

It is a universal cry to-day, "More pay and less work". A doctor has worked hard to get a good practice, and if he is capable of looking after it, as shown by the fact he can keep his patients, he should not be prevented from doing so. The very spark of life is competition and not security, so let us not lose sight of this—I am, etc.,

Sandhurst Kent

J M BELLAMY

### The Rural Practitioner

SIR—It has been obvious to me for a long time that the peculiar position of rural practitioners has not been given sufficient consideration, either centrally at Representative Meetings or locally at Branch meetings. There has been a real failure by the leaders of the BMA and by the Secretary of the BMA to appreciate the position, and there is evidence now that the regional hospital boards and central planning authorities are insufficiently informed of the rural practitioner's requirements to make necessary provisions. I would like to deal with the mileage fund as a part of the financial picture. I say a part intentionally, because in some cases even an adequate mileage fund will be insufficient to meet requirements.

The Spens Committee Report stressed the necessity of weighting mileage more heavily to reduce the disparity between the incomes of urban and rural practices. I intend to prove that no attempt has been made to carry out this recommendation and that this disparity will either remain or be increased according to the prevailing conditions which of course vary in different rural practices. The Chairman of Council at the RM in Cambridge laboured under the delusion that by increasing the mileage fund from £600,000 to £1.3 million, rural practitioners will be better off than they were prior to the introduction of the new Health Service. This fallacy has already been pointed out by Drs R. M. S. McConaghey and A. J. Edcombe Rowe (*Supplement* Sept 18 p 125).

What appears to be forgotten is the very important fact that private practice (which has now disappeared) paid a much higher contribution for mileage than the N.H.I. mileage fund. But it is not merely a question of compensating the rural practitioner for the distance travelled, be it 15,000 miles or 30,000 miles per annum, it is a question of paying the rural

practitioner adequately for his work, because he has more work to do per patient on his list than the urban practitioner. When in the distant future health centres are established in urban areas this difference will become even greater. For the same reasons a rural practitioner could not possibly cope with 4,000 patients. The rural practitioner requires to be paid not only according to his annual mileage but also for his extra work.

As one of the representatives who spoke at the Cambridge RM in favour of an adequate mileage allowance for rural practitioners I was disarmed by Dr Dain's assurance, 'The whole position is well in hand—an assurance which was beyond doubt made in good faith, but which the present state of affairs now proves was unjustifiably optimistic. It is quite clear that, so far the leaders of the BMA have been unable to grasp the real situation. I hasten to declare most emphatically that neither the basic salary (with its horrible stigma) nor the Special Inducement Fund of £400,000 meets the rural practitioner's case, not because of inadequacy, but because the former only operates to the advantage of one type of practice and the latter is at best a charity. Furthermore it is *unreasonable and unfair to deduct the Mileage Fund from the Central Fund*. Why should the urban practitioner require to subsidize the rural practitioner? Strenuous efforts must be made to alter this position. Unless this is done I see little hope of improvement in the mileage payments.

In further support of my argument that the rural practitioner's position has been overlooked, consider the glaring omission of a mileage allowance in rural areas under the Maternity Services Scheme. Under the former scheme for Scotland provision was made for mileage payments whether the patient was an NHI patient or a private patient. Mileage payments are provided for when a doctor is called in by a midwife in the present scheme. Our negotiators have forgotten the rural practitioners. Let our leaders say to themselves in the future 'We shall remember those forgotten men'.

What I have written only touches a few of the problems peculiar to rural practice, there are many more, and I feel that the whole position must be thoroughly investigated centrally and peripherally—I am, etc.,

Auchtermuchty, Fife

HUGH B. MUIR

### One-sided Bargain

SIR,—As a rural practitioner facing bankruptcy under the benefits of the National Health Scheme I feel I should like to raise my one small voice before I am entirely submerged. Last year I had a comfortable income from a small practice, almost entirely private, in a thinly populated country district. With the advent of July 5 some of my patients 'signed on', the majority waited until overtaken by disease and have presented their forms EC1 when calling me in, the result being that my list for the first quarter was small and the ensuing cheque did not cover my expenses.

Considering that I fulfilled all the Minister's criteria of hardship rural area thinly populated and a recently inaugurated practice (2½ years) I applied for the basic salary of £300. To my amazement this was rejected by the local executive council, and a letter from the secretary told me that I could probably ascertain the reason for the rejection by perusing the local criteria enclosed on a duplicator slip. After some study I decided that my local committee considered my practice too small to encourage, and by inference, the people here in no need of a doctor. I appealed to the Minister a month ago and received a courteous reply but no more concrete result of interest. The result is that I am now working, and working hard for charity and my conscience, and living by the kindness of my bank manager (at 4%).

Another point I raised with the Minister was the expense involved in using the telephone. He replied that that was my responsibility and that allowance for such expenses had been made in assessing remuneration. Pray to observe the fantastic injustice of the fact that the rate of remuneration is the same for the town practitioner with a maximum list whose telephone calls cost 1d for ambulance or hospital as for the isolated country doctor whose call for an ambulance costs 6d and to talk to a hospital or specialist costs 10d or 1s.

I have honestly fulfilled my part of the contract and give the same service as when I was paid for it, but am disgusted to

think that a Government whose professed policy is a living wage for all its servants should, with the connivance of our own medical leaders, have so dishonourably disregarded its bargain—I am, etc.,

Burwash, Sussex

VERNA KENDALL

### Fellowship for Freedom in Medicine

SIR,—You were good enough to print a full account (*Supplement*, Nov 20, p 180) of the formation of this Fellowship under the chairmanship of Lord Horder. May we therefore ask you to state that all inquiries, including applications for membership, should be made to the Honorary Secretary, 40, Westminster Palace Gardens, Artillery Row, SW 1?—We are, etc.,

G. H. ROSSDALE

E. C. WARNER,  
Hon Secs

### Battle of Certificates

SIR,—It would seem that the battle of the certificates has started. Many of us predicted that after July 5 the already onerous business of signing certificates would occupy more and more time. I am now informed by the manager of the local office of the Ministry of National Insurance that "certificates have to be sent in consecutive weeks, each week beginning Sunday midnight," and he adds that a weekly certificate completed on a Monday should be followed by one completed on the following Saturday.

In my case most patients call for their certificates on Monday (market day), which is the only day on which there is an adequate bus service to bring them to the surgery. It would seem therefore that I must either put a false date on all certificates or else put aside the whole of each Saturday for certificate signing. Surely the wording of the NHS certificates is such that strict adherence to the 7-day period is unnecessary? Some latitude should be allowed both for the sake of the patient and the doctor. Heaven knows that our lot is not a happy one at the moment, and such official nonsense helps nobody—I am, etc.,

Spilsby, Lincs

C. E. FRISKNEY

\*\* The position is that the second certificate (the first intermediate certificate) must be given within seven days of the first certificate. Thereafter, intermediate certificates must be given "for every contribution week during the continuance of the incapacity" except in cases of prolonged illness, when the doctor is entitled to issue certificates at longer intervals. 'Contribution week' is defined as "a period of seven days commencing from midnight between Sunday and Monday". Accordingly, a doctor may give a second or succeeding intermediate certificate on Monday and the next one on the following Sunday week without contravening the certification rules—ED, B.M.J.

### Ophthalmic Work in NHS

SIR,—May I be allowed to bring forward two aspects of eye work under the National Health Service?

First, the question of remuneration of oculists doing school clinic work in view of the recent pronouncement of the Ministry of Education reported in the *Supplement* of Nov 6 (p 161). It has been negotiated centrally that refractions in school clinics are to be paid for at the rate of 12s 6d per child, and this amount will be paid to oculists by the local executive councils. At the same time we are informed that oculists are to be paid on sessional rates at £6 6s for a three-hour session. If, for example, eighteen children are seen in this period, £11 5s will have been earned, and the oculist is invited to claim this sum and to return the difference between that and the sessional rate of £6 6s to the local authority concerned. This seems to me a curious example of officialdom and grossly unfair to the oculist, who gives the local authority a direct profit on every clinic he holds. It is no justification to state that the payment is for refractions only and that the fee of 12s 6d would not be payable in all cases. Every school-child must have his refraction worked out whether or not he suffers from some ocular defect such as squint, blepharitis, etc.

Secondly it may be noted that, though the oculist is paid 12s 6d instead of the usual £1 11s 6d for a refraction, the



optician suffers no reduction and still receives 25s for every pair of school child's glasses he dispenses. It is some comfort to know however, that he is limited to the oculist's prescription and is not permitted the multiplicity of glasses ordered in ordinary National Health Service work when a sight testing optician can, and does, order several pairs of glasses for a single patient and receives 25s for each pair he finds it "advisable" for the patient to have—I am, etc.,

Tunbridge Wells Kent.

H M SYMONS

\* \* As soon as necessary arrangements can be made—and these are already in progress—dispensing work in connexion with the school eye service will be undertaken entirely through the hospital service. Hospitals have been asked to recruit dispensing opticians to their staffs for this purpose—ED B M J

### Opticians and Home Visiting

SIR—Under the Supplementary Ophthalmic Services there is no special provision for domiciliary visits, but the ophthalmic medical practitioner or ophthalmic optician carrying out such a visit is permitted to make a reasonable extra charge to the patient. The difficulty is that many bedridden patients tend to be old and in poor circumstances, and in such cases it is invidious to make a charge to the patient that would not be levied on others better fitted to pay. Under such circumstances the majority of ophthalmic opticians visit bedridden patients and make no extra charge for the mileage, inconvenience, and loss of time. I know that Dr H C Saksena's experience (*Supplement* Nov 6, p 164) is exceptional—I am, etc.,

S BLACK,

Association of Optical Practitioners

Director Information Bureau

### Remedy for Abuses

SIR—I would like to remind doctors whose patients grossly abuse their position that we now have an effective remedy. We have only to request the executive council to remove the offender's name from our list. I believe that it will usually suffice if one unhesitatingly tells a sinner that one proposes to take this course—I am, etc.,

Sedbergh Yorks

H THISTLETHWAITE

### Tell the Public

SIR—I have just read the leading article under the heading NHS (Nov 13, p 864). I applaud the statements made and the sentiment expressed that it is up to the Government to meet promptly the causes of discontent among the medical profession. I realize also that the BMA have had a difficult and often thankless task in the stormy birth of the NHS and I hesitate to criticize. But why print such an article in the *B M J* to be read by doctors who already know the facts only too well? The place for it is in the national press.

While conditions are still fluid it is of paramount importance that the question of remuneration of the whole profession be reviewed and agreed upon. Let us not be mealy mouthed about money. From the newly qualified to the veteran the unfair financial return rankles and prevents the best work being done. Yet it is obvious that the large mass of the public are quite unaware of this position. Many of them think that doctors are better off financially than ever before. Let us not emulate the nation in the feebleness of its propaganda abroad. Tell the public the facts. Let them be read in everything from the *Daily Mirror* to *The Times* (this is surely not beyond our powers) and let us have the people on our side—I am, etc.,

Sockton Heath Lancs

J K W MORRICE

### A Matter of Conscience

SIR—A sentence in the leading article on the National Health Service (Nov 13 p 864) is so naive that I am still wondering whether I have read it aright. It runs '... it seems that a large proportion of those who might well have been expected to pay direct for their medical treatment have in fact asked to be cared for under the National Health Service scheme'. When you compel a man to pay weekly a subscription of appreciable size against his will and possibly, against his judgment he has two lines of action open to him—to cut his losses and ignore that of which he does not approve, or to

make as much out of it as he can. Obviously the last is the most popular course with "the vermin".

Now there is a question I should like to ask and one which I have not yet seen considered. If a man feels sincerely and deeply (as I do) that the NHS (and other forms of nationalization) is biologically and ethically detrimental to the State and the citizens—a theme argued and developed in an essay published in the *Journal of the Medical Association of Erie* 1948, 23, p 25—how can he reconcile his conscience with contributing money to assist it more especially if the money is not being forcibly deducted from wages? In war the existence of a conscience is conceded by the Government and deferred to to some extent, but in this matter there is no choice except between conscience and freedom—or conscience and bankruptcy. A doctor has some opportunity of standing by his convictions, a patient has none yet the function of the State according to Aristotle, is the moral advancement of the citizen—or is Aristotle out of date?—I am, etc.,

Dublin

MICHAEL DILLON

### Liverpool Registrars' Group

SIR,—A Registrars' Group has been formed in the Liverpool Region to discuss conditions of service under the National Health Scheme. We would be interested to hear if such groups have been formed in other regions, as we consider the interchange of ideas on this subject would be of great value—We are, etc.,

W H R COOK

C S MCKENDRICK

Ingleside Hightown Nr Liverpool

### Private Patients and Medicines

SIR—It is with extreme regret that I read in the report of the Proceedings of Council of Oct 27 (*Supplement* Nov 6, p 157) the remarks made by the Chairman of the Representative Body, Dr Gregg, in regard to private patients and medicines. His remarks suggest that no active steps will be taken at present to rectify the injustice of the private patient not being allowed free medicine. Surely this situation has now been accepted only as a result of the Minister's interpretation of the Act, which the lawyers may interpret otherwise.

My more serious criticism of his remarks is that, in clarifying the position of the Government on this matter, he mentions the absence of control by the Government over the private doctor's prescribing. If control is necessary in regard to prescribing by the private doctor, why is he allowed to issue certificates of all kinds—e.g., sickness benefit, sight testing—and allowed to make use of State laboratories and x ray departments, all involving very much larger expenditure than prescribing?

If we are to condone the Government's view in regard to prescribing for the private patient, there are only a few more moves to be made before the private patient will not be allowed other facilities which cost the State money because there is no control over his doctor—in other words a gradual boycotting of private practice will follow—I am, etc.,

Sevenoaks Kent

D E YARROW

### Appointment to Hospital Staff

SIR—We should like to draw your attention to, and enter a protest against, the manner in which a surgical colleague was elected to the visiting staff of a London hospital. While freely admitting that no better choice could have been made, it must be conceded that the manner of the election could not have been worse.

Thus the regional board advertised the appointment of a surgeon on Oct 8, 1948, the vacancy having occurred as the result of death in July, 1948. The applications were sent by the senior administrative medical officer of the regional hospital board to the lay secretary of the Group Medical Advisory Council on Oct 14, 1948, with the request that that Council should suggest a short list of no more than five names by Oct 16. The secretary replied that the Council was meeting on Oct 18 and it was therefore agreed that the short list should be made on that day and sent to the regional board by messenger. On Oct 18 the applications were considered, but no candidates were available for the interview and five names were selected,

but only after two representatives of the hospital, neither of whom was a surgeon had protested at the unwisdom of making a choice among people whom they had not had the opportunity of seeing. A protest was also made that no surgical representative from the hospital would be co-opted to the selecting committee.

Our present protest is being made because neither the applications nor the applicants were at any time brought before the medical committee of the hospital—We are, etc.,

GEORGE ROSSDALE  
A PINEY  
T MEYRICK THOMAS

London W 1

### Basic Salary

SIR—Will you allow me to point out to Dr Roy F Fairweather (*Supplement* Nov 27, p 196) that I accepted service under the Health Act after very full consideration of the alternatives in the method of remuneration offered me by the Minister? At the time I accepted service I gave notice of the method of remuneration acceptable to me. I am not interested in the influences which persuaded the Minister to dishonour his undertaking, upon which I joined the Service, nor am I in the least surprised that he should do something which I would consider highly dishonourable were it done by me.

What conceivable excuse has the Minister, having dishonoured his contract with me, for saying that the honouring of his side of a purely professional contract now depends upon my private resources? Perhaps my colleagues will persuade the Minister before March 31 next that my compensation should be withheld on the grounds that I have sufficient private means to prevent my becoming a burden on the State. That would leave more in the pool for them—I am, etc.,

London S E 24

KENNETH McFADYEAN

### Estimate of Income

SIR—Your leading article entitled "NHS" (Nov 13 p 864) repeats the assertion made by Dr Charles Hill (*Supplement* Oct 23, p 145) that the pre-war income of the general practitioners amounted to £28 million—he said "rather more than". So bold a statement of fact should be accompanied by detailed information as to its basis. Actuaries tell me that no statistician would claim it as any more than an estimate, as liable to fallacy as the polls which prophesied Mr Dewey's election. The deduction that NHS nearly doubles his income is poor comfort to the practitioner who knows the state of his bank balance. It will provide useful ammunition for the Minister of Health—I am, etc.,

Worthing Sussex

A S MORTON PALMER

\* \* The figure of £28 000 000 was determined by an eminent statistician from information given by a sample of general practitioners taken with the usual precautions. A statistical statement made on existing data is not comparable to one made on opinions about future events such as an election—ED BMJ

### Withhold Certificates

SIR—I am an advocate of a National Health Service. I feel that we of the profession can make this a good service if we get co-operation from all sides. Being a practitioner in a fairly well populated area although my income will in all probability fall, I will not be in penury, but I am alarmed at the conditions of the general practitioner in country districts and do feel that the British Medical Association should take much stronger action than they have done in the past.

Strike action is entirely out of the question but there is no reason that I can see why we should not state to the Minister that unless our brethren in the country are treated more generously—and that quickly—then we as a profession will withhold all certificates from patients. It is well known that we are working to capacity now, and if this action were taken by the town doctors for the sake of those in the country I am sure that we would get the sympathy not only of the public but of the majority of the Members of Parliament. I have never flown into print before but I feel that this injustice should cease forthwith—I am, etc.

M. A. BAKER

ROBT B H FAICHNEY

## POINTS FROM LETTERS

### Loss of Freedom by M O's H

Dr J KATZ (Accrington, Lancs) writes. The tragedy of medical officers of health consists in the loss of freedom of settling in practice, including the National Health Service. We were deprived of the only weapon which would have helped us in the struggle to bring the salary scales of medical officers of health to a level in keeping with those of other members of the profession—namely, the most effective weapon to *leave* (if desired and convenient) the public health service and to establish ourselves as practitioners in the place of our own choice in accordance with the state existing prior to the appointed day—July 5, 1948.

### Maternity Form

Dr J A HOOKER (Cotes, I O W) writes. Would it not be a good idea to enlarge the claim form for maternity work (E C 24) so that clinical details of the antenatal period, confinement and puerperium could be included, so providing under one cover all the information required for filling in the claim and at the same time affording a permanent record of the case?

### Up to the BMA

Dr J B SPEARMAN (Gillingham, Dorset) writes. The concluding words of your leading article on the NHS (Nov 13, p 864) read "and it is up to the Government to meet promptly the causes of discontent which now prevail." Surely it is up to the Council of the BMA to insist in no uncertain terms that the Government does so act—and without delay.

### Prescribing by Retired Doctors

Dr J K HOWLETT (Old Hunstanton, Norfolk) writes. I agree with Dr N J C Rutherford (*Supplement*, Nov 6, p 167) that prescription pads under the NHS should be issued to retired doctors. My wife and I are both invalids and have no car. We are both on the list of a doctor whose surgery is about three miles from our house. Suffering from arteriosclerosis and frequent angina, I am in constant need of tablets and capsules. To send for prescriptions from my local doctor is giving him and myself unnecessary trouble and should not be enforced on one who has had 45 years' experience in general practice.

### Holiday Rota

Dr P D GRIFFITHS (Kidderminster, Worcs) writes. The shortage of doctors will soon be made much more acute by illness and early death if the fantastic working hours are not compensated by sufficient holidays. Many GPs work 70 or more hours a week—every week-end and bank holiday. They are now lucky if they can find a locum to give them a fortnight's holiday. This is asking for trouble. If holidays were "staggered" by mutual arrangement, could not the doctors' patients be allowed to consult any other doctor they choose? Obviously a locum is not forthcoming for every GP to take a holiday, and if one is available he is in expensive luxury. A partnership does not solve the problem, for it is useless taking two weeks' holiday and returning to two weeks' double work.

### Prompt Payment

Dr L J SHEIL (Harlow, Essex) writes. As I was born in 1887 I cannot qualify for a pension under the present NHS regulations. I do feel that it is now time we had a concrete business proposition to work on. I do not know how much I am paid per head for my patients. The mileage allowance has not been specified. Monthly payments should be paid and not quarterly as at present, all other Government work is paid monthly. Domiciliary midwifery fees should be paid promptly. Some recompense should be made to us doctors of 60 and over for the years we have worked NHI schemes. I know all these points have already been raised in the *Journal*, but I do feel that one more signature should reach the BMA Negotiating Committee to make them take some action with the Minister.

The Occupational Health Committee hopes to find opportunities of useful co-operation with the Panel on Human Factors of the Cabinet Committee on Industrial Productivity. In the Section of Occupational Health at the Annual Meeting of the Association in Cambridge, the Chairman of the Panel Sir George Schuster, referred to the contribution to productivity that doctors in industry can make through human relations. Sir George, accompanied by other members of this Panel attended the recent meeting of the Committee for a preliminary discussion of methods whereby the special experience of doctors working in the industrial field might be brought to the knowledge of the Panel.

## BMA LIBRARY

The following books have been added to the Library

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Whiting, M  
 Wolcott, R  
 Biology

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 Journal of the Medical Association

## AREAS OF

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## Branch and Division

DORSET DIVISION—At Old Stu  
 Dec 16 8 30 p m Discussion "Pars' Group  
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GREENWICH AND DEPTFORD DIVISION—At New  
 nedry, Dec 15, 8 30 p m Open  
 Woolwich Division are invited to attend ed to hear if such ge

KINGSTON ON THAMES DIVISION—At K  
 Avenue, Kingston-on-Thames Tuesday, Dec. be of great val  
 evening 8 30 p m discussion

NORTH OF ENGLAND BRANCH—At Royal V H R COOK  
 Lecture Theatre, Newcastle upon Tyne Thurs MCKENDRICK  
 Gynaecological and obstetrical demonstration l  
 3 45 p m Address by Dr J Innes "The Hi  
 General Practitioner"

RICHMOND DIVISION—At Richmond Hill  
 Dec 16 Annual dinner dance d in the rep

SOUTH BEDFORDSHIRE DIVISION—At 'The Sara  
 Dunstable, Friday, Dec 17, 8 30 p m Annual  
 Election of officers etc the Represen

WESTMINSTER AND HOLBORN DIVISION—Joint meet will be tak  
 and Fulham and Kensington and Hammersmith Da patient r  
 graduate Medical School of the Royal Cancer Hosp  
 Gardens Fulham, S W, Wednesday, Dec 15, 8 30 p m has no  
 R A Willis Diagnostic Difficulties caused by Metastatic  
 Open to all medical practitioners in the area of the Divi

## H M. Forces Appc

## ROYAL NAVY

Surgeon Commander M J Brosnan has been placed  
 Retired List  
 Acting Surgeon Lieutenant-Commanders A J Barrett  
 Morgan to be Surgeon Lieutenant Commanders  
 Acting Surgeon Lieutenants J Calder and W B Wildler  
 Surgeon Lieutenants

## REGULAR ARMY RESERVE OF OFFICERS

Colonel (Honorary Brigadier) C Scales M C, late R A M C, has  
 ceased to belong to the Reserve of Officers on account of disability  
 Colonel T S Blackwell late R A M C having exceeded the ag  
 limit of liability to recall has ceased to belong to the Reserve of  
 Officers

## ROYAL ARMY MEDICAL CORPS

Major J Vallance M C having exceeded the age limit of liab  
 to recall has ceased to belong to the Reserve of Officers  
 War Substantive Majors D Thomson, E H Travers E G Sit  
 D Perk, and A M Critchley, from Supplementary Reserve  
 Officers to be Majors, and have been granted the honorary  
 of Lieutenant Colonel  
 Captain (War Substantive Major) W S C Copeman to be Major  
 and has been granted the honorary rank of Lieutenant Colonel  
 Captain (War Substantive Major) R P Leake, from Supplement  
 Reserve of Officers to be Major  
 Captain (War Substantive Major) S D Loxton to be Major  
 Captains A N Fergus L H Lerman, R L Sadler  
 McLeod, from Supplementary Reserve of Officers, to be Ma  
 Captain G Bourne, from Supplementary Reserve of Officers  
 Captain  
 Lieutenant R K Wilson T D has ceased to belong to the  
 of Officers on enlistment in ranks (T A)

SUPPLEMENTARY RESERVE OF OFFICERS ROYAL ARMY M  
 CORPS

War Substantive Major J H Hutchison OBE has  
 his commission on account of disability and has been gra  
 honorary rank of Lieutenant Colonel

SUPPLEMEN  
 BRITISH MEDIC

## THE INCIDENCE AND TREATMENT OF INFECTIVE EAR DISEASE IN FACTORY EMPLOYEES\*

BY

COLIN M JOHNSTON, M.S.†

Sir,—Will you allow me to present a paper on the incidence and treatment of infective ear disease in factory employees. The use of wastage of man-power in the late war was a serious problem. Thus during February and March 1945, at four large military hospitals in the United Kingdom, 1,517 out-patients were seen, of whom no fewer than 127% were suffering from diseases of the ear, nose, or throat. Of these 1,517 cases approximately 6% were due to all forms of disease of the ear, of which 3% were due to chronic suppurative otitis media. It was shown that chronic ear disease caused a loss of fighting man-power in time of emergency. This was good reason for believing that this serious state of affairs had its basis in the high rate of ear disease prevalent in the civilian population, and this was strikingly confirmed by the results of a study of the records of the Ministry of Labour and National Service Boards.

The study revealed that just over 2% of the recruits examined were rejected on account of chronic ear disease, while 10% of the total were rejected from all causes.

Now chronic ear diseases, in particular CSOM, are well known as potent causes of inefficiency, invalidism, or even death. Occupational groups such as food manufacturers, shops, the General Post Office, and life assurance companies recognize their importance and may penalize the sufferer by refusing him employment or insurance as the case may be. The high incidence of the disease emphasized by wartime experience, therefore demanded consideration in the planning of the health services of the country, and the present study of the incidence, prevention, and treatment of chronic ear disease in a sample of the civilian population owes its inception and design to the committee of the Medical Research Council appointed to advise upon the medical and surgical treatment of deafness.

Much information about ear disease in children had already been obtained from the school medical services. The methods and results of treatment of the disease in hospital practice were well known among otologists, but little knowledge of the incidence in the adult population was available, and there was general dissatisfaction about the results of treatment. The work carried out during the war by otologists in the armed Forces and the civilian emergency medical service demonstrated on a large scale the validity of previous observations. These showed that good results were obtainable with conservative treatment. Thus by regular daily treatment Banham§ was able to

obtain a dry ear in 82.5% of 200 cases of chronic suppurative otitis media occurring in R.A.F. personnel. This result strongly suggested that the high incidence of chronic suppurative otitis media in the civilian population is mainly due to neglect—a neglect which arises in large part from the patient's inability, for economic reasons, to attend regularly for treatment. Attendance at the panel doctor's surgery means that patients often have to leave the office or factory before completion of the day's work and then wait for several hours before being examined. Owing to pressure of work the practitioner is unable to do more than prescribe ear drops, which usually fail to cure the condition. Attendance at hospital for specialist advice and treatment also entails absence from work, which may cause very considerable loss of wages. Even when facilities are available at the hospital for treatment after the patient's working hours—and this is exceptional—there will be a considerable interference with leisure. The patient may be prepared to sacrifice wages or leisure for short periods or for painful and disabling conditions, but the slight symptoms of most cases of chronic ear disease seldom impel him to endure the discomforts and losses resulting from a course of treatment which may extend over several months.

The only reasonable alternative would appear to be treatment given at or near the place of work. An ear-treatment clinic organized at the factory or office would obviate the time spent in travelling to the hospital and would enable the sufferer to obtain regular treatment during his working hours. An industrial area containing large factories would provide the necessary clinical material, and it was accordingly decided to investigate the possibilities of treating chronic suppurative otitis media in factory clinics situated in such an area.

After negotiations with the Industrial Health Research Board and a group of industrial medical officers I was appointed as a full-time otologist to carry out an investigation in factory clinics in the Birmingham area.

The investigation falls into two sections. First, a survey was made to determine the incidence of ear disease in the population of the factories concerned. Secondly an attempt was made by means of a field experiment to determine the value of the factory clinics in treating ear diseases in the associated population. The work done under both of these headings forms the subject of the present report.

### Introductory Note on Factory Medical Services

Before the late war many factories employed a trained nurse and some a part-time or whole-time medical officer. During the war the large influx of unskilled labour and the longer working hours made an extension of the factory medical service essential, and many of the larger factories

developed a well equipped medical organization directed by one or more full-time medical officers and staffed by State-registered nurses. Their value in safeguarding the health of employees has been proved, and the retention of industrial health services in the future is probably assured. In a few factory clinics the conditions equal those of a hospital casualty department and a diagnostic x-ray plant is available. Ophthalmic, dental, chiropody, and physiotherapy treatments are available, and are conducted by visiting specialists or by trained staff. Treatment and advice by the specialist are by appointment, during working hours. Workers appreciate this, and managements are satisfied that the results obtained warrant both the small capital expenditure entailed and the small loss of the worker's productive time.

Where the factory covers a large area the medical organization usually includes a central medical department with one or more dressing stations, in order that the employee shall not have to walk too great a distance from his place of work. This is of value in facilitating the early treatment of minor cuts and preventing sepsis, and where the condition requires daily or more frequent attention less time will be lost from productive work.

In the present conditions of the five day working week factories where continuous processes are not employed close at week-ends and during public and works holidays. The medical department will also be closed during those times and continuity of medical treatment interrupted. In factories where night work is carried out the dressing station may be manned by a male nursing orderly who, though well experienced, has had only first-aid training.

Thus apart from the drawbacks already mentioned, the factory medical services have all necessary facilities for the treatment of minor complaints, and many of the difficulties expressed by sufferers in obtaining treatment elsewhere are thereby overcome.

It should be stressed that the primary function of the factory medical service is to maintain the working efficiency of the employee and to prevent accidents and ill-health occurring at the place of work. It is not held that infective ear disease is an industrial hazard, but it may be detrimental to effective working capacity. Alleviation will therefore come within the purview of the industrial health service, but from the point of view of the factory management the loss of production caused by the time spent on treatment must be balanced by an increased efficiency for work. This should be demonstrated by a decrease in absence due to sickness.

### SECTION I

#### Survey to Ascertain the Incidence of Ear Disease in the Factory Population

In order to gain an estimate of the incidence of chronic infective disease of the ear in the factory population a survey has been conducted of a random sample of the workers in four factories in Birmingham.

Experience gained during the survey confirmed the opinion previously held, that statements by individuals regarding not only the degree but even the presence or absence of ear symptoms were inaccurate. Thus several individuals, after stating that their ears were healthy, expressed surprise on being shown pus removed from their ear. A person's assessment of the acuity of his hearing varied from those professing some deafness, when the hearing was found to be normal to rough testing, to the others who severely deaf will only with reluctance admit even a slight loss of hearing. It was therefore essential for the purposes of accuracy to examine the external auditory meatus with an aural speculum and adequate lighting.

Care was taken to explain the objects of the survey before permission was asked to examine the ears. Out of 1,902 individuals examined only 14 refused to co-operate, and there was reason to suspect that a proportion of these suffered from ear disease and for a variety of reasons did not wish to divulge the fact. Owing to the limitations imposed on the length of the examination due to the necessity for avoiding interference with factory production, cerumen could not in all cases be removed nor could an attempt be made to assess the cause or degree of any deafness. The presence of cerumen was noted if in an amount sufficient to obscure a view of the ear-drum.

### Results

The survey was conducted over a period of 13 months from August, 1946, to September, 1947. Table I shows the incidence of ear disease in the total sample examined. It may be noted that the numbers refer to the individuals affected and not to the number of ears.

TABLE I—Incidence of Ear Disease in the Total Sample

Individuals examined	No	Percentage Incidence
	1 902	100
1 Cerumen		
Unilateral	239	47.5
Bilateral	236	
2 Otitis externa		
Membrana tympani intact	49	2.6
3 Scarring without perforation of the membrana tympani		
Unilateral	153	11.6
Bilateral	67	
4 Dry perforations of the membrana tympani		
Unilateral	28	1.6
Bilateral	3	
5 Active suppurative otitis media		
Unilateral	48	3.3
Bilateral	14	
6 Healed cortical mastoidectomy		
Middle ear dry	16	1
Unilateral	1	
Bilateral	1	
Middle ear infected	2	
Unilateral	7	0.4
7 Healed radical mastoidectomy		
Unilateral	339	17.8
8 Otitis media active and healed (Sections 3, 4, 5, 6 and 7)		
9 Bilateral otitis media Active in one ear or both	39	2
10 Bilateral otitis media Healed in both ears	98	4.6
Healed mastoid operations (Sections 6 and 7)	26	1.4

Table II shows in a summarized form the incidence of ear disease in different age and sex groups.

TABLE II—Incidence of Age and Sex Groups in Sample

	Male	Female	Total	Percentage
Under 20	249	69	318	16.7
20 to 29	369	140	509	26.5
30 to 39	364	45	409	21.5
40 to 49	292	37	329	17.4
50 to 59	211	17	228	12.1
60 and over	104	5	109	5.7
Total	1 589	313	1 902	100

### SECTION II

#### Organization of Factory Ear-treatment Service

The organization of the factory medical department designed to suit the needs of the group it serves, differs in many ways from that of a hospital. An ear-treatment service must therefore adapt itself to the altered conditions, and, although in this investigation the treatment has been similar to that of the hospital, some modifications have had to be made in the light of experience. As these modifications have had an effect on the results of treatment they should be considered when comparing results with those derived from hospital practice. A permanent basis for an ear-treatment service would doubtless diminish, but not abolish, these differences.

Facilities available in factory medical departments have been found adequate for the treatment of chronic ear disease.

with the exception of certain deficiencies. Intermittency of treatment, the lack of certain diagnostic aids, and to some extent lack of the greatest possible skill in treatment by the nursing staff have militated against full efficiency. Discussion on these latter points will be found in the section on the treatment methods employed for chronic suppurative otitis media.

### Results of Factory Ear-treatment Service

The results reported in this paper have been derived from work carried out in seven large factories situated in the city of Birmingham, employing in all 51,900 employees. A considerable proportion of these workers were not natives of Birmingham but had spent their childhood elsewhere in Great Britain or in Eire. All these factories have well-equipped and efficient medical departments with the facilities already outlined.

Table III shows the clinical conditions encountered. An analysis of these cases and the results of their treatment, will now be considered.

TABLE III—Clinical Conditions Encountered

Condition	No. of Patients
Cerumen	255
Otitis externa	389
Other conditions of pinna and meatus	24
Acute otitis media	26
Chronic suppurative otitis media	274
Healed otitis media	249
Healed cortical mastoidectomy	26
Healed radical mastoidectomy	44
Eustachian obstruction	65
Clinical otosclerosis	26
Conductive and mixed deafness of unknown aetiology	20
Perceptive deafness	117
Conditions of ear not already classified	32
Conditions of the nose and throat	78
Suspected disease of ear, nose or throat—nothing abnormal found	62
Other conditions of head and neck	24

#### Cerumen

These patients were referred to the otologist because of pain or deafness, and removal of the cerumen revealed no other abnormality of the ear. Cases where another ear condition was found have not been included under this heading.

Most cases of cerumen coming for treatment at the factory surgery are referred by the nursing staff to the panel doctor in charge of the case. Some for one reason or another prefer to obtain their treatment in the factory surgery and are dealt with by the nursing staff. A few, because of pain or difficulty of removal of the cerumen, were referred to the otologist. 237 patients were seen. Six examples of keratosis obturans were observed. The meatus was restored to normal in each case as a result of treatment.

#### Otitis Externa

**Furunculosis**—The majority of the cases were solitary and not followed by a subsequent attack. The condition was observed more commonly in young adults, usually female, or in individuals who had a slight abnormality of the meatus. Thus in the opposite meatus the cerumen was scanty and stiffer in consistency than the normal, or there was an absence of cerumen with a few dry epithelial scales.

**Treatment**—Any epithelial debris and pus lying in the meatus were removed by the otologist as a preliminary measure. When variable diathermy (inductotherapy) was given and relieved the pain in under 48 hours. Alternatively ichthylol preparations were applied on a gauze wick until the pain subsided. In an attempt to prevent recurrences drops of ung. hyd. nit. dil. in liquid paraffin 1 in 8 were instilled daily for a week or longer.

In no case observed was it necessary to employ vaccine therapy or such preparations as colloidal manganese.

#### Acute Otitis Externa

This condition was more often seen as an exacerbation of a chronic condition but it also occurred *de novo*. The latter condition only will be discussed in this section.

In some cases a history of previous attacks was present. The initial attack was occasionally caused by furunculosis or occurred during service in the armed Forces. The entrance

of infected water into the meatus, as in sea or fresh-water bathing or washing, appeared to precipitate an attack in some cases, while the constitutional effect of acute coryza, dietary indiscretion, or dental extraction in the causation was observed. In others an active chronic suppurative otitis media was present. Otitis externa occurring during the course of treatment of otitis media was a troublesome complication and in the majority of cases followed the use of insufflations containing sulphathiazide. It appeared to be a true sensitization, as the previous continual use of such a preparation in the ear was without ill effect. Less often otitis externa followed the use of spirit drops or iodine and boric powder insufflations.

In the most severe cases the meatal lesion spread over the lateral surface of the pinna and involved the surrounding skin of the cheek and neck, forming an acute weeping eczema.

**Treatment**—Care was taken at the first and subsequent examinations to remove scrupulously all pus and epithelial debris from the meatus, paying particular attention to the anterior and inferior parts of the junction between the meatal wall and the tympanic membrane. Afterwards the ear was mopped out daily with dry cotton-wool-tipped probes by the nursing staff.

Of the medicaments used, 1% aqueous gentian violet solution, 50% spirit containing  $\frac{1}{2}$ % gentian violet, aluminium acetate solution 4%, and calamine lotion were found to be of the most use. Gentian violet very rarely caused exacerbation and appeared to be more effective when combined with spirit as above, but in some cases resolution was slow. Aluminium acetate applied on  $\frac{1}{2}$ -in (1.25 cm) wide ribbon gauze packs gave excellent results in some cases, but occasionally failed or, worse, caused severe exacerbation. For lesions of the pinna gentian violet, while giving good results, was disfiguring to the patient. Calamine lotion could be satisfactorily substituted in most cases but results were more rapid with a mixture of equal parts of the aqueous gentian violet solution and calamine lotion.

Penicillin ointment (500 units per gramme) applied on a wick of ribbon gauze gave excellent results in some cases, but in many cases it caused an exacerbation, often severe. It was not determined whether this was due to sensitivity to penicillin or the ointment base, insufficient concentration of penicillin, or the growth of penicillin-resistant organisms.

When the condition had resolved and treatment was discontinued the patient was requested to return one week later to confirm the cure.

#### Chronic Otitis Externa

This condition was diagnosed when irritation or meatal discharge had been present for at least a month with no evidence of spontaneous cure. Many cases gave a history of acute attacks at intervals, and in some the cause of these attacks appeared to be the same as those already mentioned under the aetiology of acute otitis externa. The occurrence of intercurrent attacks of furunculosis has already been mentioned.

The severe cases varied from those of comparatively recent origin, where the meatus was filled with offensive epithelial debris and cerumen to the old-standing case with gross oedema and sub epithelial thickening of the meatal walls and pinna. The mild cases showed an absence of cerumen, or pale offensive cerumen was present. If the meatus was moist the pus was offensive and flaky, and if dry the meatal walls were covered with dry scales.

Self treatment with peroxide of hydrogen, some glycerin preparations, or unsuitable proprietary applications was found to cause an acute otitis or exacerbate one already present. Some patients stated that the condition was made worse by washing with soap and water. Patients working on grinding or cutting machines where suds (composition soda ash, 28 lb (12.7 kg), soft soap, 43 lb (19.5 kg), water, 100 gallons (455 litres)) were employed as a lubricant and cooling agent would scratch an irritating ear with the soiled hand, and some resistant cases involving the pinna were cured when a scarf was worn round the head during work. Associated seborrhoeic dermatitis of the scalp was infrequent.

**Treatment**—As in the acute form of the disease, scrupulous removal of the pus and epithelial debris was practised. Occasionally in addition the patient was instructed how to cleanse



his meatus with dry cotton wool tipped probes when daily treatment could not be given by the factory nursing staff. In the isolated case this appeared to hasten a cure.

The choice of medicament lay between those held in a watery base and those in an oily or greasy base. As a rule dry lesions of the meatus reacted best to oily preparations such as pigmentum hyd nit ung hydring ammon dil, Lassars paste or zinc and castor oil cream. In the atrophic type of ear the use of a preparation such as pig hyd nit was prolonged, and the applications continued at increasing intervals. Moist lesions were treated with gentian violet or aluminium acetate solution.

#### Otitis Externa with Granulations

Sessile granulation tissue arising from the meatal walls or external surface of the ear-drum occurred with the acute sub-acute and chronic forms of otitis externa. When the granulation tissue arose from the ear-drum the differential diagnosis from otitis media was made by the absence or slight degree of deafness, the appearance of the unaffected portions of the ear drum, and the absence of fresh pus from the affected area when negative pressure was applied with a Siegle's speculum. The granulation tissue could arise from any part of the tympanic membrane, but was more often seen on the membrana tensa. Multiple sites of origin were more common than solitary sites. Healing was slow but when complete a scar did not result. Several patients were seen again with a recurrent attack and the granulations then usually sprang from the areas previously affected. Concomitant herpes labialis or acute coryza did not occur in these cases.

**Treatment**—The meatus was cleansed by frequent or daily dry mopping and 50% surgical spirit was instilled. The granulations were touched with trichloroacetic acid solution at weekly intervals.

#### Results of Treatment of Otitis Externa

Table IV shows the number of patients seen, the number and percentage of recurrences and the average duration of

TABLE IV—Otitis Externa

	No of Patients Seen	No of Recurrences	Average Duration of Treatment in Weeks
Furunculosis	48	10 (20%)	1.2
Acute otitis externa	110	10 (9%)	1.8
Chronic	218	45 (20%)	2.8
Otitis externa with granulations	13	1 (7%)	3.5

**treatment.** It will be seen that furunculosis and chronic otitis externa have a high recurrence rate (20%). In 54 patients the condition was so slight that no treatment was considered necessary and 71 other patients did not complete the treatment. The remainder were cured.

It must be stressed that no deductions can be drawn about the efficacy or the duration of treatment. This part of the investigation was not planned to determine the comparative efficiency of various forms of treatment. Descriptions of the methods used have been mentioned only to indicate the range of treatment. The disease has been found to cause more pain with resulting loss of working efficiency than chronic suppurative otitis media and considerable care and treatment have been necessary for its alleviation.

#### Other Conditions of Pinna and Meatus

**Otitis Externa Bullosa and Haemorrhagica**—These conditions were seen in 11 patients in all of whom the condition was unilateral. In 6 of these cases the vesicles were filled with blood. Concomitant otitis media was observed in 1 case.

**Osteoma of the External Meatus**—The condition was seen in 6 patients and in no case was the meatus obstructed or the hearing affected.

**Developmental abnormalities**—One case of complete atresia of the external meatus and maldevelopment of the pinna associated with gross perceptive deafness in that ear was seen. The function of the other ear was apparently normal. In another case an accessory auricle was present consisting of an irregular fleshy projection arising from the cheek just in front of the left tragus. The pinna, external meatus and tympanic membrane were normal and there was a mild presbycusis equal

in both ears. In neither case was there a familial association. Five examples of developmental stenosis of the meatus were encountered.

#### Acute Otitis Media

This term is limited to those cases where the history and the physical signs provided no evidence of a previous attack of otitis media. Those cases in which previous attacks had occurred will be described under recurrent chronic suppurative otitis media.

**Non suppurative Acute Otitis Media**—Pain, deafness, and in acute upper respiratory infection were present in all cases. The appearances varied from localized dilatation and redness to generalized redness and bulging of the tympanic membrane.

**Treatment**—Where the inflammatory changes in the tympanic membrane were slight and localized spirit ear drops were instilled daily to sterilize the meatus and steam inhalations were given twice daily to combat the nasopharyngeal infection. The other cases were referred to the patient's medical practitioner for treatment by chemotherapy.

**Results**—Sixteen cases were seen, all unilateral. Five patients were not seen again. The remaining 11 ears resolved, and in all except one case the hearing was restored to its previous level.

**Suppurative Acute Otitis Media**—In all the cases perforation of the tympanic membrane had already occurred. An acute upper respiratory infection was held to be the cause in 5 cases. The remainder were due to local trauma from blows on the ear or the insertion by the patient of such objects as match sticks or Kirby hair grips to allay irritation of the external meatus.

**Treatment**—Pus was removed daily by syringing, sulphamyl amide powder with boric acid was insufflated and a cotton wool plug was inserted in the outer meatus. Any nasopharyngeal infection was treated with steam inhalations.

**Results**—Ten cases were seen, all unilateral. All resolved with treatment and the hearing was restored to its previous level.

#### Chronic Suppurative Otitis Media

**Definition of Terms Employed**—Consideration of the history allowed of the division of the cases into two groups according to the continuity of the otorrhoea. If this has been without break since the onset of the disease the condition may be termed 'continual,' whereas if the otorrhoea ceases and the middle ear becomes dry, only to relapse at a later date the condition may be termed 'recurrent.' Accurate placing of the cases into either group was not always possible in the absence of previous clinical examination. If the discharge temporarily diminishes so that evaporation will suffice to prevent it emerging from the entrance of the external meatus the patient may conclude that the ear is dry when such is not the case. For the purposes of classification used in this paper those cases of middle ear disease where the otorrhoea ceases for periods of less than one month were placed in the 'continual' group, and those with a dry ear for periods of more than one month were placed in the 'recurrent' group. The classification is based on the supposition that an ear subject to recurrent attacks of infection will be more likely to become dry with treatment than the ear from which the discharge has been continual. This grouping has been found of value as a simple aid for the determination of the severity of the disease and the reaction to treatment. It is realized that the classification is not a completely accurate diagnostic criterion. Certain cases placed in the 'recurrent' group will, for the reason stated above, belong to the 'continual' group, though the opposite is unlikely to occur.

The results of treatment have been classified under the heads of 'cure,' 'quiescence' and 'failure.'

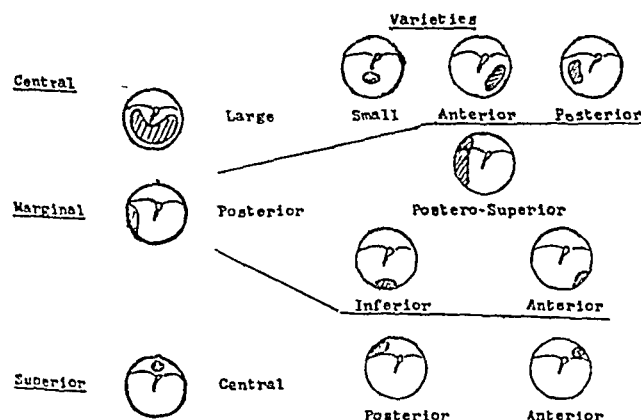
The criteria held to be necessary for a case to be regarded as cured vary according to the previous history. In the recurrent case with previous attacks of short duration the present attack was regarded as cured when observation after a minimum period of one week without treatment disclosed the middle ear to be dry on inspection and by mopping with a fine wool tipped probe through the perforation. In the other type of recurrent case where previous attacks had been few and possibly the 'present' attack had been of long duration, the same criteria were used if during treatment there

had been a steady decline in the amount and improvement in the nature of the discharge. "Continual" cases were regarded as cured when the middle ear was dry for a minimum period of two weeks without treatment. In some cases it was possible to examine the ear at intervals up to a year after cure, but, while it is desirable to do this in all cases, circumstances outside the control of this investigation have made this impossible.

It is considered that the inclusion of certain cases under the heading of "quiescent" is justified from the administrative aspects of an ear-treatment service. Cases have been placed in this group when, despite prolonged and adequate treatment and subsequent weekly or monthly observation, the middle ear only remained moist but pus did not flow through the perforation. The less severe cases merely required inspection and toilet at monthly or longer intervals. The more severe cases required frequent inspection and toilet. Without this regular treatment the infection may become more severe, with the production of pus appearing at the meatus in the form of either an acute exacerbation or a gradual recrudescence.

Treatment was regarded as failing if, after an adequate course of at least four to six months, pus was found in the external meatus within 24 or 48 hours after the last treatment. Except in 16 cases where no lessening of the discharge occurred, treatment resulted in diminution of offensive odour and the amount of the discharge, this appeared to be the reason for the persistence with which the patients attended over long periods. In this group were many cases in which the hearing was such that an increase of the deafness would be expected if surgical procedures were resorted to.

For the purposes of description the positions of a perforation will be described under certain groups. The diagrams show the relation to the principal landmarks of the ear-drum.



Alterations in the size and shape of the perforation have been observed during the course of treatment but are without prognostic significance. Migration of the perforation has been seen in a few cases but not to a degree sufficient to alter the original designation.

Double perforations fall into two varieties. In one, both perforations are in the membrana tensa, usually in front of and behind the handle of the malleus and are classified as 'central'. In the other variety one perforation is in the membrana tensa, the other in the membrana flaccida. In all the examples seen of the latter variety the superior perforation has shown the greater activity and the case has been classified as 'superior'.

**Aetiology**—Age of onset. Table V shows the age at the onset of the first attack of otitis media where a reliable history could be obtained. It will be noticed that 44.4% of the patients

TABLE V—Chronic Suppurative Otitis Media. Age at Onset of First Attack.

Age	0-5	6-10	11-20	21-30	31-40	41-50	51-60	Over 60	Total
No. of patients	78	38	61	49	23	9	2	1	261
Percentage of total	29.9	14.5	23.3	18.7	8.8	3.4	0.7	0.3	100

experienced their first attack in the first decade of life. Thereafter there is a steady decline with each decade. It is probable

that some patients, having no recollection of otitis media in childhood, gave a later date and have caused the incidence in later decades to be too high.

Evidence has been found in the cases treated that the removal of the factors leading to chronicity is often feasible and will result in the cessation of the otorrhoea. That chronicity may be due to one factor alone has been shown by individual cases in which the otorrhoea had been present for over six months. Thus prevention of stagnation of the discharge due to inefficient treatment allowing of its accumulation resulted in a dry ear in 77% of the successfully treated ears. The removal of cholesteatoma present in the middle ear led to a dry ear in 17% of the successfully treated ears, and of granulation tissue or polyp in 22.5% of those successfully treated. Two or more factors were commonly present in the one case, such as stagnation and granulation tissue, and it was not until both causes had been removed that a cure resulted. In certain cases circumstances led to the removal of one factor before the other, and the result justified the above conclusion. It is accepted that necrosis of bone in the middle ear cleft and infection of the mastoid antrum and air cells are factors causing chronicity, but the facilities at the disposal of this investigation did not enable corroboration of this to be obtained.

Chronic suppuration of the nasal sinuses was held to be the cause of chronicity in 8, chronic infection of the tonsils in 19 and chronic infection of the adenoids in 6 patients.

Ascending infection from the Eustachian tube was common, and an acute respiratory infection was a frequent cause in many cases of recurrent attacks of otitis media. The middle ear remained infected until the nasal and pharyngeal infection had subsided. It was noted that when the middle ear was already infected the supervention of an acute respiratory infection caused an increase in the amount of the otorrhoea in all cases with an anterior or central perforation of the ear-drum, occasionally with a postero-central perforation, and rarely with a superior or postero superior perforation.

#### Methods of Treatment Adopted for CSOM

The elimination of infection in the nose, mouth, or pharynx causing an ascending spread via the Eustachian tube was considered to be an essential part of the treatment of chronic suppurative otitis media. The method of removal of the pus from the ear has been conditioned by the nursing facilities in the factory medical departments. It is admitted that syringing may transfer bacteria from the skin of the outer meatus into the middle ear and that mopping with a dry cotton-wool-tipped probe under direct vision through an aural speculum will reduce this mode of infection. The latter form of treatment, however, requires skilled personnel to attain thorough and painless removal of the pus. The lack of previous experience of conservative ear treatment, the changes of nurses on a duty rota, and the small numbers of patients treated have prevented the attainment of this skill. As a matter of expediency, syringing has therefore been adopted in most cases. Exceptions were made in some of the cases with associated otitis externa, where it was thought that the introduction of water would exacerbate or delay the resolution of the meatal condition, and those cases where syringing even with water carefully adjusted to the body temperature caused objectionable vertigo. In these latter cases the progress of the middle-ear condition has been slower. Deficiencies in the adopted method of daily treatment have to some extent been made up by a thorough cleansing of the meatus and middle ear under direct vision by the otologist at weekly intervals.

The choice of medicament used after cleansing the middle ear has been determined by the requirements of the case and the previous experience of the otologist. No new preparations have been employed. The ones chosen have been employed because the results from their use are already known and not because it is considered that other medicaments are of less value.

Where there was profuse discharge, epithelial debris, granulation tissue or cholesteatoma, drops of surgical spirit 50% in water were employed with the aim of effecting greater penetration of the exudate. It was considered that a dry powder would either be rapidly washed out by the discharge or remain on the surface of the debris or granulations. Where the discharge

was moderate or scanty, and particularly in those cases with a large central perforation, insufflations of powder were chosen. Equal parts of sulphanimide powder and boric acid gave satisfactory results except in those cases, mentioned in a previous section, where a local reaction of the meatal skin occurred. In such cases a change to spirit drops or iodine and boric powder was generally sufficient to cure the meatal condition.

The frequency of treatment of the individual case was mainly determined by the amount of the discharge. Daily treatment was given when pus was present in the meatus, and was discontinued when the middle ear kept dry for at least twenty-four hours without attention. In certain cases where no offensive odour was present daily treatment was discontinued when it had been carried out for at least two months and the discharge had become so scanty that on two consecutive weekly examinations the pus was visible only on a wool-tipped probe after mopping through the perforation. The patient was then seen at weekly intervals, and if the quantity of the discharge increased a return was made to daily treatment. If all was well the ear was regarded as quiescent.

Quiescent ears were examined at weekly, monthly, or longer intervals according to the amount of pus present at each visit and the length of time since daily treatment had been discontinued. Any epithelial debris, wax or bead of pus in the middle ear was removed, and if necessary the middle ear was flushed out with warm spirit using an attic syringe. The ear was then dried with wool-tipped probes and lightly dusted with powder.

Granulation tissue and polypi were not treated until the ear had had one or two weeks' daily treatment. It was considered that an effort should first be made to reduce the amount of infection and allow for the shrinkage of inflamed mucous membrane. Sessile granulations were touched with a concentrated solution of trichloroacetic acid on a fine wool-tipped probe, or, when a more penetrating action was desired, with a bead of chromic acid fused on to the tip of a fine straight or bent metal probe. Larger granulations were removed with cup forceps and the stump treated with one of the above mentioned escharotics. Polypi were removed with an aural cutting snare or cup forceps after preliminary analgesia induced by 20% cocaine solution applied sparingly on pledgets of cotton wool packed round the pedicle. Care was taken in cases where granulations or polypi arose from the inner wall of the middle ear or from the upper part of the posterior wall of the middle ear in proximity to the facial nerve.

Cholesteatoma in the middle ear was removed by the use of an attic syringe, bent probes, or forceps, after preliminary shrinking with spirit.

The reintroduction of infection via the external auditory meatus was diminished by stressing the importance of this route to the patient.

### Results of Treatment of Chronic Suppurative Otitis Media

In presenting the results it has been necessary to allow for the high proportion of patients who did not continue treatment until the effect could be assessed. Out of 274 patients seen with chronic suppurative otitis media 39 attended for less than one week's treatment and 58 cases defaulted after longer periods of treatment. Six patients were still under treatment when the results were assessed.

Cases defaulting after less than one week's treatment can be disregarded, as can those still under treatment. It is not possible to ignore the third group. The incompletely treated group of cases having at least one week's treatment will consist of those patients who, as confirmed occasionally by subsequent examinations, rightly concluded that the ear was dry and did not return for final examination, and those patients with an ear condition not amenable to even a prolonged course of conservative treatment. To assess the results solely on these cases adequately treated would leave out of account an unknown quantity of considerable size. The figures presented (see Table VI) therefore represent the minima or maxima as the case may be.

TABLE VI—Chronic Suppurative Otitis Media Results of Treatment

	No Seen	No Where Treatment Completed	No Where Treatment Completed + No Partially Treated	No Cured	% of Fully Treated Cases Cured	% of All Treated Cases Cured
Patients with unilateral disease	232	161	199	135	83.8	67.8
Patients with bilateral disease	42	26	36	14	53.8	38.8
Number of ears	316	213	271	173	81.2	63.8

It will be seen that out of 232 patients with unilateral disease 199 received one or more weeks' treatment and 161 had a full course of treatment. At its termination 135 were dry. This gives an immediate cure rate of 67.8% for patients receiving one or more weeks' treatment, or 83.8% for patients receiving adequate treatment. As already explained, the true cure rate will lie somewhere between these two percentages.

Of 42 patients with bilateral ear disease 36 received one or more weeks' treatment and 26 a full course of treatment. In 14 patients both ears were dry at the end of treatment, giving an immediate cure rate of between 38.8% and 53.8%. Of a further 10 patients in whom one ear became dry as a result of treatment the other ear was rendered quiescent in 6 and the remaining 4 ceased attending.

The average duration of treatment for the cured cases was 5.2 weeks (limits, 1 week to 7 months).

Table VII shows the duration of the otorrhoea in 276 ears. The 'recurrent' ears are shown separately from the 'continual' ears. It will be seen that 84% of the 'recurrent' ears

TABLE VII—Chronic Suppurative Otitis Media Duration of Otorrhoea and Results of Treatment

	Less than 6 Months		6 Months to 1 Year		1 to 5 Years		Over 5 Years		Total
	Rec	Cont	Rec	Cont	Rec	Cont	Rec	Cont	
No of ears	101	20	6	6	12	26	2	103	
Total	121 (44%)		12 (4%)		38 (14%)		105 (38%)		276 (100%)

had been discharging for less than six months and 66% of the 'continual' ears for more than five years. More than half of these ears had been discharging for more than one year.

In Table VIII 247 ears are classified according to the intermittency or otherwise of the discharge. Excluded from the table are 25 'continual' ears in which the duration of the discharge could not be determined.

TABLE VIII—Chronic Suppurative Otitis Media Results of Treatment in 'Recurrent' and 'Continual' Cases

Duration of Discharge	Recurrent Ears	Continual Ears				
		Less than 6 Months	6 Months to 1 Yr	1 to 5 Years	Over 5 Years	Total
Ears treated	112	17	5	23	90	135
Ears cured	92 (83%)	11 (65%)	4 (80%)	10 (43%)	43 (48%)	68 (50%)
Ears quiescent	5 (4.5%)	1 (5%)	0	1 (4.3%)	10 (11%)	12 (8.9%)
Ears failed	0	1	1	6	8	16 (11.8%)

Despite the high proportion of patients not completing treatment 83% of the recurrent ears were treated with success in an average period of four weeks while only 50% of the continual ears responded in an average period of 6.7 weeks.

There was no relation between the duration of the disease and the length of treatment necessary to effect a cure.

The recurrent group does not contain any failures and the ears rendered quiescent are only half as frequent as those in the continual group. In the latter group it would appear that otorrhoea lasting longer than one year carries a worse prognosis for successful conservative treatment.

Marginal and superior perforations were found to occur most frequently in the 'continual' cases and were rare in the 'recurrent' cases.

A total of 90 ears were seen in which granulation tissue or a polypus arising from the middle ear or tympanic membrane was present. Of these 55 showed granulation tissue and 35 showed polypi. The total figure represents 28.8% of all ears with chronic suppurative otitis media examined.

Of the 'recurrent' ears treated, 19.3% had granulation tissue, compared with 35.5% of the 'continual' ears. As a result of treatment it was found that there was a slight worsening of the prognosis when granulation tissue was present in the ear, but the better prognosis of the 'recurrent' over the 'continual' case was again observed. If the granulation tissue arose from the tympanic membrane or external auditory meatal walls only slight reduction of the cure rate resulted, but where the site of origin was from the tympanic ring or the middle ear the prognosis was much worse.

Six cases of cholesteatoma of the middle ear were seen. In three patients a dry ear was obtained.

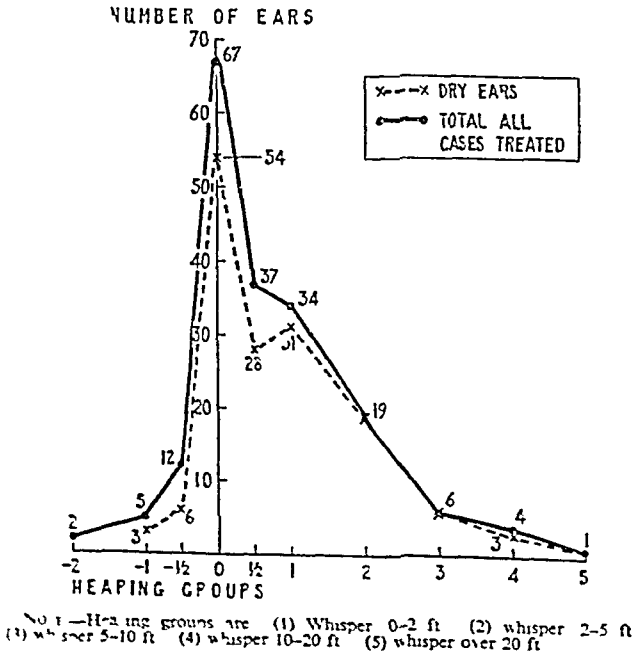
#### Relation between Hearing, Clinical Condition, and Effects of Treatment

Long duration of the disease since the first onset was not found to be necessarily associated with poor hearing, although severe deafness was relatively more common with cases of longer than five years' duration than with those of less than one year's duration.

The site of the perforation in the tympanic membrane was not related to the degree of hearing loss. Similarly, the possession of good hearing at the outset of treatment did not necessarily imply a good response to treatment nor did the reverse hold true.

Table IX, in graphic form, shows the change in hearing as a result of treatment. The values marked along the abscissa

TABLE IX—Chronic Suppurative Otitis Media. Improvement in Hearing as a Result of Treatment



record the change in hearing according to the number of hearing groups. Thus if an ear when first seen could hear a forced whisper at a distance of three feet and at the end of treatment a forced whisper could be heard at a distance of 18 feet, the improvement in hearing is recorded as two groups. When the hearing improved only from, say, an ability to hear a forced whisper at a distance of three feet before treatment to five feet after treatment, the improvement is recorded as half a group. Ears showing deterioration of hearing are recorded on the left of the ordinate. The resulting curves show that in many ears the hearing is unchanged as a result of treatment, but that the

hearing in the remainder was more often improved than worsened. Further the upper curve shows that even when treatment did not result in a dry ear, or was discontinued before completion, some improvement in hearing resulted, although the left-hand half of the curve shows that deterioration was more common.

#### Recurrence of Otorrhoea After Successful Treatment

To obtain an estimate of the proportion of cases in which a relapse of infection occurred after treatment a postal questionnaire was sent to the patient after an interval varying from six to eighteen months. Replies were received from 65% of the total number questioned, and of these 27 attended for examination by the otologist. In addition 28 patients were examined at least six months after their last treatment.

Thus out of 235 patients 53 were examined by the otologist and 63 sent a report on their condition six to eighteen months after the termination of treatment.

The results of this follow-up are shown in Table X. The term "immediate" cure is applied when the ear is dry at the end of treatment and "prolonged" cure when the ear has remained dry for at least six months after the end of treatment.

TABLE X—Chronic Suppurative Otitis Media. Reinfection after Treatment

	Examined by Otologist		Report from Patients	
	Unilat.	Bilat.	Unilat.	Bilat.
Immediate cure	37	3	42	2
Prolonged cure	20 (54%)	1 (33%)	29 (69%)	2
Relapse	17 (46%)	2	13 (31%)	—
Immediate quiescence	6	1	1	—
Prolonged cure	2	—	—	—
Still quiescent	4	1	1	—
Failure (In statu quo)	1	—	1	—
Defaulted before treatment completed	5	—	15	2
Prolonged cure	1	—	4	—
In statu quo	4	—	11	2

Of the patients examined by the otologist it will be seen that of 37 'immediate' cures in unilateral cases 54% were 'prolonged' and of 3 bilateral 'immediate' cures in both ears only one was 'prolonged'. Of 6 unilateral and 1 bilateral cases 'immediately' quiescent 2 unilateral cases subsequently became dry. Four unilateral and the one bilateral case were still in the same condition six or more months later.

Similarly, of the cases reported by the patients, 69% of the unilateral and both of the bilateral cases were said to be 'prolonged' cures.

Examinations of patients suffering from chronic suppurative otitis media occasionally showed abnormal conditions in the opposite ear. Table XI summarizes the findings and shows the percentage incidence of the total number of patients examined (274). Of these patients 50.3% had evidence of past or present suppuration in the opposite ear.

TABLE XI—Chronic Suppurative Otitis Media. Conditions Present in Opposite Ear

	No.	Percentage
Chronic suppurative otitis media (e.g. bilateral disease)	42	15.3
Healed otitis media	80	29.2
Healed cortical mastoidectomy	6	2
Healed radical mastoidectomy	10	3.6
Total	138	50.3% of 274 patients

Associated otitis externa was found in the affected ear in 17 cases of chronic suppurative otitis media.

In the whole series of cases a positive fistula sign was discovered in 2 cases, vertigo from labyrinthine irritation in 2 cases, and suspected intracranial complication in 2 cases.

Cases requiring surgical treatment may be considered under two heads. Those of relative urgency were two in number. Both exhibited a positive fistula sign. The other cases belong to the group in which conservative treatment failed and where surgical treatment would be one of convenience. In more than

half of these the hearing was of sufficient acuity to suggest the choice of an operation designed to preserve the residual hearing rather than the full radical operation

#### Healed Otitis Media

The cases grouped under the term 'healed' otitis media are those in which the ear drum shows scars or perforations with no evidence of active infection such as pus, redness, or dilatation of the blood vessels. Those ears which are subject to recurrent attacks of inflammation and happen to be examined during a quiet phase will be included in this group. If the ear was initially examined during the quiet phase and was later seen with a recurrence of inflammation, it has been placed in the group of recurrent chronic suppurative otitis media. Cases in which a mastoid operation had been performed are dealt with under a separate heading.

A total of 249 patients have been observed of which 96 were right sided, 78 left sided, and 75 bilateral. In 32 cases there was a history of recurrent attacks of otorrhoea and of an attack within the previous five years.

Table XII shows the age at which the first attack occurred in those cases in which a history could be obtained. It will be seen that 57% of the patients stated that the initial attack occurred in the first decade of life.

TABLE XII—Healed Otitis Media Age at Onset

Age	0-5	6-10	11-20	21-30	31-40	41-50	51-60	Over 60	Total
No. of patients	57	29	26	19	16	4	1	1	153
Percentage distrib	37.3	19.0	17.0	12.5	10.5	2.5	0.6	0.6	100/

When the initial attack occurred more than 20 years previously 38% of the ears had a severe hearing loss (whisper heard at a distance of less than 5 feet) and only 51% had moderate or good hearing (whisper heard at more than 10 feet distance). By contrast, when the initial attack occurred within the previous 5 years only 10% had a severe hearing loss and 83% had moderate or good hearing. This indicates that progressive deafness will result from a healed infection.

#### Healed Cortical Mastoidectomy

A total of 28 ears have been seen, in which the disease was right-sided in 12, left-sided in 12, and bilateral in two. The age at the time of operation is shown in Table XIII.

TABLE XIII—Healed Cortical Mastoidectomy Age at Operation

Age	0-5	6-10	11-20	21-30
Number of ears	3	10	13	2

Out of these 28 ears, 14 were found to have infection of the middle ear. In two the pus was coming from the attic region. One case of facial palsy due to the operation was observed. Of 10 ears receiving adequate conservative treatment on the lines detailed under chronic suppurative otitis media, nine responded with cessation of the discharge the average duration of treatment being 7.1 weeks. The other four ears with infection of the middle ear ceased attending for treatment before the result could be ascertained.

Table XIV shows the hearing recorded according to the state of the middle ear and the condition of the tympanic membrane. The presence or absence of infection in the middle ear does not appear to have any relation to the hearing in the small number of cases seen.

TABLE XIV—Healed Cortical Mastoidectomy Hearing Loss

	Middle Ear Dry Drum Intact	Middle Ear Infected
Forced whisper heard 0-2 ft	4	3
3-5 ft	—	1
6-10 ft	2	2
11-20 ft	2	6
over 20 ft	6	2

#### Healed Radical Mastoidectomy

A total of 49 ears were seen in five cases bilateral. Among these cases were five operated on by the transmeatal route and in six a modified operation had been performed with

preservation of the tympanic annulus. In 24 ears the cavity was infected from the Eustachian tube. Four cases of facial palsy due to the operation were observed.

Table XV shows the duration of otorrhoea before the operation had been performed and the degree of deafness at the time of examination. Nearly two thirds of the ears had had the

TABLE XV—Healed Radical Mastoidectomy Hearing Loss and Duration of Otorrhoea before Operation

	Hearing Loss	Duration of Otorrhoea Before Operation				
		0-5	6-10	11-20	Over 20 Years	Duration not known
No. of ears	49	8 (35/)	7 (29/)	5 (22/)	3 (13/)	26
Severe perceptive deafness	8					
Forced whisper heard 0-2 ft	24					
Forced whisper heard 3-5 ft	6					
Forced whisper heard 6-10 ft	2					
Forced whisper heard 11-20 ft	9					

operation within 10 years of the first onset of the otorrhoea. Despite this 77% of the ears were severely deafened (forced whisper heard at five feet distance or less) indicating the serious effect on hearing of severe ear disease and the failure of the radical mastoidectomy operation to restore a useful degree of hearing.

#### Eustachian Obstruction

In 65 patients 96 ears were seen of which 31 cases were bilateral and 34 unilateral. In 63 ears the condition had been present for less than two months, in the remainder the condition had been present for more than two months. In 33 ears the onset was associated with an acute upper respiratory infection. In two bilateral cases the middle ear of one side contained serous fluid, as shown by a fluid level and severe deafness. Both cases resolved with treatment.

Of these ears 41 were treated by inflation with Politzer's bag or a catheter, and all except five of the patients stated at its conclusion that the hearing had been restored to the previous level. Corroboration of their statements was not possible in all cases, as associated healed otitis media or perceptive deafness was present in some.

#### Clinical Otosclerosis

The ultimate diagnosis of otosclerosis depends on the demonstration by histological methods of the specific pathological lesion in the labyrinthine capsule. It is known that other conditions may give rise to clinical findings closely resembling true otosclerosis. In the absence of an exact dividing line acceptable to all shades of otological opinion the term 'otosclerosis' has in this work been qualified by the prefix 'clinical'. Furthermore, it is necessary to mention the principles which have been adopted in diagnosis.

The deafness is bilateral, but may be more pronounced in one ear. Its onset must be between the ages of puberty and 30 and the course slowly progressive. The upper age limit has not been exactly adhered to if there appeared to be a reasonable doubt about the age at onset. Several patients while denying any hearing loss before the age of 30 admitted that their hearing was then not so acute as other people's. In conformity with the view that the condition is inherited but with a recessive characteristic a history of the disease in blood relations is not held to be essential but its presence adds confirmation. A history of otitis media or thickening, scarring, or perforation of the tympanic membrane has excluded the case from the diagnosis of otosclerosis though there is no reason why the two conditions should not exist in the same individual. The absence of pathognomonic changes in the tympanic membrane has as with the family history been regarded as confirmatory but not essential. Tuning fork tests show the deafness to be of the conductive type but concomitant perceptive deafness is counted as additional evidence. Finally no more than a slight and short-lived improvement in the hearing results from instrumental Eustachian inflation.

A total of 26 cases of clinical otosclerosis have been examined. A family history was obtained in 10 (38%). The average

age at which the deafness was first noticed was 22.5 years. In 14 (54%) a demonstrable degree of perceptive deafness was found with tuning-fork tests. Table XVI shows the hearing in the cases.

TABLE XVI—Clinical Otosclerosis Results of Hearing Tests

	Better Ear	Worse Ear
Forced whisper heard 0-2 ft	22	24
3-5 ft	4	2
over 5 ft	—	—

#### Conductive and Mixed (Conductive and Perceptive) Deafness of Unknown Aetiology

The cases placed in this category gave no history of previous inflammatory ear disease and the tympanic membranes were normal. No improvement resulted from instrumental Eustachian inflation. They have not been considered under the section on clinical otosclerosis because the age at which the deafness was first noticed was before puberty or well after the age of 30, or the onset of the deafness was of too recent an origin to judge whether spontaneous improvement would occur. It is possible that many of these cases are due to inflammatory adhesive processes in the middle-ear cleft, but no positive evidence for this could be found. A total of 7 cases of conductive and 13 cases of mixed deafness were encountered.

#### Perceptive Deafness

The cases considered in this section include those with perceptive loss of hearing as the sole cause of deafness and those in which, in addition the deafness was partly due to lesions in the conductive mechanism of known aetiology. The exceptions are cases due to clinical otosclerosis and mixed deafness of unknown aetiology. A total of 117 cases were seen, and Table XVII shows the associated lesions or the conditions of possible aetiological significance present at the onset of the deafness.

TABLE XVII—Perceptive Deafness Associated Lesions or Conditions Present at Onset

Chronic suppurative otitis media	6
Healed otitis media	32
Healed cortical mastoidectomy	1
Healed radical mastoidectomy	6
Industrial noise	8
Artillery and other forms of explosives	22
Toxic auditory neuritis	2
Meningitis	1
Arteriosclerosis	2
Concussion or fracture of base of skull	7
Post-influenzal	2
Post-operative	2
Pre-parturition	1
Congenital syphilis	1

In 57 patients no cause for the deafness was discovered, and the age of onset of this latter group of cases is shown in Table XVIII.

TABLE XVIII—Perceptive Deafness Age at Onset of Cases with Unknown Aetiology

	0-10	11-20	21-30	31-40	41-50	51-60	Over 60	Total
No. of patients	2	3	4	4	19	15	10	57
Percentage	3.5	5	7	7	33	26	18	—

It will be noticed that there is a sudden rise in the incidence during the fifth decade of life. The number of fresh cases occurring during the next two decades tends to fall.

#### Other Conditions of the Ear not already Classified

A little comment is called for on these cases which are shown in Table XIX. The cases of Meniere's disease were confirmed by abnormal responses to caloric tests.

TABLE XIX—Other Ear Conditions not already Classified

Meniere's disease	7
Acute otitis media	11
Acute otitis externa	6
Acute otitis media with effusion	3
Acute otitis media with effusion	1

#### Conditions of Nose and Throat

The cases mentioned in Table XX occurred in patients who consulted the industrial medical officer in preference to their own medical practitioner or local hospital. In many

instances the symptoms were considered by the patient to have been caused by his work. In most cases the patient had recently come to live in the district and was not familiar with the local non-industrial medical services.

TABLE XX—Conditions of Nose and Throat

Nose	
Vasomotor rhinitis	14
Chronic rhinitis	8
Vestibulitis	3
Epistaxis	1
Deviation of nasal septum	3
Nasal polypus	13
Nasal sinusitis	8
Throat	
Acute pharyngitis and tonsillitis	5
Chronic pharyngitis	2
Chronic tonsillitis	9
Chronic catarrhal laryngitis	5
Fibroma of larynx	1
Tuberculous laryngitis	1
Nasopharyngeal carcinoma	1
Post-cricoid carcinoma	1
Unclassified	3

The case of tuberculous laryngitis occurred in a woman aged 22 whose chest was said to have been radiologically normal three months previous. There is no doubt that this woman was sent away for proper treatment at an earlier date than she would have been if a visiting specialist had not been readily accessible at the factory.

Table XXI lists the examinations conducted for suspected disease of the ear, nose, or throat where nothing abnormal was discovered. It may be noted that, with the exception of the

TABLE XXI—Suspected Disease of Ear, Nose or Throat Nothing Abnormal Found

Otalgia	19
Symptomatic deafness	20
Symptomatic otorrhoea	10
Suspected ear, nose or throat disease acting as a focus of sepsis	9
Suspected retained pharyngeal or oesophageal foreign body	4

cases examined for suspected focal sepsis these patients would rarely be seen in hospital practice, although they are only too familiar to the general practitioner.

A further 24 patients were found on examination to have miscellaneous conditions of other parts of the head or neck.

#### General Observations on the Clinical Results

The results of ear disease in the majority of cases are not dangerous to life but will cause varying degrees of disability. In severe cases a fatal termination or a temporary or permanent loss of wage-earning capacity may ensue. In the less severe cases there will be an interference with the general well-being and activities of the individual. The loss of efficiency resulting from pain or deafness will depend on the severity and duration of the symptoms, and to some extent on the type of work in which the sufferer is engaged. It will be of value, therefore, to examine the clinical material presented here from this aspect.

Out of the total of 274 individuals found to have chronic suppurative otitis media only two were suffering from a form of the disease in which surgical treatment was considered urgent and in which the risks of neglect would endanger life. In a further 16 individuals conservative treatment had failed and a surgical operation was necessary as a matter of convenience to prevent development of dangerous complications. Thus surgery, immediate or delayed, was necessary in only 9% of the total of 187 receiving treatment.

The major cause of loss of working efficiency was pain. The degree of pain was greatest and of the longest duration with inflammatory conditions of the pinna and external auditory meatus. Infection of the middle ear rarely caused pain, and when it did it was of short duration and not usually of great severity. The frequency of otitis externa and the duration of the treatment made this condition of major importance in the organization of the factory ear-treatment service. Although the permanent effects did not give rise to the same disability as those following otitis



media, the liability to recurrence of the attacks caused in the aggregate a considerable degree of loss of efficiency.

The effect of deafness on the daily life of the sufferer was noticeable in several ways. Where there had been a sudden diminution of hearing, as from an occluding plug of cerumen, acute otitis media, or an increase in the rate of progress of a progressive deafness, the patient was continually conscious of this disability, and this preoccupation caused interference with the capacity for work. On the other hand, a progressive deafness increasing at a slow, even rate was better tolerated and its severity was often not fully appreciated. Psychological adaptation to deafness was rarely judged to be complete. In the essentially communal nature of work in the factory the sufferer felt the gulf dividing him from his fellows, and this affected the contentment of his outlook on life. The direct effect of deafness on the efficiency of his work varied with his job. In the majority of cases good hearing was not essential. The general level of factory noise may often be such that conversation can be carried on only with a raised voice. If the threshold of hearing of the deafness is less than the factory noise no disability will result. It is only with certain processes carried out in quiet workrooms that good hearing may be an advantage, but it is seldom a necessity. For supervisors or clerical workers, however, the possession of fair hearing is usually important, and a deaf worker would thus find his chances of promotion curtailed. A few cases of intolerance to excessive noise have been observed, and, although this may occasionally have been a psychological "escape" reaction from monotonous work, it necessitated the individual being moved to another job in quiet surroundings. There his lack of experience may have rendered him less efficient at the work.

Working efficiency can be affected by the home life and activities outside the factory. A sense of physical inferiority induced by the deafness may exist, and even if the disability is only apparent in social intercourse the mental stress so caused may affect the relations with friends. Hence, while pain can cause a marked but short-lived loss of working power, incurable deafness, although less crippling in any one individual, may, because of its much greater incidence, be an equally important cause of loss of efficiency in the working population.

The deafness resulting from the various types of disease has already been mentioned under the appropriate sections. Out of 393 cases of severe deafness (forced whisper heard at less than 5 feet distance) due to all types of disease, 49.3%, or nearly half, were due to active or healed otitis media. Cases of otitis media associated with perceptive deafness (19%) are not included in this group.

The correct management of otitis media in the early stages, before the onset of incurable deafness, is therefore of importance. As the onset most often occurs in childhood (Tables V and XII) general-practitioner and school-treatment services are responsible for the treatment. That these services are inadequate is shown by the survey conducted among factory workers, where 33% were found to be suffering from chronic suppurative otitis media.

It has been shown in Table VI that treatment carried out in a factory medical department will result in a dry ear in 67% to 83% of the patients with unilateral otitis media and 38% to 53% of those with bilateral otitis media (both ears dry). From 5% to 6% of patients with unilateral ear disease will obtain a quiescent ear with such treatment. (Precise figures for the cure rates cannot be given, for the reasons stated previously.) Examination at a later date will show that more than half of the ears initially dry after treatment will relapse (see Table X), although a further course of treatment will be successful

in most cases. The ears rendered quiescent by treatment stand a good chance of remaining in this state with an occasional toilet, and some may eventually become dry.

If, therefore, 100 patients with unilateral chronic suppurative otitis media are given a full course of conservative treatment in a factory medical department it can be surmised from the results obtained in this investigation that 38 will have a dry ear for at least six months, 45 will have a dry ear at the termination of treatment but will relapse in under six months (although standing a good chance of cure with subsequent treatment), 6 will be rendered quiescent and 11 will need a surgical operation.

It is thus apparent that conservative treatment will result in cessation of the infection in a high proportion of cases, but the liability of the treated ear to reinfection indicates the deficiencies in this form of treatment and the poor prospect of obtaining a lifelong cure. The conservative treatment of relapses as they occur has the advantage of retaining a greater degree of hearing than treatment by a surgical operation. But even when the latter method is employed occasional treatment will subsequently be necessary.

### The Future Expansion of Factory Otolological Treatment

The results of treatment obtained in the factory medical department are not as successful as those carried out under ideal conditions, but they compare favourably with those obtained in the average hospital otological out-patient department. The present investigation has been of short duration and therefore temporary. It can reasonably be expected that if a permanent service were to be set up the larger numbers dealt with and the greater dexterity of the nursing staff would improve the results of treatment. For cases requiring daily treatment, interruption at week-ends and at public holidays delays or prevents healing and is a drawback to any scheme of factory treatment that may be considered. But for most cases factory treatment is adequate and has the overriding advantage of ready accessibility to the sufferer.

The present overloading of hospital facilities would be eased by a factory ear-treatment service which by a dissemination of otological knowledge would act as a screen for the less serious cases and by prevention reduce the incidence of serious complications.

With the present shortage of trained otologists it is essential that the fullest use should be made of their time. It is necessary, therefore, that factory clinics should be large enough to justify the time spent by the otologist in travelling to the factory. From experience gained in the present investigation it is probable that a unit employing 5,000 persons would provide enough cases to justify the organization of a treatment service, and that a unit of 15,000 persons would require the services of an otologist for three hours once a week. Daily treatments arising in larger units would take a nurse from one to two hours each day to perform. Any permanent scheme could be satisfactorily conducted by a medical practitioner sufficiently skilled in otology to reach "registrar" status, or by one who has had the equivalent of two years' whole time experience in otolaryngology. It would be desirable for him to be based on or have a close liaison with the ear department of the local hospital (such as a clinical assistantship), so that unusual cases could be referred there for fuller investigation and the opinion of the consultant.

Single factories employing large numbers of individuals are unusual in Great Britain, but industrial medical officers are of the opinion that it would be feasible to organize a treatment service based on a small factory which could treat the employees of other factories in the near district. Each

manufacturing area would present its own problems of organization, but in a congested area such as Birmingham a considerable proportion of the factory population could be included.

The prevention of deafness is an important factor in the nation's health. An ear-treatment service based on the factory is a feasible method, causing the minimum interference with the productive capacity, of arranging treatment for a part of that section of the community of great importance to the economic wealth of the country.

### Summary

Chronic ear diseases, in particular chronic suppurative otitis media, are potent causes of inefficiency, invalidism, or early death. Experience during the 1939-45 war showed that disease of the ear was a serious cause of wastage of man-power. The high incidence of this disease is largely due to inefficient treatment resulting from the absence of an ear-treatment service adapted to the economic needs of the population.

Before and during the last war many industrial concerns set up medical departments to safeguard the health of the employees and to treat minor injuries sustained at work. This report gives an account of otological work carried out in seven factory medical departments over a period of eighteen months, with the object of ascertaining (a) the incidence of suppurative otitis media in factory workers and (b) the results of treatment of ear disease in the factory medical department.

To determine the incidence of ear disease in the factory population 1 902 employees, selected at random, were examined. Of these, 3.3% were found to be suffering from suppuration in the middle ear and 17.8% had active or healed middle ear disease.

A total of 1 711 patients complaining of ear, nose or throat symptoms were examined at clinics set up in the factory medical department. 389 were found to be suffering from disease of the pinna and external auditory meatus and 274 from chronic suppurative otitis media. The effect of otitis media in the causation of deafness and the results of treatment are considered in detail.

From the results of treatment it is deduced that, if 100 patients with unilateral chronic suppurative otitis media receive a full course of conservative treatment in a factory medical department for an average period of 52 weeks 38 will have a dry ear at the end of treatment and will keep dry for at least six months after its termination 45 will have a dry ear at the end of treatment but will relapse in less than six months (although standing a good chance of cure with subsequent treatment), 6 will be rendered quiescent and 11 will need a surgical operation. The results show that conservative treatment will result in cessation of infection in a high proportion of cases, but the prospects of obtaining a lifelong cure are poor. It is concluded that a surgical operation does not offer an effective alternative method of treatment in all cases.

The effects of deafness and pain on the working capacity of the factory employees are discussed. It was found that in manual workers productive efficiency was affected more by pain than by deafness but that the latter may be a handicap to promotion.

The future expansion of otological treatment in factory medical departments on a permanent basis is discussed and it is concluded that such a scheme is feasible, is adapted to the needs of the working population and would reduce the present overloading of the hospital services.

I am indebted to Mr Terence Cawthorne for his advice through the intermediary of Dr Donald Stewart for advice on industrial medicine and to Mr C. S. Hall for his help in the preparation of this paper. The following industrial concerns assisted in the investigation: Dr J. G. B. Brown, Dr E. H. Capel, Dr J. G. Lewis, Dr D. W. McEwen, Dr D. W. A. McClelland, Dr N. G. W. and Dr A. W. for their help in the organization of an ear clinic service in the directors of the following organizations: Messrs. J. G. B. Brown & Co., Ltd., James Booth & Co., Ltd., Birmingham City Council, J. J. General Electric Co., Ltd., G. H. Keen, and Messrs. J. J. General Chemical Industries Ltd., and Joseph J. J. Ltd. for their cooperation in the investigation, and to the directors of the above-mentioned organizations for undertaking the investigation.

## VITAMIN D IN TREATMENT OF BOECK'S SARCOIDOSIS

BY

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Besnier-Boeck-Schaumann's disease, commonly known as Boeck's sarcoidosis, is now recognized as a diffuse reticulo-endotheliosis with the formation of a folliculoid tissue affecting particularly the lymphoid and haemopoietic tissues. The organs most commonly involved are the lymph nodes, spleen, lung, bone marrow, liver, eyes, and, in 50% of cases, the skin.

The skin lesions, when present, tend to cause considerable disfigurement, and hence from the patient's point of view constitute the main problem of the disease, which in other respects tends to be a benign condition without pain and systemic upset, and which progresses very slowly over a number of years. The skin lesions are of two types.

(1) A symmetrical granulomatous condition affecting chiefly the nose, cheeks, ears, and fingers, described by Besnier in 1889 under the name *lupus pernio*. (2) Multiple granulomatous swellings of varying size affecting chiefly the face and upper limbs and having a translucent appearance. To these lesions Boeck in 1897 gave the name of cutaneous sarcoids.

It is clear that the skin lesions closely resemble tuberculous lupus vulgaris. Indeed, without a skin biopsy it is often difficult or impossible to separate the two conditions.

The resemblance to tuberculosis is not confined to the skin lesions, and in recent years many writers have speculated on the possibility of sarcoidosis and tuberculosis being variants of the same disease. The following points provide good reason for such speculation: (1) The basic pathological lesion in sarcoidosis, the sarcoid follicle, consists of endothelioid cells and a zone of lymphocytes just as in the tubercle follicle. There is, however, no caseation, and the presence of tubercle bacilli cannot be demonstrated. (2) The distribution of the disease process in sarcoidosis—i.e., in the reticulo-endothelial system—is essentially the same as in tuberculosis. (3) The development of active tuberculosis is the commonest cause of death in sarcoidosis, but whether this is *post hoc* or *propter hoc* it is not possible to say.

The position has been adequately summarized by Cameron and Dawson (1946), who state that "while there is much against the idea of a tuberculous basis, notably the frequent absence of a positive Mantoux reaction, there are sufficient resemblances, clinical, radiological, and histological, to suggest a probable causal relationship." It may be that sarcoidosis is a low-grade tuberculosis of non-caseating type.

In view of the recent successful treatment of lupus vulgaris with calciferol it seemed possible that the skin lesions in sarcoidosis might react favourably to similar treatment and thus alleviate considerable aesthetic embarrassment in patients so afflicted. Care, however, was required in selecting suitable cases, since spontaneous improvement is a common phenomenon in sarcoidosis and this might be erroneously attributed to the administration of calciferol. Eventually one case was selected in which the lesions had been slowly progressing for a period of nine years and in which spontaneous improvement was not expected.

### Report of Case

The patient, a single woman, came to the Royal Infirmary, Edinburgh for the first time as an out-patient in 1938, when she was aged 43. Her past history was negative apart from a tendency to bronchitis. At that time she had a well-marked lupus pernio causing an erythematous induration of the nose,

cheeks the forehead above the bridge of the nose and a small area under the chin. There was considerable disfigurement. The process had started six years previously with nasal obstruction and discharge and a red patch on the left side of the nose which had gradually extended.

The "cutaneous sarcoid" element was also present in the form of raised indurated areas on the dorsal aspects of both arms above the wrists. In addition the fingers were markedly swollen and distorted and purple in colour, with breaking down of the nails of the most affected fingers. The toes showed similar but less severe changes. The rest of the skin surface was normal.

There was no clinical evidence of the other common manifestations of sarcoidosis such as enlarged spleen, enlarged lymph glands, and uveoparotitis, but skiagrams of the hands and feet revealed the classical osteitis cystica changes. A skiagram of the chest showed prominence of the hilar shadows, which is typical of sarcoidosis, but there was no evidence of the more classical multiple nodular opacities in the lungs, there was also calcification of glands in the left hilum, indicating a previous tuberculous infection. The Mantoux test was negative, as would be expected in sarcoidosis. A skin biopsy was not done since the diagnosis was not in doubt.

Between 1938 and 1947 the patient reported many times at the Royal Infirmary. Her general state of health remained excellent and she had no complaints apart from the disfigurement. Ultra-violet therapy and deep x-ray therapy did not improve the skin lesions. A photograph taken in 1943 is reproduced to indicate the appearance at that time (Fig 1). In June, 1947, she was admitted with a view to instituting calciferol therapy. Fig 2 demonstrates the state of the skin lesions before the administration of calciferol. The lupus pernio had become slightly worse since 1943, and a new patch had appeared on the upper lip. The fingers were also more



FIG 1—Showing the erythematous induration of the lupus pernio in 1943. The appearance was similar but less marked in 1938.

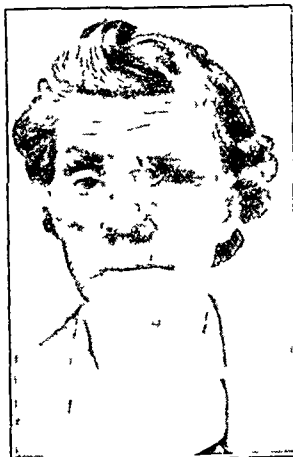


FIG 2—June 1947 before calciferol therapy. The lupus pernio is more extensive and an additional patch has appeared on the upper lip.

involved with ulceration of the skin in several areas. It is clear that the condition had been slowly progressing since the time of her first visit in 1938.

Calcium metabolism was investigated for the first time, with the following results: serum calcium, 10.6 mg per 100 ml; serum phosphorus, 3.9 mg per 100 ml; alkaline phosphatase 5 units (King), acid phosphatase 3 units (King); calcium balance normal. Hence despite the radiological changes in the bones there was no disturbance of calcium metabolism.

The BSR was 3 mm in 1 hour (Westergren) indicating the absence of rapid tissue destruction. Haemoglobin, red blood cell count, white blood cell count and differential count were essentially normal. The blood urea was 47 mg per 100 ml.

An interesting phenomenon was observed on performing a 1 in 1000 Mantoux test. No reaction was visible after the

customary 48 hours, but a definite strong positive was present after 72 hours. The same delay was found with 1 in 100 tuberculin. The previous Mantoux test in 1938, was given as negative, but it might not have been observed for more than 48 hours. There is no mention in the literature of a delayed positive in sarcoidosis. It may be that this phenomenon has resulted in some cases being given as Mantoux negative when in actual fact they are delayed positive.

Calciferol therapy was started with 100,000 units daily by mouth in the form of high-potency "ostelin" tablets. This was continued for 15 days (total, 1,500,000 units), when the appearance of violent toxic effects compelled stoppage of the drug. The toxic effects were similar to those reported by Dowling, Gauvain, and Macrae (1948)—namely, thirst and polyuria, constipation, headache, tiredness, loss of appetite, and sickness. There was no rise in the serum calcium, indicating once more that toxicity is not directly related to biochemical changes. The blood urea, however, rose to 60 mg per 100 ml.

During the period of the toxic effects—three weeks—dramatic improvement occurred in the skin lesions. The erythematous induration of the lupus pernio largely disappeared and the patient no longer felt difficult about appearing in public. The gross lesions in the fingers did not improve to such an extent, but the swelling was reduced and the ulceration which had appeared in the last year cleared up. The slighter lesions of the toes also showed some improvement. It is interesting to note that the main clinical improvement occurred during the period of alarming toxic effects. When these had settled down calciferol was administered again in reduced dosage (50,000 units every second day), but the patient was still intolerant, and treatment was suspended after two weeks. Nevertheless the clinical improvement has been maintained (see Fig 3).



FIG 3—September 1947 two months after cessation of calciferol therapy. Apart from residual deformity of the nose the face is almost normal in appearance.

### Comment

It has been pointed out that, in the treatment of lupus vulgaris, calciferol may "flare up" a tuberculous lesion elsewhere (Dowling and Prosser Thomas, 1946; Dowling, Macrae, and Jones, 1946; Powell, Pearsall, and Wigley, 1948). This may also apply in sarcoidosis, since a radiological follow-up in the present case shows slight progression of the osteitis cystica changes during the period of improvement of the skin lesions. The radiological appearances in the chest have not altered, but the patient's bronchitic symptoms have become worse. In view of this unfortunate tendency calciferol should not be used in the treatment of sarcoidosis unless the skin lesions are of sufficient degree to justify the risk.

Peterkin (1947—personal communication) has found that, apart from "flaring up" a distant lesion, calciferol may cause extension and ulceration of the lupus pernio. It is interesting that in the present case during the first week of therapy the patient complained of tingling in the facial lesion and the erythema became more pronounced, thus giving rise to considerable anxiety. This is another risk which should be kept in mind when calciferol therapy is contemplated.

### Summary

A case of Boeck's sarcoidosis is presented in which the skin lesions had been slowly progressing for nine years and in which therefore, sudden spontaneous improvement was not expected.

The administration of calciferol in the form of high potency ostelin tablets resulted in dramatic improvement of the skin lesions. The main improvement occurred during a three-weeks period of severe toxic effects unrelated to the level of serum calcium.

The relationship of sarcoidosis to tuberculosis is discussed. It may be that they are the same disease. The response of the skin lesions of sarcoidosis to treatment with calciferol resembles that of lupus vulgaris, this being another point in favour of a close relationship.

In view of the risks of "flaring up" a sarcoid lesion elsewhere and of causing sudden extension and ulceration of the skin lesions, calciferol should not be used in the treatment of sarcoidosis unless the skin lesions are extensive and disfiguring.

A delayed positive tuberculin reaction is described in sarcoidosis.

I am greatly indebted to Professor Charles Cameron for his advice and criticism and for the photographs taken in 1947. I am also indebted to the Department of Radiotherapy, Edinburgh Royal Infirmary, for the photograph taken in 1943. I wish to thank Dr W. D. D. Small for permission to publish the case.

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## ARSENICAL ENCEPHALOPATHY DURING TREATMENT OF TROPICAL EOSINOPHILIA

BY

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Prebble (1946) made an extensive survey of the literature on arsenical encephalopathy during treatment of syphilis and reported 187 cases of encephalopathy among Indian troops treated for syphilis as in-patients. He concluded that Indians are particularly susceptible to the condition.

He referred to a report by Glaser and Immermans on two non-fatal cases of encephalopathy which had received arsenic for conditions other than syphilis. Lees (1937) also observed this condition among cases of disseminated sclerosis and Hodgkin's disease after the administration of an arsphenamine product. Viswanathan (1947) reported the post-mortem appearances in a patient with tropical eosinophilia who developed encephalopathy after two 0.3-g injections of neoarsphenamine. He, however, did not state whether syphilis was definitely excluded before treating the case as tropical eosinophilia. A further case of tropical eosinophilia in which encephalopathy developed after two 0.3-g injections of neoarsphenamine and death occurred is described below.

## Case Report

A Tamil mess cook aged 26 was admitted to 48 Indian General Hospital on Oct. 8, 1946, with a complaint of cough and breathlessness on exertion. The chest showed rhonchi all over it. A skiagram revealed changes associated with chronic bronchitis but no evidence of tuberculous infection. The total leucocytic count was 12,400 per cmm, with 61% eosinophils—i.e., absolute eosinophilia of 7,564 per cmm. The Wassermann reaction and Kahn test were negative. Tropical eosinophilia was diagnosed and 0.3 g. of neoarsphenamine was given on Oct. 24 and on Oct. 27. He complained of fever and shivering

after the second injection, and became dull and apathetic on Oct. 30. The temperature rose to 103.8° F (39.9° C), a blood film showed no malaria parasites. He suddenly became restless and began to have convulsions on Oct. 31, later he became delirious and finally coma supervened. His respirations were stertorous, eyes fixed, pupils dilated, and the reaction to light was sluggish. There was no neck rigidity. Abdominal reflexes were absent, deep reflexes were exaggerated, and plantar response was flexor. Blood pressure was 150/85, blood urea 60 mg per 100 ml. Blood films showed no malaria parasites and urine contained no sugar or acetone. Coma deepened, and he died within eight hours of the onset of acute symptoms. Necropsy was performed ten hours after death. All organs, except the central nervous system, lungs, and liver, were within normal limits.

**Microscopic Appearances.**—The pia arachnoid all over the brain was congested and meningeal vessels were full. Cerebral grey matter was hyperaemic, and small blood vessels in the white matter of both hemispheres were congested. The choroid plexus was very engorged. No haemorrhages were detected on the surface of the brain or on section. The pleural cavity contained no free fluid or adhesions. The lining membrane of the right and left bronchi was congested. Bronchioles were slightly dilated, their mucous membrane was congested, and they contained mucopurulent secretion. The lungs showed no evidence of bronchopneumonia on palpation or on section. The liver was normal in size, and the cut surface revealed no change.

**Microscopical Appearances.**—Brain.—Examination revealed lymphocytic infiltration of the perivascular spaces and of the substance of the brain tissue in the vicinity of the capillaries. The capillary endothelium was swollen. Liver cells showed fatty change and foci of necrosis infiltrated by lymphocytes. I have no record of the histopathology of the lung. Cerebrospinal fluid taken during necropsy showed the following findings: total cell count, 280 cells per cmm, type of cells, 95% mononuclears, consisting of lymphocytes, plasma cells, and endothelial cells stained deposit, no organisms, protein, 180 mg per 100 ml, Nonne-Apelt reaction, positive 1, Wassermann reaction, one volume of 1 in 5 dilution showed partial inhibition of lysis, with one volume of 1 in 2.5 dilution, one volume of undiluted fluid, and two volumes of undiluted fluid lysis of cells was inhibited. The Wassermann test was carried out by Wyler's modification.

## Comment

This case was diagnosed clinically as arsenical encephalopathy. Post-mortem findings did not show haemorrhages or demyelination—important characteristic features of arsenical encephalopathy according to earlier writers. Prebble (1946), however, reported that these features were observed in only one out of 40 patients whose brains were closely studied by Kramer at the Central Military Pathological Laboratory, Poona. Microscopical appearances of the brain tissue in my case were similar to those described by him in some of his cases. The disease process in the liver was not so advanced that it could have caused death, but it was very probable that the damaged liver cells delayed the metabolism of arsenic as suggested by Friedman and Shinefeld (1941).

During life the patient gave no history of syphilis or of lapsed treatment. He had been attached to the hospital as a mess cook for three years and had not sought admission to a special treatment centre for venereal diseases during that time, nor did he show any signs or symptoms of meningeal, cardiovascular, or parenchymatous syphilis during life. Microscopy of the brain tissue also did not reveal any evidence of syphilis. Lymphocytic infiltration of the perivascular spaces has been regarded as a general form of central nervous system reaction and is not indicative of any one pathological condition. The blood Wassermann reaction and Kahn test were negative four days before he was put on neoarsphenamine. Cerebrospinal fluid collected during necropsy, however, gave a positive

**Wassermann reaction** Technical error was excluded by repeating the test on the same fluid, and cross-checking was afforded by three other tests on the fluid—namely, protein, total number of cells, and globulin. All three were increased. Absence of evidence of syphilis during life and on necropsy raised a question whether the positive Wassermann reaction was a biological false positive result. This is very probable, but could not be definitely decided, as spinal fluid was not examined during life.

Reynolds (personal communication) states that of the many conditions in which the biological false positive reactions have been reported in the spinal fluids encephalomalacia is possibly the only one which suggests that post-mortem changes can cause a false positive reaction in cerebrospinal fluid. Stokes *et al* (1944) mentioned cadaver blood as one of the conditions giving false positive serological reactions. Thomson (1947) quoted Bertolozzi, who found positive reactions in sera of a large percentage of 50 corpses whose blood he examined, but Kolmer (1928) stated that blood collected before bacterial contamination takes place would not give false positive reactions. I could not find any reference in the literature to the false positive reaction in cerebrospinal fluid collected after death. Four other cerebrospinal fluids that were collected after death and examined by me two to three days later showed a trace of blood and were found to be anticomplementary. It is hoped, however, that those who have facilities will report on the incidence of false positive reactions in cerebrospinal fluid collected after death.

### Summary

A case of arsenical encephalopathy in an individual in whom no evidence of syphilis could be established during life or on necropsy has been described.

Absence of evidence of syphilis suggested that the positive Wassermann reaction of the cerebrospinal fluid collected ten hours after death was a biological false positive.

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The Minister of Food has appointed a working party to make recommendations about precautions which are considered practicable and desirable for securing the observance of sanitary and cleanly conditions in the catering trade. Sir William Savage, consultant to the County Medical Officer of Health for Somerset, has accepted the Minister's invitation to act as chairman. The other members are Mr H E Burdett (Fullers, Ltd), Mr P N R Butcher (Ministry of Health), Mr H Crane (National Union of General and Municipal Workers), Mr W C Crozier (catering manager Scotush CWS), Mr N R C Dockeray (Ministry of Food), Mr P T Grove (Permanent Vice president of the Health and Pleasure Resorts), Mr E Hartley Smith (hotel proprietor), Mr J Hollingshead (Director of Catering Division of British Tourist and Holidays Board), Mr R Hood (Richard Davis Ltd), Mr G M B Hutcheson (Director of Hotels Division of British Tourist and Holidays Board), Brigadier S O Jones (Director of Home Holidays Division of British Tourist and Holidays Board), Dr W A Leithem (Ministry of Food), Mr E Vivian Rogers (Wm Hancock and Co Ltd), Mr A W Ritchie (Chief Sanitary Inspector of the City of Edinburgh), Dr A J Shinnie (Medical Officer of Health for the City of Westminster), Mr L W Slark (John Gardiner (London) Ltd), Dr E L Sturdee (Ministry of Health), Dr I N Sutherland (Department of Health for Scotland), Dr R Suthe land (Medical Adviser and Secretary to the Central Council for Health Education). The working party held its first meeting on Nov 26

## AORTIC COARCTATION WITH PATENT DUCTUS ARTERIOSUS

BY

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Coarctation of the aorta and patent ductus arteriosus are now recognized as defects which are amenable to surgical treatment, but the opportunity seldom arises of treating them simultaneously. The following case is reported because of its rarity, the development of characteristic signs at an early age, and the electrocardiographic findings.

### Case Report

The patient had been treated for pink disease at the age of 2 years 4 months. The presence of a systolic murmur was noted and the diagnosis of congenital heart disease made, but the precise defect was not determined. When seen on Nov 27, 1947, at the age of 7, she presented typical signs of aortic coarctation. She had always been a quiet child and disinclined to take much exercise, but cyanosis had not been observed. Her nutrition was poor and she was undersized for her age.

A systolic murmur of a rumbling character was audible at the apex and a soft systolic murmur was heard along the left border of the heart and to a less degree over the praecordium. A more pronounced systolic murmur could be heard over the whole of the posterior thorax but was maximal over the scapulae. The blood pressure in both arms was 140/70. The femoral arteries were imperceptible and blood pressure readings could not be obtained. In the stooping posture arterial pulsation was visible and palpable medial to the vertebral border of the left scapula. The electrocardiogram showed right axis deviation (Fig 1). X ray films of the chest revealed

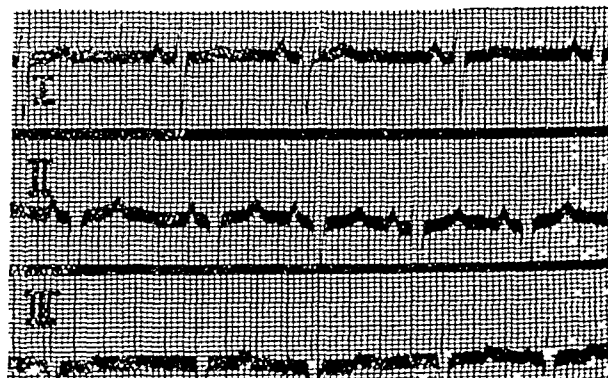


Fig 1—Electrocardiogram taken on Nov 27 1947

notching of the ribs and a double shadow in the region of the aortic knuckle. The possibility of a patent ductus was anticipated because of the right axis deviation (Gilchrist 1947), although there was no systolic diastolic murmur.

### Operation, Nov 28, 1947

Cyclopropane and oxygen were given through an endotracheal tube and closely fitting face piece connected with a rebreathing system incorporating the Waters absorber. With the patient in the right dorso lateral position a curved incision was made below the left breast from the edge of the sternum opposite the third costal cartilage to the posterior axillary line. A flap of skin and pectoral muscles was reflected up and the chest opened through the third interspace with section of the

third costal cartilage. The chest wall was more vascular than normal, but not nearly so vascular as in two adult cases of aortic coarctation.

On examination of the mediastinum the aortic arch was felt pulsating forcibly, but below a point 1-cm distal to the left subclavian artery there was no pulsation and a slight systolic thrill was felt. The mediastinal pleura was incised and reflected to expose the main arteries and the vagus nerve (Fig 2). An aortic coarctation, marked by a narrowing of the exterior and by a palpable thickening of the wall, was found 1 cm beyond the left subclavian artery, and a small patent ductus, suspected clinically, was attached to the aorta near the level of the coarctation. The ductus was about 5 mm in diameter and proved very friable, during its mobilization and division it tore in the angle of junction with the aorta, and the ligature cut through it at the pulmonary artery end. These difficulties not encountered in any of ten uncomplicated cases of patent ductus treated by ligation, took some time to overcome, but the blood loss was not severe. The aorta and left subclavian and intercostal arteries were mobilized without division of any of the latter.

A Blalock type of clamp was applied across the aorta and left subclavian artery and a second clamp to the aorta 3 cm below the coarctation. Two intercostal arteries were controlled

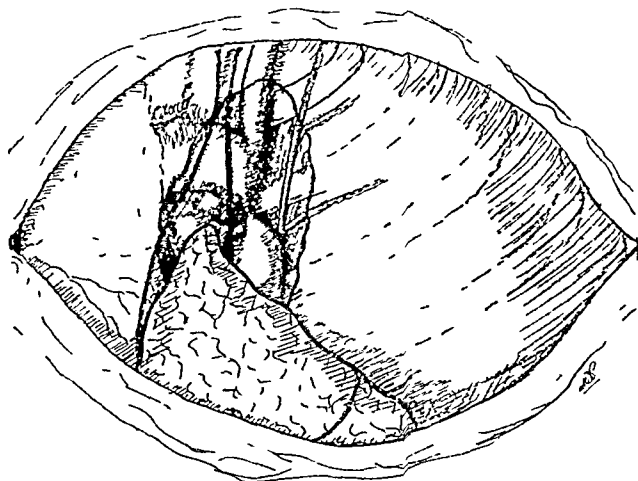


Fig 2—Showing findings at operation

by bulldog clips. The coarctation was resected and found to be almost complete, admitting only a fine probe. The opening of the ductus was immediately distal to the coarctation. The ends of the aorta were anastomosed by two stay stitches and a single running suture of black silk on an eyeless needle. The suture passed through all coats and an endeavour was made to get square apposition of the cut ends of the vessel.

On removal of the clamps there was slight leakage from the right side of the suture line, but this was easily controlled by a patch of fibrin foam. The chest was closed and the air aspirated from the pleural cavity by a needle inserted intercostally above the wound.

#### Progress

The patient was nursed in an oxygen tent for a few hours. Four days after operation 80 ml of blood-stained fluid was aspirated from the left pleural cavity. Convalescence was complicated by a swinging temperature which became normal two days after stopping penicillin and sulphamezathine. She was allowed up eighteen days after operation and subsequent progress was uneventful. Five days after operation the blood pressure in the arms was 118/80 and the femoral and popliteal pulses were palpable. Two months later the arm blood pressure had fallen to 90/58. The generalized systolic murmur disappeared immediately after operation, but a low-pitched rumbling systolic murmur has persisted over a limited area near the apex. The significance of this murmur is uncertain, but it may be due to some degree of mitral stenosis.

At the time of writing the patient is a very lively, healthy-looking child, and the parents have commented on the great

improvement in her general condition and activity. There has been a striking increase in the muscular development of the lower limbs. An electrocardiogram taken on Oct 24 1948 (Fig 3), showed that right axis deviation still persisted.

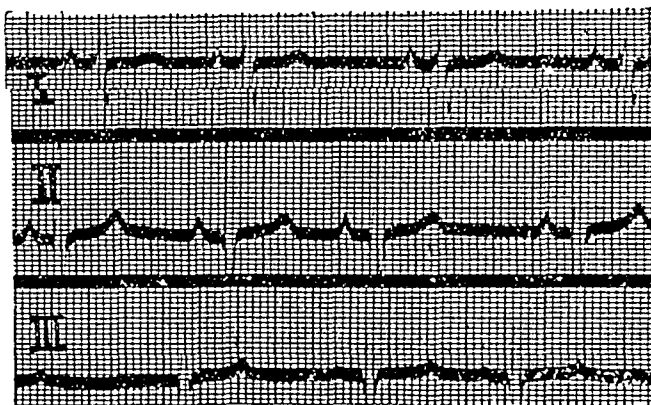


Fig 3—Electrocardiogram taken on Oct 24, 1948

#### Discussion

In published series (Abbott, 1928, Bramwell, 1947) the ductus was patent in only about 10% of cases of aortic coarctation of the adult type. The double lesion is therefore very rare. In our case the early appearance of a well-developed collateral circulation indicated a severe degree of coarctation, and the ultimate prognosis without operation was regarded as poor. In this connexion the literature shows a mortality rate of about 50% before the age of 30 and about 70% before 40. The presence of a patent ductus presumably increases the risk.

In cases of aortic coarctation the electrocardiogram usually shows a left axis deviation, the right axis deviation seen in our case is therefore noteworthy. Gilchrist (1947) has suggested that the explanation of this finding lies in the presence of a patent ductus arteriosus opening distal to the coarctation. In these circumstances the blood is believed to flow from the pulmonary artery to the aorta, thus throwing an additional load on the right ventricle. Our case supports Gilchrist's theory, though the small calibre of the duct and the persistence of the right axis deviation eleven months after operation suggest that this is not the full explanation. In bringing the ends of the aorta together no attempt is made to secure eversion of the edges as practised by Gross, since it is felt that anatomical apposition of the coats gives a stronger union. Crafoord passes the sutures down to but not through the intima, it was felt, however, that this practice increases the risk of a dissecting aneurysm. The rate of blood flow in the aorta seems to be an ample safeguard against clot formation over the sutures, a belief confirmed by observations in dogs (Gross and Hufnagel, 1945).

We are indebted to Mr D W Purser for his drawing.

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In *Whereas They Were Blind* Dr R M Macphail describes the ophthalmic work of a medical missionary in India. In 1894 his father founded the Bamdiah Mission Hospital in spite of the scepticism of colleagues and the timidity of Indians unused to the ways of European medicine. However, in 1947 over 8,000 patients were treated there and nearly 7,000 operations were performed. The pamphlet is handsomely illustrated and is obtainable for 1s from the Foreign Mission Committee of the Church of Scotland, 121, George Street, Edinburgh.



## STEROID METABOLISM AND FRONTAL LOBES

BY

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The 17-ketosteroids are end-products of steroid metabolism, their source being the adrenal cortex. The daily urinary 17-ketosteroid output is fairly constant—3.5–14.6 mg in 24 hours for adult normal women and 9.4–20 mg in 24 hours for adult normal men (Patterson, McPhee, and Greenwood, 1942). Hemphill, MacLeod, and Reiss (1942) investigated the 17-ketosteroid values before and after brain operations, in particular bilateral prefrontal leucotomy (lobotomy), in six cases, and found that after the third post-operative month the urinary 17-ketosteroid excretion rises, indicating an increased steroid metabolism. Commenting on their results, they advanced the theory that an interference with the nervous pathways between the frontal lobes and the hypothalamus may influence the anterior pituitary, which in its turn alters the pituitary adreno-gonadal functions.

The cerebral control of steroid metabolism is of clinical as well as physiological importance, and the above-quoted conclusions have been reinvestigated in 12 cases. All the patients were females at the period of sexual maturity, and all had undergone bilateral prefrontal leucotomy, performed with a rotating-blade leucotome of 25 mm cutting diameter. The urinary 17-ketosteroid output was followed up fortnightly for three to four months, except in the case of one patient who, after leaving the hospital, was inaccessible for the repeated investigations. The pre-operative and 3–4-monthly post-operative values are tabulated below.

Case No	17 Ketosteroids in mg /24 hours	
	Pre-operative	3–4 Months Post-operative
1	15.1	11.4
2	6.1	4.4
3	14.6	10.9
4	10.0	6.5
5	13.2	4.8
6	11.0	—
7	14.2	4.2
8	10.9	10.5
9	23.6	14.0
10	20.3	19.5
11	12.4	9.6
12	9.3	8.4

The absence of the post-operative value in Case 5 has been explained. Cases 9 and 10 show high pre-operative values, but as the sample was taken at random they are retained in the series. It can be seen that the 17-ketosteroid output taken three to four months post-operatively is lower than that taken pre-operatively, in contradistinction to Hemphill and MacLeod's findings.

Further examination of our figures shows that the standard error of the mean difference is 1.05 mg/24 hours and Student's *t* ratio 3.71. For 10 degrees of freedom this is significant at the 1% level, thus the odds are 99 to 1 against its arising by chance. In other words, statistical evidence suggests very strongly that after bilateral injury to the prefrontal lobes the 17-ketosterone excretion is likely to diminish.

The hypothesis of other workers—namely, that the prefrontal lobes influence steroid metabolism—thus seems to be confirmed but the direction of quantitative alterations is found to be contradictory. While no concrete explanation can be offered for these differences, attention should be drawn to the fact that the technique of leucotomy

(lobotomy) varies from hospital to hospital, and the extent and localization of the operative incision at various levels may be responsible for the difference in findings. Further more, Hemphill and his collaborators' reported cases were males, whereas the case material just presented consisted entirely of females.

Reports on frontal-lobe injuries and on lobotomies emphasize a frequently increased sensuality. In the above reported case material three patients showed increased sensuality but no corresponding increase in the 17-ketosteroid excretion could be observed—a possible indication that the increased sensuality is not of neuro-hormonal genesis. In other words, the 17-ketosteroid values seem to be independent of the patients' psychosexual state.

To ascertain whether patients with frontal-lobe injury respond to stimulation in the same manner as "normals," 17-ketosteroid values have been studied on patients who had undergone leucotomy and on patients who suffer from a mild neurosis. These patients were stimulated by 8 gr (0.53 g) of pituitary whole gland in 24 hours, by 6 mg of intramuscular "prostigmin" in 24 hours, and finally by the administration of an erythema dose of ultra-violet light on the day the urinary 17-ketosteroids were collected. These experiments are still incomplete and numerically do not lend themselves to statistical examination, but the main tendencies of the results so far are as follows.

Administration of pituitary whole gland raises the 17-ketosteroid excretion, but administration of the prostigmin results in lowered 17-ketosteroid excretion. These findings might confirm a cortico-pituitary control of the 17-ketosteroid excretion rather than an influence through autonomic mechanisms. On administration of an erythema dose of ultra-violet light the 17-ketosteroid excretion increases, as was reported by Myerson and Neustadt (1939). No differences in responses were found between operated and non-operated cases.

I wish to thank Dr W T Griffith and Mr J P S Robertson for their collaboration and help.

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## Medical Memoranda

### Haematoma of the Rectus Abdominis Muscle

Haematoma of the rectus abdominis muscle, especially the variety in which trauma is an inconspicuous factor and which is referred to as spontaneous to distinguish it from the traumatic variety, is very uncommon but of considerable clinical interest because it simulates very closely an acute intraperitoneal lesion.

### CASE REPORT

A widow aged 71 was admitted to hospital on Aug 3, 1947 complaining of severe abdominal pain of ten hours duration. There was sudden onset of "tearing" pain in the right lower abdomen. The pain was continuous aggravated by movement, and became steadily worse up to the time of admission. She vomited twice soon after the onset of pain. The bowels were opened before the attack and flatus had passed after the attack came on. Micturition was normal. There was a previous history of chronic bronchitis.

On examination the temperature was 99.2° F (37.3° C), pulse rate 120 and of poor quality, and respiration normal but somewhat laboured. The facies was pale and anxious, and the tongue moist and clean. The general appearance was one of moderate shock. Inspection revealed an ovoid swelling of the right lower abdomen. Abdominal respiratory movements were limited. The shoulder raising

test was too painful to carry out properly. Palpation confirmed that the swelling extended from the symphysis to the umbilicus, and from the midline to the right as far as the linea semilunaris. The shape was oval, with the large diameter in the vertical axis. The swelling was smooth, firm, and tense, without impulse, extremely tender, and did not move with respiration. Percussion of the swelling gave a dull note. Rectal and vaginal examinations and urinalysis were negative.

The case resembled an acute surgical abdomen, and torsion of an ovarian cyst or torsion of the omentum was a possible diagnosis. As mentioned before, the shoulder-raising test was too painful to carry out and no deduction was made whether the swelling was in the abdominal wall or was intraperitoneal, but it seemed more superficial than would have been expected of an intraperitoneal lesion. However, operation was decided upon mainly because a serious intraperitoneal lesion could not be discounted.

**Operation**—A right sub umbilical paramedian incision over the swelling revealed a bulging and dusky coloured rectus sheath. Dark, tarry blood clot exuded immediately the sheath was incised. A clot the size of a large grape fruit was removed from in front of and behind a longitudinal split in the rectus muscle which extended from umbilicus to symphysis. There was considerable bleeding swelling up from behind the rectus muscle in the region of the deep epigastric vessels, and this was only partially controlled by under-running sutures, so that packing was necessary. The wound was closed on either side of the pack.

The pack controlled the bleeding well and was removed after 36 hours. A full course of penicillin was administered. The wound healed satisfactorily and the patient was discharged 21 days later. The follow up revealed no obvious abnormality of the rectus muscle, which functioned very well.

#### DISCUSSION

That trauma in some degree or other is the exciting factor in all cases appears certain. But where this traumatic factor is slight—e.g., coughing (the factor in this case)—then there will be a predisposing factor, and the main ones seem to be (1) senility, with its degenerative changes in the walls of blood vessels, (2) debilitating illness, with its degenerative changes in muscle, and (3) pregnancy, with its effect of stretching the muscle fibres of the rectus abdominis and the deep epigastric blood vessels.

Correct diagnosis is seldom made, the most popular one being torsion of an ovarian cyst. Diagnostic points are a history of paroxysm of coughing followed by pain, with the early appearance of a mass which may steadily increase in size and which becomes more prominent and fixed on raising the shoulders. Operative treatment is usually undertaken because of the doubt in diagnosis, but where a definite diagnosis of haematoma of rectus muscle is made then there is the choice of conservative treatment. If the haemorrhage is already considerable or is progressing operation should be undertaken. Teske (1946) gives an overall mortality of 4%, and Thomas (1945) states that there is a 13% mortality rate in the obstetric group.

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### A Case of Melaena Complicating Congenital Pyloric Stenosis

The following case of congenital hypertrophic pyloric stenosis is worthy of record on account of an unusual complication—melaena—occurring after operation.

#### CASE REPORT

A male infant aged 6 weeks, an only child, was admitted to the Royal Salop Infirmary on July 16, 1947. He had had projectile vomiting for over a week. He had been breast fed, but his mother had given him complementary feeds of half-cream milk food after each feed for a few days. The weight had risen from 7 lb 15 oz (3.6 kg) to 9 lb 6 oz (4.25 kg) before the onset of vomiting, but had fallen to 7 lb 4 oz (3.29 kg) on admission.

Congenital pyloric stenosis was diagnosed and operation was decided upon (July 21). The stomach was first washed out, and then under local analgesia a Rammstedt's operation was performed. There was a well marked pyloric tumour. In separating the circular muscle

fibre the duodenal mucosa was inadvertently opened and was sutured with fine catgut. In view of this perforation an intravenous saline drip was set up and feeding by mouth withheld until July 23, when half strength half cream milk food was given, the drip being discontinued on July 24. Apart from two small vomits he made good progress until Aug 1, when his weight was 8 lb 3½ oz (3.73 kg). He then started vomiting bile stained material, and this lasted two days, being relieved after gastric lavage and rectal saline. Feeding by mouth was resumed.

A temporary improvement occurred, but on Aug 5 vomiting recommenced and the stools were relaxed. There had been no pyrexia throughout, and no signs of peritonitis. On Aug 6 the stomach was washed out and rectal saline given. A course of phthalylsulphathiazole, one tablet four-hourly, was started. Next day he was given glucose feeds. A "dark brown" stool was reported. His weight was 7 lb 8 oz (3.4 kg).

On Aug 8 (the 18th day) the baby was collapsed, pale, and generally oedematous. A plasma transfusion was started. Soon afterwards a large melaena stool was passed. The haemoglobin was 30%. Blood was substituted for the plasma, and about 450 ml run in slowly. Next day a remarkable improvement had occurred and the oedema had disappeared. The haemoglobin was 92%. Phthalylsulphathiazole was discontinued. After several dark stools the motions had now become a normal colour. Feeding was resumed with half-cream milk food. No further vomiting occurred. Apart from one melaena stool on Aug 10 the motions remained normal. Unfortunately it was not possible to estimate the prothrombin index.

Further convalescence was uninterrupted, and the baby was discharged on Aug 26 weighing 8 lb 5 oz (3.77 kg). When seen again on Oct 7, as an out-patient, his weight was 13 lb 14 oz (6.29 kg) and his mother stated that he had remained well.

#### DISCUSSION

I have found only a few references to bleeding into the bowel in cases of pyloric stenosis. Meader (1936), quoting a case in which 'occult blood' had been found in the stools on the seventh day—gradually decreasing after a few days—commented: "Now it is not unusual for these patients to vomit fresh blood within 24 hours following operation or for some evidence of blood to appear in the first or second stool, but in our experience this phenomenon has not occurred as late as in this instance."

In my case the bleeding was severe, occurring on the 18th day, and was preceded by gastro enteritis. It was presumably due to ulcer. Infection was probably an aetiological factor. Possibly trauma, particularly as the duodenal mucosa was punctured at operation and subsequently sutured, determined the location of the ulcer.

If infection and trauma are regarded as aetiological factors in peptic ulcer (Illingworth and Dick, 1941) it is surprising that this complication is not more common in pyloric stenosis since infections of various kinds are not infrequent after operation and the mucous membrane is widely exposed after incising the seromuscular layers.

The importance of breast-feeding in pyloric stenosis in relation to prognosis is well established (Herzfeld and Wallace, 1935; Thompson and Gaisford, 1935; Tallerman, 1938; Levi, 1941; Williams, 1942). Levi (1941) reported a consecutive series of 100 breast-fed babies who underwent a Rammstedt's operation without a death and contrasted this with a series of 46 babies who were bottle-fed, of whom five died—all from gastro enteritis. Bottle-fed babies present greater risk of cross-infection owing to their longer stay in hospital, they are less well nourished and are more liable to suffer from dietetic disorders (Williams, 1942).

It is probably significant that my case was artificially fed immediately before and after operation.

I wish to thank Dr A. D. Rope and Mr A. D. Haydon, under whose care this case was admitted, for the opportunity of treating it.

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## Reviews

### SURGICAL ENCYCLOPAEDIA

*British Surgical Practice* Volumes 1 and 2. Under the general Editorship of Sir Ernest Rock Carling, F.R.C.S., F.R.C.P., and J. Paterson Ross, M.S., F.R.C.S. In 8 volumes (with Index volume) (Pp 487 and 540 illustrated £3 per volume Index £1, carriage and packing extra) London Butterworth and Co 1948

The production of a work making any pretence at being encyclopaedic when considering the whole range of surgical practice is indeed a formidable task but it is no less than this that Messrs Butterworth and Co are doing in publishing *British Surgical Practice* as a companion to their *British Encyclopaedia of Medical Practice*. The editors of such a work have not only to decide upon its general form and the proportional allocation of space for each subject, but, what perhaps is more important, upon the authors who are to participate in writing the sections. It is not always that the extreme specialist is the best author of an article on his subject, often his outlook will be rather too narrow to meet the needs of a book of this character. We therefore congratulate the editors in chief Sir Ernest Rock Carling and Professor Paterson Ross (assisted by more than 30 consultant and associate editors) upon their choice and decision in all these matters.

The aim of the work is described in the introduction. There are many surgeons who have no easy access to libraries, works of reference, or centres of teaching and research and it is for them especially that this work is intended. While they may have no intention of attempting the more recondite operations of the specialist, they should know what can be accomplished by the expert working with his team in optimal conditions. The work is not written for the expert though we believe it contains contributions which he cannot afford to ignore. From our perusal of the volume now issued we agree with the authors that "the work as it stands is a reliable guide to sound practice."

The first two volumes cover only the first two letters of the alphabet, but the whole is to be completed in eight volumes, with a separate index. It is rather surprising to find that so much of surgery falls under the headings A and B, but undoubtedly this is due to the use of the earliest alphabetical synonym for any condition—for example virilism under the heading 'Adrenal' sympathetic surgery under 'Autonomic System,' and so on. The books are particularly well produced, printed on a high-quality paper (very costly in these days) and contain an abundance of excellent useful illustrations including some in colour. The reproduction of the skiagrams—always a good test of paper and printing—is very good. There is an attractive binding which fits the volumes for a proud place on the library shelf. The price of £3 a volume may at first seem rather high but examining the book will soon convince the prospective purchaser that he is getting good value for his money.

NORMAN C LAKE

### THYROTOXICOSIS

*The Clinical Picture of Thyrotoxicosis* By Peter McEwan M.A., M.B. Ch.B. F.R.C.S. Ed (Pp 127 illustrated 15s) Edinburgh and London Oliver and Boyd 1948

Much has been written on thyrotoxicosis by both physicians and surgeons by the former because of the diagnostic problems involved and by the latter because surgical treatment has predominated. Mr McEwan's book comes at a time when treatment with thiouracil challenges surgery but as the author remarks opinion is in a state of unstable equilibrium. The book is largely an account of his own considerable experience without any attempt to review the literature, though the few references made are in generous terms.

He describes the main symptoms one by one in separate brief chapters and also certain rarer effects of toxic goitre which are of interest but should not generally influence the practitioner too much in his diagnosis of the condition. Mr McEwan thinks the condition is often missed and no doubt he is right. Sometimes it is because the goitre is very small though perhaps few

will agree with his assertion that toxic goitre is not infrequent without any actual increase in the size or weight of the gland. Sometimes the mistake is in the other direction, for although all goitres are potentially toxic, as he points out all goitres are not causing the symptoms which accompany them. In this connexion he briefly discusses neurosis in goitrous women. Most will agree with his views on basal metabolism estimation and many other aspects of the subject, but it seems unfortunate that the author did not have more collaboration from a medical colleague for the more strictly medical aspects of toxic goitre especially in the field of cardiology, despite his objection that patients are apt to be upset by a succession of doctors. However even this objection is likely to disappear with thiouracil therapy, and in a chapter on treatment Mr McEwan shows the breadth of his views by a very fair assessment of the value of this drug. This is a most readable book largely because it is a simple record of the author's own experience. Although it comes at a time when views on treatment are changing it will give the practitioner a clear clinical picture of thyrotoxicosis.

HAROLD COOKSON

### FIRST RECORD OF DISSEMINATED SCLEROSIS

*The Case of Augustus D Esté* By Douglas Firth, M.A., M.D. F.R.C.P. (Pp 58 6s) Cambridge The University Press 1948

A patient's account of his own symptoms and sensations, and of his reactions to treatment, is always a document of some interest unless the writer happens to be a hypochondriac. The interest is enhanced when the author is an important personage and is still further increased when the disease which he describes is one previously unknown to medical science.

Augustus D Esté the illegitimate grandson of George III suffered from disseminated sclerosis for 28 years, and the manuscript diary in which he recorded his sensations came to light during a waste-paper drive in 1940. Augustus was born in 1794. His father was Prince Augustus, the sixth son of George III, his mother was Lady Augusta Murray (Lady D'Ameland). Some of the letters of this over-indulgent mother to her son at Harrow have been preserved, and those, together with his own record of subsequent life in the Army, reveal the psychological traumata of his childhood and adolescence which may have played a part in the aetiology of the disease which wrecked his adult life. His attempts to cope with the affliction from 1825, when he first complained of dimness of vision, until 1848, when he died after years of helpless invalidism, are clearly and faithfully recorded. They include visits to Ramsgate Bath, Pyrmont, and other health resorts, the prescriptions of many physicians, and the description of this vain quest for health is accompanied by an account of the symptoms which would be recognized to day as those of disseminated sclerosis. The disease was described by Sir Robert Carswell of University College, London, in 1836, and was separated from the medley of spinal paraplegias by Charcot in 1868. Nevertheless Sir Augustus D Esté was the first to describe the disease and it was certainly worth while to celebrate the centenary of his death by publishing an account of his life and writings. The task was ably undertaken by the late Dr Douglas Firth whose sudden death unfortunately preceded the appearance of this charming and useful little contribution to medical history.

DOUGLAS GUTHRIE

### 'FEVERS FOR STUDENTS

*Essentials of Fevers* By Gerald E Breen M.D., B.Ch. D.P.H. D.O.M.S. Second edition (Pp 351, illustrated 15s) Edinburgh E and S Livingstone 1948

This new edition of Dr Breen's book is disappointing. It is true that it contains a description of the "essential" signs and symptoms of the common infectious diseases, but it can give the student or nurse who is new to the subject very little guidance in the handling of an individual case. This is very noticeable in the section on cerebrospinal fever for example where the account of the symptomatology is satisfactory, but the author does not emphasize the concept of meningococcal infection, and although he discusses the close resemblance

between the clinical picture of all forms of meningitis he does not describe the variations in therapy which different aetiological agents require. As a result the inexperienced person brought face to face with a case of meningitis is given little help in its immediate management. Again in discussing the treatment of enteric fever, he states that "very good results, however, have been reported from penicillin coupled with the sulphonamides and that streptomycin promises very well". Apart altogether from any discussion of the efficacy of such methods of treatment which the author might argue was outside the scope of the book, surely it is essential to be precise especially with the former, about dosage and spacing of treatment. Dr Breen disarms us in his introduction when he comments on previous criticism that the book does not contain enough for the student by suggesting that there is enough theory to meet his needs, yet it is not simply a lack of theory but a dearth of practical advice which disappoints. We can sympathize with him in his feeling that colour photographs can be misleading, but his own colour representations are not free from the same faults.

THOMAS ANDERSON

## A PIONEER

*Truby King the Man* By Mary King (Pp 355, illus 18s) London George Allen and Unwin 1948

A biography of Sir Frederic Truby King by his adopted daughter Mary King is welcome. In this book she describes his early life in New Zealand, his medical studies in Edinburgh, and his return to his native country. There he first of all completely reorganized the work of a mental hospital and in doing so became interested in farming and the rearing of domestic animals. His health was never too good in those early days and he and his devoted wife went on special leave to Japan. He became especially interested there in the widespread practice of breast feeding—a contrast with what was happening in other parts of the world where rearing on the bottle was becoming more and more popular. Returning to New Zealand he began his campaign to promote natural feeding. The chapter describing this attempts to build a bridge between Truby King's two main interests but the statement that he had observed that "a very large proportion of the mental patients under his care had been bottle fed" is really too naive.

The development of the educational system of "mothercraft" continued mainly through specially trained nurses, and the results in New Zealand are now well known. Missionary work in London was less successful and Miss King presents the controversial aspects of Truby King's views on bottle feeding formulas as if he must have been right and almost every other paediatrician in the English speaking world thoroughly wrong. However this attitude does not loom large enough to spoil the book. What Truby King taught on managing the infant on prenatal care and on the supreme importance of breast feeding was of fundamental and lasting value. How he did this with the constant help of his wife, though harassed by ill-health and continual financial anxiety is a good story and it has been well told.

ALAN MONCRIEFF

Bell's *Textbook of Pathology* (sixth edition) Henry Kimpton 50s) has an established reputation. One of its merits is its manageable size in spite of a remarkable amount of factual information being packed between its covers by the liberal use of the short simple sentence and full stop. There is little discussion or speculation on debatable subjects and, what is rather more important, no serious or sustained attempt to correlate abnormal function with abnormal structure, or clinical signs and symptoms with pathological changes. These criticisms apply to the scope of the book as a reliable guide to the hard facts of morbid anatomy and histology we can heartily recommend it. The illustrations, apart from some of the drawings are of excellent quality and well chosen and a special feature is the list of selected references accompanying each chapter. Most British pathologists would not agree that "most of the severe endemics of streptococcal sore throat have been shown to be due to milk borne infection the milk being contaminated from streptococcal mastitis in the dairy cows" (p 171) and acute yellow atrophy of the liver can hardly be described as a form of fatty liver (p 100).

## BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*La Dénutrition* By M Lamy and others (Pp 407 150 francs) Paris G Doin 1948

An account of the pathology, symptomatology, and treatment of malnutrition

*Molecular Architecture and the Processes of Life* By L Pauling BS MA PhD DSc (Pp 13 1s 6d) Nottingham University 1948

The Sir Jesse Boot Foundation lecture for 1948

*Die Hypertrophie und das Carcinom der Prostata* By T Hryntschak Vol 4 (Pp 125 Sch 35) Vienna Wilhelm Maudrich 1948

A practical manual giving clinical and operative details

*Lehrbuch der Spirometrischen Analytik und Diagnostik* By R Exner (Pp 308 Sch 80) Vienna Wilhelm Maudrich 1948

Investigations into the air capacity of the lungs in various diseases

*La Streptomycine Étude expérimentale et thérapeutique* By A Abazi (Pp 94 220 francs) Paris G Doin 1948

A study of the pharmacology and the therapeutic uses of streptomycin

*A Textbook of Gynaecology* By W Shaw MD, FRCS FRCOG 5th ed (Pp 660 25s) London J and A Churchill 1948

This well known textbook for students and practitioners has been drastically revised

*Streptomycin und Tuberkulose* By G Fanconi, W Löffler and others (Pp 357 30 Swiss francs) Basle Benno Schwabe 1948

Papers on the treatment of meningeal, urinary and pulmonary tuberculosis with streptomycin

*Les Varices de la Grossesse* By R Tournay and P Wallon (Pp 139 250 francs) Paris L'Expansion Scientifique 1948

A manual on the treatment of varicose veins in pregnant women

*Éléments de Médecine Aéronautique* By R Grandpierre and others (Pp 502 1,200 francs) Paris L'Expansion Scientifique 1948

Includes sections on the prevention of disorders due to flying and on transporting the sick

*Methodenlehre der Therapeutisch-Klinischen Forschung* By P Martini (Pp 198 M 18) Berlin Springer-Verlag 1948

A general discussion of research methods in therapeutics

*Crystalline Enzymes* By J H Northrop and others 2nd ed (Pp 352 42s) London Geoffrey Cumberlege 1948

Describes the chemistry and isolation of proteolytic enzymes and the bacteriophage

*Hemostatic Agents* By W H Seegers, MS, PhD, and L A Sharp MD ScD (Pp 131 25s) Oxford Blackwell Scientific Publications 1948

An account of blood coagulation with particular reference to thrombin, fibrinogen, and absorbable cellulose

*Essentials of Public Health* By W P Shepard, BS MD MA, and others (Pp 600 30s) London Lippincott 1948

An outline of the subject intended for students and general practitioners

*Deep Massage and Manipulation Illustrated* By J Cyriax MD, BCh 3rd ed (Pp 278 17s 6d) London H. K. Lewis 1948

A profusely illustrated manual for physiotherapists

*Die Funktionelle Organisation des Vegetativen Nervensystems* By W R Hess (Pp 226 18 50 Swiss francs) Basle Benno Schwabe 1948

A monograph on the physiology of the autonomic nervous system with discussion of experimental work

## BRITISH MEDICAL JOURNAL

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## INFECTIVE EAR DISEASE

The attention and interest devoted to any cause of ill-health depend upon the extent to which it interferes with everyday life. The patient suffering from a disorder that is not incapacitating may neglect it because of the time that would be taken up in having it attended to. On the other hand, the medical man may not always find it easy to give the time and attention to such disorders that he would wish. Some of these conditions of ill-health, though not in themselves mortal or even incapacitating, may, if ignored or inadequately cared for, have serious consequences. Among these is infective ear disease.

It has for a long time been realized by insurance companies and by employers who enter into permanent contracts with those whom they employ that infective ear disease is a potential cause of invalidism, and in consequence applicants with such disease are often rejected as unfit for insurance or employment. Before the recent war many of the larger educational authorities set up special clinics for the investigation and treatment of infective ear disease in school-children, and it was the general experience that regular, often daily, treatment under specialist supervision resulted in a temporary cure in almost three-quarters of the cases. The problem of regular visits to the clinic was solved by making it part of the school attendance, and the clinics were held during school hours. The children were seen daily by nurses with special otological training and could be seen weekly, or more often, by an otologist.

In wartime infective ear disease proved to be a serious cause of wastage of manpower in the armed Forces, despite the rejection owing to ear disease of 2% of all recruits examined by the National Service Boards. In one survey in England over 6% of the patients in four large military hospitals were there because of ear disease. Regular daily treatment by a specialist or a trained orderly was often possible in the Forces, and the value of this daily attention in clearing up the condition was proved again and again. In the Royal Air Force Banham personally treated cases of infective ear disease daily and found that 80% were soon cleared up.<sup>1</sup>

It seems certain that regular daily treatment is the best method of clearing up infected ears. In school-children and in the Services conditions are usually favourable for regular daily treatment even if it is extended over a long period. If nurses or orderlies can be trained to use a head-mirror or headlight, thus enabling them to treat the depths of the ear under direct vision, the value of the treatment is increased. In all these clinics otological supervision has been necessary though a weekly or bi-weekly

visit by the otologist may suffice. In civil life, however, daily visits to a clinic over a period of weeks would be impracticable for most adults, and very few hospitals have the trained staff to undertake such work on anything but a small scale. In order to explore the possibility of meeting the needs of the adult civilian population a pilot scheme was set up in a group of factories in the Birmingham area some three years ago by the Medical Research Council on the recommendation of their Committee to Advise on Medical and Surgical Problems of Diseases of the Ear. The help and co-operation were secured of the Industrial Health Research Board, a group of industrial medical officers, and the management, staff and workers of the factories concerned. Mr Colin Johnston was appointed to establish and develop this factory otological scheme, which, it was hoped, would indicate the size of the problem and whether it could be adequately treated within the existing framework of the medical departments of the factories. His report on the first eighteen months' work is presented in an abridged form in this issue of the *Journal* and it will be of great interest not only to otologists and to all workers in the fields of social and industrial medicine but also to the general practitioner, who better than anyone else should know the extent of the problem.

The incidence of past or present ear disease in the random sample of factory workers is surprisingly high. Johnston found active disease in 5.9% and evidence of former disease in 14.6% of 1,900 workers selected at random. The Sickness Survey found that in reply to questioning by trained interviewers 1.66% of those interviewed admitted to ear disease, though, as Johnston found in his survey, a large proportion of sufferers from infective ear disease are either unaware of, or unwilling to disclose, the fact. It seems likely from a study of all the available figures that the real incidence of infective ear disease is somewhere in the region of 5% of the population, in round figures based on the latest population estimate that is 2,500,000 people. This indicates how much an organized scheme for treatment is needed.

Johnston has shown that, given a certain minimum of skilled otological supervision, infective ear disease in factory employees can be at least temporarily cured in over 80% of the cases. The very nature of the disease makes relapse inevitable in some, and this is an added reason for regular treatment being readily available. Furthermore, these results, which are comparable with those already mentioned, have been obtained without any expansion of the medical and nursing services in the factories apart from a weekly visit from an otologist. Perhaps the most important finding of all is that daily treatment can be continued over many weeks without time off from work. So far as the workers are concerned participation has been entirely voluntary and both management and workers have realized the value of the results obtained and are keen to continue with the scheme. It is clear that the management of infective ear disease along these lines can be extended both in hospital, school clinic, and factory medical department without adding unduly to the burden of work. In this way much can be done towards solving the problem of infective ear disease.

## COTTON-DUST DISEASE

As long ago as 1818 Jackson<sup>1</sup> noticed that those who worked in the cotton industry, particularly cardroom workers, suffered from a characteristic respiratory disease. The U.S. Public Health Service has recently brought the whole subject up to date with the publication<sup>2</sup> of a full review of the literature. The authors of this work consider that there are four diseases for which cotton dust is responsible—mill fever, byssinosis, weaver's cough, and an illness caused by the endotoxin of *Aerobacter cloacae*. It seems more likely, however, that there are only two diseases, perhaps only one. Mill fever is almost certainly the early stage of byssinosis, and the remaining two conditions are very similar to other diseases caused by mouldy organic matter such as grain, flax, hemp, jute, and bagasse.

There are 36 recorded surveys of the health of cotton workers in many different countries, but the work that has been done in this country is certainly much more complete than that in any other. In 1862 Greenhow<sup>3</sup> described the diseases of cotton workers in a report to the Privy Council, and in 1932 the Home Office<sup>4</sup> issued the *Report of the Departmental Committee on Dust in Cardrooms in the Cotton Industry*. This report summarized all existing information about conditions in the mills, types of machinery in use, and the nature of the cotton dust. It included an account of the clinical and radiological examination of a group of workers at Ashton-under-Lyne who suffered from respiratory disease and the necropsy findings in a few fatal cases. In 1936 Prausnitz<sup>5</sup> reported to the Medical Research Council on respiratory dust disease in workers in the cotton industry, and last year Gill<sup>6</sup> described the process of carding and the symptomatology of the disease. Cotton is obtained chiefly from Egypt, America, and India, and arrives at the mill in tightly compressed bales which also contain much foreign material such as particles of leaf and seed coat, cotton hairs, fragments of mould, and fine sand. During the first process of cleaning the tightly compressed cotton is pulled off in layers and hand-fed into a machine called the "hopper bale opener". It then passes into the blowing-room, where a series of machines free it from most of the impurities. All these machines are enclosed in dust-proof covers, but the workers who clean them must protect themselves against dust by wearing suitable clothing and respirators. The clean cotton coming out of the blowing-room passes to the carding engines, and it is principally the strippers and grinders in charge of these machines who suffer from the disease. Usually each stripper and grinder is in charge of sixteen carding engines, each engine is cleaned four times daily by a vacuum process, and twice weekly it is brush stripped. The evidence is very strong that the carding process liberates the injurious dust which causes byssinosis and that the atmosphere is most dangerous in the immediate vicinity of the carding engine.

The usual history is that after working for several years in the dusty atmosphere the man has sneezing attacks and develops a dry and irritating cough with a tight feeling in the chest and restricted intake of breath. At first the trouble is temporary, and symptoms will disappear after a week-end's rest. But they return, and the disease in consequence has been called "Monday morning fever," "mill fever," and "factory fever." The worker is not incapacitated at this stage, and his breathing will become normal if he is taken out of the dusty atmosphere. After exposure to the dust for ten or more years, however, the worker begins to complain of more severe symptoms such as asthma and bronchitis, the breathing is shallow, and there is a small amount of sticky mucoid phlegm. He loses weight and develops a sallow complexion. Absences from work become more frequent, but improvement can still be brought about by transferring the worker to an atmosphere free from dust. In the last stage emphysema is severe, and there is great shortness of breath. Cough is troublesome, with mucoid or mucopurulent expectoration. When severely affected a man may stand with his hands pressed against his thighs to aid his breathing. The disease is incurable at this stage, and many of these workers die before the age of 50. The physical signs are those of chronic bronchitis and emphysema, the respiration is laboured, and the accessory muscles are brought more and more into use as the disease progresses. The thorax becomes barrel-shaped, and the patient tends to sit in a characteristic attitude with the body bent slightly forward, the legs widely spaced, and the hands placed on the knees. The vital capacity is greatly reduced, and the chest expansion may be less than 1 in. The radiographic appearances are similar to those of chronic bronchitis and emphysema, though the shadows radiating from the hilum are of greater density and indicate considerable fibrosis. Chronic bronchitis and emphysema are found at post-mortem examination, but there is no way of distinguishing the bronchitis of cardroom operatives from that which occurs in the general population. Dunn and Sheehan<sup>7</sup> have reported that dilatation of the right heart was frequent.

Weaver's cough was first described by Collis<sup>8</sup> in 1914, and Middleton<sup>9</sup> in 1926 confirmed that cotton weavers in Lancashire suffered from an acute bronchitis brought on by handling cotton fibre. This was an acute illness with fever, cough, and sputum, the residual symptoms might last for as long as two months. The moisture left in the warp was thought to be responsible for this disease because it encouraged an abundant growth of fungi during storage on the beams, when weaving began the workers breathed in a dust laden with conidia, spores, and fragments of mycelium. Neal and his colleagues<sup>10</sup> in the U.S.A. described an acute febrile illness with cough, dyspnoea, tightness of the chest, and more general symptoms among workers making mattresses from low-grade cotton and among workers in cotton mills and cotton-seed processing plants where there were high concentrations of stained cotton.

<sup>1</sup> *Lond med phys J* 1818 39 464.

<sup>2</sup> *U.S. Public Health Bulletin* No 297 1947.

<sup>3</sup> *Report of the Medical Officer of the Privy Council* Fourth Report London 1862.

<sup>4</sup> *Report of the Departmental Committee on Dust in Cardrooms in the Cotton Industry* 1932, London H.M.S.O.

<sup>5</sup> *Spec Rep Ser med Res Coun Lond* No 212, 1936.

<sup>6</sup> *Brit J Industr Med* 1947 4 48.

<sup>7</sup> *Proc R Soc Med* 1914 8 Epidem Sect 108.

<sup>8</sup> *J Industr Hyg* 1926 8 428.

<sup>9</sup> *J Amer med Ass* 1942, 119 1074.

<sup>10</sup> *British Medical Journal* 1932, 2 1143.

<sup>11</sup> *Brit J Radiol* 1936 9 172 and 354.

<sup>12</sup> *Acta med scand* 1946 125 191.

<sup>13</sup> *Schweiz med Wschr* 1946 76 988.

<sup>14</sup> Hunter D. and Perry, K. M. A. *Brit J Industr Med* 1946 3 67.



dust. They thought the condition was caused by the endotoxin of a Gram-negative bacillus, *Aerobacter cloacae*. This condition and weavers' cough, however, have a close connexion with other diseases caused by contaminated organic vegetable materials such as "farmer's lung," described by Campbell<sup>10</sup> and Fawcett<sup>11</sup> in Cumberland, and "threshers' lung" by Tornell<sup>12</sup> in Sweden and Hoffman<sup>13</sup> in Switzerland. Bagrisse disease<sup>14</sup> is also similar, and so is "broken wind" of horses. These may all belong to a single group with the same underlying pathology. It also cannot be denied that byssinosis may be an end-result.

## REPRESENTATION OF CONSULTANTS AND SPECIALISTS

The difficulties inherent in the representation of the interests of consultants and specialists in the National Health Service are being resolved. There seemed at one time to be a risk of serious discord, with the different groups representing consultants pulling in different directions. On the one side was the B.M.A., erroneously held by some to represent the interests only of general practitioners but having a well-tried machinery of negotiation and an experienced Secretariat. On the other were the Colleges and Corporations, academic and examining institutions standing for most but not all consultants, with little or no experience of negotiation in what is called medical politics, and having no machinery for this purpose. The inauguration of the N.H.S. presented consultants and specialists, almost for the first time, with the problem of collective decision and action in matters concerning them generally, particularly in relation to terms and conditions of service and, more particularly now, to the recommendations of the Spens Report. Some held the view that the Consultants and Specialists Committee set up by the B.M.A. should handle these matters, others that they were the responsibility of the Colleges and the Corporations. In any tug-of-war between the two it was plain that something would come apart, and that most likely the real interests of consultants and specialists. An intraprofessional conflict would have been disastrous, and this was fortunately avoided by a decision of the various bodies to confer round a table.<sup>1</sup>

In July representatives of the Royal Colleges, the Royal Scottish Corporations, and the B.M.A. set up an Exploratory Committee under the chairmanship of Sir Lionel Whitby. This committee met again last week at the Royal College of Surgeons and agreed upon a statement which is published in this week's *Supplement*. "It is essential," the first item runs, "in the interests of the consultants that a joint committee of the bodies concerned should be established to speak for consultants with one voice"—the word consultants including specialists. The joint committee will have two secretaries, one appointed by the Colleges and the Corporations and the other by the B.M.A. There will be 17 members on the committee, 6 appointed by the Consultants and Specialists Committee of the B.M.A. and 11 by the six Colleges and Corporations. On this committee both teaching and non-teaching consultants are to be represented. Provision is made for disagreement among the constituent bodies.

The task of the committee is to represent consultants and specialists in impending negotiations with the Government

and later to consider what form of collaboration should be established for the future. The joint committee will have met by the time this issue is published. The choice of its chairman is awaited with interest, for upon his skill and force as a negotiator much will depend.

## VITAMIN D IN SARCOIDOSIS

In 1840, at the St. Louis Hospital in Paris, Emery<sup>1</sup> was treating lupus vulgaris with cod-liver oil in doses of one litre daily. It can readily be understood why such heroic dosage enjoyed only a brief popularity, but it is strange that a century elapsed before his method was translated into the terms of modern therapeutics. Almost simultaneously Charpy<sup>2</sup> in France and Dowling and Prosser Thomas<sup>3</sup> in this country proved that large doses of vitamin D would cure lupus vulgaris in a high proportion of cases. Their results have been confirmed throughout the world, and, though the frequency of toxic reactions has been responsible for a note of caution,<sup>4</sup> it is likely that the method has already become the standard treatment for this disfiguring and troublesome complaint.

It was obvious that the use of vitamin D would rapidly be extended to other forms of tuberculosis and to that curious condition Boeck's sarcoid (lupus pernio). With the passage of time more and more clinicians are willing to subscribe to Schaumann's theory, published in many papers during the past 20 years, that sarcoidosis is a form of tuberculosis. The evidence in favour of this hypothesis has recently been reviewed once again by Freudenthal<sup>5</sup> pulmonary tuberculosis is the commonest cause of death in sarcoidosis, the metamorphosis of cutaneous sarcoid into lupus vulgaris has been repeatedly observed, although *Mycobacterium tuberculosis* is seldom obtainable from sarcoid lesions, isolation has been successful in 26 authenticated cases, and, finally, it has been found that serum from patients with sarcoidosis neutralizes tuberculin. The recently devised Kveim test—an intradermal reaction with sarcoid tissue—affects the argument but little, though Leider<sup>6</sup> considers it another point in favour of tuberculosis. Proof is still lacking, but there is little doubt that opinion now favours the tuberculosis hypothesis.

This view, together with the resistance of sarcoid to treatment, was adequate reason for the use of vitamin D in the disorder. Reports have hitherto been scanty but encouraging. Dowling, Gauvain, and Macrae<sup>7</sup> mention seven cases, of which six were improved. Curtis, Taylor, and Grekin<sup>8</sup> have treated five patients with doses of 200,000 to 900,000 i.u. of vitamin D<sub>2</sub> daily and have noted improvement in cutaneous, pulmonary and digital lesions. It is of interest that in a discussion on their paper Pinkus reported the activation of indolent lesions with doses of 1,000 i.u. daily, though healing with fibrosis took place when the dose was increased. In this number of the *Journal* Dr R. F. Robertson records an impressive result of vitamin D therapy in a woman with extensive lupus pernio, although only 100,000 i.u. daily for three weeks was given before toxic symptoms interrupted treatment. In his patient pulmonary symptoms were aggravated and the digital lesions changed little. It is worth recalling that pulmonary fibrosis, the sequel of healed sarcoid infiltrations in the lung, is responsible for the death of many of these unfortunate patients.

<sup>1</sup> Charpy J. *Brit J Derm Syph* 1948 60 121

<sup>2</sup> *Ann Derm Syph Paris* 1943 3 331 340

<sup>3</sup> *Proc R Soc Med* 1945 39 96

<sup>4</sup> Anning S. T. Dawson J. Dolby D. E. and Ingram J. T. *Quart J Med* 1948 17 203

<sup>5</sup> *Brit J T herc* 1948 42 11

<sup>6</sup> *J Invest Derm* 1948 10 377

<sup>7</sup> *British Medical Journal* 1948 1 430

<sup>8</sup> *J Invest Derm* 1947 9 131

It is difficult to believe that vitamin D could do anything but accelerate this change, nevertheless it is a notable therapeutic advance to be able to relieve the hideous disfigurement of lupus pernio

### PENICILLIN BY INHALATION

In the last few years penicillin aerosols have been extensively used in the treatment of chest disease, but it is still difficult to assess their value, and it is not yet certain that the best methods of administration have been found. Garthwaite and Barach<sup>1</sup> have recently described their results with this form of treatment. They use a nebulizer fitted with a rebreathing bag, the latter being immersed in hot water, and also containing half a glass of very hot water, so as to provide a warm, humidified aerosol. The nebulizer is fitted with a baffle to eliminate the larger droplets and is connected to an oxygen cylinder running at the rate of 8 to 12 litres a minute. A device enables the patient to prevent the penicillin solution from being nebulized except during inhalation. In the patient's home a car-tyre foot-pump has been used instead of the bulky oxygen cylinder. The apparatus is usually attached to a glass mouthpiece, but in ill patients or in children an oronasal mask is used. The authors have experimented with continuous inhalation, the nebulizer being kept filled by a drip feed and the aerosol delivered either into a mask or into an oxygen tent. Calcium penicillin was found less irritating than the sodium salt, but crystalline penicillin, either the potassium or the sodium salt, has proved to be better still.

Usually a dose of 50,000 units of penicillin is given dissolved in 1 ml of physiological saline, and this is repeated three to five times a day. After each dose at least one, and preferably two, rinses of 0.5 ml of physiological saline are added to the nebulizer and inhaled to avoid waste. If this is not done it has been found that 5 to 10% of the dose of crystalline penicillin and about 20% of the dose of calcium penicillin remain in the nebulizer. Preliminary results suggest that higher blood and sputum levels may be obtained by using hypertonic 3% saline as a diluent. Bryson and Grace<sup>2</sup> suggest that the penicillin should be dissolved in a detergent such as alkyl dimethyl benzyl ammonium chloride, and put forward some evidence for their synergistic action *in vitro*. Similar claims have been made for another detergent, propylene glycol,<sup>3</sup> but so far the clinical value of detergents has not been conclusively proved. Garthwaite and Barach found them less effective than saline as diluents. In general two to three times as much penicillin had to be given by inhalation as by intramuscular injection to obtain comparable blood levels in healthy individuals, and it was more difficult to reach such levels in those with lung disease. The amount of penicillin in the sputum, however, averaged 461 units per ml one to four hours after inhalation of 50,000 units, and there is no doubt that inhalation gives far higher sputum levels than does intramuscular injection.

Clinical results are difficult to assess. Garthwaite and Barach observed some improvement following 37 out of 55 courses given for bronchiectasis and 20 out of 24 given for chronic bronchitis. The results were seldom dramatic, and it was not easy to separate the effects of penicillin inhalation from those of postural drainage and other measures. Cure was claimed in four out of five cases of acute lung abscess but only one of these had had no intramuscular penicillin. Although direct intrabronchial or intratracheal penicillin may prove of great value in lung

abscess,<sup>4</sup> it seems unlikely that penicillin inhalation can be more than a minor aid to treatment in this condition.

Most workers have found that penicillin-sensitive organisms disappear from the sputum during a course of penicillin inhalations, but the patient is not always any better for the change and often the organisms reappear after treatment has stopped. No doubt penicillin by inhalation will continue to be used for chronic bronchitis and bronchiectasis mainly for lack of anything better. Careful attention to technique is important, but in most cases results are unlikely to be either impressive or permanent.

### ACUTE POLIOMYELITIS IN PREGNANCY

During the Colorado epidemic of poliomyelitis in the autumn of 1946 Taylor and Simmons<sup>1</sup> observed 25 cases occurring during pregnancy. They found that the incidence of the disease was twice as great in pregnant as in non-pregnant women of the same age group and thus confirmed the similar observation made at an earlier date by Setälä<sup>2</sup> in Finland. Blackwell<sup>3</sup> recorded the case of a woman who without ill effect to herself nursed patients with poliomyelitis during an epidemic in 1946, but who one year later, when no longer working because she was pregnant, contracted the disease. It is difficult to reconcile this increased susceptibility during pregnancy, when the levels of oestrogen and progesterone in the blood are high, with the claim of Anderson,<sup>4</sup> based on experimental work on mice, that both of these hormones protect against the virus of poliomyelitis. Similarly the suggestion that chorionic gonadotrophin is protective<sup>5</sup> is at variance with the fact that the incidence of infantile paralysis is greater in the first three months of pregnancy than in the non-pregnant woman. Taylor and Simmons suggest it may be that in pregnancy the increased congestion and permeability of the upper respiratory and digestive tracts make it easier for the virus to gain entry.

Nineteen of the 25 cases reported by Taylor and Simmons occurred in the first six months of pregnancy. Among these there were no deaths, and only two patients had residual paralyses. Of the six patients who developed the disease in the last three months of pregnancy three died, and the surviving three had severe residual paralyses. These findings agree with previous experience. A study of 195 cases collected from the literature showed that the mortality among 110 women who developed the disease during the first six months of pregnancy was 7%—the same as that for non-pregnant women in the same age group—but in the 85 women who developed the disease in the last three months of pregnancy it was 27%. In the absence of any obvious reason for the greatly increased severity of the disease in the last months of pregnancy Taylor and Simmons suggest that it is related to the "chronic fatigue of advanced pregnancy." Russell<sup>6</sup> pointed out, and Hargreaves<sup>7</sup> has recently confirmed, that physical activity of any kind during the pre-paralytic stage increases the danger of severe paralysis. But there is no reason to believe that the induction of premature labour would lead to better results for the mother, nor indeed is there any advantage in inducing abortion when the disease arises in early pregnancy.

There are two other facts about poliomyelitis occurring during pregnancy which are worth noting. First, the degree of maternal spinal paralysis has no serious effect on labour. The uterine contractions proceed in normal

<sup>1</sup> *Amer J Obstet Gynec* 1948 56 143

<sup>2</sup> *Ann chir gyn Fenn* 1947 38 117

<sup>3</sup> *Amer J Obstet Gynec* 1948 56 150

<sup>4</sup> *Proceedings of the Rocky Mountain Conference on Infantile Paralysis*, 1946 p 15

<sup>5</sup> Weaver H M and Steiner G *Amer J Obstet Gynec*, 1944 47 495

<sup>6</sup> *British Medical Journal* 1947 2 1023

<sup>7</sup> *ibid* 1948 2 1021

<sup>8</sup> Daley A *Proc R Soc Med* 1948, 41, 53

<sup>1</sup> *Amer J Med* 1947 3 261

<sup>2</sup> *New Engl J Med* 1947 237 683

<sup>3</sup> Pricall S J, McGavack T H, Speer F D and Harris R, *J Amer med*

<sup>4</sup> 1947 134 932

<sup>5</sup> Métras, H and Lieutier J, *Thorax* 1947 2 196

fashion, and lack of voluntary muscular effort does not contraindicate vaginal delivery, caesarean section has probably been employed more often than necessary. Secondly, no case of congenital poliomyelitis has been recorded, but any passive immunity transferred to the baby from the mother does not last long, since poliomyelitis has occurred as early as the eleventh day of extrauterine life.

It is now generally agreed that poliomyelitis is becoming more a disease of the adult population. In the first 10 months of 1947, 174 of the 908 cases notified in London<sup>1</sup> alone were in females over 15 years of age, but surprisingly few case histories of poliomyelitis in pregnancy have been recorded in this country. In any future outbreaks such cases deserve careful study and record if only to confirm the findings reported elsewhere.

### POLIOMYELITIS VIRUS IN BLOOD

When Koprowski and his colleagues<sup>1</sup> reported the isolation of poliomyelitis virus from the blood of a human case they renewed the hopes of those who still considered that a systemic infection precedes the involvement of the central nervous system in this disease. The serum used was collected on the third day of illness from a patient with presumed poliomyelitis (non-paralytic). The conditions of the virus isolation were, however, unusual. Serum was injected intracerebrally into "dilute brown" agouti mice, after an interval of several days a healthy mouse was killed and a suspension of its brain inoculated into more mice. One mouse developed paralysis 22 days after inoculation with the second mouse-brain passage. The strain of virus appeared to be immunologically identical with the other true strains, Lansing, MEF1, and YSK, which after isolation from human patients in monkeys can grow in rodents by adaptation, and thereafter can still reproduce the disease in monkeys. Virus has been isolated from blood very rarely. Ward and his colleagues<sup>2</sup> were successful with only one of 111 specimens of blood. They endeavoured to concentrate the virus and used rhesus monkeys as experimental animals. The positive specimen was obtained about six hours from the onset of symptoms in a very mild non-paralytic case occurring during the height of an urban epidemic. Virus was found in a stool collected two days later. These workers also drew attention to the fact that the distribution of the lesions in the central nervous system does not correspond to that expected from indiscriminate spread of virus across blood vessels. The virus has been found occasionally in certain viscera—for instance, the spleen—and in the mesenteric lymph glands at necropsy. It is possible that there is active multiplication of virus in certain tissues and a spilling over into the blood stream.

The results of a recent investigation by Bodian<sup>3</sup> indicate that infection of the central nervous system takes place as early as the first rise of temperature in patients with the dromedary type of temperature curve. In the light of the evidence at present available the most probable route of entry of the virus is through the exposed ends of peripheral nerves and then along their axoplasm to the central nervous system. Bodian also concluded that the majority of the neurons were attacked at the same time and that at least in the early stages of the disease the spread of the virus in the grey matter does not occur by cell-body to cell-body extension but probably along axon connections. If these latter hypotheses are correct they account for much of the difficulty and disappointment experienced with the serum prophylaxis and treatment of poliomyelitis.

### MORE RESEARCH ON BAL

Interesting observations on BAL continue to be made. A surprising experiment was carried out by 'de Orco' on four patients who were being treated for syphilis. He showed that the preliminary administration of BAL largely neutralized the curative action of 'mapharside' in removing spirochaetes from moist syphilitic lesions. After having completed the demonstration he then cured the disease with penicillin. Lusk, Braun, and Woodward have carried out a more important piece of research. They point out that among the many agents influencing the rate of induction of skin tumours in mice with 3,4-benzpyrene certain hydrolysing chlor-compounds, bromobenzene, and unsaturated acids have been shown to delay tumour formation. Crabtree<sup>3</sup> has suggested that these inhibitors react with -SH groups and make them unavailable for normal cellular metabolism. Since in his opinion the initial phase in the production of skin tumours is the fixation of the carcinogen to the -SH groups of the cell, it occurred to Lusk and his colleagues that BAL might combine with the carcinogen and so delay tumour formation. This they have demonstrated successfully in an experiment with comparable groups of 55 mice. Seventeen weeks after the application of benzpyrene 82% of control mice had developed skin tumours, as compared with 58% of mice anointed with BAL in addition to benzpyrene. This is a further step in demonstrating the importance of -SH groups in tumour formation.

### NUFFIELD COLLEGE OF SURGICAL SCIENCES

Lord Nuffield has once again combined wisdom with munificence in bestowing £250,000 on the Royal College of Surgeons for the purpose of building a residential college where young surgeons, particularly from overseas, may live while undertaking advanced study or research. It will be called the Nuffield College of Surgical Sciences and will be built on land adjoining the Royal College in Lincoln's Inn Fields. Lord Nuffield could hardly have chosen a more worthy object for his generosity than the promotion of collegiate life in a university city where it is conspicuously insufficient, and in particular for postgraduate medical students. Those living at the college will be within easy reach of teaching hospitals, museums, and other centres of learning, and will have unrivalled opportunities of meeting leading surgeons attending the Royal College and listening to their lectures and discussions as well as to those valuable suggestions informally mentioned over a cup of tea. The many visitors who have come from overseas testify to the leading position held by British surgery, and the College will complement the work of the recently endowed Sims Commonwealth Travelling Professorship in spreading the best British teaching throughout the world. Lord Webb-Johnson will have further opportunity for exercising his great administrative gifts in successfully speeding this project on its way.

The Council of the Royal College of Surgeons has conferred the honorary Fellowship of the College on Lord Nuffield, honorary medallist of the College, and on Professor J. R. Learmonth, surgeon to H.M. Household in Scotland and Regius Professor of Clinical Surgery and Professor of Surgery in the University of Edinburgh.

Sir Reginald Watson-Jones has been appointed Arthur Sims Commonwealth Travelling Professor for 1950.

<sup>1</sup> *Publ. Hlth Rep. Wash.* 1947 62 1467

<sup>2</sup> *J. clin. Invest.* 1946 25 284

<sup>3</sup> *Bull. Johns Hopk. Hosp.* 1948 83 1

<sup>1</sup> *Arch. Derm. Syph. Chicago* 1947 56 695

<sup>2</sup> *Cancer Res.* 1947 7 667

<sup>3</sup> *Ibid.* 1945 5 346

## THE END OF COMPULSORY VACCINATION

By

C KILLICK MILLARD, MD, D.Sc

M O H for Leicester 1901-35

The year 1948 will ever be memorable in the history of vaccination in this country as seeing the end of compulsory vaccination of infants, a measure which has been the subject of such acute and bitter controversy for so many years. Having regard to the great importance attached to universal vaccination of infants as our "first line of defence," and to the firm belief that only by compulsion could this be secured, it is rather surprising that the proposal to abolish compulsion did not arouse more opposition. In the event the opposition was almost negligible.

### History of Compulsory Vaccination

Jenner's great discovery was made just at the end of the eighteenth century, and the practice of vaccination gradually came into favour in the early part of the nineteenth. In 1840 an Act was passed providing for free vaccination by public vaccinators, to be appointed for the purpose by Boards of Guardians, but this was only permissive.

It was in 1853 that vaccination of infants was first made compulsory. By an Act passed in that year every parent who refused or neglected to have his child vaccinated within three months of birth was made liable to a fine of 20s and costs. Thus compulsion was in force (theoretically) for 95 years, but it was only really in operation for part of that time. The Act provided no machinery for enforcing the law, but this omission was remedied to some extent in 1861, when Boards of Guardians were empowered to appoint vaccination officers for the express purpose of instituting legal proceedings against defaulters. Six years later, in 1867, a further Act was passed consolidating previous Acts and making the penal clauses more stringent. In the debate on the third reading Sir Thomas Chambers in opposing it, made this prophetic utterance: "I am persuaded that when the Bill is passed an agitation will commence which will never cease until the Act is repealed." It has taken 81 years for the prophecy to be fulfilled.

### Opposition to Compulsion

*The Leicester Revolt*—With the passing of this Act active opposition began. An Anti-compulsory Vaccination League was formed in London, and branches soon followed in a number of provincial towns. The movement was greatly stimulated by the numerous prosecutions for default which took place. Fines were imposed, and as many refused to pay, distraints on goods or imprisonment followed. The first parent to go to prison was a William Johnson, of Leicester. At a public meeting after his release he was presented by his admirers with a silver watch. This meeting may be regarded as the beginning of the movement against vaccination in Leicester, which became so strong that it led to the town being regarded as the "Mecca" of the antivaccination movement throughout the country.

After the serious smallpox epidemic of 1870-1, part of the pandemic which swept over Europe, the appointment of vaccination officers was made compulsory, and the authorities in Leicester, as elsewhere, attempted to enforce vaccination more rigorously. Prosecutions in the town increased from two in 1869 to over 1,100 in 1881, the total for the twelve years being over 6,000. Of these 64 had involved imprisonment and 193 distraints upon goods, the latter often being effected with much difficulty owing to popular sympathy with the defendants. All classes of the community were represented among those who set the law at defiance, and those who were prosecuted were regarded as martyrs. Ultimately in 1886, the Guardians decided by an overwhelming majority to cease prosecuting for vaccination default, and thereafter the vaccination laws became a "dead letter" in Leicester. As a result the number of vaccinations rapidly fell off, and for the past 40 years have averaged only about 5% of the births.

*Why Vaccination was Objected to*—It would be a mistake to regard this widespread hostility to vaccination as merely the

result of organized agitation. Primarily it was due to the serious after-effects and injury to health of which many people had had personal experience in their own families, or believed that they had had, and which undoubtedly were much more common in those days of arm-to-arm vaccination, when the importance of asepsis was unknown or little understood. Even after glycerinated calf lymph had replaced the use of lymph taken direct from another infant's arm public vaccinators were required to do the operation much more "thoroughly" (four "good" marks) than is the case to-day, and "bad arms" were not uncommon. To be compelled to have a healthy and beloved child vaccinated when it was sincerely believed that injury to health might follow seemed to many parents to constitute an intolerable interference with individual liberty.

*The Conscience Clause*—In 1897, in consequence of persistent and growing agitation and following the strong recommendation of the Royal Commission, new legislation was passed which included the famous "conscience clause." This enabled parents who could satisfy two justices in court that they conscientiously believed that vaccination would be prejudicial to the health of their child "to obtain exemption from the law." Nine years later the obtaining of exemption was made much easier by substituting the making of a statutory declaration before a magistrate or commissioner of oaths for having to go into court. The effect of this loop-hole, which was very largely taken advantage of, together with the fact that by this time smallpox had greatly decreased, led to a steady and continued fall in the percentage of children vaccinated.

### Warnings of Disaster to Come

Naturally, grave warnings were uttered regarding the great risk which the country, in particular the town of Leicester, was running. The then M O H for Leicester, Dr Tomkins, in his annual report for 1888, wrote as follows:

"The sad feature about the whole business is that it is the young children of the town who are growing up in thousands unprotected and are running a risk to their lives. They have but to come in contact with the least breath of infection of smallpox to at once catch this loathsome disease."

No doubt, had I been M O H for Leicester at that period, without the experience since obtained, I should have been as much alarmed as Dr Tomkins was.

Similar warnings were re-echoed by medical experts throughout the country. Dr J C McVail (1886), a recognized authority wrote:

"The antivaccinators of Leicester, having to a great extent thrown off the armour of vaccination, are waging a desperate and gallant, though misguided, conflict against the enemy. But in Leicester, when its time arrives, we shall not fail to see a repetition of last century's experiences, and certainly there will afterwards be fewer children left to die from diarrhoea. It is to be hoped that, when the catastrophe does come, the Government will see that its teachings are duly studied and recorded. Leicester has had little chance of getting its immunity tested."

### The Leicester "Experiment"

*Was it Ever Really Put to the Test?*—It is now 62 years since those words by Dr McVail were written. During this period smallpox has on many occasions been introduced into the town and three times it has attained to epidemic prevalence. When the first epidemic occurred in 1893 the outbreak was duly reported upon for the Government by Dr S Coupland, and he was constrained to admit that "the facts would seem to show that in this epidemic at least the natural liability to smallpox, unaffected by vaccination, was not so great as has been supposed." There have been two subsequent epidemics—which I reported upon—but nothing in the nature of disaster has occurred, although on one occasion a sudden outburst took place without warning when 53 cases occurred in one week, followed by 21, 34- and 48 in the next three weeks. Then the outburst subsided almost as quickly as it had arisen, and six weeks later only one case occurred. The remarkable feature of this outburst was that no clue whatever could be obtained to its cause. For the first fortnight, until secondary cases arose, none of the cases could be traced. No link between any of them was discovered. They were scattered over the greater part of the town, regardless of age, sex, or occupation,

indiscriminately as if the infection had literally dropped from the clouds—which indeed it may have done if there is anything in the theory of aerial convection for there were a few cases of smallpox in the hospital prior to the outbreak. But it at least afforded the chance of testing Leicester's immunity' called for by Dr McVail. At that time infant vaccination had been abandoned for 17 years and at least 90% of the child population were unvaccinated. A certain number of school children were attacked, as of persons in other age periods, but no school outbreak occurred nor were any schools closed.

**Its Lessons**—The abandonment of infant vaccination in a large town like Leicester over a long period of years has undoubtedly provided that 'control experiment' which is so necessary if any theory is to be really tested. It is worth while, therefore, to consider what lessons are to be learnt from it. The two most important lessons are

(1) That mentioned by Dr Coupland and referred to above—viz., that the natural liability to smallpox is not so great as has been supposed. This is not to say that smallpox is not a highly infectious disease, it is probably the most infectious of all zymotic diseases, and very few persons are naturally immune to it. But there is a limit to its infectiousness, and it has been shown in Leicester that it does not "pick out" the unvaccinated persons in a community to nearly so great an extent as has often been alleged. It was quite expected that when smallpox did visit Leicester it would fall with special severity upon the unvaccinated children. McVail expressly prophesied this. Yet during the 34 years that I was M.O.H. for Leicester, over which period more than 700 cases of smallpox (major and minor) occurred in the town, only 12 infants under 1 year of age were attacked, of whom three died. Incidentally some of these cases, including all the deaths, were under the age limit for vaccination, so that they cannot all be fairly attributed to neglect of vaccination.

(2) The second important lesson to be learnt is the efficacy of modern methods of prevention in controlling the spread of smallpox irrespective of the vaccinal condition of the population. This again is quite contrary to formerly accepted teaching. It does not mean, of course, that smallpox will never spread in an unvaccinated community—it will do so even in a so-called well vaccinated one. The fact is that it is not possible in practice to maintain any general population in a really well vaccinated condition—at least not in a democratic country. To do so would entail the repeated vaccination of every individual several times during his lifetime, and this is clearly impracticable. In the British Army the rule now is for each man to be revaccinated every five years when on home service and every two years when abroad.

### Why the Prophets were Wrong

Looking back it is interesting to consider why medical experts were so mistaken in their prophecies of disaster to come if universal vaccination of infants were abandoned. It was probably due to the belief, then so strongly held, that it was infant vaccination, and that alone, which had brought about the great diminution of smallpox mortality that followed upon the introduction of vaccination. That this was clearly a case of cause and effect was reiterated in every textbook and in every course of lectures on public health. It was hailed indeed, as the outstanding triumph of preventive medicine. No wonder that medical students accepted it as an incontrovertible scientific fact. Dr McVail in his book, which was recognized as the standard work proving the case for vaccination, made use of a very 'telling' diagram with which by judiciously selecting the periods it was possible to show a progressive decrease in smallpox mortality *pari passu* with an increasing efficiency in the enforcement of vaccination. Other authorities made use of similar diagrams and the apparent correlation inversely proportional between smallpox mortality and the amount of infant vaccination was at that time one of the principal arguments in support of the belief. We now know that this apparent correlation must have been a coincidence because smallpox mortality continued to decrease even after vaccination was decreasing also and this has now gone on for over 60 years. Obviously there must have been other causes at work which brought about the dramatic fall in smallpox mortality since the beginning of the nineteenth century\* and to that extent vaccina-

tion has for so many years been receiving more credit—perhaps much more—than it was entitled to.

It is not contended that infant vaccination had no effect in hastening the fall. The extent to which it did so is arguable. It would practically abolish mortality among vaccinated children, but against this it may have increased it in those children remaining unvaccinated and in persons of older age periods, owing to the detrimental effect of incomplete protection in encouraging the spread of infection by carriers (missed cases) which is one of the principal means by which smallpox is disseminated. Considerations of space make it impossible to pursue this further here. The point it is wished to make is that the fall in smallpox mortality which followed the introduction of vaccination would have occurred sooner or later even if vaccination had never been discovered.

### The Future of Vaccination

The official view is that, having regard to the great success which has attended voluntary methods in the case of immunization against diphtheria, infant vaccination will increase with the substitution of persuasion for compulsion. That this will actually happen however seems doubtful for two reasons. (1) In the case of immunization we are able to point out that diphtheria is a serious menace to child life while smallpox has ceased to be a menace, at least for the present. (2) With immunization we can truthfully say that it is "very safe" its effects are negligible and 'bad arms' practically unknown. Dare we say as much for vaccination?

Not so many years ago a married couple living on the outskirts of Leicester acting on advice 'had their two children vaccinated. Both developed post-vaccinal encephalitis and both died leaving that married couple childless rather unpleasant for those who gave the advice'. Admittedly this case was very exceptional and the danger of developing encephalitis is less after vaccination in infancy than when the operation is performed for the first time at a later age. But other injuries to health are less uncommon. Having regard to these facts it will be difficult to work up much enthusiasm for active propaganda in favour of vaccination and without propaganda infant vaccination will almost certainly go. Unless smallpox should return and again become a menace it seems likely that in the future vaccination will be reserved for doctors, nurses, and sanitary staffs (and all these should be revaccinated much more often than is the case at present) for Service personnel for persons going out to the East and for the vaccination of contacts.

### The Outlook Regarding Smallpox

And lastly, what about smallpox? What are the prospects of the disease returning if infant vaccination does fall into disuse? Shall we see a repetition of the ravages in pre-vaccination times? It is doubtful if any authority really expects this to-day in spite of the prophecies made so confidently in the past.

Briefly the position is this: in Leicester during the 62 years since infant vaccination was abandoned there have been only 53 deaths from smallpox and in the past 40 years only two deaths. Moreover the experience of Leicester is confirmed and strongly confirmed by that of the whole country. Vaccination has been steadily declining ever since the 'conscience clause' was introduced until now nearly two thirds of the children born are not vaccinated. Yet smallpox mortality has also declined until now it is quite negligible. In the fourteen years 1933-46 there were only 28 deaths in a population of some 40 millions and among these 28 there was not one single death of an infant under 1 year of age. In passing it is to be noted that during the same period there were 11 officially admitted no fewer than 51 deaths of infants from "vaccinia" other sequelae of vaccination and post-vaccinal encephalitis. Had all the children born been vaccinated these figures would obviously have been much higher.

It certainly appears that the conditions of life in this country—public health, sanitation, standard of living, call them what we will—have so changed quite apart from vaccination that they are no longer congenial to the spread of major zymotic diseases which once caused a very heavy mortality in this

\*I am not alone in taking this view. Major Greenwood (1930) wrote: "(3) the use of this instrument (vaccination) has been one of the factors but not the sole perhaps not the most important, factor in modifying the epidemiological history of smallpox during the last hundred years."

country—e.g., scarlet fever, enteric fever, and typhus—have shown a decline in mortality as dramatic as that of smallpox, yet no one is alarmed lest these diseases should revert to their old-time mortality and certainly there was no vaccination to bring about their decline.

For those who still have misgivings about what may be in store now that compulsory vaccination has gone there is always this comforting thought: should major smallpox again invade this country and ever really get out of hand, we have one trump card to play which we have not got in the case of other epidemic diseases—viz., emergency mass vaccination of the whole population in the affected areas. Such a measure admittedly would be a very drastic one, and should certainly not be adopted except as a last resource. It is not a step to be taken in a moment of panic merely because a handful of cases of smallpox have occurred in a great city, but it would save the situation if effectually carried out as it could be if the situation were serious enough. For there is one remaining position in the provaccinist line of defence which is quite impregnable in spite of all the onslaughts which have been made upon it by the other side—viz., that a recently vaccinated person does not take smallpox no matter how much he may be exposed to infection (this does not include a person vaccinated during the incubation period). The exceptions to this law are so rare that for practical purposes they may be ignored.

### Conclusion

We suggest, then, that the abolition of compulsory vaccination is likely to be followed by a still further decline in the number of children vaccinated until in the course of a few years the child population of this country will be almost unprotected against smallpox so far as vaccination is concerned. The adult population of course never has been really protected.

As for smallpox, no one can foretell the future. Importations of the disease from abroad may occur at any time, as has always been the case, and there is also the possibility that some day a serious epidemic may occur, as in the past. I suggest however, that in view of the experience of the unvaccinated town of Leicester, and indeed of the whole country, during the past 60 years there is no real cause for alarm.

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## THE ROYAL DENTAL HOSPITAL OF LONDON

The Royal Dental Hospital of London and School of Dental Surgery held its thirty second annual "Clinical At Home" on Nov. 27, when many past students and visitors attended. The hospital which now has 180 students, was extensively damaged during the war but has now been repaired, and several new departments and additions have been made, including a junior conservation department fitted with a number of manikin heads and drills for students and a new photographic department, the first of its kind in a dental hospital in this country. One of the most interesting demonstrations was in the speech therapy department. This department was established twenty-seven years ago particularly for patients with cleft palate, but with the vast improvements brought about by plastic surgery the cases that come under this heading now are only late or second operation patients and the work on speech therapy has been linked up with the orthodontics department. Orthodontists have felt that so long as their small patients continue to go about open mouthed and sucking their lips their work is largely thrown away. The speech therapy department therefore gives the patients exercises with a view to getting better muscular co-ordination.

At the annual dinner which followed the 'At Home' the Dean of the School Mr H L Hardwick said that it had been felt for a long time past that the interests of students would be best served if the hospital were associated with a leading hospital and medical school and through the National Health Service such a fusion had now been brought about, the

hospital and school being in the St George's Hospital group. Mr Hardwick described the setting up of the new Fellowship in Dental Surgery by the Royal College of Surgeons as the most stimulating thing which had happened to the dental profession since the institution of the LDS. During the past year 32 former students had received the Fellowship. In the course of the evening the presentation of a cheque for over £500 was made to Miss H M Duncan on her retirement from the school after thirty-three years' service. Lord Webb-Johnson and Dr E W Fish replied to the toast of 'The Visitors'.

## TRYPANOSOMIASIS IN TROPICAL AFRICA

At a press conference held recently at the Colonial Office certain reports on trypanosomiasis and on the combating of the tsetse fly in East and West Africa were presented. Three of them have already been published by H M Stationery Office—namely, one on trypanosomiasis in British West Africa, by Professor T H Davey, of the Liverpool School of Tropical Medicine, a second dealing with Eastern Africa by Professor T A Buxton, of the London School and a third describing the rural development and settlement scheme at Anchau (Zaria province, Northern Nigeria), by Dr T A M Nash, Government entomologist, Nigeria. A fourth and more extensive report by Dr Nash, on tsetse in British West Africa, is to be published shortly. Dr Nash and Professor Buxton were present at the conference to answer questions. It was stated that the ravages of the tsetse in Nigeria are so severe that only one-fifth of the country is really safe for man and cattle. One-third of the country is an endemic sleeping sickness area. The same is true of the Gold Coast. The whole of Sierra Leone is subject to tsetse, and endemic sleeping sickness occurs in one-tenth of that country. In the Gambia the conditions are similar. As for East Africa and the Rhodesias, Professor Buxton stated that the types of fly which inhabit narrow strips beside water have been controllable for a number of years, though often at undue cost, and in certain environments, though not in all, those which inhabit belts of bush can now be expelled. He did not hold the view that tsetse is everywhere on the advance. Where it is advancing, of course, the fact is known but the many areas in which it is retreating may not be as fully appreciated and may only be discovered by research. Dr Nash spoke of the Anchau scheme in which a corridor 70 miles long and 10 miles wide has been cleared and under the direction of the Sleeping Sickness Service of the Nigerian Medical Department 5 000 people have been moved from 45 hamlets and housed in 16 new villages and one town, while a further 60 000 people have been assisted by freeing areas of tsetse and providing good wells, schools and marketing facilities. This has been paid for by a £95 000 grant under the Colonial Development and Welfare Scheme. The name of the new town is an African word meaning 'Walk in Health'. The prices of the reports on the Anchau scheme, on trypanosomiasis in British West Africa, and on trypanosomiasis in Eastern Africa are respectively 3s 6d, 2s and 3s, and that of the more voluminous report on tsetse in British West Africa is 30s.

## TRAFFIC IN DANGEROUS DRUGS

### HOME OFFICE REPORT

The British Government has made a report to United Nations on the traffic in opium and dangerous drugs in Great Britain and Northern Ireland in 1947. The report, which is issued under the auspices of the Home Office, states that in this country known addicts number 164 men and 219 women and include 82 doctors, one dentist, one veterinary surgeon and three pharmacists. 10 doctors were convicted during the year for violation of the narcotic laws. Morphine and diacetylmorphine are the principal drugs of addiction, a few addicts use cocaine but the number addicted to this drug tends to diminish and fresh cases of addiction to cocaine are rare. It has become evident that pethidine must be regarded as a more usual drug of addiction than cocaine. Particular mention is made of two drugs, "Metopon" (methyldihydromorphinone) was shown to be of medical value, and the Relaxation Order was invoked last year to permit of its



manufacture 'Amidone' was the subject of research in Germany during the war and has been developed on a commercial scale the hydrochloride being marketed under the trade name 'physeptone'. This drug while a powerful analgesic, is considered to be open to the same risks of improper use as pethidine, and steps were taken to place it under the control of the *Dangerous Drugs Acts*.

As for illicit traffic, it is stated that the only unlawful activity in narcotics which can be regarded as a traffic is the import by alien seamen of opium and Indian hemp and the use of these drugs by the smugglers themselves and their fellow countrymen in seaport towns, including London. Opium remains almost exclusively the drug of the Chinese smuggler and smoker. The traffic in Indian hemp originates with Indian, Arab, and negro seamen and extends by way of the dock areas of London to the West End, where it is peddled on a small scale. Particulars are given in the report of the exports of drugs from this country during 1947 and their destinations.

## RENAL, VESICAL, AND PROSTATIC CANCER LONDON SURVEY

Every year the Clinical Cancer Research Committee of the British Empire Cancer Campaign furnishes a statistical survey of cancer cases in the London hospitals, taking a different organ or region of the body on each occasion. A reprint of this survey with its innumerable tables, has been made from the latest annual report of the Campaign, which has already been the subject of a general review in these pages (July 31, p. 266). This year a detailed analysis is presented of 126 cases of cancer of the kidney, 451 of the bladder, and 399 of the prostate.

In the cases of cancer of the kidney the males outnumbered the females by two or three to one, and the mean age was just over 57. Haematuria was the commonest first symptom, except in the few cases of teratomata of the kidney, when the discovery of the tumour often preceded the onset of any symptoms. In more than one patient out of ten with renal carcinoma the primary was 'silent' and the first symptoms noticed were those due to metastases. Nearly three-fourths of the patients consulted a doctor within the first three months, and more than three-fourths of those who consulted a doctor were referred to hospital at once—higher figures than those for most regions of the body. Nevertheless, the growth had advanced so rapidly that 29.5% of the patients with carcinoma were found to have clinically recognizable metastases on admission.

In the bladder cases the ratio of males to females was three to one, and the mean age of the males was 63½ and of the females 66. Painless haematuria was the first symptom in 69% of cases. The proportion of patients who consulted a doctor within the first three months was only 54.4% and in 15% the disease was of over six months' standing when they were first seen. Of the patients who consulted a doctor 77.8% were referred to hospital at once, but 11.9% were treated symptomatically for more than three months.

The maximum incidence of cancer of the prostate was in the age periods 65 to 70. The first symptom of the disease was difficult or painful micturition in 60% but in 21% it was referred pain or some other symptom pointing to the possible presence of metastases. The proportion of patients who consulted a doctor during the first three months was 53.6%, but in about one-fifth of the cases the disease was of more than six months' duration when they were first seen. Of those who consulted a doctor 58.3% were referred to hospital at once and 17.3% were kept under symptomatic treatment for more than three months.

The main tables give the findings on examination, the methods of treatment, the five-year survival rate according to the stage of the disease and according to the therapeutic procedure chosen, the cause of death and the findings at necropsy.

The Division of Mycology of the New York Academy of Sciences held the inaugural meeting on Oct. 22. Dr. Norman Conant of Duke University gave a lecture on sporotrichosis. The following officers were elected: President, Dr. Frederick Reiss; New York University School of Medicine; Secretary, Dr. Royal M. Montgomery, Polytechnic Hospital.

## THE KING'S HEALTH

The following bulletin was issued from Buckingham Palace on Dec. 6.

The King's general health continues to be good, and he devotes a considerable proportion of his time to the conduct of affairs of State.

The process of restoration of the arterial circulation to the feet is proceeding slowly, and since the bulletin on Nov. 29 a further small but encouraging improvement has occurred.

In order to secure the rest and the warm environment which are indispensable for the re-establishment of the circulation, his Majesty is remaining in his apartments and spends most of the time in bed.

MAURICE CASSIDY	MORTON SMART
THOMAS DUNHILL	JOHN WEIR
J. R. LEARMONTH	

A more detailed bulletin was issued on Dec. 13.

Since the bulletin of Dec. 6 the King has made substantial progress.

Repetition of tests to measure the degree of arterial obstruction has given the following information:

In the left leg and foot the process of restoration of circulation has reached a stage which would be sufficient to permit some activity.

In the right leg and foot re-establishment of circulation, while progressive, has been less rapid and it is still of a degree which allows only strictly limited activity indoors.

The nutrition of the right foot is satisfactory.

With the passage of time and continuing care, further improvement in the circulation of both legs and both feet may be anticipated.

We have advised his Majesty to remain in London for the time being, but hope that early in the New Year it will be possible for him to continue his convalescence in the country.

We have thought it imperative to recommend his Majesty not to undertake any public engagements before the summer.

The improvements in the King's health which we are happy to record are in no small measure the result of his Majesty's willing submission to certain irksome restrictions and of his complete co-operation in all measures of treatment.

MAURICE CASSIDY	J. PATERSON ROSS
THOMAS DUNHILL	MORTON SMART
J. R. LEARMONTH	JOHN WEIR

A lecture on "Vision, Light, and Seeing" was given recently at the London School of Hygiene and Tropical Medicine by Dr. Matthew Luckiesh, director of the lighting research laboratory of the General Electric Company, Cleveland, U.S.A. The five primary factors in vision, apart from physiological and psychological were, said Dr. Luckiesh, the size of the object seen, the contrast between the object and its background, the brightness level, the distance, and the speed. In common optical practice a test chart was used to ascertain the power of the sight. The results of tests on this basis revealed the threshold or minimum conditions for seeing, and the normality or subnormality of vision was determined according to the size of the letters which could be read with ease and speed at a given distance. The letters on these charts were usually printed in black on a white background, thus giving the highest degree of contrast. But the contrast of an object against its background had, of course, a definite relationship to brightness level. The less the contrast the greater the need for a higher level of brightness. At a specified distance it had been found that a black object needing 10 foot-candles of illumination when seen against a background of white paper might require 100 against a contrast of grey cloth or 1,000 against black velvet. Dr. Luckiesh contrasted the eye strain involved in office work with that in work at a garment factory. The office worker, dealing with black print on white paper, spent her time on work involving a high degree of contrast, whereas the other might perhaps spend most of her time sewing black cotton on dark cloth. The brightness level needed in the two cases was obviously very different. The development of illumination, in the course of which the crude art of lighting up a space developed into a science was best appreciated by regarding lighting as a chain of three links—namely, production, control, and specification of light. The first two of these had been developed over many years and had had for a long time a scientific basis. The third link, however, the specification of light—had been a crude makeshift at best, but a scientific establishment was necessary to complete the chain.

## Reports of Societies

### GASTROSCOPY

#### EXPERIENCE WITH MODERN INSTRUMENTS

At a meeting of the Medical Society of London on Nov 22, with Dr JENNER HOSKIN in the chair, the subject of discussion was 'Gastroscopy'.

Dr AVERY JONES said that modern gastroscopy dated from the development of the Wolf-Schindler instrument in Germany, which was introduced into this country about 1934. The instrument, a remarkable achievement, had been improved by Mr Hermon Taylor, and the time had now arrived to assess its value. Examination was carried out mostly under local anaesthesia, though it could be done under general. With adequate premedication with morphine or hyoscine discomfort was minimal. He had written to a number of colleagues to obtain their experience of the risks of the method, and although the survey was not complete, as he saw in the risk with the Wolf-Schindler instrument was very small—in about 1 in 2000 cases there had been untoward reactions, but very few of these were fatal. With the Hermon Taylor instrument, which gave much better definition and enabled a better view to be obtained, the risk was a little greater, and something like 1 in 700 cases had been accompanied by an untoward reaction.

The advantage of gastroscopy was the increased accuracy of diagnosis. It was a valuable supplement to x-rays. It might more frequently demonstrate a gastric ulcer, sometimes it would show a healed ulcer or it might reveal the presence of a diverticulum and not an ulcer at all. The method was also useful in controlling symptoms. The prognosis of a healed ulcer on the basis of gastroscopy was more accurate than such a prognosis on the basis of the x-ray picture.

#### Definition of Gastritis

Mr HERMON TAYLOR went further into the history of the gastroscope and recalled that in 1908 Souttar and Thomson at the London Hospital developed the idea of a jointed tube which could be hinged together. He showed a picture of one of these instruments made by Mr H S Souttar forty years ago, when the findings in twelve cases were described in the *Quarterly Journal of Medicine*. The method was rather overshadowed by the development of the opaque-meal examination, and no further progress was made until 1932 when Wolf and Schindler applied the principle of a flexible optical axis to gastroscopy. Their instrument was still in regular use but it had its disadvantages one of which was that it afforded no means of negotiating an obstruction. In 1939 he (Mr Hermon Taylor) had demonstrated an adaptation of the Wolf-Schindler instrument which allowed the gastroscope to be bent forwards at will and enabled a near or distant view of the mucosa to be obtained. The instrument could be flexed round so as to afford a view of a tumour in the pylorus.

The gastroscope had brought a new accuracy to the study of gastric conditions. Previously the diagnosis in radiologically negative cases was largely a matter of opinion based on the test meal, the examination of the stools for blood, and the clinical history with the result that all the cases came to be lumped together as 'gastritis'. The gastroscope exploded this conception of universal gastritis as explaining otherwise undiagnosed dyspepsias. Unfortunately the reports on gastritis led to a reaction against gastroscopy. Gastritis should be re-defined: it was an inflammation of the gastric mucosa recognizable by oedema, loss of translucency, petechial haemorrhage, excessive sticky mucus or mucus pus and perhaps erosion. Radiologically an unusual pattern or irregularity at the pylorus might simulate carcinoma and the gastroscope helped to elucidate this problem. Some authorities maintained that all gastric ulcers should be removed surgically because 10% of them became malignant. But if the gastroscope were used and the healing of the ulcer were watched there was no question of missing any malignant change. Mr Taylor added

that the examination by the gastroscope was not one to be undertaken lightheartedly. Mistakes and accidents did occur. The commonest mistake was one which he had made many times himself—that was in diagnosing malignant change in an ulcer on one gastroscopic examination.

#### Gastric Acidity

Dr A H DOUTHWAITE said that he gathered that Mr Hermon Taylor argued that with a high degree of rugosity there was a high degree of acidity and a large acid output, and conversely, if the rugosity was not well marked, the acidity would be lower and the output less. He questioned whether that was quite justifiable. Among the indications for gastroscopy he included investigation of the possibility of ulcer of the stoma in patients who had indigestion following operation. Again, the method might be of some value for experimental purposes in determining the effect of various drugs on the stomach.

Sir JAMES WALTON said that he would have liked to hear more from the openers about the comparison of the gastroscopic appearances with the clinical history rather than with radiological changes. He found gastroscopy of the greatest help when it was a question of deciding whether a partial gastrectomy should be performed.

Dr M D SHEPPARD spoke as one who had undergone gastroscopy. Unfortunately he had had no morphine or atropine. The sensations had been most unpleasant—a feeling of suffocation with excess of mucus.

Dr THOMPSON HANCOCK said that the factor of discomfort was a most important one, but he did not think that excessive premedication should be used. If morphine were used excessively a confusional state resulted in which it was impossible to obtain the patient's full co-operation, but with atropine and something else—perhaps codeine—co-operation was forthcoming and there was also a diminution in salivation. He had been impressed by the view that the acid secretion could usually be foretold by the size of the fold, but there were exceptions. In considering the dangers of gastroscopy, he thought the type of tube used was important. In his experience the long rubber finger-tip was much safer to pass than the metal tip, which was the standard type on the Hermon Taylor gastroscope.

#### Gastroscopy and Radiology

Mr DICKSON WRIGHT said that it was in 1915 that he saw gastroscopy done for the first time, it was carried out by William Hill, a British pioneer in this field who should be remembered. He himself first passed a gastroscope in 1933. Gastroscopy was sometimes misleading, and this had prejudiced him against it. He felt that it increased the risk of error in dealing with carcinoma of the stomach. He had known two patients recommended for operation, one for simple ulcer and the other for carcinoma, each showing a typical gastroscopic appearance, and yet they turned out to be the other way round—what looked like the carcinoma was the ulcer and what looked like the ulcer was the carcinoma. He placed reliance on a good x-ray picture more than on anything else in differentiating ulcer from carcinoma. X-ray technique would go on improving and at present gastroscopy was most popular in places where x-ray technique was not of high standard. In some brief further discussion Dr JENNINGS urged that radiologists should work in close co-operation with gastroscopists, a co-operation which would lead to much saving of time in x-ray departments.

Dr AVERY JONES agreed about the importance of clinical history and of radiology and other investigations. Gastroscopy could not be considered the final arbiter. It was only another investigation which added to the evidence available for summing up the case, but it did help. Mr HERMON TAYLOR also agreed that gastroscopy was only one of a number of investigations, but if a clear view was obtained then 'seeing was believing'. In his view rugosity indicated the capacity of the stomach—the level at which it could produce its secretion under the stress of emotion. It was not sufficient to form an opinion on the test meal itself.

## VAGINAL DELIVERY AFTER CAESAREAN SECTION

A meeting of the North of England Obstetrical and Gynaecological Society was held at Manchester on Friday, Nov 5, with the president, Mr J E Stacey in the chair.

Mr S B HERD (Liverpool) read a short paper on vaginal delivery after lower-segment caesarean section. This was based on a personal series of 18 cases seen in a single hospital under standard conditions within two years. Discussing particularly cases in which the caesarean section had been carried out after failure of trial labour in primigravidae, Mr Herd pointed out that the course of their next labours had resembled those of multiparae the average duration being less than twelve hours. One important factor making for success was the more efficient uterine action in the second labour while a psychological factor probably also played a part. There had been no maternal or foetal mortality in these cases when delivered vaginally and no case of rupture of the uterus. In view of these good results it might be profitable to resort to caesarean section more readily in seriously delayed first labours. In all, the incidence of repeat caesarean section had to be repeated in 44% of the 18 cases, a lower figure than was generally reported. Once a caesarean, always a caesarean was not true of the lower segment operation, especially in the absence of gross pelvic contraction, although there did not appear to be any clinical method of detecting dangerous thinning of the scar in labour.

In the discussion which followed the president stressed that all women who had previously had a caesarean section must be delivered in hospital at all subsequent labours. Mr C H WALSH (Liverpool) quoted the results of a series of 70 cases, and emphasized the importance from the point of view of subsequent vaginal delivery of carrying out the lower segment operation in cases of placenta praevia. Dr REDMAN (Manchester) gave parallel figures for St Mary's Hospital.

At the same meeting Mr R M CORBET (Preston) described a case of adenocarcinoma in one horn of a uterus bicornis unicollis. Sir WILLIAM FLETCHER SHAW (Manchester) also described a case of adenocarcinoma of the vagina. Dr RICKARDS and Dr AUCKLAND (Manchester) discussed a case of chronic vegetative serpiginous pyoderma affecting the umbilical, pubic, and vulval areas in a woman of 28. The predominating organism on culture was a staphylococcus, and the condition finally responded to curettage of the abdominal area and simple vulvectomy.

## SOUTH-EAST METROPOLITAN REGIONAL TUBERCULOSIS SOCIETY

The inaugural meeting of this society was held at the County Hospital, Orpington, on Nov 13. A draft constitution was discussed and amended and officers of the society were elected as follows: president, Brigadier H L Glyn-Hughes; vice-president, Dr W E Roper Saunders; chairman, Dr F Temple Clive; vice-chairman, Dr R Livingstone; hon. treasurer, Dr T W Lloyd; hon. secretary, Dr D L Pugh. It was intimated that the aims of the society are purely clinical.

More donors gave blood to the National Blood Transfusion Service during the June quarter of this year than at any time since the war reports the Ministry of Health. They numbered 98,055, including 24,075 new donors. In the same period 30,497 people joined the service—the highest number since March, 1947, bringing the total strength to 377,304 for England and Wales. The steady increase in blood transfusion is reflected in statistics for the June quarter which show that 77,148 bottles of blood were issued, a rise of some 21,000 over the same quarter of last year and of 31,000 compared with the same quarter of 1946. The number of bottles of dried plasma issued was 15,849 compared with 14,959 in the corresponding quarter of 1947 and with 13,906 in the corresponding quarter of 1946. To provide for future needs caused by increasing demands on the service and to reduce calls on existing donors, it is estimated that another 142,000 donors are needed in England and Wales.

## Correspondence

### Taking Children's Temperatures

SIR—I have been impressed by the convincing article of Professor Alan Moncrieff and Dr B J Hussey (Dec 4 p 972) showing that in infants a rectal temperature reading is the most reliable guide. Yet I wish I could feel persuaded that this should be the routine method for registering temperatures in young children. This article rather lightly perhaps dismisses the psychological objections to the practice as 'more theoretical than practical' but I think this is because there is no available observer to correlate the adult sexual difficulties of a patient with his medical treatment during infancy.

In 1924 my late chief, Dr David Forsyth, then a friend of Freud, taught that all interference with the bodily orifices should whenever possible be avoided, for, being 'erogenous zones,' they will quickly become conditioned—either positively or negatively—to interference and may later become responsible for various functional disturbances. In common with others of my generation I considered this teaching fantastic but I revised my opinion shortly afterwards when a nursery school in which I was interested decided to abandon their routine of taking daily rectal temperatures for the children were so obviously becoming fascinated and excited by the process. Since then I have seen numerous instances which confirm such theories yet they are all cases which would have been overlooked had I not been already made aware of these fundamental associations.

It would appear that the anal interference of infants can be accepted by them as a humiliating painful attack, when it may lead to symptoms such as vaginismus, tenesmus, etc., in later life, or it can be accepted as a guilty, seductive pleasure leading to a 'fixed' erogenous sensation in that area. Recently a Frenchwoman married and with children discussed her frigidity and confessed with extreme embarrassment that she realized how much she was missing when orgasm eluded her, for she could experience it readily with any anal contact. On questioning it transpired that, having rheumatic fever when she was very young, rectal temperatures had been taken for many months. She had never associated these incidents with her frigidity although she remembered them to be 'very exciting'. A middle aged woman who suffers from vaginismus on questioning (only) revealed the fact that her nursery training had been by means of enemata and suppositories, and (on pressure) confided in me that her two brothers were homosexuals, presumably of the passive type.

Such case histories are doubtless legion, but the fact that they are so unacceptable to us all may be one of the reasons why the syndrome receives so little recognition. Nevertheless, this point must be made that it is inconceivable that people with such disorders in adult life are going to return to their paediatrician and enlighten him—even if they could—about their subsequent difficulties. Medical psychologists who deal with sexual deviations are well acquainted with these facts which somehow do not penetrate to the nursing and medical professions at large. Some mothers recognize intuitively that any anal interference offends the child's privacy and it is interesting to find the association between homosexuality and faulty nursery training accepted by that very shrewd observer, Claud Mullins in his recent book *Crime and Psychology*.

Perhaps some medical psychologists would state their views on this important matter? If these facts are agreed to be true they should lead to modification of this practice in the leading children's hospitals. In my own view it is not justifiable to interfere with our infants in such ways except on an occasion where the gravity of a physical illness makes accurate recording of the body temperature really imperative—I am etc.

London NW 1

JOAN MALLESON

SIR—I was interested in the article by Professor Alan Moncrieff and Dr B J Hussey (Dec 4 p 972) on temperature recording in sick children and I consider the subject to be one of considerable importance whether the patients be children

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or adults. Having been a hospital patient myself on a number of occasions in the past few years I have had opportunity to make my own observations on this question and have now as a consequence developed the deepest distrust of all temperature recordings in hospital. Their very low degree of accuracy unquestionably explains many unexpected rises and falls in the febrile chart and is liable to cause great confusion unless the possibility of error is constantly borne in mind.

In my opinion this inaccuracy is due to several factors. The method and site are important; axillary readings are useless and should be abandoned. The most practicable method for general use in adults is the buccal, but even this does not guarantee a correct reading, as in the majority of cases the thermometer is never left in long enough. To shake the thread down as far as it will go and then leave the instrument in for 30 seconds dead, as is so frequently done, is not good enough. 60 seconds is much better and 2 minutes or more better still.

Another factor with some bearing on the subject is that temperature recording is a routine and doubtless monotonous task. It is as a consequence frequently left to the junior nurse, who is often only too anxious to get the job over and done with as soon as possible. As a result it is skimmed; no discrepancy is appreciated in a pulse rate of 120/min and a temperature reading of 97° F (36.1° C), and the temperature reading is faithfully recorded as such. Even pulse recordings counted over 15 seconds are not highly accurate, and I have known a nurse to be as far out as 40/min in her recording. Doubtless nurses will object to spending a minimum of two minutes on each patient in a 30 bed ward, but surely it would at least be worth while taking the little extra trouble over pyrexial patients in whom the temperature chart is of great importance.

During a long pyrexial period extending over several months I have had opportunity to check and recheck these observations on myself. 30 seconds often produced little significant temperature rise, 1 minute gave a higher reading and 2 minutes or more frequently a reading of 101° F (38.3° C) or over. The wide divergence in hospital readings I noticed as a house surgeon first drew my attention to this subject. I found that out-patient department axillary readings often showed no fever, whereas readings I took myself in the same patient by leaving the oral thermometer in place for an adequate length of time produced a most significant rise, sometimes of 2° or 3° F.

I am sorry if I have dwelt unduly on this subject, already partly covered in the article published, but after underestimating one or two complicated cases of appendicitis by relying on the slipshod methods in general use among nurses I consider the matter to be one of fundamental importance. Anyone who has seen the obviously phony appearance of a temperature chart showing a neat row of blobs dead on the 97° F line throughout will agree that something is wrong with the temperature readings so frequently recorded in hospitals—I am, etc.

Edinburgh

ADAIR GIBBY

SIR—While the findings of Professor Alan Moncrieff and Dr B J Hussey (Dec 4 p 972) on the variation of the temperature as recorded in the axilla, groin, mouth, and rectum are of interest and importance I cannot agree that their conclusion that the axilla and groin should be discarded as sites for temperature readings is sound.

What is of importance surely in a temperature reading is not the actual reading but the extent to which the reading differs from the normal. If we accept and the fact is incontrovertible that the normal reading in the axilla or groin is lower than that in the mouth or rectum then difficulties in interpretation do not arise provided that the temperature is accurately recorded. For many years I have regarded a temperature of 98° F (36.7° C) in the axilla or groin as evidence of pyrexia. It should be a simple investigation to determine the precise range of temperature readings in these sites on a large number of normal children such as can be found in schools.

Particularly in general practice the mouth or rectum are thoroughly inconvenient sites for temperature readings. The difficulty of sterilization, the added time factor, and the unpleasantness of rectum manipulations militate against these sites. I agree that the axilla is a difficult area in children and in adults in which to be certain of taking accurate readings, but the error in infants is a perfectly easy, safe and accurate one. Children may be thin subjects as far as the axilla

is concerned but it is always easy to bury the thermometer in a fold in the groin. May I add that the difficulty that is due to the fact that a thermometer does not register accurately in less than five minutes in the groin applies almost as much when it is used in the mouth—I am, etc.,

Manchester

BASIL LEE

SIR,—The discrepancy between mouth and axillary temperatures pointed out by Professor Alan Moncrieff and Dr B J Hussey (Dec 4 p 972) is an interesting fact that is surely appreciated by every G.P. if not by hospital physicians. No doubt many have used it to reassure anxious parents who are so impressed by the actual height of their child's temperature. What may not be so commonly realized is that local inflammatory conditions of the mouth (gingivitis, etc.) tend to increase this discrepancy. I have recently seen two children where the difference was nearly two degrees. One of them was being kept in bed as a P.U.O., till the nurse in charge noticed that axillary temperatures were always normal and examination of the mouth revealed a stomatitis. It would be interesting to know if this factor was operative in any of Professor Moncrieff and Dr Hussey's most striking cases, such as the child with purpura whose chart was illustrated in Fig 1.

To take rectal temperatures is obviously the rational and scientific solution, but perhaps this is differentially raised in cases of enteritis. Psychological trauma may be a mere bogey but the child certainly resents its loss of dignity for a while and greets further visits from the doctor with tears instead of smiles—I am, etc.,

Margate

T S STONE

### Neonatal Asphyxia

SIR,—I hope that the correspondence which has followed my letter (Oct 30 p 797) on neonatal asphyxia will ensure that the practical applications of Sir Joseph Barcroft's discoveries will no longer be neglected in midwifery teaching, practice or textbooks. All your correspondents have raised points of interest on which I should like to comment briefly.

Dr W Radcliffe's letter (Nov 13, p 878) recalls the 'sparklet' resuscitator, which was most successful when first introduced but whose popularity seems to have waned. I pointed out to Sir Joseph many years ago that the efficacy of this apparatus was almost certainly not due to the carbon dioxide but to the fact that the gas had been rapidly expanded from the sparklet bulb and was therefore intensely cold. It was the bitterness of the blast on the sensitive nasal mucous membrane and not the composition of the gas that was the effective agent. As soon as people in a well-meant attempt at gentleness began to warm the carbon dioxide its efficiency disappeared, and the very handy and effective device became discredited—through misunderstanding.

Dr A. H. Galley (Nov 13, p 878) brings both common and uncommon observations to reinforce Sir Joseph's demonstration of the great importance of cutaneous and other stimuli in restoring or initiating respiration, but it does not solve the problem, which I think is most important, whether the response to these stimuli persists when the respiratory centre is poisoned or inactive for if this is so it might help enormously in the treatment of asphyxia from nearly any cause except poisoning by cerebral convulsants. Incidentally I think he misinterprets the "sadistic attacks" which I presume to be the old-fashioned and often very effective spanking though blowing on the abdomen is often more effective still.

Drs E Lewis Butler and Sarah Butler (Nov 20, p 918) put the case for "coramine" (nikethamide) very well, and Mr W G Mills (Nov 27, p 956) points out its virtues and also some of the snags of injection into the umbilical cord, which is the route usually favoured by the textbooks. I have neither the experience nor the pharmacological skill to argue the case between coramine and 'cardiazol' (leptazol), but undoubtedly Professor Barcroft's experiments do suggest that the agent used should have semi-convulsant properties, and it is not usually considered that coramine is a convulsant, though Drs E L and S Butler state that they have seen spasm result from intracardiac injection. Cardiazol is, of course, well known as a convulsant and used in convulsant therapy as a reasonably safe one, while ephedrine, which I have always used with it, has many pharmacological properties in common with it. (I should of course, like to have used all these drugs singly, but-



being a general practitioner my business has been to save life and not carry out experiments which might endanger it in the conditions of general practice, and when I have found one good drug I stick to it till it fails and I feel justified in trying another.)

But these two letters put together add something to the jigsaw. The fact that the injection, when given into the umbilical vein, often has to be milked along it shows that this is a relatively indirect way of introducing the drug that it is introduced relatively slowly and perhaps uncertainly. I therefore agree with the Drs Butler about giving whatever drug is administered into the heart cavity, for one then knows exactly how much is given, it is easier, quicker, and more certainly sterile, and the fact that I have once had to give a whole millilitre of cardiazol ephedrine in this way before I got a response suggests that in some of these cases it needs a pretty strong concentration in the blood if some of these quite viable babies are to be saved. I also agree with the Drs Butler about the advisability of giving some of the drug intramuscularly also. Personally I always try this first and in most cases it is successful within a few minutes. If it is not, I go into the ventricle with the other 0.5 ml, knowing that the first dose will be useful in supplying a little more when the circulation gets going. I think that this may be the reason that Mr Mills is pessimistic about such treatment preventing neonatal respiratory troubles. There is probably need for more than the initial stimulus—quite apart from the possibility that cardiazol ephedrine would have given better results—and I find that nearly all the babies whom I have treated in this way cry very much more in the first 24 hours than normally. This does not seem to exhaust them in any way but does ensure thorough expansion of the lungs.

I would only add that experience with caesarean babies is not quite applicable to normal births. For some reason caesarean babies are much more liable than others to die rather quickly and inexplicably. I had a long talk with the late Professor Dougal on this subject some while before he died but beyond confirming that this was a fact he had no explanation to offer for it. On reflection, it suggests to me that the seemingly rather dangerous and prolonged anaemia of the brain during the passage through the birth canal may have some recondite but beneficial biological action, just as the apparently wanton destruction of erythrocytes soon after birth has been explained by Professor Barcroft as nature's way of providing a depot of iron to guard against anaemia. All these are intensely interesting as well as practical problems and perhaps observations in general practice may yet help researchers in their elucidation, though I greatly fear that the dead hand of Ministry of Health regulations may soon diminish our chances of making them—I am, etc.,

Winsford Cheshire

W N LEAK

### Marxist Genetics

SIR—In his review of Lysenko's address on Soviet biology (Nov 13, p 862) Professor Darlington has adopted not without effect the hard hitting and harsh polemical style of his Russian *bête noire*. Lysenko's brand of evolutionary genetics—called variously Michurin Darwinism or Lamarckian dialectical materialism and here, for short, Lamarxism—appears from Darlington's onslaught as the outpourings of a charlatan and political sycophant whose biological views are subject to censure or approval by the Central Committee of the Communist Party of the USSR. However, one of Darlington's most telling points in support of this condemnation does not appear to check up at all with the text of the address. Darlington says that there has been a deletion of 'the notion previously advanced by Lysenko that there is no competition within species' and he makes the damning inference that this tenet of Lamarxism has been suppressed at the dictate of some Party expert as being at variance with orthodox Marxism. But in fact Lysenko sticks to this view as irritatingly as he apparently does to his other quaint opinions. He says (p 38) 'after a deep and comprehensive investigation I have come to the conclusion that there exists no intra-specific struggle but mutual assistance among individuals within a species and there does exist inter-specific struggle and competition and also mutual assistance between different species. No doubt mounting disgust at the crudity of style and argument rather than political spleen is responsible for the misstatement by the reviewer. The point is nevertheless of some interest as Darlington relies on it to 'catch out' the Western professor and counterparts in their Lamarxist contortions."

The 'deletion' he says, catches these Western imitators in the middle of the act with their eyes shut and not knowing whether to go on coiling or to turn over backwards. Darlington, largely on this particular point, does not spare his scorn at the Western acrobats 'playing at apology under the Soviet circus master'.

Surely this ill-directed polemic, which takes up a considerable portion of the review, is not calculated to help the ordinary reader or even those interested in genetics towards a calm and non-political approach to this problem. Has not the time arrived when we may expect from our leading geneticists reasoned criticism well documented and soberly expressed which by all accounts would easily demolish the feebly supported generalities and the long-exploded and irrational doctrines of the Lamarxists?—I am etc.,

Oxford

J S WEINER

### Pensions for Diabetics

SIR,—I read with interest the letter on the above subject from Dr R D Lawrence (Nov 13, p 875). Whilst appreciating his views it cannot be too strongly emphasized that all cases of diabetes occurring in the Service cannot be bunched together and dismissed because medical opinion can find no evidence that various extrinsic conditions are causal factors in its aetiology. Each case must be dealt with individually on its merits, and this point has been argued and won before the tribunals and the High Courts.

The question of war pensions is not entirely a medical one but in fact is largely legal. The royal warrant puts the onus of proof on the Minister of Pensions, and it is only right that he should be made to discharge this onus on the evidence in each particular case. It would appear that Dr Lawrence has approached this question of onus in the wrong way. The question is not whether you can find evidence to associate a disability with service but whether the evidence shows that the disability can be dissociated from service.

Another pot-hole into which one is liable to stumble when looking at a case from a medical point of view is the question of the interpretation of the words 'attributable to service'. Correct interpretation was given by the Court of Session in *Brown and others v Ministry of Pensions (War Pensions Appeals)* Edited by Chapman, p 464. The relevant passages are quoted hereunder.

'When, as in all these fourteen cases, the issue is whether it has been proved beyond reasonable doubt that a disease is not attributable to war service, it is vital to keep clearly in view what is involved in that issue. The use of the word 'attributable,' and the nature of the tribunal selected for the purposes of affirming or denying attributability, indicate in our view that the search is for causation no doubt, but not in the metaphysical or in the scientific sense but in the wider and more liberal sense in which 'the matter would be understood by the man in the street applying common sense standards'. The issue in *Yorkshire Dale Steamship Co v Minister of War Transport and Muir v L.N.E.R.* was very different, but the principle is in our view the same."

The following extracts from the same judgment also emphasize the fact that cases must not be decided wholly on the medical aspect (loc cit p 463).

In three of the cases (*Halbert, Martir and Hefti*) the account given of the proceedings before the tribunal suggests that a serious misconception prevails as to the judicial functions of the tribunal and its members. The cases state in detail the medical advice given to the tribunal by the medical member and the legal advice given to the tribunal by the legal chairman. That legal advice took the form of a statement that, because in terms of Article 2 (2) (b) of the royal warrant the Minister must in certain cases decide in accordance with the opinion of his medical officers, the same criterion 'must be applied by the tribunal, and, in the absence of conflicting medical evidence the decision must be rested on 'the informed medical opinion on the facts as distinct from the non medical view,' unless new facts have emerged in evidence which destroy or throw doubt upon the medical view. The startling result of such advice would be that, whenever the medical member agreed with the view of the Medical Services Division as to the effect of the facts, the decision of the case would rest with the medical member alone to the exclusion of the other two members.

'If it had been intended for instance that medical questions relating to pensions should be determined solely by considerations

appealing to the informed medical mind,' the appeal would have been to a board of medical experts and not to a mixed tribunal

Finally, it would appear that even the Ministry of Pensions' Medical Services Division—and I venture to think many other medical men—are not in agreement with Dr Lawrence on the question of the amount of disablement arising from diabetes, as in all cases accepted for pension the percentage awarded by the Ministry is usually fairly high. These percentage assessments are, of course, given in accordance with Article 9 of the royal warrant which means that the assessment is on a comparison between the disabled member and a normal healthy man of the same age, not taking into account his incapacity for employment or any other external factor—I am etc

J H WOOD

Edinburgh

Pensions Officer British Legion Scotland

### Interinnomino-abdominal Operation

SIR—I read with interest the paper by Mr David Mitchell and Dr J A Baird (Nov 27, p 940) reporting a case of interinnomino abdominal amputation, and I should like to congratulate them on the excellent result. They say, however, that 'no case has been recorded in which a prosthesis has been fitted'. In October 1947 at the second International Conference of the Emergencies of Medicine and Surgery in Lisbon I reported and showed a film of a patient who had had a hindquarter amputation in December, 1945, and who was fitted with an artificial limb seven months later. This patient is walking well with one stick. A reference will be found in the Portuguese literature in the published *Proceedings* (2nd series, No 1, Lisbon 1948).

Since then a further hindquarter amputation has been performed, eighteen months ago and the patient, a male, is now also walking on an artificial limb and making good progress. These patients will be reported in the English literature in the near future—I am, etc,

Norwich

H A BRITAIN

### Treatment of Placenta Praevia

SIR—We read with interest Mr W G Mills's article (Nov 20 p 896) on the conservative treatment of placenta praevia, and we must congratulate him and his colleagues in Birmingham on their excellent maternal and foetal results, which would be difficult to better. We would, however, like to comment on several points in his paper.

With regard to our views (*Edinb med J* 1947, 54, 504, 510) being regarded as reactionary we would point out in the most amicable manner that Mr Mills has subscribed to some of them. We did not condemn the expectant treatment of placenta praevia but sounded a note of caution as to its universal application. We note that in Mr Mills's series after the patient has reached the 37th week treatment is undertaken forthwith to avoid further unnecessary blood loss to the mother and possible foetal asphyxia from sudden haemorrhage. Mr Mills's conservatism therefore cannot be considered extreme. In our review we found that the foetus had to attain the birth weight of 6 lb (2.7 kg) to have a 90% chance of survival. In the cases delivered between 36 and 38 weeks only approximately half were up to this weight so in our view delivery at 37 weeks still carries a definite foetal risk.

Further in regard to our foetal mortality we would point out that we reviewed 505 cases over a period of six years and encountered eight foetal abnormalities which would influence our foetal mortality which is uncorrected by 1.6%. This is of course negligible in our cases but we mention it to emphasize the various factors which operate with regard to the number of cases reviewed. We are not statisticians but Mr Mills has had no case of foetal abnormality in his 100 cases and presumably such abnormalities are fairly evenly distributed throughout the population he may encounter those in a further 400 cases.

We would point out that we mentioned in our conclusions that one of the cases in our series died of a fatal vaginal haemorrhage several days after hospital admission. She was promptly delivered and treated with massive blood transfusion but was never fit enough to be considered for operation. No vaginal

examination was made, and placenta praevia was diagnosed after death. In the discussion on our paper Professor Fairlie mentioned a 'near death' during expectant treatment. We consider this evidence that on occasion 'catastrophic' haemorrhage can occur when no vaginal examination has been made.

We note with interest that Mr Mills stresses an adequate standard of nutrition among the patients as a requirement for expectant treatment. We would like to make the point that the nutrition of the patients in Glasgow leaves much to be desired, especially among women of considerable parity. This weighed very heavily with us in reaching our conclusions. We would repeat our view that in the average multipara in the large industrial area from which our cases come anaemia and malnutrition are the rule, and we are very loath to introduce any factor which may even to a slight degree prejudice the outcome from the maternal point of view.

Finally, we would make a plea for simpler classification of placenta praevia. We note that in Mr Mills's series the general procedure was to perform caesarean section in the cases where the placenta was palpated across the cervix or coming up to its margin and to rupture the membranes in the others. This also was the procedure generally followed in the cases in our series. Surely, therefore from the clinical point of view there are but two types of placenta praevia—those that can be felt across the cervix or up to its margin, and the others. We suggested in Edinburgh that severe and mild would cover the condition, but major degree and minor degree would appear equally suitable. Any further subdivision appears unnecessary and confusing—We are, etc,

Glasgow

HUGH STIRLING  
R A TENNENT

SIR,—In recent years excellent results have been achieved by the conservative treatment of placenta praevia, and the report of a series of 100 cases by Mr W G Mills (Nov 20 p 896) is impressive. The remarkable reduction in the foetal mortality without added risk to the mother reported by Macafee, Johnson, Mills, and others is likely to excite the enthusiasm of many obstetricians less favourably placed for this method of treatment. I well remember that such a foolhardy enthusiasm on the part of some obstetricians on the appearance of Macafee's first report resulted in some disasters. Most people forget that such achievements are not the result of one man's efforts. They are the results of full and persistent co-operation of the patients, midwives, practitioners and the nursing and medical staff of well-equipped and highly organized hospitals with facilities for immediate blood transfusion in liberal amounts and timely, safe, and skilled operation.

Every obstetrician must be alive to the environments in which he is practising and the type of patient he is to treat. There are vast populations in this world (e.g., in Pakistan, India, China, Africa and several other places) for whom the facilities obtainable in London, Belfast, or Birmingham do not exist. Many patients in my country, Pakistan, when admitted to the hospital are at first very co-operative and readily accept all conditions for treatment. But later on all of a sudden, they leave the hospital at their own risk. They lend themselves easily to vaginal examinations by ignorant midwives. Indeed, they even make their own vaginal examination, as was done by one of the patients undergoing expectant treatment for placenta praevia at the Lady Willingdon Hospital, Lahore. The medical practitioners too find it difficult to restrain themselves from making vaginal examinations and manipulations before sending the patients for hospital treatment.

Of the 200 cases of placenta praevia studied by me (Thesis for MS 1946) and treated during a period of 12 years (1934–45) only 14 patients received expectant treatment. Two of the 4 patients who left the hospital at their own risk were readmitted after 3 and 20 days respectively in a serious condition and died soon after admission. The obstetrician should carefully note Mills's statement: 'On several occasions there was a sudden loss of 15–20 oz (425–570 ml) of blood, usually in the middle of the night'. These haemorrhages did not prove catastrophic. But the obstetrician must carefully study his patients who may be unfit to stand such a sudden loss. Such losses may appear innocuous and yet may pave the way to a catastrophe during the third stage. Or they may

result in anoxia of sufficient degree and duration to cause permanent damage to the nervous system of the mother as well as that of the foetus resulting in psychic and nervous troubles in later life. Rarely even Simmonds's disease may develop.

To my mind the expectant treatment of placenta praevia is highly desirable provided all the requisite conditions are satisfactorily fulfilled. Above all blood transfusion should be used liberally not only to save life but also to prevent damage to the delicate nerve cells from anoxia—I am, etc

Isleworth, Middlesex

M S QURESHI

### Resuscitation by Rocking

SIR—I was very interested in the article (Sept 18, p 554) by Dr F C Eve and the late Dr N C Forsyth on resuscitation of infants by rocking. My father, Dr L Welply, told me some twenty years ago how he used to revive newborn infants by wrapping them in a towel and swinging them down between his legs and up over his head—the height of the ceiling and other obstructions permitting. This is clearly an exaggerated form of rocking and if as Dr Eve suggests the rocking helps to expel stagnant blood from the infant's head my father's method must have done it even more efficiently.

When I was accoucheur at the London Hospital I used a milder form of the swinging method successfully on many occasions, and when I came out to China two years ago as consultant orthopaedic surgeon and was asked to organize the maternity services here while building alterations were being made to the new orthopaedic department I introduced the rocking method to my Chinese interns. The custom here has been to belabour the newborn infant with the flat of the hand until it cries, a method not conducive to recovery from shock.

My method is to wrap the newborn infant in two towels between which a warm hot water bottle is placed and so arranged that it lies behind the child's back. The left hand is then placed behind the infant's neck so that the occipital region is held between the extended thumb and index fingers and the infant's left shoulder is fixed by the curve of the little finger. The infant's body lies along the left forearm and its thighs are held by the right hand placed behind them. The infant is then held up to the left shoulder in the position commonly used for making babies eructate, and by swinging the left forearm outwards and downwards the infant can be swung through almost 180° into the head-downwards position, the left hand moving slightly with the thighs and the left forearm remaining almost stationary across the resuscitator's lower chest.

Resuscitation by this method can be continued almost indefinitely without fatigue as the bundle of infant, towels, and hot water bottle rest against the shoulder at the end of each up-swing. Besides lack of fatigue to the operator, the following advantages are claimed for this method: (1) The shocked infant is kept warm throughout. (2) Full use of the comparatively heavy infant's liver as the motive force for the movements of the diaphragm and lower chest are obtained. (3) The head-downwards position encourages all mucus and other fluid obstructions in the upper respiratory system to drain easily, and if this position is maintained for a few seconds periodically an attendant can remove them with a mucus catheter. (4) Air intake can be heard as the infant reaches the head upwards position, its mouth being very close to the operator's ear. (5) Spontaneous respiration can be felt by the little finger where it holds the shoulder from slipping. (6) The infant's colour can be observed each time it is coming up in the up-swing if a small area of the face is left exposed. (7) Except for the pumping action of the liver due to the swinging motion the infant's state of shock is not aggravated by the rough handling that all other methods of resuscitation entail.

Finally, may I add that it is my custom to inflate the lungs first by mouth-to-mouth respiration through several layers of sterile gauze, and I have yet to see a respiratory infection started as a result. It is remarkable how such infants obtain and maintain a good colour long before spontaneous respirations start, and in heavily anaesthetized or morphinized infants, due to prolonged anaesthesia or too recent an injection of morphine in the mothers their colour can be maintained pink by swinging as slow as 4–6 times a minute in many cases their heart beats remaining strong throughout. Furthermore if one decides to give oxygen the tube can be led through the towels to warm it, across the palm of the operator's left hand to steady it, and so to the infant's nose or mouth—and the swinging can still be done without obstruction or difficulty—I am, etc

Tonghai Hope, N. China

W R WELPLY

### Fibrositis

SIR—Fifty years' experience have convinced me that fibrositis is a reality not to be dispelled by scientific doubt but only by physiotherapy, and I am glad that Dr R O Adamson (Nov 27, p 956) recalls Professor Stockman's conclusive evidence in proof of its existence. Dr I H Milner (p 955) apparently agrees, but I do not quite follow him in the paragraph headed Pain.

The most common form of fibrositis affects women who do much knitting or ironing. In both these occupations the shoulder girdle is unconsciously held slightly but rigidly raised for long periods. Muscles thus maintained in contraction fail to rid themselves of the products of their own combustion, which act as irritant poisons and set up an exudative inflammation in the connective tissue. In course of time this exudation becomes organized to a greater or less degree and the 'knots' are easily felt on deep palpation. The natural movements of the arm and shoulder to ease pain stretch (but hardly tear) the muscle fibres and so tend to remove the accumulated products of muscle metabolism by improving the local circulation. Skilled massage rarely fails to relieve the condition.

Lumbago due to prolonged stooping has a similar pathology but when caused by rupture of muscle fibres is more spasmodic. That spasm of muscle *per se* causes pain can hardly be doubted by an athlete who has had the misfortune to rupture a fibre or two of his quadriceps or gastrocnemius—I am, etc

King's Langley, Herts

T BLANCHARD SELLORS

### Treatment of Abortus Fever

SIR—With reference to the article by Drs J MacD Holmes and Robert Hughes (Nov 13, p 859) on the treatment of abortus fever with sulphonamides and blood transfusions I should like to state that when I was house physician to Professor J E Debono at St Luke's Hospital, Malta, in the first six months of 1947 I saw a great number of excellent results in the treatment of undulant fever with large doses of sulphadiazine. The fever, whether of recent or late onset immediately dispersed after 3 or 4 days and did not return, though the patients were followed up for weeks afterwards. In all cases an average of 86 g of the sulphonamide was given over a period of one week. Smaller doses were not successful. In recent months these good results have not been obtained, why this is so I do not know, but may be we are dealing with different strains of the *Brucella*—I am, etc,

Floriana, Malta

R O PARNIS

### Umbilical Cord Injections

SIR—In the letter on neonatal asphyxia by Mr W G Mills (Nov 27, p 956) I was interested to hear that he had experience of interference with the blood supply to the leg following an injection of nikethamide into the umbilical cord. I have reason to believe that other substances injected into the cord may owing to their entry into the umbilical artery, cause a condition similar to that described. Investigations to prove this are proceeding and will be published later—I am, etc,

Liverpool

A G O MALLEY

### Midwives and Drugs

SIR—In your issue of Nov 27 (p 959) you publish an extract from a letter from Dr A H Driver under the title 'Midwives and Drugs'. I should like to point out to Dr Driver that in Notice No 4 of the Midwife's Code of Practice, which is published with the Rules of the Central Midwives Board it is stated that a midwife should ordinarily carry among other drugs a preparation of ergot for intramuscular injection.

Dr Driver also complains of the rigidity of the rules governing midwives. I think the only reply necessary to this complaint is to refer Dr Driver to the Rules which have been in force since October, 1947 throughout England and Wales. As far as possible the Rules have been reduced to a minimum and are largely of an administrative nature. There is added a section consisting of a number of notices which comprise a Midwife's Code of Practice. These notices are similar to the 'Warning Notices' issued by the General Medical Council for the medical profession. Their purpose is to indicate the standard of practice to which a midwife is expected to attain. In Notice No 4

already referred to, a midwife is not prevented from prescribing any drug so long as she has been "thoroughly instructed in its use and is familiar with its dosage and methods of administration or application," and so long as she observes the Dangerous Drugs Regulations.

The last point made by Dr Driver concerns differences between the practice of different local supervising authorities. The Board is well aware of these differences which it is hoped, will disappear with the elimination since July 5 of a number of the small local supervising authorities. Although the Board cannot interfere in the normal relation of the employed midwife to the employing authority, every effort is made to encourage local supervising authorities to maintain a uniform policy in carrying out their statutory duty of supervising midwives in accordance with the rules laid down by the Central Midwives Board and the Board will be glad to take up with any local supervising authority the question of deviations from this general standard—I am, etc.,

London SW 1

ARNOLD WALAER,  
Chairman Central Midwives Board

### The M'Naghten Rules

SIR—I would like to express my general agreement with Dr Clifford Allen's protest (Nov 27, p 955). The M'Naghten rules may have been good psychology in 1843, but they are now merely metaphysics and very much outmoded metaphysics by modern standards. The fact evidently needs to be impressed on our colleagues of the prison service as well as the lawyers that psychology has progressed in the past hundred years.

It is generally the psychiatrist for the prisoner who takes the trouble to investigate his past history and elicit facts that so often have an essential bearing on the dynamics of the crime. If the prison doctor has not done the same he is by so much less fully informed and is in a position to disavow any such facts on the ground that he has no direct knowledge of them. I suggest that it should be made a practice for the visiting psychiatrist to send a report of his findings to the prison doctor before the trial. It can be made clear then in court whether the prison doctor has taken the necessary trouble to confirm or confute these findings—whether, in brief, he is taking a modern attitude to the problem of crime or an 1843 attitude. Where an adequate investigation has not been made into the psychological background of a crime it simply means that at the trial the court is judging the prisoner on insufficient evidence—I am, etc.,

London W 1

FREDERICK DILLON

### Nephritis in Textile Workers

SIR—In connexion with Professor R. Platt's article on nephritis in textile workers (Nov 15, 1947, p 771), I wish to draw attention to certain statistical aspects which seem at variance with Professor Platt's otherwise excellent reasoning.

1. Professor Platt's argument takes as its starting point the discrepancy between the series of 'Author's cases' (Table I—Deaths from Renal Disease) and the Registrar General's figures for deaths from nephritis per 100,000 at risk in each age group in the years 1930-2. As he first shows a peak for the age group 15-24 and the second a marked increase after 45 years he concludes that the latter must largely consist of deaths due to hypertension. The two series, however, are not comparable, since the first is one of deaths—or an age-case distribution—and a second one of death rates, that is the number of deaths relative to the persons at risk in each age group. The Registrar General's figures for deaths from nephritis (not rates) among females for the period 1930-2 which can be compared with Professor Platt's series, is (calculated as a yearly average)

Ages	15-24	25-34	35-44	45-54	55-64	65-69	70+
Deaths	462	276	452	1 128	1 917	1 266	2 701

From this the following facts emerge: (1) Both series show a peak in the region 16-24, and the Registrar General's thus includes deaths from renal disease proper. (2) Professor Platt's series cannot be regarded as having been obtained from a representative sample of the population at risk in each age group, since it is almost completely deficient in the higher age groups. This is confirmed if his series for deaths from malignant hypertension is considered, the trend of

which, according to Professor Platt, should be in good conformity with that of the Registrar General. As can be seen, even that series is almost completely deficient in the higher age groups, and thus shows that the population from which Professor Platt's cases were drawn did not correspond in its age composition to that of the population at large.

To draw conclusions by comparing a non random sample with a random sample would seem a somewhat hazardous procedure in a controversial matter like the present. Strictly speaking, however, the two series are not comparable for a more obvious reason, since Professor Platt's series is one for malignant hypertension only, whereas that of the Registrar General evidently includes deaths due to benign hypertension. Had his series been one for total essential hypertension (benign and malignant) it might have shown the trend of the Registrar General's.

2. Professor Platt then compares the number of deaths from nephritis among textile workers with those of the Registrar General's social classes III and IV, with the result that he does not find a significant difference in the frequency of such deaths.

The proper background, however, against which to judge the incidence of nephritis among textile workers is not the artificial classification into social groups but the incidence in the total population of which textile workers are supposed to form a random sample. This is the procedure adopted by the Registrar General in calculating standard mortality ratios. That is, we must use the series in Table II of Professor Platt's paper as the background against which to judge the significance of deaths among textile workers as given in Table IV. Since Table II is one of death rates the data of Table IV must be transformed into rates for the purpose of comparison. We then obtain (for males) the following series with which to compare the top row of Table II:

Deaths from Nephritis per 100 000 at Risk in Each Age Group

Ages	15-24	25-34	35-44	45-54	55-64	65-69	70+
Textile Workers Deaths per 100 000	21	14	20	111	163	65	31
All males Deaths per 100 000	15	9	18	49	105	359	359

We now see that the two series though similar in trend—since reflecting the mortality due to one and the same group of diseases—still show an increase in the death rate for textile workers in all age groups except the last. This according to Professor Platt's reasoning must be interpreted as an increased risk for dying from malignant hypertension in the higher age groups, but also as an increased risk for dying from renal disease in the lower age groups. It would thus seem—adopting Professor Platt's theory of essential hypertension as a hereditary disease for textile workers—that such workers in addition to being through their hereditary make up prone to malignant hypertension are also at an increased risk of falling a prey to renal disease through environmental factors—I am, etc.,

Bristol

G. HERDAN

### Medical Films

SIR—Mr Malcolm Donaldson (Nov 27 p 955) has drawn attention to a point most worthy of consideration. In the past, considerable lip service has been paid to surgical teaching films, but who or what they teach has never been made very clear. Both in this country and in the United States medical film catalogues are studded with titles of surgical technique films. These films vary in length from a few minutes to about an hour depending very largely on whether editing has been severe or comparatively non-existent. Yet the proportion of this collection which enjoys a general distribution must be very small indeed. In searching for the reason for this it might reasonably be concluded that too many films of this type are dependent for support on the spoken commentary of an individual surgeon or else are produced expressly to demonstrate surgical prowess.

Be this as it may, no quarrel can be sought for public money is rarely involved and, to use an actual quotation "medical film producers have to live." It is however disturbing to realize that the mere introduction of explanatory diagrams or shots made away from the true atmosphere of the theatre may do much to christen obscure prints and can be effected without great additional expense. Footage of film alone will not teach—I am, etc.,

London SW 1

PETER HANSLEY  
Director of Medical Photography  
Westminster Hospital Medical School

## H II in Malignant Disease

SIR—Regarding the case reports quoted by Mr J H Thompson and Dr G J W Ollerenshaw (Nov 6, p 835), Case 4 corresponds very closely to a patient who was under my care from 1944 to 1946. There is, however, one important detail omitted from the report—namely that his right leg was amputated through the thigh on Jan 1 1945. As this is a factor of fundamental importance in his treatment and the radiographic shadows in the chest were never proved to be metastases I think for the sake of accuracy that these facts should be stated. The account as given might lead the reader to infer that the osteosarcoma of his tibia had benefited by the treatment—I am, etc,

Bristol

R MILNES WALKER

## POINTS FROM LETTERS

## Fibrositis

Dr J B PRIMER (Aberdour Fife) writes. May I be allowed to add my testimony to the fact that fibrositis is a reality and not a chimera? As the result of an accidental wetting of the left leg I have had recurrent attacks in wet weather. Palpable nodules are now present above the left patella, and no doubt if they were examined microscopically—which heaven forbid!—they would confirm the findings of the late Professor Stockman, of Glasgow University relative to fibrositis. But as the nodules give me no concern I leave well alone. The treatment I found efficacious was the application of iodine and methyl salicylate together with infra red therapy.

## Shortage of Nurses

Dr G D LAING (Limpsfield Surrey) writes. It is no use building new hospitals and restoring old ones if you cannot get the staff to run them. If we cannot get enough nurses to work our hospitals and infirmaries for old people the new Health Service will break down. The reason for this shortage is that nurses especially probationers are grossly underpaid and very hard worked. The nurse is paid distinctly less than half the amount of a domestic servant and has longer hours, harder work, and less freedom. Typists shop assistants and telephone girls get much higher wages than nurses and much more freedom. Can you wonder that girls do not go in for nursing? They cannot afford to.

## Procaine Penicillin

Dr T STRATON (Fordingbridge, Hants) writes. I was interested to read the article by Drs P F Jones and R A Shooter (Nov 27, p 933) about the use of procaine penicillin. I have used it fairly extensively in general practice and found it satisfactory, though it was not possible to estimate blood concentrations. In a few cases I felt that the procaine penicillin alone was not satisfactory so in some I tried adding sodium penicillin in distilled water—200,000 units to the 300,000 units of the oily procaine penicillin. Another alternative I tried was to give penicillin and sodium citrate tablets (containing 100,000 units of penicillin) three hourly as well as the procaine penicillin. In both these methods results were satisfactory and no untoward reactions were seen. My numbers were extremely small—two in each of these groups—and so obviously do not prove anything. But I bring this to your notice in the hope that someone with the necessary facilities might consider it worth while to test the methods out scientifically. A proved satisfactory method of giving penicillin in general practice would be a great advantage.

## Sodium Sulphate for Bleeding Piles

Dr T PIRES (Weston super-Mare) writes. I was very much interested in reading of Dr Bertha Henly's experience (Nov 27, p 959) with saturated sodium sulphate solution and would therefore pick out two from several conditions with oedema and inflammation where it has proved beneficial. In the first instance I use it invariably for every slight oedema in sprains of joints though Dr Lyth's theory of how it works does not account for any effect produced through the unbroken skin. Here it is remarkable how both swelling and pain are rapidly relieved. It is best however, to continue with the dressing for a few days as this in some way ensures that the joint is not left weak and does not give way, as is so often the complaint. The other instance was the case of a very difficult extraction of a tooth with an apical abscess. This was effected actually in two one hour sessions in the dentist's chair. In spite of local penicillin 10,000 units the cavity in the lower jaw remained unhealed and extremely painful. A prod of the saturated solution was applied for a quarter of an hour and then for three quarters of an hour. The relief from pain commenced subsequently, and at the next visit the dentist discharged the patient who nevertheless continued the applications till the gum healed over completely.

## Obituary

ARTHUR ROBINSON, MD, LL.D. FRCS

Professor Arthur Robinson who had been living in retirement in the South of England, died at Eastbourne on Dec 3 at the age of 86. He had been professor of anatomy at Edinburgh University from 1909 to 1931.

Born in Manchester, he received his medical training at Edinburgh University where he graduated M.B. Ch.M. with honours in 1883. He at once turned his attention to anatomy and was appointed demonstrator by Sir William Turner. Two years later Arthur Robinson returned to Manchester as demonstrator in anatomy at Owens College and in 1888 he became senior demonstrator there and in due course lecturer in the Victoria University under Professor A. H. Young with whom he collaborated in several pieces of research. In 1896 Robinson was appointed the first whole time lecturer in anatomy at the Middlesex Hospital Medical School where he followed Bland Sutton. Having thus established his reputation as a rising young anatomist he moved at short intervals to the *chairs of anatomy at King's College London (1900)*, the University of Birmingham (1904) where he was also sub-dean of the Faculty of Medicine, and finally to Edinburgh in 1909 where he succeeded D. J. Cunningham. In all these posts he displayed his talent for organization and his powers as a teacher while continuing to carry out important researches in his chosen field of comparative embryology.

Robinson's first paper 'On the Position and Peritoneal Relations of the Mammalian Ovary' appeared in the *Journal of Anatomy and Physiology* in 1887, other papers followed, and in 1890 he received a Gold Medal for his M.D. thesis on 'The Development of Two Rodents'. His best known work and that by which his reputation will stand is on the 'Comparative Anatomy of the Placenta' embodied in three lectures which he delivered in 1903 as Hunterian Professor of the Royal College of Surgeons. As early as 1888 Robinson was collaborating with A. H. Young in morphological studies, including work on the development of the vascular system and in 1902 they were joint contributors to the first edition of the *Textbook of Anatomy* edited by D. J. Cunningham, they were responsible for the sections on general embryology and on the vascular system. Robinson himself succeeded Cunningham as editor of this well known textbook and also of the *Manual of Practical Anatomy* and was responsible for the production of several editions of each. His editorial work no doubt took up a great deal of his time, but he continued to pursue the developmental problems that interested him. He did further work on the formation of the ovarian follicle, the presence of lipoids in mammalian ova and the development of veins—the last a subject on which he was recognized as a great authority.

From 1920 to 1922 Professor Robinson served as president of the Anatomical Society of Great Britain and Ireland which he had joined in 1889. In 1920 he was Struthers Lecturer of the Royal College of Surgeons of Edinburgh, of which he became a fellow in 1912 and took as his subject 'Pre-natal Death'. In 1924 he was elected FRCS, and the Royal Society of Edinburgh awarded him the Neill Prize for the period 1925–7 for his Contributions to Comparative Anatomy and Embryology. He was a Fellow of King's College London and he received the LL.D. from the University of Edinburgh on his retirement. Professor Robinson's preparations for retirement in 1931 were clouded by serious eye trouble which gave rise to much anxiety. But his friends were relieved to learn that a good measure of sight had been spared to him. His resilient spirit enabled him to overcome the disability that remained and in these later years of his long life he quietly enjoyed the general reading for which during his very active professional days he had always regretted that he had so little time.

Professor Robinson married Emily, third daughter of John Bailly in 1888 and in this year of their diamond anniversary we extend our sympathy to Mrs. Robinson on the loss she has sustained.

## F B PARSONS, M.D., F.R.C.P.

Dr Frank Bett Parsons was at work and in full vigour until within a few days of his untimely death, at the age of 46, on Dec 4 after a very short illness.

He was born at Chatteris, Cambridgeshire, and from Wellesborough he entered Downing College, and again returned to Cambridge after qualifying in 1925 at St Bartholomew's Hospital. He took the Cambridge M.B. in 1926, and proceeded M.D. in 1929, his thesis embodying work on the action of drugs, much of which was carried out under the late Professor W. E. Dixon in the pharmacological laboratory. A few years in general practice, one at Guildford preceded his entry into consulting medicine on his appointment to the staff of Addenbrooke's Hospital in 1938. But Parsons had managed to keep in touch with the pharmacological aspects of medicine, and he published papers on 'avertin,' on anaesthesia and on mechanical laxatives. Parsons had an original mind and the faculty of an alert curiosity which made him seek out things for himself never content to accept a fact or theory simply because it had the weight of authority behind it. His energy and ability soon brought their reward in other appointments, notably as honorary physician to Papworth Village Settlement and as liaison officer between the hospital and the university, a new departure which foreshadowed the closer and happier linkage which now exists. He was elected a fellow of the Royal College of Physicians in 1946.

Dr Parsons was a keen and active member of the Cambridge Medical Society and of the B.M.A. and was secretary of the local Cambridgeshire and Huntingdonshire Branch for several years. He was also vice-president of the Section of Neurology at the Annual Meeting in Cambridge only last July. Though neurology had become increasingly his speciality, he remained always a general physician. As a successful consulting physician in a big rural area he found the demands on his time and energy left no leisure for other pursuits, and medicine was in a sense his great hobby. Parsons had a gentle manner which came of his personal modesty and kindness, and his services were always available to his colleagues and a large circle of general practitioners in country and town who had grown to rely on his willingness, sound judgment and even temper. He was interested in people and had a retentive memory for details of family and face, and no doubt this was one clue to the great esteem and affection in which he was held. But he was also a fighter, and nothing roused him to action more certainly than the bureaucratic touch. In it he saw the interests of patient and doctor alike threatened, or forgotten. All who knew him and they are many will feel his loss deeply. No one can quite fill his place in the community, and the sympathy of his colleagues and friends will be extended to his widow and two children.

S. H. P. writes: Ten days before his untimely death Frank Parsons told me that he was a sick man. With a full realization of the inevitable outcome of his illness he put his affairs in order and waited calmly and with fortitude. Parsons will long be remembered in Cambridgeshire, his own county. His loyalty to his colleagues was absolute, his kindness to patients proverbial. As a consultant he never lost sight of the difficulties and problems of the general practitioner, and his advice, always helpful and greatly sought, was invariably tempered with sound common sense. We all deplore the loss of a good friend.

A former pupil writes: Dr Parsons's short illness and early death will come as a tragic blow to his hosts of friends, both medical and lay. He held a unique position as consulting physician in Cambridge and for fifty miles around. He had a prodigious memory for people and places and was a man of fearless independent thought, like Hughlings Jackson and Sir James Collier, whom he often quoted. He had an intimate knowledge of neurology and pharmacology, but his students learnt most from his philosophy of life and from his perfect handling of his patients and their relatives. His students of many generations will sorely miss him.

Dr RICHARD VINCENT BREWS died in the London Hospital at the age of 75 on Oct 28. After qualifying at the Royal College of Surgeons, Dublin, in 1898 he took up practice in North

Woolwich, and had worked there ever since until six weeks before his death. Dr Brews had been a member of the B.M.A. for the past thirty seven years and took a leading part in all local medical matters. He was a member of both the East Ham Panel Committee and the East Ham Insurance Committee from their constitution in 1921 until 1948. He was made chairman of the Panel Committee in succession to the first holder of that office, Mr J. W. Hill, and was elected chairman of the Insurance Committee in 1937. His tact and ability, allied to his thorough knowledge of the National Health Insurance Act made him an invaluable member of both committees and earned for him the admiration of both his medical and lay colleagues. He served as police surgeon to the 'K' Division of the Metropolitan Police for over fifty years, and was a justice of the peace for the County of London. When the blitz came Dr Brews had reached retiring age. Rather than retire he stayed to face its dangers and its rigours. In 1943 he was attacked by a grave illness, but he carried on his work while under treatment and fought his way to complete recovery. His courage and fortitude in these hard years were a shining example to the neighbourhood. Dr Brews had a cultured mind, a clever pair of hands, and an immense capacity for work. He was receptive of new ideas to the end and kept abreast of all advances in medicine. If there were an hour or two of leisure in the day he retired into his little workshop to amuse himself at woodwork or in mending machinery. His other hobbies were fishing and shooting. He leaves a son, Alan, who is gynaecologist to the London Hospital, and a daughter, Mrs Barlow, who has exhibited paintings at the Royal Academy. His patients, long used to an ideal blend of kindness and firmness will miss him sadly, so, too will his friends his medical colleagues and all who knew him.

## Medical Notes in Parliament

The Dangerous Drugs Regulations, 1948 and the Raw Opium Regulations, 1948, were presented to Parliament on Dec 8.

### National Service

Speaking on Dec 6 during the Committee stage of the National Service Bill, Mr A. V. ALEXANDER said young men liable for whole time service for eighteen months after Jan 1 would be able as at present to apply for deferment to complete their studies before call-up. Their application would generally be granted. If they chose to do their military service first they could ask to be called up early so as to be out in time to go to the university in the appropriate October at the beginning of the university year. Later in the same debate Mr ISAACS said that normally there was about three months between announcement of a registration and earliest call up.

Mr HUGHES pointed out that in the United Kingdom in 1946 cases of venereal disease were 7.7 per 1,000 strength. In the B.A.O.R. the proportion rose to 30.4 for the first quarter 41.8 for the second quarter 44.6 for the third quarter and 41.8 for the fourth quarter.

Mr EMRYS HUGHES quoted an estimate in a Free Church Council report that 80% of the Army personnel on the Continent was supplied with prophylactics.

Mr SHINWELL said that, provided proper care was taken of the welfare of young soldiers in Germany and that they were engaged in arduous military training, they were all right.

### Ceiling for Dentists

Replying on Dec 9 to Mr MCGHEE, Mr BEVAN declared that he was undertaking with the dental associations a full review of the present translation of the Spens Committee into fees for services. Meanwhile as it was obvious that some dentists earned far more than that Committee ever contemplated he was adopting a temporary arrangement whereby fees were reduced by half after a dentist reached an income of £4,800 gross—or £1,000 in excess of the point at which the Spens Committee said the risk of bad dentistry began. Mr Bevan recalled that doctors already had a limit in the number of patients allowed on their lists.

Mr BESWICK on Dec 9 asked Mr Bevan, in view of the grave shortage of dental practitioners, to see that the services of qualified dental practitioners who came to this country before 1939 were fully utilized.

Mr BEVAN said that the admission of foreign-trained dentists to the *Dentists' Register* was under statute a matter entirely for the General Medical Council.

On the same date Dr SEGAL asked how many dentists with foreign qualifications had been refused registration in this



country Mr BEVAN said there were approximately 1,200 such cases since 1935 (inclusive) when foreign dentists began to enter this country from the Continent in appreciable numbers. He explained that the Minister of Education had no objection to the employment in the School Dental Service of any foreign dentists provided that they were legally entitled to practise dentistry in this country.

Mr BEVAN further explained that the conditions on which foreign trained dentists could practise in this country were prescribed by the Dentists' Acts. The duty of ensuring that these conditions were fulfilled rested with the General Medical Council.

In reply to a further question Mr BEVAN said that of the sum of £4 750 000 paid or owing to dentists for work completed under the National Health Service up to about 40% was in respect of new dentures.

### If and When

On Dec 9 Mr JOYNSON-HICKS inquired whether Mr BEVAN knew that medical specialists were, under the operation of the National Health Scheme, limited to making a total of twenty-five visits per quarter upon patients in a given area.

Mr BEVAN replied that there was no limit on visits. Remuneration had a provisional ceiling for each quarter while longer-term arrangements—which would date back—were being worked out. The question of treatment of patients when a specialist had filled his schedule would be considered if and when it arose.

### Dr Voeller's Claims

Dr SEGAL asked on Dec 9 how many British subjects had been enabled to travel to Kassel to undergo the Voeller treatment for Parkinson's disease.

Mr BEVAN said that no British subjects had so far been permitted by the United States authorities to travel to Germany for treatment by Dr Voeller. He was arranging a full investigation into Dr Voeller's claims. If these were substantiated he would see what could be done to ensure that the treatment was available to all sufferers from the disease.

## Medico-Legal

### NULLITY AFTER ARTIFICIAL INSEMINATION

[FROM OUR MEDICO LEGAL CORRESPONDENT]

In the nullity suit *R E L v E L* tried before Mr Justice Pearce in the Divorce Division on Nov 30 it appeared that the parties were married in 1942, the wife being 25 and the husband 31. For the first three years the husband made no attempt to consummate the marriage saying that it was difficult to have children during the war. He also found it difficult to talk about sex. In June, 1945 the wife made him face the question, and he was never able to consummate the marriage. In the autumn of that year the wife consulted a doctor for bad health and nervous trouble. The doctor impressed the seriousness of the position on the husband and tried to persuade him to undergo psychotherapy but the husband was unwilling. The wife was anxious to have a child and discussed artificial insemination with him. At the end of 1946, under expert guidance she tried to inseminate herself with the husband's semen but failed. In December, 1947, the husband visited a psychologist at whose suggestion the wife had an artificial insemination from the husband. At the end of January she decided to leave him, not knowing she was pregnant, and a child was born in September. She petitioned the court for a decree of nullity on the ground of the husband's incapacity to consummate the marriage. The husband did not contest this allegation, but pleaded that by accepting artificial insemination his wife had approbated the marriage and that to grant a decree of nullity and thus make the child illegitimate would be against the public interest.

Mr Justice Pearce said in his judgment that the cause of the husband's incapacity seemed to be a deep seated neurosis. The wife was a perfectly honest woman who had tried hard to make a success of the marriage under difficulties that involved considerable strain and humiliation. The marriage had broken down hopelessly and she could never go back to it. There had just been a chance that the birth of a child might have

overcome the husband's psychological trouble or have resigned the wife to an unnatural marriage. There was no lack of sincerity on her part: she had not willingly acquiesced in an impotent marriage. He saw no hope of happiness from keeping the couple married. The future held better augury for the child if he granted a decree than if it were brought up by an embittered wife, tied up for life to a marriage that had never been a real marriage. That the child should be made illegitimate was most regrettable but sons were not now judged by the errors of their parents. The few who would know of the illegitimacy would probably also know the facts and there was nothing that reflected any dishonour on either of the parents or the child. He therefore granted a decree of nullity.

The question of the illegitimacy of such a child is new for without artificial insemination a child cannot be born if the husband is impotent. It should be carefully noted that the learned judge did not decide, and indeed had no power to decide, that this child was illegitimate. All he did was to state that in his opinion the effect of his decree was to render the child illegitimate. As one legal correspondent pointed out this does not imply that a child conceived by artificial insemination is illegitimate if the marriage is valid. Moreover, it is by no means certain that the judge is right. Another legal opinion was that the child was born of parents who had gone through the marriage ceremony and were entitled to go through it, and that it therefore could not be illegitimate. According to the same source, the mother's solicitors point out that, assuming she has already obtained a birth certificate giving the name of the husband as father, the certificate will remain showing the child as legitimate. She has given no wrong information. The Ministry of Health is quoted as saying that a correction to a birth certificate is made only where false information has been given in the first place, and the Registrar General as saying that the case has no precedent and that the information was apparently correct at the time it was given. The court could be moved for a declaration of legitimacy on behalf of the child but not—except in the course of some other matter such as a claim to succession to property—for a declaration of illegitimacy, and the present decree of nullity does not operate as such a declaration.

There is as yet no legislation on artificial insemination, but the law contains an interesting analogy within the provision allowing a marriage to be annulled for wilful refusal of one of the parties to consummate it. This is a new ground, introduced by Herbert's Act in 1937, and of course it brought as its consequence the possibility that a marriage might be annulled even though a child had been conceived before the parents had married and had been rendered legitimate by their marriage. To protect such a child from being made illegitimate again by the nullity, Parliament expressly enacted in Herbert's Act that the decree should not have that effect. Undoubtedly in justice the same principle should operate here, and perhaps such provision will be made if and when Parliament is called upon to legislate for artificial insemination. Meanwhile, with due respect to the learned judge, the question of the child's legitimacy remains open.

In the House of Commons on Dec 7 Mr Driberg asked the Prime Minister if he would consider the appointment of a Royal Commission to examine the social and legal implications of the practice of human artificial insemination, including A.I.D., with special reference to the problems of legitimacy and inheritance involved. Mr Attlee replied that he would prefer first to see the general Report of the Royal Commission on Population which was said to be in the final stages of drafting. It seems clear from the statement of the Prime Minister and a previous statement given on behalf of the Attorney-General that any question of legislation on the subject of artificial insemination will have to await the appearance of the long awaited Report of the Royal Commission on Population. On the other hand Mr Ede announced on Dec 9 that in consultation with the Attorney-General he was considering the introduction of a Bill to legitimize the children of parents who had gone through a marriage which was later annulled.

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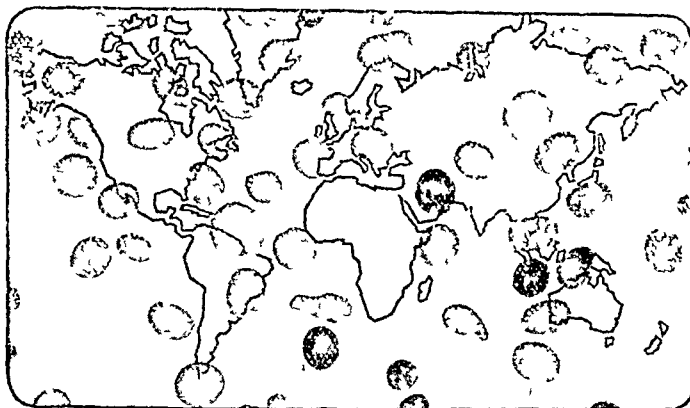
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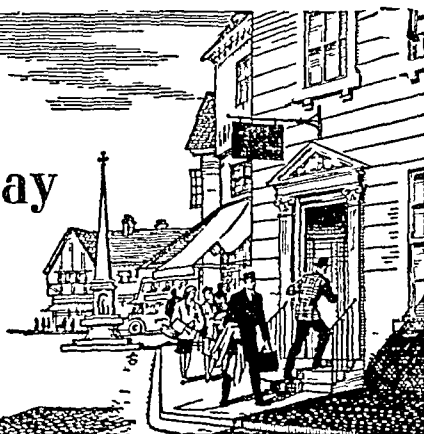
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No 48

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov 27

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland  
Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland  
A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	36	5	16	1	—	44	3	22	2	—
Diphtheria Deaths	141	8	37	4	—	216	30	52	20	10
Dysentery Deaths	72	9	46	2	—	77	14	40	—	—
Encephalitis lethargica acute Deaths	1	—	—	—	—	—	—	—	1	—
Erysipelas Deaths	—	—	40	12	4	—	—	37	8	—
Infective enteritis or diarrhoea under 2 years Deaths	21	2	5	37	2	61	4	8	45	4
Measles* Deaths†	8 547	127	197	53	66	2 772	121	337	190	23
Ophthalmia neonatorum Deaths	43	5	10	—	—	51	1	4	2	—
Paratyphoid fever Deaths	1	—	4 (B)	—	—	18	1	1 (B)	—	—
Pneumonia influenzal Deaths (from influenza)*	716	63	5	1	2	567	31	7	4	3
Pneumonia primary Deaths	22	2	2	1	—	18	1	—	1	—
Poliomyelitis acute Deaths	234	29	243	32	1*	34	309	17	5	17
Poliomyelitis acute Deaths‡	5	—	—	—	—	3	1	—	—	—
Poliomyelitis acute Deaths§	42	2	2	3	—	103	7	15	6	2
Puerperal fever Deaths	—	—	9	—	—	—	3	10	—	—
Puerperal pyrexia   Deaths	82	10	7	—	1	134	6	9	—	1
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 544	91	281	165	5*	1 765	123	334	54	47
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	3	—	1	4	1	8	2	—	1	1
Typhus fever Deaths	—	—	—	—	—	—	—	—	—	—
Whooping cough* Deaths	2 747	162	120	52	16	1 513	105	57	28	6
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	273	29	50	14	1*	382	34	66	29	25
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	4 847	779	631	180	120	4 711	721	646	185	156
Live births Annual rate per 1 000 persons living	7 018	1139	861	327	231	7 891	1245	1009	431	201
Stillbirths Rate per 1 000 total births (including stillborn)	172	12	23	—	—	189	27	22	—	—

\* Measles and whooping cough are not notifiable in Scotland and the returns are therefore an approximation only

† Deaths from measles and scarlet fever for England and Wales London (administrative county) will no longer be published

‡ Includes primary form for England and Wales London (administrative county) and Northern Ireland

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales London (administrative county) are combined

|| Includes puerperal fever for England and Wales and Eire

## EPIDEMIOLOGICAL NOTES

## Tuberculosis in the British Zone

According to the *Monthly Report* of the Control Commission for Germany, the death rates in the British Zone from pulmonary tuberculosis during the first six months of 1948 were less than those for the first half of 1947. These rates, calculated as annual rates per 10 000 of the population were 6.54 and 6.8 in 1948 and 1947 respectively. It is two years since a large increase in the incidence of the disease was first reported, but the number of deaths has actually decreased despite the arrival in the British Zone of a great many refugees and prisoners of war from the east suffering from advanced tuberculosis. This bears out the findings of the British Medical Research Council on tuberculosis in the British Zone—namely, that the increase reported by German doctors was a paper increase only, resulting from a revised scheme of reporting. The number of deaths from other forms of tuberculosis has also decreased. The annual rates per 10 000 of the population were 1.36 in 1948 compared with 1.7 in 1947.

The annual death rate for pulmonary tuberculosis in the British Sector of Berlin during the first half of 1948 was 12.7 per 10 000 of population compared with 18.3 for the similar period in 1947. With regard to other forms of tuberculosis there was no change in the number of deaths which remained at 1.4 per 10 000 per annum for the first half of 1947 and 1948. In Berlin as a whole the death rate for tuberculosis is higher than in the British Sector, and although there has been a decrease during the past two years it is still higher than the rate in the British Zone.

## Discussion of Table

In *England and Wales* increases were recorded in the notifications of measles 1,624 whooping cough 67 and dysentery 23, and decreases for scarlet fever 291, acute pneumonia 16 and diphtheria 13.

The rise in the incidence of measles was mainly concentrated in the north, and only a slight increase occurred in the southern section of the country. The largest rises were Lancashire 492, Yorkshire West Riding 233, Lincolnshire 173, Derbyshire 142, and Staffordshire 104. Only small changes were recorded in the returns of whooping cough, the largest were a rise of 42 in Cheshire and of 43 in Devonshire.

A decreased incidence of scarlet fever was recorded throughout the country, the largest falls were Lancashire 60, Yorkshire West Riding 46, Middlesex 35, and Staffordshire 23.

In contrast to the general trend of diphtheria a rise of 11 was recorded in Lancashire partly due to an outbreak affecting 7 persons in Standish with Linnetree UD. Another local outbreak of diphtheria was in Glamorganshire Merthyr Tydfil CB 8. The largest variation in the local returns of acute pneumonia was a decrease of 27 in Lancashire.

An outbreak of dysentery affecting 14 persons was notified in Glamorganshire, Pontardawe RD. Other returns of dysentery were Lancashire 13, Essex 10, and London 9. The largest returns of acute poliomyelitis were Lancashire 4, Warwickshire 4, and Middlesex 3.

In *Scotland* increases occurred in the notifications of measles, 44, acute primary pneumonia 18 and whooping cough 10, and there were decreases in diphtheria 21 and scarlet fever 44. Notifications of diphtheria in the city of Glasgow fell from 31 to 14. There were 8 fewer cases of dysentery notified from Glasgow, but an outbreak affecting 6 persons was notified in Greenock.

In *Eire* decreases were recorded in the notifications of measles 16, whooping cough 16, scarlet fever 9, and diphtheria 7. An outbreak of whooping-cough with 11 notifications occurred in Tipperary, Nenagh RD.

In *Northern Ireland* an increase of 14 was reported in the notifications of scarlet fever. Notifications of measles from Belfast CB were 12 in excess of the total of the preceding week.

## Quarterly Returns for Scotland

The birth rate during the third quarter was 18.7 and was 0.1 below the average of the five preceding September quarters. The infant mortality was 40 per 1 000 registered live births and was 12 below the five years' average. Stillbirths were equivalent to a rate of 28 per 1 000 total births. The general death rate was 10.5 per 1 000 and was 0.1 below the five years' average. The death rate from all forms of tuberculosis was 66 per 100,000 and that from respiratory tuberculosis was 59. These rates were respectively 3 below and 6 above the average rates for the third quarters of the five preceding years. Only 51 deaths were attributed to the principal epidemic diseases.

and the rate was only half of the five years average. These deaths included 17 from whooping cough, 16 from influenza, 8 from diphtheria, and 6 from cerebrospinal fever.

#### Week Ending December 4

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1,527, whooping cough 2,562, diphtheria 131, measles 8,562, acute pneumonia 897, cerebrospinal fever 33, acute poliomyelitis 51, dysentery 64, paratyphoid 10, and typhoid 4.

## Medical News

#### Vice Chancellor of Hong Kong University

Colonel Lindsay Tasmán Ride has been appointed Vice Chancellor of the University of Hong Kong.

An Australian Rhodes scholar, Colonel Ride graduated in medicine at Oxford University in 1927 after receiving his clinical training at Guy's and proceeded D.M. in 1939. He has been professor of physiology at the University of Hong Kong since 1928.

#### Thomas Percy Legg Memorial Lecture

The first Thomas Percy Legg Memorial Lecture entitled 'Principles of Surgery Exemplified in the Story of Hare Lip and Cleft Palate' was delivered by Mr Denis Browne on Dec 3. The lecture was founded this year in memory of Thomas Percy Legg, C.M.G., M.S., F.R.C.S., surgeon to King's College Hospital from 1910 to 1930, and is given annually on a surgical subject on the invitation of the Council of King's College Hospital Medical School.

#### Gastroenterological Prize

The National Gastroenterological Association will award \$100 and a certificate of merit for the best unpublished contribution on gastroenterology or allied subjects. Certificates will also be awarded to those physicians whose contributions are deemed worthy. Contestants residing in the United States must be members of the American Medical Association, those residing in foreign countries must be members of a similar organization in their own country. The winning contribution will be selected by a board of judges, and the award is to be made at the Annual Convention Banquet of the National Gastroenterological Association in October of 1949. The Association reserves the exclusive right of publishing the winning contribution and those receiving certificates of merit in the *Review of Gastroenterology*. All entries should be limited to 5,000 words, be type written in English, prepared in manuscript form submitted in five copies accompanied by an entry letter, and must be received not later than April 1, 1949. They should be addressed to the National Gastroenterological Association, 1819, Broadway, New York, 23, N.Y.

#### Postgraduate Training in Psychiatry

The South West Metropolitan Regional Hospital Board, with the requirements of the English Conjoint D.P.M. in mind, is preparing a training course in psychiatry on lines not hitherto attempted in this country. Every six months six registrars will be accepted for training in the Board's hospitals and each of them will pass through three hospitals over a period of two years. During the first phase of nine months two trainees will go to each of three hospitals close to London and to each other. At Belmont (Sutton) Hospital clinical material is largely psychoneurotic and there is a substantial industrial unit and a department of electroencephalography. At St Ebba's Hospital early psychotic cases are admitted and plans are complete for the establishment of departments of electroencephalography and neuropathology. Netherne is a progressive modern hospital, having special emphasis on clinical research. These three hospitals will pool resources so that wherever the trainee is sent he will have an opportunity of studying the work of all three. The staff of the teaching hospitals will participate in formal teaching and the necessary instruction in neurology will be completed before passing on to the second phase.

Graysnevel Hospital, St James Hospital, Portsmouth, and Warrlingham Park Hospital will provide the training for the second period of nine months. These hospitals offer comprehensive mental health services with a wide range of community contact. At this phase a measure of clinical responsibility will be undertaken under supervision and the trainee will fit into the general framework of the hospital staff so far as possible. Tuition in child psychiatry visits to courts, prisons and approved schools, and practical experience of community services will be arranged during this period. The last six months before taking the D.P.M. will be spent in a mental deficiency institution—the Fountain Hospital, Botleys Park, and the Manor. For the first year a salary of £700 will be offered, with an increase to £800 during the second year. Experience in a general hospital will be obligatory and preference will be shown to those who have had six months experience in mental hospitals as house-physicians and who have decided to specialize in psychiatry.

#### Training for Ward Sisters

King Edward's Hospital Fund is about to open a staff college in South Kensington to which State registered nurses may come for short courses in preparation for ward sisters posts. If the experiment is successful it is hoped that it will be followed elsewhere. The staff college is under the general guidance of a committee of the Fund, and a principal, warden, and other staff have been appointed. The courses will be of four months duration and will be open in the first instance to nurses seconded for the purpose by hospital management committees and boards of governors in the four metropolitan regions. The first will be held early in 1949, and subsequent courses will be at four monthly intervals. There are no fees and the cost of tuition and residence is being defrayed by the King's Fund. The scheme has the full support and active interest of the Ministry of Health. Inquiries should be addressed to the Secretary, Nursing Recruitment Service, King Edward's Hospital Fund, 21 Cavendish Square, London, W.1.

#### British Council Scholarships

Some 60 British Council scholarships out of a total of 359 new awards and extensions for the academic year 1948-9 have been awarded to scholars studying medical subjects. The scholarships are awarded to overseas graduates or others of like status to enable them to undertake a year's specialist study at a British University, college, hospital, or other educational institution.

#### New Haematological Journal

*Acta Haematologica* is a new journal published in Switzerland by S. Karger, of Basle. It prints articles in English, French, and German, each with a summary in all three languages. The English editor is Dr F. Rosenthal, of Leicester. The journal will publish original articles on haematology as well as surveys of the specialty and book reviews.

#### Medical Golf

At the annual general meeting of the London Irish Medical Golfing Society held on Nov 18 Dr J. E. Ambrose was elected president and Dr S. C. Morrow captain for the year 1949.

#### National Service

The Ministry of Labour reports that 299,121 medical examinations were carried out in 1947 on men and women volunteering or called up for National Service. 117 men were prosecuted for refusing to submit to medical examination. The Nursing Appointments Offices placed 10,534 men and women in whole time nursing posts and 2,446 in part time nursing posts. At the end of the year there were 2,488 vacancies for men and 29,622 for women. At the middle of December, 1947, there were 846,000 disabled persons voluntarily registered under the Act of 1944, most of them were in employment. During the year 6,822 disabled men and women completed vocational training courses.

#### Will

Professor Daniel Dougal, of Manchester, left £31,312. He left his microscope and all medical books to the Victoria University Manchester, for the use of the department of obstetrics. Dr Kenneth William Mackie of Salisbury Green Hants, left £11,281. Mr William Dawson Galloway, of Huddersfield left £15,028 and Dr John Alexander Watt, of West Runton, Norfolk left £13,666. Dr Watt bequeathed £200 to Aberdeen University in appreciation of the scholarship awarded to me when a student for a medal or prize in preventive medicine.

## COMING EVENTS

#### Health Education

The Ling Physical Education Association will hold a conference on 'Health Education in Schools' from Dec 29, 1948 to Jan 1, 1949 at Chelsea Polytechnic, Manresa Road, London SW3. It is open to members of the Ling Association and of the Association of Women Science Teachers. Information may be obtained from the Ling Physical Education Association, Hamilton House, Bidborough Street, London, W.C.1.

#### Congress of Otolaryngology

The 4th International Congress of Otolaryngology will be held in London on July 18-23, 1949. Those wishing to attend the congress should apply not later than March 1, 1949, to the secretary, International Congress of Otolaryngology, 45, Lincoln's Inn Fields, London, W.C.2.

#### International Veterinary Congress

The 14th International Veterinary Congress will be held at Central Hall and Church House, Westminster on Aug 8-13, 1949. The programme will be issued later. Information may be obtained from the organizing secretary, 10, Red Lion Square, London W.C.1.

## SOCIETIES AND LECTURES

## Monday

HUNTERIAN SOCIETY—At Talbot Restaurant, 64, London Wall E C,  
Dec 20, 7 for 7.30 p.m., dinner 8.30 p.m., discussion 'Toxic  
Jaundice' to be opened by Professor John McMichael and Dr  
Alice M. Stewart

## Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE—At Edinburgh  
Royal Infirmary (West Medical Lecture Theatre), Dec 21, 5 p.m.  
*Nutrition in Europe During the War and After* by Dr A. P.  
Meiklejohn

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square,  
London, W.C.—Dec 21, 5 p.m. 'Cutaneous Reticuloendo-  
thelioses' by Dr F. Ray Betley

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street,  
London W.C., Dec 21, 11 a.m. 'Aetiology and Diagnosis of  
Gonorrhoea' by Dr W. N. Mascall

## Wednesday

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street,  
London, W.C., Dec 22, 11 a.m. 'Pathology of Gonorrhoea' by  
Dr A. H. Harkness

## Thursday

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street,  
London, W.C., Dec 23, 11 a.m. 'Signs, Symptoms and Asymp-  
tomatic Carrier State of Gonorrhoea' by Dr A. H. Harkness

## APPOINTMENTS

Dr S. L. A. Manuwa has been appointed Deputy Director of  
Medical Services in Nigeria

BURNETT J. S. G. M.D. D.P.H. Medical Officer of Health Preston  
CARTER LOCKE H. B. C. M.B. B.S. D.P.H. Deputy Medical Officer of  
Health Bromley Kent  
FREEMAN P. M.B. Ch.B. D.P.H. Deputy Medical Officer of Health Chelmsford  
KAHN J. H. M.D. D.P.M. Psychiatrist Child Guidance Clinic Huddersfield  
LAWRENCE I. B. M.B. Ch.B. D.P.H. Assistant Medical Officer for Dorset  
and Medical Officer of Health Portland  
MEYON U. K. M.B. B.S. D.T.M. Resident Medical Officer Oakwood  
Hall Sanatorium Rotherham  
NEVIN MARY E. M.D. D.P.H. D.C.H. Medical Officer North London  
Region, Ministry of Pensions  
ROBINSON MARGARET M. F. M.D. D.P.H. School Medical Officer Kettering  
RONALD JAMES M.D. F.R.C.P. Ed. Consultant Physician Scottish Northern  
Regional Hospital Board  
TAYLOR G. H. M.D. D.P.H. Deputy County Medical Officer of Health and  
Deputy School Medical Officer, Warwickshire

## BIRTHS, MARRIAGES, AND DEATHS

## BIRTHS

Franklin.—On Dec 8 1948 to Margaret wife of Dr C. B. Franklin a son  
Tighe.—On Nov '0 1948 at Queen Elizabeth Hospital Birmingham to Nora  
(née Cregan) SRN SCM wife of Dr Robert Tighe of 101 Ashsted  
Row Birmingham a daughter—Maureen Elizabeth

## MARRIAGES

Griffiths-Meigh.—On Nov 6 1948 at St James's Church Bradford Alan  
Lampen Griffiths M.B. B.Ch. B.A.O. D.C.H. of Larne to Gladys Audrey  
Meigh B.A. M.B. Ch.B. D.C.H. of Bradford  
Mumford-Mackenzie.—On Nov 27 1948 at St John the Evangelist's Church  
Blackheath Wilfred Bardwell son of Mr and Mrs E. B. Mumford of Bos-  
combe to Ruth younger daughter of Mr and Mrs J. A. Mackenzie of  
Blackheath

## DEATHS

Blayney.—On Dec 4 1948 at 31 Tudor Drive Watford William Blayney  
M.R.C.S. L.R.C.P.  
Bradley.—On Dec 3 1948 at Greville House Raynes Park Wimbledon S.W.  
James Edmund Campbell Bradley M.B. B.Ch. aged 84  
Callender.—On Dec 2 1948 as the result of a cycling accident Constance  
Muriel Callender O.B.E. L.R.C.P. & S. Ed. L.R.F.P.S. Glas. of Kingsdown  
Deal late of Minia Egypt  
Davis.—On Dec 2 1948 at White Lodge Sonning-on-Thames John James  
Davis M.R.C.S. L.R.C.P. aged 43  
Durbidge.—On Dec 3 1948 at Newport Pagnell Henry Durbidge M.R.C.S.  
L.R.C.P. formerly of Matlock Derbyshire aged 77  
Henderson.—On Dec 1 1948 at 83 Hepburn Gardens St Andrews Fife  
George Edward Walker Henderson L.R.C.P. & S. Ed. L.R.F.P.S. Glas.  
Horsley.—On Dec 2 1948 at Hackney Hospital London E. Lancelot  
Horsley M.R.C.S. L.R.C.P. of 27 Gloucester Place London W.  
McKenna.—On Dec 2 1948 at Greystones Nursing Home Prestwick Fergus  
McKenna M.B. Ch.B. Glas. of Doune Alloway Ayr  
Stewart.—On Dec 4 1948 in a London Hospital Sir Edward Stewart K.B.E.  
M.D. of Bullards East Grinstead Sussex, late vice-chairman B.R.C.S.  
aged 91  
Turner.—On Dec 9 1948 James William Turner M.R.C.S. L.R.C.P.  
Wilson.—On Nov 30 1948 at Linton Cambridge Hugh Mundle Wilson M.B.  
Ch.B. Glas. aged 63

## Any Questions?

Correspondents should give their names and addresses (not for  
publication) and include all relevant details in their questions  
which should be typed. We publish here a selection of those  
questions and answers which seem to be of general interest

## Vitamin B Supplements

Q—There seems to be an increasing tendency to consider  
that children of 1 to 5 years are not adequately fed unless their  
normal diet is supplemented by proprietary preparations contain-  
ing vitamins. Taking the vitamin-B group could you please  
advise on the following points: (1) Is any reliable information  
available regarding the needs of normal children aged between  
1 and 5? (2) Is there adequate evidence that such children  
run any risk under present conditions of vitamin-B shortage?  
(3) Is there evidence that a child already receiving an adequate  
amount of vitamin B in a normal mixed diet derives benefit  
from additional intake of vitamin B (apart of course, from the  
few additional calories)?

A—(1) The 'Recommended Dietary Allowances' published  
by the Food and Nutrition Board of the National Research  
Council, U.S.A. (Washington, D.C., revised 1945), include the  
following figures

	Vitamin B <sub>1</sub>	Riboflavin	Nicotinic Acid
	mg	mg	mg
Children aged 1 to 3	0.6	0.9	6
4 to 6	0.8	1.2	8

The League of Nations "Report on Vitamin Requirements"  
(*Bull. Hlth. Org. L.N.* 1938, 7, 460) gives 200 to 250 i.u.  
(=0.6 to 0.75 mg) of vitamin B<sub>1</sub> per day as the amount "prob-  
ably sufficient for nursery-school children. This is in good  
agreement with the American estimate. The other vitamins of  
the B group are not considered individually in the League of  
Nations report. It is worth noting that the American figures  
are 'recommended allowances' and not 'minimum require-  
ments'—that is, they appear to allow an ample margin for  
safety as well as for individual variation. In any case the  
reputed requirements of these B vitamins of young children  
of 1 to 5 were based more on broad estimates than on any  
precise determinations.

(2) Little work has been published in Britain about the vitamin  
intakes of children between 1 and 5 years old. In a recent survey  
Bransby and Magee (*British Medical Journal* 1947, 1, 525) esti-  
mated the average intakes of vitamin B<sub>1</sub> derived from rations  
and allowances to be as follows

Children of 1 year	mg
2 to 3 years	0.77
4 years	0.74
	0.92

Children of 1 to 5, according to these authors, actually had on  
the whole a better provision of most nutrients than had almost  
any other age. In fact, other groups of the population were  
thought to make up any relative deficiencies from out of the  
"family pool"—that is, from the "surplus" allowed to children  
between 1 and 5.

(3) Of course, if it be accepted that the normal mixed diet is  
already adequate, obviously no advantage is to be expected  
from increasing the intake by the use of supplements. It must  
be admitted that, so far as Great Britain is concerned, there  
have been few if any direct scientific data on the possible benefit  
to health of supplements rich in B vitamins for normal children  
of 1 to 5 years. In America, however, groups of under-weight  
children, tuberculous children, and others have sometimes been  
found to benefit when given extra vitamin B in the form of  
wheat germ, cereal preparations, yeast, or vitamin-B concen-  
trates (Summerfeldt, *Amer. J. Dis. Child.* 1932, 43, 284, Ross  
and Summerfeldt, *ibid.*, 1935, 49, 485, Joslin and Helms, *Arch.  
Pediat.* 1937, 54, 533). Similar claims have been made for



infants and sometimes for adults (for literature see Harris, *Vitamins and Vitamin Deficiencies* 1, 71). More recently Harrell also in America (*J Nutrit* 1946, 31 283) claimed improvement in 'mental and physical skills' in school-children given extra vitamin B.

In this country the substitution of wheatmeal flour and the national loaf for the formerly current white flour and white bread has undoubtedly greatly improved the average B vitamin intake of the whole population. Supplements of multiple synthetic vitamin preparations have not been found to improve the physique or health of school children as a whole (Bransby *et al* *British Medical Journal* 1946 1 193).

One can only conclude (a) that more tests are needed on children of this age group before any confident answer can be given and (b) that in the meantime a healthy scepticism is not unreasonable. Nevertheless (c) some kind of wheat germ preparation forms a nutritious and palatable, if somewhat expensive, addition to the diet, and the writer's own inclination would be to use it occasionally in any normal child's diet and to try pushing it for underweight children.

### Persistence of Ankylostoma Infestation

**Q**—*Can ankylostomes breed in the gut? How long can they persist after a patient has left an endemic area? Some months ago I recovered a large number of ankylostomes from the bowel of a patient who returned to this country from Assam five years ago and to day I saw an ex-officer who returned from Siam three years ago with a moderately heavy infestation. As neither of these patients could have been reinfested since their return I shall be interested to have your views on the subject.*

**A**—The persistence of infection in the patients referred to is in accordance with the belief that adult ankylostomes may live for as long as six years. Ankylostomes cannot multiply in the gut, the larvae hatched from eggs passed in the faeces becoming infective only after further development during a free-living existence. Cases of reinfestation in persons returning from abroad have not been recorded in this country but it has recently been shown that, if the blankets and night clothes of patients with hookworm disease are stored under damp conditions, workers in a laundry may become infected by handling such fomites. It is therefore possible, although very unlikely, that under exceptional circumstances reinfestation might occur in this country.

### Sulphonamide Excretion in Maternal Milk

**Q**—*If a nursing mother develops a streptococcal tonsillitis and is put on full doses of sulphonamides how much if any is excreted in the milk? If so is it excreted in its original form and in a concentration great enough to harm the baby?*

**A**—Sulphonamides are excreted in maternal milk but the concentration attained is considerably less than that in the blood. Suppose the latter to be 10 mg per 100 ml—an adequate therapeutic concentration—and that the infant gets 30 oz (about 835 ml) of milk daily, the amount of the drug consumed daily by the infant would be under 0.05 g. Since at least twenty times this amount can be administered to infants therapeutically, it will be understood that this small dose is unlikely to have any harmful effect.

### "Parpanit" and "Diparcol"

**Q**—*Could you please give any information on parpanit and diparcol with special reference to their use in Parkinson's disease?*

**A**—The treatment of Parkinsonism with 'parpanit' which is a diethylaminoethyl ester of phenylcyclopentane carbonic acid was described by Dunham and Edwards in the *Lancet* of Nov. 6 1948 (p. 724). They find that its action is similar to that of hyoscine or of tincture of stramonium. The side effects of parpanit differ somewhat from those of hyoscine, some patients are likely to tolerate the former better than the latter and vice versa. Diparcol is the diethylaminoethyl derivative of thiodiphenylamine which has been introduced in France for the treatment of Parkinsonism its use is still being investigated.

### Benedikt's Syndrome

**Q**—*What is Benedikt's syndrome?*

**A**—Various syndromes have been described in connexion with lesions of the crus cerebri. A lesion of the peduncle is recognized by a homolateral lesion of the third nerve with a contralateral hemiplegia most pronounced in the face (Weber's syndrome). The oculomotor palsy is often incomplete. When the lesion extends caudally and involves the red nucleus it may produce tremor and ataxia on the contralateral side with a homolateral oculomotor lesion. This latter condition is known as Benedikt's syndrome.

### Wedged Shoes for Genu Valgum

**Q**—*What type of wedged shoe would be suitable for a child with incipient knock-knee?*

**A**—Almost every case of early genu valgum deformity will respond to efficient and long continued wedging of the shoes. It should be emphasized, however, that the wedging must be maintained continuously throughout a prolonged period often of years. The wedge should be at the inner side and should measure 3/16 in (0.47 cm) in thickness at its base. It is usually affixed to both sole and heel, but it is probable that heel wedges alone are equally effective. The most convenient method is to have the wedges applied by an expert shoe repairer, who will usually insert them between the layers of the leather rather than affix them direct to the surface.

### Testosterone and Testicular Atrophy

**Q**—*It is said that testosterone, even in small doses produces testicular atrophy. Should this preclude its use in cases of diminishing sexual function in the early middle aged?*

**A**—Testosterone does tend, in large doses to produce some testicular involution. This is not true of small doses, and in any case it is not a contraindication where there is clinical evidence of the need for replacement of an organic deficiency by testosterone. A diminished sexual function in middle age is to some extent physiological and protective. It may, however, be psychological, or associated with the intensity of the daily problems of modern life. Testosterone should not be given unless the physician believes that he is dealing with a deficiency of testosterone secretion unassociated with the above factors.

## NOTES AND COMMENTS

**Aid to China**—The chairman of the Sheffield Committee (British United Aid to China) writes to say that his committee has two objectives: (1) to support a chair in one of the British linked medical schools of China, and (2) to supply Sheffield made goods needed in hospitals, universities, and schools sponsored by British interests. The China Christian Universities Association will administer the funds financing the chair. The need of the Chinese people is desperate, particularly for hospital instruments. Donations will be gratefully accepted by the chairman of the Sheffield Committee, 15, Endcliffe Hall Avenue, Sheffield, 10.

**The Thirty Seven Club**—The club wishes to raise £250,000 to provide essential social amenities for the coloured community in Southern Rhodesia. The club is appealing for a million shillings from overseas sympathizers and would gratefully acknowledge donations of a shilling or more. Postal orders and cheques should be made payable to the Honorary Treasurer Million Shilling Fund, The Thirty Seven Club, P.O. Box 397, Bulawayo, S. Rhodesia.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Atiology*, *Westcent*, London. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7 Drumshugh Gardens, Edinburgh.

# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 18 1948

## THE SECRETARY REPORTS

### REMUNERATION AND SPENS

The detailed account of the Spens remuneration among practitioners in a sample area, now completed, was before the Remuneration Subcommittee of the General Medical Services Committee at its meeting on Wednesday, Dec 8. Further investigations are being begun immediately in other sample areas, including rural areas. In the meantime as a matter of urgency, a deputation is to lay before the Ministry forthwith a case for an immediate increase in the Mileage Fund to meet the urgent problems in rural areas, coupled with a request for immediate payment from the Inducement Fund for practitioners who have suffered hardship in all kinds of area and who are needed in their areas. This step should not lead practitioners who have suffered hardship to defer making application to the local executive council for payments from the Inducement Fund. Naturally, some practitioners are reluctant to take this step. Nevertheless, they are urged to do so in order that an accurate measure of the loss of income being suffered should be available.

To use the Inducement Fund now does not necessarily mean that this is the ideal method for the future. On the contrary to meet the problem of rural practitioners, it is evident that the Mileage Fund is the proper source of moneys necessary to raise the average payment per patient in rural areas to a level which will ensure a proper income for those practising in the country. The Mileage Fund must be regarded as a separate fund, standing on its own feet and adequate to meet the real needs of the situation. Increases in the Mileage Fund must come from new moneys and not from the general remuneration pool.

#### The Amending Bill

The time has come to remind ourselves and the Minister of the changes that the profession expects in the amending Bill or in new regulations. Certain changes have been promised.

(1) A clause in the Bill to prevent a Minister from introducing a whole time salaried medical service by regulation, this provision also to preclude the imposition by regulation of any universal full time consultant service.

(2) The clarification of partnership problems in the light of the report of the Legal Committee on this subject. The recommendations of the Legal Committee include the naming of a new appointed day applicable to those in partnership on July 5, 1948 and the establishment of a supplementary compensation fund to meet the financial obligations under partnership agreements of those in the Service but in partnership with practitioners not in the Service.

(3) Augmentation of the global compensation fund of £66 million because the number of practitioners entering the Service is substantially in excess of 17,900. It is believed to be approximately 19,400.

(4) Provision to empower local executive councils to elect their own chairman and to cover the costs of local medical committees by statutory levy.

(5) Provision to enable the professional member of the Tribunal to be drawn from a panel of suitable persons.

In addition to the modifications promised others will be sought, apart from improvements in remuneration which may be dealt with under regulations made on the authority of the present Acts. Included in the changes which are likely to be sought are the following:

(a) Private patients should be enabled to obtain drugs and appliances at the public expense even though they are obtaining their medical care privately.

(b) Patients desiring to obtain their specialist treatment in private beds should enjoy, as a grant-in aid towards the cost of such provision an amount corresponding to the cost which would have been incurred by the State had they entered public

accommodation. Further, the amount "designed to cover the cost" of private accommodation should be nationally or regionally determined at a reasonable level and the tendency to exorbitant charges should be reversed.

(c) The Act should be amended so as to make unnecessary the detailed schedules of fees chargeable to patients treated in private wards.

(d) Medical staff committees should be statutorily recognized and have the right to be represented on boards of governors and hospital management committees. In the case of teaching hospitals the right to representation on boards of governors is conceded though the medical committee is not recognized in the Act. In the case of non teaching hospitals the present position is that the hospital management committee must include some members appointed by the regional board after consultation with the senior medical and dental staff employed at the hospital or hospitals of the group. This is regarded as unsatisfactory. The position should be that the medical staff or staffs of the hospital or hospitals under the hospital management committee should establish their own medical committee, which should be statutorily recognized, and that this medical committee should be the body to appoint to hospital management committees. Further, the medical advisory committee to the regional hospital board should stand in the same relationship to that body as the medical committee of a teaching hospital has stood in relation to the board of governors in the past.

(e) There should be established proper machinery to protect specialists from arbitrary or unjustified termination of their appointment by boards of governors or regional hospital boards.

(f) The block transfer of public patients should automatically follow the selection by the Medical Practices Committee to the declared vacancy, the transfer being made to the practitioner finally selected.

(g) Appeals from the decision of a local executive council on applications for basic salary should be made not to the Minister but to the Medical Practices Committee.

(h) The necessary amendment should be made to empower local executive councils to remove from their lists practitioners no longer working in the area and no longer providing the appropriate premises.

#### Consultant Co-operation

The Royal Colleges, Royal Scottish Corporations, and the Consultants and Specialists Committee of the British Medical Association, recognizing the urgent need for a body to speak for consultants with one voice, have agreed to establish a Joint Committee with the following terms of reference:

(a) to represent consultants and specialists in the impending negotiations with the Government on matters arising out of the National Health Service Acts and the report of the Spens Committee on the Remuneration of Consultants and Specialists,

(b) to prepare and to submit for the consideration of its constituent bodies a scheme, including terms of reference, for the future work of the committee.

By the time these words appear the committee will have had its first meeting, held on Friday, Dec 17.

#### Capitation Fee

The statement at the end of my report of Nov 27 should be amplified to read, 'The payment on account at the end of the year will be based on the number of patients on lists on Oct 30, 1948. The payment on March 31, 1949, will be based on the numbers on lists on Dec 31 1948.'

# National Health Service

## REPRESENTATION OF CONSULTANTS AND SPECIALISTS

### JOINT COMMITTEE ESTABLISHED

The exploratory committee set up at the conference held on July 28 of representatives of the Royal Colleges, the Royal Scottish Corporations, and the British Medical Association met at the Royal College of Surgeons on Dec 10 under the chairmanship of Sir Lionel Whitby. It was agreed that

(1) It is essential in the interests of the consultants that a joint committee of the bodies concerned should be established to speak for consultants with one voice

(2) The terms of reference of the Joint Committee should be

(a) to represent consultants and specialists in the impending negotiations with the Government on matters arising out of the National Health Service Acts and the report of the Spens Committee on the Remuneration of Consultants and Specialists,

(b) to prepare and to submit for the consideration of its constituent bodies a scheme, including terms of reference, for the future work of the committee

(3) Where a constituent body disagrees with the view of the Joint Committee on a proposal put forward to the committee the constituent body shall be entitled to have its view represented to the Government, provided that, before any such representation is made, a conference between representatives of the Joint Committee and the constituent body is held in an endeavour to reach agreement

(4) The Joint Committee should appoint joint secretaries to the committee, one nominated by the Colleges and Corporations jointly and one by the British Medical Association

(5) On the question of the composition of the joint committee it is suggested that it is desirable that in the representation of constituent bodies on the Joint Committee there should be representatives of both teaching and non teaching interests

The following composition of the committee is agreed

Royal College of Physicians	3
Royal College of Surgeons	3
Royal College of Obstetricians and Gynaecologists	2
Royal College of Physicians, Edinburgh	1
Royal College of Surgeons, Edinburgh	1
Royal Faculty of Physicians and Surgeons, Glasgow	1
Consultants and Specialists Committee established by the British Medical Association	6

## BASIC SALARY

### MORE APPEALS DECIDED

The Minister of Health has made his decision on a number of appeals by doctors against the refusal of a local executive council to grant a basic salary. We summarize below the facts of some of the cases.

A doctor practising in a small town estimated that he had suffered since the appointed day a 50% decrease in his income which was previously nearly £5 000. In appealing against the decision not to allow him a fixed annual payment he said that he would gain little or nothing financially if he received the £300 but would have established a principle.

The executive council stated that the doctor had nearly 2 300 patients on his list that this number was sufficient to provide him with an adequate income, and that the doctor would not gain financially from a fixed annual payment.

In deciding not to allow the appeal the Minister took account of the following factors (1) The facts did not show any reasonable justification of the kind envisaged in E.C.L. 44 for allowing the appeal (2) In view of the number of patients on the doctor's list it was doubtful whether the doctor would suffer any financial loss by the decision and it was possible that he might even gain financially.

In June 1948 a doctor over 65 years of age started a practice in a seaside town. He stated that his decision to move to that district had been partly due to reasons of health and increasing age.

The executive council, in declining to grant his application for a fixed annual payment, said that the doctor had only 29 patients on his list, that there was very little likelihood of his accepting as many as 500 patients, and that he could not be regarded as building up a practice. They considered that it was a case of a doctor taking up practice in semi retirement.

The Minister, in deciding not to allow the doctor's appeal, took the view that payment of the £300 to a doctor taking up practice again in semi retirement in an area where it was not clear that his presence was necessary for securing an adequate medical service, would not satisfy the condition that there must be reasonable justification for the payment.

Shortly before July 5 a doctor set up in practice in a village in which there had been no resident doctor. In appealing against the decision to withhold the fixed annual payment, he said that a resident doctor was needed in the village and that he was relying on the payment to meet his living expenses while he was building up the practice.

The executive council said they had been advised by the Medical Practices Committee that the council's area was 'over-doctored,' and contended that it was improbable that the number of patients on the doctor's list would reach 500 within two years.

In allowing the appeal, the Minister took account of the following factors (1) The doctor was starting a new practice and would suffer hardship without the £300 (2) The number of doctors in the area was not relevant to the granting of the fixed annual payment. The appeal was allowed on condition that the position was reviewed in a year's time.

Two doctors, husband and wife, practising in partnership in a rural area, each have rather over 400 National Health Service patients. The executive council granted the application of the husband for a fixed annual payment but refused that of the wife on the ground that the number of patients in the area could be adequately served by one doctor.

In appealing against the decision to withhold the fixed annual payment from the wife, the two doctors stated that they were in practice on an equal partnership basis, and consequently both applied for the £300. They considered the decision to withhold the payment contrary to Para 4 of the leaflet 'Remuneration of General Practitioners.'

The executive council contended that the district could be served adequately by one doctor and, prior to the partnership, had been so served for a considerable number of years, during which the practice was subsidized under the National Health Insurance Act.

In deciding not to allow the appeal, the Minister had regard to the following factors (1) The £300 had been approved in the case of the husband (2) The fixed annual payment was intended to serve as an assurance during a period of uncertainty. In considering whether this condition obtained, the position of a woman doctor practising in partnership with her husband could not be considered in isolation from that of the husband.

## DENTISTS' INCOME

### ANNUAL LIMIT TO BE IMPOSED

Recent reports in the Press about the earnings of dentists under the National Health Service must have excited the admiration of doctors everywhere anxious about their own inadequate remuneration. Mr L. C. Atkins, of the Public Dental Service Association has said (*Manchester Guardian* Dec 6), 'There are ten or twelve dentists in the country who are making £12,000 a year gross and about 74 who are making, say, £6 000 gross. He goes on to say that expenses take away rather more than half of that amount. One dentist is even said (*Daily Express* Dec 7) to have gross earnings at the rate of £40,000 a year.

The Minister of Health announced on Dec 9 in a written Parliamentary reply that he intends to limit dentists' earnings as follows:

'With the dental associations I am undertaking a full review of our present translation of the Spens Committee into fees for services. Meanwhile, as it is obvious that some dentists are earning far more than that Committee ever contemplated, I am adopting a temporary arrangement whereby fees are reduced by half after a dentist reaches an income of £4,800 gross—or £1,000 in excess of

the point at which the Spens Committee said the risk of bad dentistry began. Doctors already have a limit, in the number of patients allowed on their lists."

The Council of the British Dental Association stated on Dec 11 that the Minister had taken this action without investigating the alleged incomes or the circumstances in which they were earned, and without giving the profession any opportunity of making such an investigation. It emphatically condemned the action of the Minister in limiting by regulation the earnings of dentists who are working extremely long hours in the effort to provide the service which the public has demanded. His action, in the opinion of the association, is an attack on the liberty of the individual and is against public interest as leading to the inevitable curtailment of an essential health service. The association has refused an invitation by the Minister to appoint representatives to watch the operation of the amending regulation and to advise on any necessary modification. It will await a clearer definition of the functions and duties of these observers.

It may be recalled that the Spens Report on the remuneration of general dental practitioners suggested that 33 chair side hours a week (equivalent to 42 working hours a week) 'represent full but not excessive employment and that generally speaking, employment in excess of these hours tends to impair efficiency'. The Report recommended, however, that additional remuneration could be earned by practitioners able to work more than 1,500 chair side hours a year without loss of efficiency. Basing his argument on the Spens Report the Ministry of Health official (*Manchester Guardian loc cit*) said that 'it was provisionally agreed that the gross income should be £3,800 subject to review, but the Ministry is taking the figure £4,800 because there is a shortage of dentists and some overtime is inevitable'.

The main Spens recommendation on the remuneration of general dental practitioners in a publicly organized service was as follows:

If there were sufficient dental practitioners in relation to the demand for their services to secure a spread of incomes comparable to that in 1938, arrangements should be made to ensure that between 35 and 54 years of age 75% of those practitioners should receive net annual incomes of over £850, 50% of them should receive incomes of over £1,100, and 25% incomes of over £1,400. By net income we mean gross remuneration less the professional expenses allowed for purposes of income tax. These recommendations are expressed in terms of the 1939 value of money.

Dentists seem to have obtained a more favourable interpretation of their Spens recommendations than general practitioners have done. Apart from that, however, doctors may well feel alarmed at the conduct of a Minister who suddenly proposes to reduce remuneration that has already been agreed on. The effect of his proposal would simply be to reduce the number of hours worked by dentists and thereby deprive some patients of speedy treatment.

## AUSTRALIAN HEALTH SERVICE

The Australian National Health Bill has now passed both Houses. Speaking in the debate on the Bill, the Prime Minister Mr Chifley, is reported (*Manchester Guardian* Dec 10) to have said, 'I have a suspicion that the people who represent the British Medical Association in Australia are shell-backed old Conservatives. If the B.M.A. continues its present attitude to the National Health Bill the Government will train its own young doctors by sending them abroad for study and specialist training. It would be a disgrace to humanity if the B.M.A. refused to co-operate with the Government'.

## THE WELSH COMMITTEE

The Welsh Committee at its last meeting considered proposals for its reorganization so that it should be fully representative of the profession in Wales and able to canalize the views of the Branches and Divisions where concerted action and mutual discussion are needed. The views of all the Divisions in Wales are at present being sought and will be considered at a special meeting of the committee when it is likely that a proposal will be formulated for submission to the Council.

## INDUSTRIAL INJURIES ACT

### MEDICAL APPEAL TRIBUNALS

The Minister of National Insurance has set up medical tribunals under the National Insurance (Industrial Injuries) Act, 1946, to deal with appeals from decisions of medical boards on the assessment of disablement resulting from industrial accidents and disease.

The tribunals will meet when necessary in a number of towns throughout the country, and notice of the meetings will be published locally. Each tribunal consists of a chairman, who is a lawyer, and two medical members drawn from a panel of consultants. The chairmen have been appointed by the Minister of National Insurance on the recommendation of the Lord Chancellor or the Lord Advocate, and the medical members on the recommendation of the heads of universities with medical faculties (in London, the Presidents of the Royal Colleges of Physicians and Surgeons).

The following table shows the chairmen and places of meeting.

Region	Chairman of Tribunal	Place of Meeting
Northern	Mr L J Tweedy	Newcastle - upon Tyne
East and West Ridings	Mr C Raymond Hinchcliffe K.C.	Leeds
North Midland	Sir Arthur Probyn Jones Bt	Notttingham
Eastern	Sir Thomas Creed K.C.	Cambridge
London	Sir Charles Law J.P.	London
Southern	Sir Ronald Pollock	Oxford
South western	Sir Alfred Wort	Bristol
Wales	Mr Hilda C. C. Jones K.C.	Cardiff
Midland	Mr	Birmingham
North western	His	Manchester and Liverpool
Scotland	Mr C J D Shaw Mr T P McDonald K.C.	Edinburgh Glasgow

## WORKMEN'S COMPENSATION

### DAMAGES AT COMMON LAW

The Council of the Law Society has issued the following statement to the Press Association:

"Prior to July 5, 1948 a workman frequently consulted a member of the legal profession as to his rights under the Workmen's Compensation Acts, and in very many cases he was told to his own surprise that he might successfully make a claim at Common Law against his employers for damages."

'The Council's attention has recently been directed to the fact that a workman who is unaware of his Common Law rights will now, in all probability, automatically make his claim to State insurance and will never receive the benefit of legal advice. In view of the pending abolition of the doctrine of common employment by the Law Reform (Personal Injuries) Bill, it may be that in the near future there will be a greatly increased number of workmen who could if properly advised successfully make a claim at Common Law, and the Council accordingly feels that steps should be taken to bring to the personal notice of all workmen that their rights are not confined only to the receipt of State insurance.'

'In reply to a question in the House of Commons on Sept 21 last, Mr Griffiths, the Minister of National Insurance, stated that he could not undertake to advise people as to their Common Law rights. The Council has accordingly asked me to draw your attention to the position and to express the hope that you will feel able to give publicity to the fact that a workman may be entitled in addition to his claim to State insurance, to damages at Common Law."

## GIFT TO CORPUS CHRISTI COLLEGE

The Masters and Fellows of Corpus Christi College, Cambridge, have expressed their grateful thanks for the gift which members of the B.M.A. who resided in College for the Conference in June gave for the purchase of a piece of plate. They have bought the following pieces: Two wine coasters by Paul Storr (1814), and one silver mustard pot by Charles Fox (1804). The following inscription is being engraved:

DONO DEDERUNT E SOCIETATE BRITANNICA MEDICINAE  
PLERIQUE DOCTISSIMI MENS IVN AD MCMLVIII

The following has been added to the coasters: *ἄϊψ καὶ -ῖε* ('Rejoice and drink')

## Questions Answered

We publish here the answers to a selection of questions that seem to be of general interest

### Obstetric Fees

**Q**—A patient was brought to me for her confinement. I gave the usual antenatal attendance and examinations and was called to attend her in labour. But an obstetric emergency developed and I had to arrange for her immediate admission to hospital. Am I entitled to the 7 guineas fee?

**A**—Yes, if your name is on the local obstetric list. If it is not a fee of 5 guineas is payable.

### Ophthalmic Certificates

**Q**—When a school-child requires only replacement or repair of glasses must I complete Form OSC 2?

**A**—Where replacement or repair of glasses only is required, Form OSC 10 should be completed. But if as a routine, sight-testing is included Form OSC 2 should be completed at the same time.

### Secretarial Assistance

**Q**—My out-patients clinics are so long that by the time they are finished the secretarial staff of the hospital has left and I have to do my letters at home with the help of my own secretary and at my own expense. Can I obtain an allowance for this?

**A**—There is no provision for secretarial assistance other than that supplied at the hospital concerned. One result of this is that many consultants are finding their clinical work is limited because of the heavy burden of correspondence.

### Unnecessary Visits

**Q**—One of my patients asked me to visit him knowing full well that the visit was quite unnecessary. He offered me a fee for that admittedly unnecessary visit. Am I permitted to take it?

**A**—No. The only circumstances in which a fee may be accepted by a practitioner from a patient on his National Health Service list (or on the list of his partner or assistant) are

(a) When a person claims to be on a doctor's list and fails to produce a medical card, the doctor having given any necessary treatment may demand and accept a reasonable fee provided he either renders an account or gives a receipt. If within 14 days the patient applies to the local executive council for a refund of the fee and the council finds that he was on the doctor's list, the council may recover the fee from the doctor repaying it to the patient. (A person seeking treatment as a temporary resident is not required to produce a medical card.)

(b) From any statutory body in respect of service rendered for the purpose of that body's statutory functions—e.g., fees for notification of infectious diseases.

(c) From any school, employer, or body for the medical examination of persons for whose welfare the school, employer, or body is responsible—e.g., appointment as a part-time works medical officer.

(d) For treatment outside the range of service given in private hospital accommodation or nursing home provided the practitioner is on the staff of a hospital providing hospital and specialist services under the Act, and provided that the practitioner returns the appropriate form to the local executive council within seven days after the date of rendering the treatment.

(e) Under Section 16 of the Road Traffic Act, 1934.

### Charging for Certain Certificates

**Q**—When dealing with N.H.S. patients for whom certificates are required under the Lunacy, Mental Treatment or Mental Deficiency Acts must all certificates be given free of charge?

**A**—No. The only certificates for which charges may not be made are as follows:

(a) To certify under Section 55 (8) of the Lunacy Act, 1890 that detention of a person absent on trial is no longer necessary.

(b) To certify under Section 335 of the Lunacy Act, 1890, that a person is incapable of managing his own affairs.

All other certificates including 'recommendations' under the Mental Treatment Act can be charged for. The Association recommends that the fee should be not less than two guineas.

### No Payment for Telephoning

**Q**—In order to obtain admission to hospital for certain patients I have to make trunk telephone calls. This is expensive. Is there any payment for this?

**A**—No, not at present. This matter was discussed by the General Medical Services Committee and representations will be made. The committee is recommending to the Ministry that all calls other than local should be reversed.

### Refund of Superannuation Contributions

**Q**—In the case of Superannuation after Less Than Ten Years' Service (Questions Answered Supplement Nov 27 p 194), would not the retiring practitioner be entitled to receive in addition to his own contribution of 6% the Ministry's contribution of 8%?

**A**—If no benefit is payable, the retiring practitioner's contributions are refunded with compound interest at 2½%. The Ministry's contributions are not refunded.

## HEARD AT HEADQUARTERS

### Visitors From Abroad

Counsel's opinion has been taken on whether overseas visitors are covered by the National Health Service Act, and it looks as if they are although the words of the Act are not free from ambiguity. As has been said 'An overseas visitor can come here and get a denture, an artificial leg, a corset, a pair of spectacles, and a wig, all for nothing, saving as much as his trip has cost him.' This seems to be part of the Act which has not been well thought out.

### For the Pocket

The *Annual Handbook* for 1948-9 is again a very useful compilation, a miracle of compression, sitting neatly in the pocket and yet containing everything that the B.M.A. man wants to know. A special section is devoted to the organization of the Association face to face with the National Health Service—the composition and function of the two new big committees, each of them nearly as big as the Council itself—the General Medical Services Committee under the chairmanship of Dr Wand, and the Central Consultants and Specialists Committee under the chairmanship of Mr Newell. Then we have the Local Medical Committees and the Regional Consultants' Committees, the specialist groups in the Association, and the Public Health Committee concerned with the public health service. Another new feature is an outline of the Empire Medical Advisory Bureau and its committee under the chairmanship of the Past President, Sir Hugh Lett. We are also given the names and addresses of clerks of executive councils and of senior administrative officers and secretaries of regional hospital boards.

### Abbreviations

The medical students are following in the wake of their seniors in their liberal use of abbreviations—those initials which assume in the reader a store of information on the subject. The following passage occurs in a message from the president of the British Medical Students Association. At the A.G.M. we discussed the relationship which should exist between the B.M.S.A. and the M.F.B. of I.U.S. The conclusions of the S.I.C.C. were used as a basis for discussion. This kind of conciseness now becoming so popular in medical discussions may sometimes be confusing. Thus 'P.M.' may stand for post mortem or prostatic massage. 'A.P.' for an antero-posterior ray view or for artificial pneumothorax, and one is left sometimes in doubt whether 'M.O.H.' refers to a medical officer of health or to his superiors in Whitehall.

### The Chronic Sick

The interest shown in the aged and chronic sick—an interest which the B.M.A. through its special committee can claim to have done much to awaken—was demonstrated at Friends House, London, during a recent week-end, when gatherings of

nearly a thousand people from all parts of the country discussed the welfare of old persons. The difficulty of the hospital problem was put frankly by Dr Trevor Howell, physician in charge of the geriatric unit at St John's Hospital, Battersea. He mentioned a surgical ward in one well-known hospital where eight old ladies, all of them suffering from a chronic condition, had been for an average of two years. On the assumption that the average stay of an acute case in a surgical ward is three weeks, these old ladies have taken up the accommodation of about 280 acute surgical cases. Dr Howell repeated the remark of one old man when told that no hospital bed could be found for him, "They have hospitals for children, why can't they have hospitals for old people like me?" Why not a Great Ormond Street for the aged?

## Local Administration

### Tuberculosis Regulations

It is now necessary to gain information about men born in the year 1931 likely to be called up for military service who have a history of tuberculosis states the Ministry of Health (Circular 175/48). The Minister therefore requires the appropriate medical officers of health to send forthwith the necessary particulars in respect of all male registered persons born in that year, and to comply in other respects with the Public Health (Tuberculosis) Regulations, 1940, as now applied to this age group. The information should be given on form T 147. The changes affecting the tuberculosis services brought about by the NHS Act do not modify the procedure.

### Distribution of Basic Salary

The basic salary is being paid to some doctors whose names are on the lists of more than one executive council. The Ministry of Health states (E.C.L. 112) that the council paying it to the doctor should recover the appropriate proportion from the other councils concerned, so that the moneys available from the central pool may be distributed equitably. The appropriate proportion for each area is that which the number of patients on the list of the doctor in that area bears to the total number of his patients. This adjustment should be made for the September and December quarters.

therefore, as the majority of those to whom the circular refers, decide to take his car from his residence to his main place of work on one day but not on another.

In addition to this, whenever we may be at home or out on private or social visits, etc., we are liable to receive a summons to attend at a hospital as quickly as possible in the case of emergencies or to undertake a domiciliary visit. Obviously a car must be available for this purpose, as the emergencies may occur any time during the day or night. In a nutshell we would be quite incapable of carrying out the work inherent in our appointments without the use of a car.

To have a car available in such circumstances as those briefly indicated certain fixed commitments are involved—viz., wear and tear or depreciation of the car itself, tax, and insurance. It is obvious that repairs, petrol, etc., naturally vary with the mileage run. To pay only a fixed allowance of 6d per mile for journeys from the recognized headquarters and possibly although this is not mentioned in the circular, for emergency visits to headquarters outside ordinary working hours makes an insignificant contribution to such fixed charges, as in the majority such journeys are, although of great urgency, relatively infrequent.

We feel, therefore, that as it is absolutely essential for us to have a car in order to enable us to perform our duties the costs of such provision should be covered by the payments made. This implies a scale which would recognize:

(1) That the car must be taken every day from the place of residence to the headquarters so that it shall be available for the specialist concerned instantly in time of need.

(2) That, even though the mileage covered may be and frequently is small, the overhead or irreducible expenses must be wholly incurred in addition to the varying running costs dependent upon distance covered.

Although no doubt all or many of the above points will have been already considered by the committee, we feel it would be well that you should be acquainted with our feelings in this matter and trust that your negotiations on behalf of us all will be fruitful in the arrival at an equitable agreement.—We are, etc.

R S WALE	T WISHART DAVIDSON
W P HIRSCH	BRIAN D JOHNSON
G H VALENTINE	D E MEREDITH BROWN
D R CAIRNS	O ENGLANDER
J DICKIE	J N DEARNALEY
A DAVIS BEATTIE	M MCLEARIE
G T HOLROYD	J W M LESLIE
J C H MACKENZIE	E MILFORD WARD

## Correspondence

### Car Expenses of Whole-time Specialists

*The following letter has been sent to the secretary of the Central Consultants and Specialists Committee with the request also that it be published in the British Medical Journal.*

SIR—We the undersigned whole-time specialists in Leicester are seriously concerned over the Circular H.M.C. (46)48 of August, 1948 issued by the Ministry of Health, which sets out the conditions under which allowances for car expenses are to be paid and the method of calculation of the amount thereof, and understanding that negotiations are proceeding between your committee and the Ministry beg to submit the following considerations in the hope that they may be of use to your committee, or at any rate informative to it as to what is the attitude of certain whole-time specialists.

It is felt by us that a scale which may be appropriate for a general body of persons who normally work at a fixed office or headquarters and who know in advance what their daily travelling commitments will be, is completely inadequate for such as ourselves.

As you know we are officially attached in most cases to one hospital but may be and in fact are in many cases called upon to visit other institutions during the course of our duties, and for this individual transport is absolutely essential. As has been said it is not known beforehand in most instances when these journeys may have to be made and hence the means of transport must be available instantly if required. The individual cannot,

### The Betterment Factor

SIR—It appears from Dr M. Hutchinson's letter (*Supplement* Nov 13, p 177) that Mr Bevan is satisfied that the recommendations of the Spens Committee on the remuneration of general practitioners are being implemented. We hope that vigorous steps are being taken by our representatives to disabuse his mind of any idea he may have that the G.P.s share his satisfaction. Apparently there may be some difficulty in convincing him that 17s 5d post-war is not the same thing as 15s 6d pre-war. We hope that the following two statements made earlier this month by official sources will assist in throwing light on the so-called betterment factor by which the pre-war 15s 6d will have to be adjusted.

Figures published in the *Monthly Digest of Statistics* for October show that, over a wide range of industries examined, operatives' earnings had increased by an average of 114%, between October, 1938 and April, 1948—with incidentally a reduction in working hours. Also, we note that Mr Dalton speaking in the Commons on Nov 2, said "The wholesale prices index showed an increase of 118% over pre-war" (*Daily Telegraph* Nov 3).

It appears, therefore, that the proposed capitation fee of 17s odd is about one-half of what is due to us according to the Spens Report, and this takes no account of the increase of work since July 5.

We would like to know why we are expected to continue working the NHS on half-pay, and when may we expect a full adjustment, retrospective to July 5, to be made? The Minister, as a good trade unionist, should be brought to see the bare justice, having regard to all the circumstances of a



capitation fee of 35s per person per annum. Should he fail however, in spite of all our efforts to be persuaded, is not the proven remedy in our own hands?

Though the above is the principal defect requiring urgent rectification there are others such as the unenviable position of rural and semi-rural doctors, the three months wait for cheques, and so on which have already received some publicity in your columns. We have seen no reference, however, to the injustice of a system of payment which rewards experience in one section of the profession but totally ignores it in another. We ask that before long serious consideration will be given to devising a revised method of remuneration for GPs—one which will recognize the fairly obvious fact that the services of a doctor of 20 years' experience are on the average more valuable to the community than those of a recently qualified entrant. We are, etc.,

W SUMMERS J A R P CANT  
C N CHITNIS ARTHUR CANT  
A D B MACKIE C RAMSDALE  
BIRMINGHAM BERNARD E WALL H P DALY

### Payment for Temporary Residents

SIR—Doctors in holiday and health resorts normally get a considerable part of their income from summer visitors and convalescents, the former, at any rate, usually paid cash down in the old days. Since July 5 we have been accepting these patients as temporary residents and so far have received no payment at all and I have not yet been able to discover when, how, or on what scale payment is eventually to be made. Our local executive council has still no information, and I have searched the pages of the *Journal* in vain for any reference to the subject, although my fellow practitioners are becoming increasingly impatient and outspoken at the non appearance of their earnings for the summer season.

There is also some anxiety about the method of payment for these patients. If the money is to come from the general pool and involve a further whittling down of the capitation fee, we shall consider ourselves unfairly treated as compared with doctors in industrial towns, for their patients come to us in the summer and not *vice versa*. At least it is to be hoped that we shall not be told that we are being "subsidized by our fellow practitioners" and required to submit to a means test before we are paid for our services—I am, etc.,

Westgate-on Sea

G M ADDISON

SIR—I am informed by the clerk to the East Sussex Executive Council that up to Dec 1 'no instructions have been received from the Ministry of Health in regard to the method of payment in respect of temporary residents'. I wish to protest against the way in which the Minister of Health keeps us waiting for the niggardly sums which are due to us—I am, etc.

Hove Sussex

W F DE C VEALE

\*.\* The Secretary of the Association writes: Payment for temporary residents is one of several payments to doctors which are governed by the distribution scheme for the area. Executive councils are still waiting for a model distribution scheme which the Ministry is preparing. The Ministry has been asked to deal with the matter as one of extreme urgency.

### Remuneration of MOs H

SIR,—I am anxious to hear what is the position with regard to the negotiations for the new salary scales for all medical officers in the employment of local health authorities, and whether Whitley Council machinery for these negotiations has been set up. I know that this matter has now been under consideration for over a year and it seems to me that our profession is the only one under the National Health Service which is not taking advantage of this machinery.

At present the question of remuneration of medical officers in the Public Health Service requires to be settled as a matter of urgency. It is neither possible to obtain suitable replacements at the present salaries paid by local authorities nor in some cases to retain the present staff. Unless the Association takes prompt steps to solve this matter along the proper lines I can foresee a distinct falling off in membership and the encouragement of 'break-away' associations. I should like

to state that the local authority medical officers in Scotland are strongly in favour of the adoption of the Whitley Council machinery for negotiation and are most dissatisfied with the present unsettled position—I am, etc.,

Glasgow

STUART LAIDLAW

\*.\* The Secretary of the Association writes: The Association is pressing for negotiations to be opened. The present position is summarized in the *Supplement of Dec 11* (p 214) under the heading 'The Secretary Reports'.

### Rural Practitioners

SIR—May I point out through the medium of your columns the peculiar difficulties some doctors in rural districts have to face and which to my mind entitle them to a generous allowance from the Inducement Fund without further ado.

Although my practice is a rural one in a hilly district, it is unique in having two or three coal mines where most of the men find employment. The high incidence of chest complaints associated with that calling adds considerably to the attention they require through the winter months. This, coupled with the visiting and innumerable minor accidents, more than doubles the work in comparison with my counterpart in the town. Another factor arising from the extreme hilliness of the locality is the unusual position of a large number of the cottages. Each one is perched at the top of a rough steep path, or buried in an equally deep gully. Climbing to and from these places is a stiff and breathless affair, and after constant daily repetition it is not surprising that cardiac and cardiovascular disorders become very prevalent with the onset of the early fifties.

Dealing with such conditions is part of my daily work, and I feel that others in like circumstances should not be overlooked when practices are classified according to the difficulties that have to be overcome in giving reasonable attention to all classes of the community. Furthermore, I would state that cars in such areas do not have a satisfactory life of much more than two years. Every three months the tyres on my car require retreading and so do my boots. However I hope to carry on until my arteries need relining, when I shall be obliged to give up, in the hope that by then a portion of the Marshall Aid will be allocated for the relief of old and worn out doctors—I am, etc.

Blakeney Glos

J M ASHTON

SIR—I have been waiting for the report of the Conference of Local Medical Committees (*Supplement Dec 4* p 203) for a clear statement of the aim for putting rural practitioners on a reasonable basis of remuneration. To oversimplify I think that it should be recognized that there is a maximum number of patients (say 2 000) which a rural practitioner can attend, and I feel that he should be enabled to receive the same net income as a town practitioner with 4 000 patients. Apparently this can be done in three different ways:

- (1) A different capitation fee for rural patients, which I think is quite undesirable.
- (2) Inducement payments to all rural practitioners, which I think is again undesirable.
- (3) A very big increase in the mileage allowance.

Should this principle be established it would mean that the rural practitioner's average mileage allowance per patient should at least equal the capitation fee at whatever level it is finally adjusted. If the average rural patient lives four miles from his doctor, the mileage allowance would then be 4s 6d per patient mile per annum—I am, etc.

Kirkby Lonsdale Westmorland

JOHN W CROWTHER

### Salaries of Opticians and GPs

SIR,—I feel that Mr G H Giles's letter (*Supplement Nov 27*, p 196) on the payment of opticians calls for some comment. May I with all respect suggest that six hours is not a full day's work, representing as it does just half the working day of the average general practitioner? Surely Mr Giles must realize that a man doing half a day's work cannot expect more than half a day's pay?

The question of time occupied by dispensing is not very relevant. After all it is paid for. Even if the whole work is done by a firm of manufacturing opticians the "ophthalmic optician" still gets his retailer's profit. If he does any work

on the glasses himself he receives the corresponding payment. In any case, even if one concedes Mr Giles's figures and allows a five day week and two weeks holiday a year, the optician will have an income from refractions alone of £1,125.

Mr Giles complains that he is only paid for dispensing when the glasses are delivered to the patient. This is surely the usual time to pay for things and he would not appreciate it if all who sold him goods insisted on cash several months in advance.

Among his expenses Mr Giles mentions "secretarial assistance." Surely it must be considered wasteful for a man seeing only six patients a day (Mr Giles's claim) to employ a secretary? Perhaps without undue fatigue he could work 6½ hours a day and write his own letters. The items given for rent, rates, lighting, and insurance will be the same for a G.P. and so need not be considered further. The 101 unspecified items I find a little difficult to enumerate. I can think of heating, cleaning, postage, stationery, subscriptions, and books—all of which will be required also, some to a much greater extent, by the G.P.

Now let us look at the G.P.'s expenses which the optician is under no obligation whatever to incur. He has to keep a car, which must be in serviceable condition continuously, he must be on the telephone, there must be someone to answer the telephone and door, day and night, 365 days a year, he must bear the majority of the cost of drugs and dressings actually used by him.

One expects to receive payment appropriate to one's ability, and it is reasonable to assume that on the whole our profession is of greater ability than the opticians (although in business acumen our negotiators appear to have much to learn). One expects to receive payment on account of a long and expensive training, and there can be no doubt that the doctor's training is much longer and more expensive than the optician's. One expects to receive extra payment for night work and overtime—two things that never disturb the placid waters of the optician's easy life. In industry it is usual to pay danger money to those exposed to any risk, yet we are coughed over by the tuberculous and diphtheritic, who would be far too ill to go near the optician, moreover, a glance at the obituary columns in the *JAMA* will convince any medical practitioner of his enormous liability to coronary disease.

It is usual moreover to receive something for the time spent "on call" though not actually working, Mr Giles should remember that whereas he can do what he likes after he shuts his shop at 5 p.m., the G.P. is still not free when he has finished his evening surgery at 8 p.m.

I must agree with Dr M. J. Ingram (*Supplement* Oct 30, p 153). Opticians (like dentists) are at the moment being grossly overpaid, whereas the sum paid to G.P.s is niggardly in the extreme—I am etc.

Silver End Essex

J. W. NICHOLAS

SIR—Mr G. H. Giles, secretary to the Association of Optical Practitioners, refers (*Supplement* Nov 27 p 196) to an estimate based on a working week of five days and offered in an entirely different context some time ago before figures could be available. He states that it is not possible for an optician who undertakes dispensing in addition to testing sight to serve twelve clients in a six-hour day but that the average number seen by an optician is nearer half that number per day.

Quoting from actual figures, over 5,500 completed forms were received in one month from 26 opticians and nearly 5,200 in the succeeding month from 26½ opticians (a new applicant was included in the latter half of the month). On a basis of 24 week-days in each month (allowing for the half day closing customary under the Shops Act) the figure gives an overall average per optician per day in one instance of almost exactly 9 and the other of 8.2. These figures might seem at first sight to support Mr Giles's contention, were it not that they are averages of the work of all opticians, of which some reserve a very considerable part of their time for other optical work than that under the Supplementary Ophthalmic Service, some are but recently established, since release from the Forces, and a few engage actively in other business (e.g., pharmacy). Mr Giles does less than justice to the endurance of one optician who averages 16 completed forms per day over a period of three consecutive months.

Neither the quickest nor the slowest worker is necessarily the most accurate or most conscientious. An optician however, can devote more than six hours in any one day to Supplementary Ophthalmic Service work if he wishes, with corresponding augmentation of his income on a payment per-case basis. On the other hand, a weary doctor can only increase the quality of and remuneration for each item of service by curtailing those services.

Unduly dilatory payment for services rendered and undisputed is highly unsatisfactory. Doctors are dissatisfied with the payments they are receiving on account at the end of each quarter, but an

optician receives each month in settlement for sight-testing fees a cheque which, on the figures quoted, will amount on average to about £150, and should amply meet establishment expenses. The cost of finished spectacles will not be debited to him by the manufacturers until after delivery, and as this is effected he may expect to receive prompt reimbursement of their cost. In addition, he will draw "on average" £250 per month or more in respect of the associated dispensing fees, accumulated as a sort of non-interest bearing Government security or nationalized savings, from which the less actively employed may apply for payment on account as needs demand.

The distinction has been drawn between this sum of £400 and upwards per month, which the "average" optician may increase by his own exertions, and the £400 per quarter paid to the "average" general practitioner, subject to increase only if in future there should be fewer doctors to share a fixed pool—I am, etc.

Hull

D. STENHOUSE STEWART

### Mileage Fund

SIR—We rural practitioners are having and are going to have a thin time, but our position is not going to be made any easier or more comfortable by the information in "The Secretary Reports General Practice" (*Supplement* Nov 27 p 191), in which we are told, "Mileage payment will on average be slightly more than double." We all know that we have "on average slightly more than double" the number of patients on risk that we had before July 5. If this is so, I consider it a misrepresentation of the facts destined to give us a false impression. If misrepresentation is too strong a word it is surely, at best, a withholding of very relevant facts—I am, etc.,

Wokingham Berks

RALPH ROSE

\*\* The Secretary of the Association writes. The words quoted have no bearing on the question of the adequacy or inadequacy of the mileage fund, to which reference is made elsewhere. They mean no more than that the pre-Act mileage fund amounted to £600,000 and the Act mileage fund is £1,300,000.

### Polish Medical Association

SIR—As the result of recent legislation many Polish doctors now in this country are obtaining permanent registration, which should entitle them to every form of medical practice recognized by the Ministry of Health. But registration is only the first essential step towards finding a job, as everyone knows. There are others to be taken, some of which may be pretty hard even for the best of us. It is in order to facilitate this process that we wish to let it be known that our organization which has enjoyed the friendly relations of the British Medical Association right from the beginning, is willing to assist anyone in finding suitable partners, assistants, hospital officers, etc., by supplying necessary information and arranging interviews.

Our office is at 48, Wilton Crescent, S.W. 1, and the telephone number is SLOane 1735, office hours being Monday–Friday 6–8 p.m.—We are etc.

A. FIUMEL

Chairman

K. DLUZNIIEWSKI

Honorary Secretary

### Demand for Certificates

SIR—Your article "NHS" (*Journal*, Nov 13, p 864) prompts me to submit the following points for your consideration.

(1) The present NHS is a compromise between a full-time salaried service and a capitation system, with the evils of both.

(2) Once we have been compelled to accept the elimination of private practice (this is what the NHS amounts to), we should have accepted the full-time salaried service. This would have saved us from the present picture of hundreds of practitioners faced with serious economic difficulties.

(3) The NHS has not appeared yet in full bloom, it will mature when the thousands become eligible for sick pay and will come pestering the doctors for certificates ("I have paid for it") which the doctor (who unfortunately has to eat three, time a day) dare not refuse.

(4) A full-time salaried service would have allowed us (a) to organize hours of duty with relief for the womenfolk, (b) some relief from the degrading position, in which we find ourselves at

...of yes men for any request from our clientele whether reasonable or unreasonable (c) to be in the position of refusing to issue a certificate without worrying at the same time, 'This will mean so many units withdrawn'—I am, etc.,

Manchester

B HIRSH

### Maternity Medical Service

SIR—The Minister's circular 173/48, reprinted in the *Supplement* dated Nov 20 (p 181), has possibly regularized the position of the midwives in the new Service, but it has surely confused the issue as far as the obstetrical general practitioner is concerned. While it is true that Note 4 on the inside cover of the book containing Forms EC 24 allows for the attendance of the doctor at the confinement when he or the midwife considers this necessary, it states specifically that he shall be 'responsible for the medical supervision of the mother and child during the puerperium'. This surely must imply that he visits the home during the puerperium—indeed, Part III of Form EC 24 asks for the actual dates of these visits. Unless the doctor has been sent for to deal with an emergency during labour he must depend upon the midwife to inform him when the baby is born, and if he is to be responsible for the mother and child during the puerperium she (the midwife) must be prepared to take instructions from him.

In the main this is probably a hypothetical difficulty, as midwives in general will undoubtedly welcome the new interest which doctors will be able to take during the puerperium. However, I have a specific case in mind where the midwife refuses to inform me when she has conducted a normal labour even when the case has been booked on Form EC 24. In addition, she insists that all advice during the normal puerperium should be given to the mother by her. The local supervising authority is unable to solve the difficulty. The obvious solution is that the doctor should fulfil all the conditions of Rule E 20 of the Central Midwives Board and regard the nurse as a maternity nurse in every case accepted for maternity medical services. Few of us would be prepared to inflict this indignity on all midwives, and even if it were possible to deliver all cases personally midwifery as a branch of nursing would in consequence disappear. Yet how is the obstetrical GP to be certain that he is going to be able to honour his legal obligation to the mother who has booked him for maternity medical services?

If the Minister is of the opinion that the supervision of the mother and child by the doctor during the puerperium is unnecessary, then the wording of Note 4 attached to Form EC 24 should make provision for the doctor attending during the puerperium 'only if required to do so by the midwife in attendance'. I feel reluctant to complete any further Parts I of Forms EC 24 until this point is cleared up—I am, etc.,

Brenchley Kent

W B HOWELL

### Relation with Executive Councils

SIR—I have followed with great interest the correspondence started by Dr Hugh M Tucker and Dr D Gwynn Jones (*Supplement*, Oct 9, p 134) and continued by Dr Robert Forbes (*Supplement* Oct. 23, p 147, and Nov 27, p 195) and Dr J Arthur Gorsky (*Supplement* Nov 13, p 176). Dr Forbes is surely right in his contention that we are not 'servants,' and he is certainly right when he says we must continue to be members of a recognized protection society.

I would refer my learned friend Dr Gorsky to Pollock, *Torts* p 64—adopted by McCardie, J, in *Performing Right Society v Mitchell etc Ltd* (1924 K.B. 762 767-8). An independent Contractor who undertakes to produce a given result, but so that in the actual execution of the work he is not under the order or control of the person for whom he does it and may use his own discretion in things not specified beforehand.

I would respectfully submit that the first schedule of SI 1948 No 506 does not indicate that we are anything other than independent contractors in our relationships with our respective executive councils. The above-mentioned SI refers to terms of service and includes a general description of the rights and duties of patients and practitioners. There is however, no instruction as to how the work is to be executed and obviously the practitioner is left to use his own discretion in all matters

not specified beforehand. But it could be argued that under

Range of Service S6 (2), practitioners who contract to perform maternity services are ordered when to examine their patients, and I would agree that this is an unfortunate clause.

To quote from the *Medical World* (April 9 p 5) 'These are precise indications of the treatment required such as we never thought to see incorporated in regulations. But we feel that general practitioners will not be much concerned for the reason that few GPs will be disposed to undertake those services.' Personally I have not applied to do midwifery, and in any event the obstetrical contract is a separate one.

In conclusion I would agree with Dr Gorsky and Dr Forbes that the issue is a most important one and for the sake of Dr Tucker and others I hope that it will be clarified by a more able and learned pen than mine—I am, etc.,

Leicester

JOHN A CHAPEL

### Basic Salary

SIR—Before the inauguration of the National Health Service opinion as expressed in your columns undoubtedly conveyed the impression that the majority of the profession was against the granting of a universal basic salary. The Negotiating Committee, in no uncertain terms, made this known to the Minister of Health, who, having seen the red light in this particular instance climbed down, and the idea of the universal basic salary was abandoned in favour of that of an optional one, which was again apparently discarded to give place to the unsatisfactory means test system which is at present causing so much discontent.

The profession, as far as I know, has been given no opportunity to approve this latest and exceedingly important development, and it is quite obvious that a considerable body of opinion is against the method employed now in granting basic salaries. It would even appear that a steadily increasing number of general practitioners are beginning to see the inherent good sense and equity of Mr Bevan's original proposal. An unsavoury situation is developing in which one section of the profession accuses the other of living on the charity of its fellows while the accused complain bitterly of being misled with regard to the basic salary and of having to suffer the humiliation and indignity of undergoing a means test in order to obtain it.

It is quite ridiculous to blame the Minister in the present crisis. The responsibility for this situation rests entirely on the shoulders of the Negotiating Committee, and there seem to be grounds for doubting that in this instance the committee has furthered the true desires of the profession. Under the circumstances it seems obvious that steps should be taken in a true democratic way to find out what those in general practice really do think in this matter. With its past experience the Association should have no difficulty in organizing a ballot for this purpose. I suggest that all general practitioners be asked to vote for or against a universal basic salary. I do so because I am convinced that if there is to be a basic salary, and at the same time peace and good will among practitioners, that basic salary must be paid to all.

No matter what the result of such a ballot might be it would of course be necessary to continue payment of those salaries already granted. One would gather that they are few in number and would only be required for a few years—I am, etc.,

Glasgow

JOHN A FRASER

### Graded Remuneration

SIR—I strongly support the opinions of Dr F W Cheese (*Supplement* Sept 11, p 199, and Nov 27, p 196). With the modern demand for medical attention, no general practitioner can exercise reasonable skill and due care if he undertakes the responsibility of more than 2 000 or 2 500 patients. A list of over this number makes for hurried slipshod work, wholesale reference to hospital, and a complete lack of interest in medicine—that is, it makes for general practice at its worst.

If as a profession we are to maintain and indeed improve our standards and do justice to our patients, then something must be done to restrict lists, and to this end I recommend doubling the present capitation fee for the first 2 000 or 2 500 and thereafter payment at the rate of one tenth per caput.

Should it be argued that on this basis there are insufficient doctors to attend the population, then I submit there are many

young men and ex-Service practitioners who find themselves unable to get a look in whilst the established practitioners and those who sat tight during the war have lists of four, five, or even six thousand. This contention is supported by the large numbers of applications received by executive councils when vacancies are advertised. Furthermore, there are, in round figures, 20 000 practitioners and 45 million population. Let us live let live, endeavour to make the best of this very bad job, and above all let us do good work—I am, etc.,

Wolverhampton

J C B BONE

### Professional Expenses and Size of Lists

SIR,—Two matters in the *Supplement* of Dec 4 are desirous of comment in order to clear up regrettable ignorance.

In the report of the Conference of Local Medical Committees (p 203) Dr A W Weston is reported as saying that he "did not know any practice where 35% expenses would be allowed by the Inland Revenue." It is a sad commentary on the profession's representation when such is allowed to go unchallenged. For the last accounting year my expenses as agreed with the Inland Revenue were 53% of my gross. As mine is an entirely rural practice in which the gross is obviously likely to drop considerably this year, the expenses are I think going to be at least 60%, taking into account the extra mileage, drugs, and telephone calls in the NHS.

Secondly, in the "Points from Letters" (p 212), although in agreement with most of what he writes, "Dare Quam Accipere" states the rural practitioner "cannot make a living out of 2,500 or so patients, and his idleness is not due to choice." Well, Sir, for some seven years before taking over this rural practice I had a large practice in industrial Lancashire with some 2,400 NHI patients, so probably in all some 6,000 patients. I can assure your correspondent that 2,500 patients in a truly rural practice take as much time to deal with efficiently as double that number in an urban area. To back that assurance let me give him a few figures well known to all rural practitioners.

I am allowed petrol for 500 miles a week. One mile with another if an average of 30 miles an hour is sustained, this means 16 hours actual driving each week, the equivalent of  $1\frac{1}{2}$  working days. In my 23 villages I attend five surgeries daily except Sunday. I dispense for the whole of my practice, which in the first three months of the NHS entailed 1,981 items, each to be dispensed, corked, labelled, noted, and wrapped, names and addresses written, and 1,320 sent out by car to be delivered at the appropriate one of ten depots from which the patient collects. Each time a patient goes to hospital for consultation or emergency, a first sixpenny phone call to make the appointment and then a second one to arrange transport.

These are only outstanding instances of how an 80-hour week is made up servicing some 2 600 patients, but there is one point in which "Dare Quam Accipere" is greatly at fault. In my case the idleness is of choice—I am, etc.,

TRULY RURAL G P

### POINTS FROM LETTERS

#### False Position

D H V DEAN (London, NW 3) writes. The indecently rushed second plebiscite, for which I have never yet had a trustworthy explanation, dumbfounded the profession, and the lack of clarity in the circular on the Council's own views completed the confusion. In the words of another, "The B.M.A. was stampeded into taking up a false position, with its consequent loss of prestige and authority." It is easy to stand aside and say, "They asked for it, let them stew in their own mess." It is more laudable to try by every means, including the support of a proposed new organization, to prevent the mess getting worse.

#### Press for Full Settlement

D I N SAMUEL (London, SW 11) writes. The scheme has now been extant for some four months, ample time in my opinion for gross irregularities to be straightened out. I should like to give a few examples. (1) Owing to the dilatory methods and a lack of realization of the urgency of the matter, an interim payment only has been made for the following alleged reasons: (a) the number of basic salaries to be paid has not yet been determined, (b) inflation of fees and it would appear that we stand no hope of receiving full capitation fee until after March 31. How many of us thought there would be queries about the basic salary? I myself have heard more than one member of the Council proclaim (prior to July 5) that it

was just a matter of arithmetic—according to the numbers on the list—as to whether basic salary was claimed or not—no hint of a means test was ever given. (2) No payment has been made for obstetric services, nor is any acknowledgment made of forms rendered. (3) No mileage fee in full has yet been paid to our country colleagues, but perhaps their cars can be run free of cost during deliberations. I feel that a sense of urgency and realism among the powers that be in our Association could have combated such a situation. Let the Divisions call meetings of their constituents and hear their stories and let them press for full settlement by Jan 1 1949.

### Remuneration of G P s

Dr G T A HASTINGS (Birmingham) writes. The capitation method of payment is, at the present rate, quite inadequate to maintain our former income. Compensation is to be paid for loss of the right to sell the goodwill of practices, but no suggestion has been made for compensation for "loss of annual income" say, over a twenty- or thirty-year period. It would be a fair deal if the Minister made up doctors' incomes to their former level. As he is not likely to do so the remedy must lie with the doctors themselves. The usual workers' [sic] remedy, the strike, is beneath professional dignity and tradition, mass resignations would torpedo the scheme, but we ourselves would go down with it, as the public can no longer afford private treatment. Negotiations are usually long-drawn-out, an immediate short-term policy must be pressed for between the Negotiating Committee and the Ministry. The purpose of this letter is to invite comments and suggestions from fellow practitioners along the line of immediate increase of capitation fee with limitation of lists, or payment on a basis of actual services rendered, as in some countries abroad. Immediate action is necessary. Let the Negotiating Committee do its job expeditiously or make way for better men.

## Association Notices

### NATHANIEL BISHOP HARMAN PRIZE

The Council of the British Medical Association is prepared to consider the award of the Nathaniel Bishop Harman Prize in the year 1949. The value of the prize is approximately £100. The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has been previously published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff of a hospital in Great Britain or N Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1949 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

The writer of the prize winning essay may be required to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association. Each essay must be typewritten or printed in the English language, and must be distinguished by a title and a motto. The essay must not bear the name of the writer, which should be sent with the essay in a sealed envelope bearing only the motto on the outside.

Essays must be forwarded to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W C 1, not later than March 31, 1949. The title of the proposed essay and the motto should also be notified in writing to the Secretary by Dec 1, 1948, and should not be accompanied by the writer's name. The prize will be awarded at the Annual Meeting of the Association to be held in 1949. Inquiries relative to the prize should be addressed to the Secretary.

### SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for research scholarships as follows. An Ernest Hart Memorial Scholarship of the value of £200 per annum, a Walter Dixon Scholarship of the value of £200 per annum, and four Research Scholarships each of the value of £150 per annum. These

scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given other things being equal to members of the medical profession.

Each scholarship is tenable for one year starting on Oct 1, 1949. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research but may hold an appointment at a university, medical school, or hospital provided the duties of such an appointment do not interfere with his or her work as a scholar.

In addition, applications are invited for the award of the Insole Scholarship of the value of £250 for research into the causes and cure of venereal disease.

Applications for scholarships must be made not later than March 31, 1949 on the prescribed form, a copy of which will be supplied on application to the Secretary of the Association, B.M.A. House, Tavistock Square, London, WC1. Applicants will be required to furnish the names of three referees who are competent to speak of their capacity for the research contemplated.

### PRIZES FOR MEDICAL STUDENTS

The Council of the British Medical Association is prepared to consider the award in 1949 of prizes to medical students for essays submitted in open competition. The subject of the essays for 1949 shall be "The Value of Observation in the Training of the Medical Student." The purpose of these prizes is the promotion of systematic observation among medical students. In awarding the prizes due regard will be given to evidence of personal observation. No study or essay that has previously been published in the medical press, or elsewhere will be considered eligible for a prize.

The following prizes are offered:

**National Prizes**—six, each of the value of £25

**Regional Prizes**—as detailed below, based on the four Regions of the British Medical Students Association

London Region, 6 prizes (1 of the value of £15 5 of the value of £7)

Midland Region, 3 prizes (1 of the value of £15, 2 of the value of £7)

Northern Region, 3 prizes (1 of the value of £15 2 of the value of £7)

Scottish Region 5 prizes (1 of the value of £15 4 of the value of £7)

Any medical student who is a registered member of a medical school in Great Britain or Northern Ireland at the time of submission of the essay is eligible to compete for the prizes. The winners of the National Prize will be ineligible for the award of a Regional Prize. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay, the decision of the Council shall be final. Should the Council of the Association decide that no essay entered is of sufficient merit, no awards shall be made.

Each essay must be typewritten or written legibly in the English language and must be unsigned and accompanied by a detachable sheet giving the name of the candidate, his medical school, and his B.M.S.A. Region. Essays must be forwarded so as to reach the Secretary British Medical Association, B.M.A. House, Tavistock Square, London, WC1 not later than March 31 1949.

### PRIZES FOR NURSES

The Council of the British Medical Association is prepared to consider the award in 1949 of three prizes each of the value of 20 guineas for the best essay and three prizes each of the value of 10 guineas for the second best essay submitted in open competition by each of the following categories of nurses: (i) Pupil nurses, (ii) State registered nurses working in a hospital, (iii) State registered nurses not working in a hospital—i.e., district nurses, private nurses, etc.

The subjects of the essays for 1949 shall be: category (i) "What discipline do you think necessary in the training of nurses?" category (ii) "What part of nursing duties can be delegated to others with safety?" category (iii), "The care of old people in their own homes."

The purpose of these prizes is the promotion of systematic observation among nurses. In awarding the prizes due regard will be given to evidence of personal observation. No essay that has previously appeared in the medical press or elsewhere will be considered eligible for a prize. Nurses who are undergoing training at a hospital are eligible to compete under category (i); nurses registered by the General Nursing Council are eligible to compete under categories (ii) and (iii). If any question arises in reference to the

eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. Should the Council decide that no essay entered is of sufficient merit no award shall be made. Each essay must be typewritten or legibly written, must be unsigned and must have attached to it a sealed envelope containing the name and address of the candidate and the category into which he or she falls. Essays must reach the Secretary of the British Medical Association not later than March 31, 1949. Inquiries about the prize should be addressed to the Secretary, British Medical Association, B.M.A. House, Tavistock Square London, WC1.

### Meetings of Branches and Divisions

#### ASSAM AND N. BENGAL BRANCH

At the Annual General Meeting of the Branch held at Juri under the chairmanship of Dr C. G. Terrell on March 7, Dr B. Chatterjee, Medical Officer, Chargola Valley Medical Association, read a description of a case of bilantidial dysentery complicated by malaria and ankylostomiasis. He described how a woman labourer attended complaining of a long standing colicky pain in her abdomen and of passing frequent watery motions day and night. She looked fairly well nourished but somewhat anaemic. On examination nothing much wrong was found in her except some tenderness over her liver which was not enlarged. On examination of her stools a very large number of actively motile *Balantidium coli* were found in the sample and also many trichomonads. Some undigested starch and fat were detected. She was admitted to hospital.

When admitted she had high fever. Benign tertiary malaria parasites were found in her blood. She was put on mepracrine tablets t.d.s. for five days. Her fever left her the next day. Her stools were examined after seven days when numerous vegetative *Bal. coli* were still found, and many Charcot-Leyden crystals. At this time she developed more tenderness over her liver. In view of this and the presence of Charcot-Leyden crystals in the stools although no *Entamoeba histolytica* were found a course of emetine hydrochloride by injection and kurchi and bismuth mixture by mouth was given her. This treatment relieved the tenderness on her liver but in her stools there were still plenty of *Bal. coli* so we concluded that anti amoebic treatment was no cure for *Bal. coli* infestation. Then we put her on to chiniofon 10 gr (0.65 g) t.d.s., and also lavage for two weeks and after that lavage with dimol for a further week as we ran short of chiniofon. But after this course of treatment she was still discharging vegetative *Bal. coli* and trichomonads and some *ascaris ova* were detected. At this time for the first time fully formed balantidial cysts were seen some at the stage of cyst formation and binary fission, and several of them were found in intimate pairs. Perhaps if we could have persisted with this treatment long enough a cure might have been brought about but unfortunately we ran short of chiniofon and dimol.

At this time ankylostoma ova were found in her stools and she was put on carbon tetrachloride and oleum chenopodii but this treatment did not eradicate the *Bal. coli* though hookworm disappeared. She had another attack of malarial fever and was given another course of mepracrine.

By this time her general health was greatly improved, her diarrhoea stopped and her colicky pains had disappeared. She was symptomatically cured, though not microscopically.

I got her readmitted to hospital on Feb 5 and started to give her hydrag biniocide 2 ml of 3% solution on alternate days. After the first injection the number of *Bal. coli* fell from innumerable to only under 12 under a 7/8 in. cover slip and their movement was sluggish. But in the next week after three injections the number increased to 27 and in the week after another three injections to 23. Movement of the parasites remained somewhat more sluggish than before. At last on March 4 after 11 injections her stool became free of *Bal. coli* for the first time. These remained free after repeated daily examination though innumerable trichomonads were still present. I have kept her under observation to see if the offending parasites reappeared once again in her stools. The patient is cured to all purposes she does not suffer from any symptoms her colic and diarrhoea have ceased to bother her any longer and her general health is much improved. This was the third case of *Bal. coli* infection that I have seen and treated during my thirty years of practice.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are under stood to require employees to be members of a trade union or other organization.

**Metropolitan Borough Councils**—Fulham Hackney Poplar

**Non-County Borough Councils**—Dartford, Radcliffe (limited to future appointments) Walsend

**Urban District Councils**—Denton Droylsden Houghton-le-Spring Hutton-with-Roby Redditch (restricted to new appointments) Tyldesley

## THE NERVOUS AND HUMORAL CONTROL OF GASTRIC SECRETION\*

By

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It is a well-established fact that food substances, or the products of their digestion, when in contact with the pyloric mucous membrane cause a secretion of gastric juice. The mechanism by which the gastric glands are stimulated to secrete during the chemical phase is still a subject of controversy. The importance of the pyloric region as a receptive surface for chemical substances is shown in experiments by Sawitsch and Zelony (1913), of the Pavlov school, on dogs with an isolated pyloric pouch and either a gastric fistula or a Pavlov pouch. The introduction of chemical substances such as meat extracts, peptone, and acetic acid into an isolated pyloric pouch produced a secretion of juice from the glands of the fundus and corpus.

The Russian investigators further demonstrated that mechanical stimulation of the pyloric region also causes the cells to secrete acid and pepsin. If, however, the body of the stomach and the pyloric region are separated surgically and chemical substances are then introduced into the main stomach through a fistula no gastric juice is secreted either by the pouch or by the stomach. One of the theories advanced to explain this phenomenon involves the liberation from the pyloric region of a special hormone, "gastric secretin," as suggested by Edkins in 1906, later referred to as "gastrin." Edkins's idea was based on the observation that extracts from the pyloric mucosa when injected into a vein stimulate the gastric glands to secrete, while similar extracts from the fundus and body of the stomach have no such effect. Edkins regarded the action of gastrin on the gastric glands as analogous to that of secretin on the pancreas.

Among more recent workers Gregory and Ivy (1941) confirmed the operation of a hormonal mechanism in initiating gastric secretion, although they consider that the pyloric region is not essential in eliciting secretion of a transplanted fundic pouch on perfusion of the main stomach with secretagogues. In later experiments, however, Grossman, Robertson and Ivy (1948) found that distension of the pyloric portion of the stomach stimulates the secretion of hydrochloric acid by the fundic glands. This finding is regarded by these authors as conclusive evidence for the existence of a pyloric hormone for gastric secretion.

### Vagus Stimulation

In our laboratory, under the leadership of Uvnas, the problem of gastrin was approached from a quite different angle. Stimulating the vagi to the stomach under proper

conditions initiates secretion of gastric juice, which proceeds at a fairly high rate so long as stimulation of the secretory nerves is continued. In such experiments Uvnas (1942) observed that if the blood supply to the pyloric region was obstructed the response of the gastric glands to vagal stimulation was reduced or nearly abolished. This observation indicated that the pyloric region might be instrumental not only in the chemical phase but also in the nervous phase of gastric secretion. The part played by the pyloric region in the nervous phase of gastric secretion was examined in experiments of varying types, as follows (Uvnas, 1942).

In anaesthetized cats the main blood supply to the pyloric region can easily be obstructed by ligating the pyloric branches of the hepatic artery. After ligation of the arterial supply to the pyloric region the secretion of watery acid juice during vagal stimulation decreases considerably and abruptly, from 37 to 8 ml in a typical experiment, the juice also changes in character and becomes highly mucous and poor in hydrochloric acid.

I have already referred to experiments by Sawitsch and Zelony, who obtained secretion from the gastric glands by introducing chemical substances into an isolated pyloric pouch. These workers also observed that after cocaineization of the pyloric mucosa there is no secretion in the main stomach on chemical stimulation of the pyloric region. In a typical experiment of this type on cats (Uvnas, 1942) the vagi were stimulated for sixty minutes, which yielded about 16 ml of acid watery juice. The stimulation was discontinued and the pyloric mucosa was rubbed with a 2% solution of cocaine hydrochloride. After a resting period of forty-five minutes the vagi were again stimulated during three and a half hours of maximal vagal stimulation only a few drops of mucus were secreted, not until approximately six hours after cocaineization did the rate of secretion return to normal. Cocaine does not inhibit the secretory mechanism by paralysing the acid- and pepsin-secreting cells, because histamine injected slowly into a vein or given intramuscularly evoked secretion in cats after cocaineization of the pyloric mucosa. Cocaine given intramuscularly in doses sufficient to paralyse the respiratory centres did not significantly diminish the secretory response to vagus stimulation if the pyloric region was left functionally intact.

### Resection of Pyloric Region

In another series of experiments Uvnas resected the pyloric region in cats and dogs. The resection included the distal part of the stomach from that closely proximal to

\*A special lecture (abridged) given at the University of London on May 21 1948.



the incisura angularis to that just distal to the pylorus. In cats secretion decreases considerably after resection of the pyloric region. In dogs the effect of pyloric resection is still more striking. In one dog abundant secretion persisted during two hours of vagal stimulation. After resection of the pyloric region gastric secretion during vagal stimulation decreased to a negligible amount and the gastric juice completely changed character: the juice contained no free hydrochloric acid and was of a stringy mucous consistency.

All these experiments indicate that on stimulation of the secretory nerves to the stomach some active agent, or agents, is liberated in the pyloric region, and from here this agent is carried to the parietal cells. More direct evidence of a hormonal mechanism within the nervous phase of gastric secretion was obtained in cross circulation experiments on cats (Uvnas, 1942). The pyloric mucosa of the

they identified chemically as histamine sulphate or picrate. These experiments were presented by Ivy and his co-workers as strong evidence that histamine may be a gastric secretory hormone liberated from the pyloric region and that histamine and gastrin are identical. I will come back to histamine, but will first turn to the work on gastrin carried out in Babkin's laboratory and in ours.

Komarov (1938a, b), in Montreal, approached the problem from a new angle, and so did Uvnas and his group in Lund. Whereas their predecessors, like Ivy and his group, had extracted the non-protein substances from the pyloric mucosa, eliminating the protein fraction so far as possible, the Canadian and Swedish workers searched for gastrin under the assumption that it might chemically be related to secretin, which, as shown by Hammarsten and Ågren in Stockholm, is a protein-like body. Komarov in 1942, using several methods of extraction, obtained preparations from the pyloric mucosa which on intravenous injection stimulated gastric secretion both in anaesthetized and in unanaesthetized animals. Komarov's preparation contained no histamine.

In our laboratory Uvnas (1943, 1944, 1948) and his group obtained a preparation of gastrin having a degree of purity which compares favourably with the best commercial preparations of secretin. The active principle is a protein-like water soluble substance iso-electrically precipitated at a pH of about 4 to 5.5. Chemically, gastrin shows great similarities to secretin. Both substances are contained in the sodium chloride and the trichloroacetic acid precipitates. They are alike in their solubility in some organic solvents and in their degree of stability in

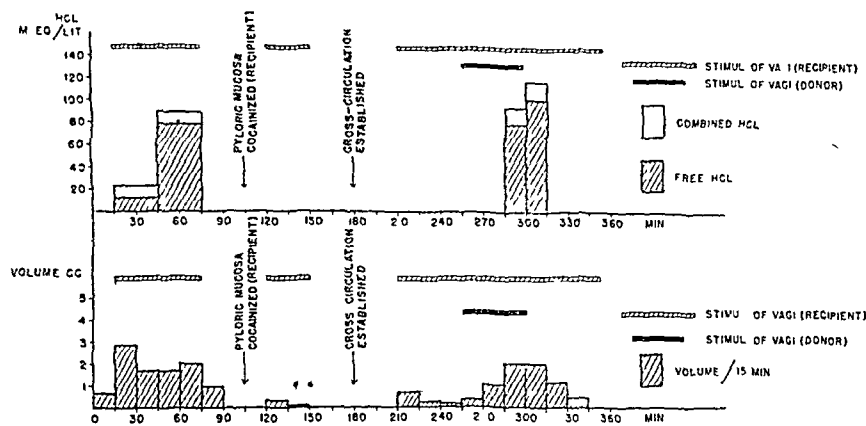
acid and alkaline solutions. But they differ in some other respects—e.g., in their solubility in ethyl alcohol.

#### Activity of Gastrin Preparations

The activity of gastrin preparations is assayed in our laboratory on cats anaesthetized with a mixture of chloralose and urethane. Comparisons are made on the following standard: the activity of the extracts is measured as the quantity of gastric juice secreted in the hour following the beginning of the injection, which is made in the iliac vein at a rate of 0.4 ml per minute for thirty minutes. One secretory unit of gastrin is the quantity which produces a secretion of 1 ml of acid juice per hour in a cat weighing 2–3 kg. (Gastrin, like secretin, is effective only when injected direct into the blood stream; intramuscular injections induce a very scanty secretion.) Purified preparations of gastrin do not contain histamine in detectable amounts.

On intravenous injection of gastrin, secretion usually begins in about five minutes, gradually increases for five to ten minutes, and then proceeds at a more or less constant rate. When injection is interrupted, secretion continues for ten to fifteen minutes at maximal rate, then gradually declines and reaches the basic level approximately thirty minutes after the end of injection.

Table I (Uvnas, Munch-Petersen, and Ronnow, 1944) illustrates the activity of the preparations during the different stages of purification. Crude preparations from the pyloric mucosa of pigs obtained by precipitation with hydrochloric acid extracts with 20% sodium chloride contain one secretory unit in 45 mg, whereas with the pure



Cats under chloralose. Pyloric region of the recipient functionally eliminated by cocaine. Cross circulation experiment demonstrating the liberation of a hormone (gastrin) from the donor cat's pyloric region on stimulation of the vagi.

recipient was functionally eliminated by cocaine. The carotid artery of this cat was then anastomosed with the donor cat's coeliac artery, and the donor's superior mesenteric vein with the recipient's jugular vein. The portal vein and the hepatic artery of the donor cat were ligated. Since the superior mesenteric vein was ligated distally to the inflow of the gastro-splenic vein, the venous outflow from the donor's stomach and pyloric region was diverted to the recipient's jugular vein. Clotting was prevented by heparin. On stimulation of the recipient cat's vagi for forty-five minutes (see Chart) only a scanty flow of Congo-negative juice was secreted. If, however, the donor cat's vagi were also stimulated the stomach of the recipient started to secrete and free acid appeared in the juice. When stimulation of the donor's vagi was interrupted, gastric secretion ceased in the recipient cat even if its vagi were stimulated without interruption. Identical results were obtained in cross-circulation experiments where the pyloric region of the recipient cat was resected instead of being cocaineized.

#### Production of Gastrin

These experiments suggest that, in cats, impulses from the brain, mediated by the vagi, cause the liberation in the pyloric mucosa of some agent which, carried by the blood stream, stimulates gastric glands to secrete acid juice. What is the nature of this secretory excitant and what physiological properties can be ascribed to this agent, which for the sake of simplicity we can refer to as gastrin? Ivy and his group (Sacks, Ivy, Burgess, and Vandolah, 1932) made a fresh attack on the gastrin problem in 1932. Using 80% acidified alcohol as a solvent they extracted from the pyloric mucosa of a hog an active agent which

TABLE I—Gastric and Pancreatic Secretion after Intravenous Administration of Crude Alcohol Washed or Purified Substances from the Pyloric Mucosa of Cats and Pigs

Active Material Type of Purification	Cat	Gastric Secretion	Pancreatic Secretion
A A crude trichloroacetic acid precipitate from cat	75	12 ml	11 drops
The trichloroacetic acid precipitate from the above washed with 80% ethyl alcohol	65	10 ml	0
B A preparation from pig precipitated with 20% NaCl and 10% trichloroacetic acid	50	9 ml	5 drops
A preparation from pig precipitated with 20% NaCl and washed with 80% ethyl alcohol	40	7.5 ml	0
A preparation from pig purified by the trichloroacetic acid method	40	14 ml	0
Secretin	5	0	41 drops

preparations one secretory unit is contained in 2.3 and 2 mg respectively. Comparison with the activity of a commercial preparation of secretin, pancreotest, considered to be of a high degree of purity, showed that at least 3 to 5 mg. of this preparation must be introduced into a vein of a cat to produce a definite pancreatic secretion.

The gastric juice secreted on injection of purified preparations of gastrin was always strongly acid, the total acidity usually exceeding 150 milliequivalents per litre. The peptic power of the juice declined to a very low level during the course of the secretion, indicating that gastrin activates only the parietal cells.

Crude preparations of gastrin were sometimes contaminated by secretin or some other agent which stimulated pancreatic secretion. The pancreatic excretion can be removed by washing with 80% ethyl alcohol.

As judged by present experimental evidence gastrin selectively stimulates the parietal cells. Salivary, pancreatic, peptic, or bile secretion, gastric motility, blood sugar and blood pressure are not influenced by intravenous injection of doses which evoke a copious secretion of gastric juice. These observations indicate a specificity of gastrin as pronounced as that of secretin, which selectively activates pancreatic glands, causing the secretion of a sodium bicarbonate solution of low enzyme content.

In cats, dogs, and pigs the active agent, here referred to as gastrin, is predominantly present in the pyloric mucosa. The confinement of the stimulating agent to the pyloric region in these animals, together with experimental evidence that the humoral mechanism of gastric secretion is chiefly related to this region, indicates that the active agent of pyloric extracts is identical with the gastric hormone, the existence of which was postulated by Edkins forty years ago.

When we discussed these problems with colleagues experienced in human gastric surgery we encountered useful criticism. We have been told that, in patients in whom the pyloric region has been removed in cases of peptic ulcer, acid gastric secretion is at a very low ebb for a couple of weeks or possibly months after the resection but that secretion then gradually returns to approximately normal. Komarov (1942) reports that a gastric secretory agent can be extracted from the duodenal mucosa of pigs. It was of course of special interest to study also in man the distribution of gastrin in the stomach and duodenum. For these experiments resected portions of stomachs from operated patients were transferred to the laboratory without delay. Post-mortem material was obtained within ten to thirty-six hours of death. The gastric mucosa was divided into three parts—the pyloric, the boundary, and the corpus regions. Table II (Uvnäs, 1945) gives the rate of secretion observed in cats on injecting extracts from the three different mucosal regions of human stomachs. So far only a small amount of surgical material has been

TABLE II—Rate of Excretion Observed in Cats on Injecting Extracts from Three Mucosal Regions of Human Stomachs

No.	C. c.	Age	Sex	Mucosal Region						Total
				Pyloric Mucosa		Boundary Mucosa		Corpus Mucosa		
				Volume (ml)	Secretion (mEq/l)	Volume (ml)	Secretion (mEq/l)	Volume (ml)	Secretion (mEq/l)	
M1	Duodenal ulcer	31	M	12	6.5	12	21.5	11	14	34
M2		16	F	10	16.1	10	9	10	0	35
M3		48	F	12	4.0	12	2.2	11	0	35
M4		28	M	7	17.0	12	1.1	12	0	31
M5	Gastric	55	M	10	6.8	12	3	12	0	34
M6		49	F	10	10.2	12	1	12	0	32
M7		38	F	12	3.0	12	1	12	0	34
M8		21	M	12	1	12	1	12	1	36
M9		45	M	12	1	12	1	12	0	36
M10	Malignant gastric ulcer	47	M	12	11.2	12	0	12	0	34
M11	Gastric carcinoma	78	M	12	0.1	12	0	12	0	34
M12		52	M	12	0	12	0	12	0	34

Total = trypsin + amylase + lipase + secretin

examined, but it definitely shows that the human gastric mucosa contains a gastric secretory agent. The observations are too few to permit definite conclusions about the distribution of the secretory principle but they suggest that in man also the agent is chiefly if not entirely localized in the pyloric mucosa.

In man gastrin could also be extracted from the duodenal mucosa (Uvnäs, 1945). Of fifteen duodenal preparations from human endoscopy six preparations were active where nine were inactive. However, when we consider that gastrin is rapidly destroyed by trypsin it is surprising that the agent could be detected in such a large proportion of the examined material. The presence of gastrin in the duodenal mucosa of man might be a hint that the so-called intestinal phase of gastric secretion, in line with the previous and chemical phases is controlled by a hormone related to or identical with gastrin. Harper (1946) has reported that gastrin can be extracted from the mucosa of the hog's pyloric region and also from the upper part of the small intestine.

#### A. Pepsin-stimulating Agent

As I have already mentioned, purified gastrin does not stimulate the secretion of pepsin. If the pepsin present in the resting glands is washed out by a prolonged injection of histamine, which in itself does not stimulate peptic secretion, it can easily be demonstrated that gastrin given intravenously does not increase the peptic activity of the gastric juice, whereas subsequent vagal stimulation greatly increases the output of pepsin.

Switsch and Zeligovskii claimed that mechanical stimulation of the mucosa of an isolated pyloric pouch causes an increased secretion of pepsin in the main stomach. Pavlov showed that in dogs the peptic activity of the gastric juice varies with the composition of the food. All these facts suggest the existence of a humoral mechanism instrumental in the control of peptic secretion. Crude pyloric preparations, precipitated from acid mucosal extracts by trichloroacetic acid, contain an agent which on intravenous injection augments the output of pepsin (Uvnäs, 1948). These experiments are incomplete, but they indicate the presence in the pyloric mucosa of an agent which stimulates the peptic cells.

Harper and Raper (1943), of Manchester, report that they have extracted from the duodenal mucosa a principle of protein nature which selectively activates the enzyme-producing pancreatic cells. This principle called "pancreozymin" by them, they consider to be an ally of secretin.

in the humoral control of pancreatic secretion. Further experiments will elucidate to what extent the pepsin-cell stimulating agent from the pyloric region is complementary to gastrin in the humoral control of gastric secretion.

### Histamine

Where does histamine come into this picture? What functions, if any, can be ascribed to histamine in the control of gastric secretion? I have already mentioned that Ivy and his co-workers extracted histamine from the pyloric mucosa and identified it chemically in 1932. Influenced by this result some authors were inclined to classify histamine as a hormone liberated in the pyloric region and carried by the blood stream to the glands in the main stomach. However, Gavin, McHenry, and Wilson (1933) demonstrated that the fundic mucosa contained more histamine than the pyloric, only 20% of the total histamine extracted from the mucosa of the stomach being derived from the pyloric region. Under the impression that gastrin might be identical with histamine these authors felt that their result did not support Edkins's statements.

To my knowledge no experiments have been published demonstrating or even indicating the liberation from the pyloric region of excess histamine into the blood during the nervous or chemical phases of gastric secretion. Actually, it would seem rather unwise of Nature to resort for this purpose to a substance which in concentrations in the blood plasma sufficient to stimulate gastric secretion would produce a variety of other effects, such as general vasodilatation, increase in capillary permeability, contraction of smooth muscle, and, in hypersensitive persons, even headache. Obviously the role of histamine in stimulating gastric secretion cannot be that of a hormone carried in the blood stream to all parts of the body.

Histamine no doubt possesses admirable potentialities as a physiological excitant of acid gastric secretion. However, its mode of action on the parietal cells must be other than that of a blood-carried hormone. In cats and dogs histamine is contained in large amounts in the gastric mucosa, in concentrations approximately 1,000 times higher than in the blood plasma. Histaminase, a diamine oxidase present in the intestinal mucosa, is absent in gastric mucosa, as demonstrated *in vitro* by Best and McHenry (1930). This fact should not be stressed too strongly in favour of histamine as a gastric excitant, because it was demonstrated in our laboratory that in living tissues histamine is inactivated at a very much higher rate than *in vitro*. We have obtained evidence that *in vivo* histamine is destroyed rapidly by the lymph and in the interstitial spaces (Carlsten, Kahlson, and Wicksell, *in press*).

MacIntosh (1938), using the Barsoum-Gaddum method of extraction and testing on the ileum of the guinea-pig, demonstrated in dogs that the gastric juice obtained by sham-feeding or by vagal stimulation contained a substance with the properties of histamine. We injected the gastrin obtained by Uvnäs into the blood stream of a cat and tested the gastric juice for its content of histamine. The juice contained histamine in a physiologically active form. At that time we thought that the histamine in the plasma and gastric mucosa was present in an inactive form, and that the function of gastrin might be to liberate, in the surroundings of the parietal cells, histamine in an active state and in concentrations sufficient to stimulate the acid-secreting cells (Emmelin and Kahlson, 1944). Babkin (1944) and MacIntosh (1938) have already presented a hypothesis that vagal impulses may be transmitted to the parietal cells not directly by acetylcholine but by histamine liberated locally by acetylcholine under the influence of the vagus nerves.

### Histamine Concentration of Gastric Juice

Since in our experiments the gastric juice secreted in response to injection of gastrin contained free histamine it seemed worth while to examine the histamine concentration of gastric juice secreted as a response to a variety of stimuli. From dogs with an oesophageal fistula for sham-feeding and with a gastric pouch we collected juice during the nervous and chemical phases of gastric secretion. In both phases the histamine concentration of the juice was approximately the same. Spontaneously secreted gastric juice and juice obtained on vagus stimulation, on the injection of "prisco," and on injection of acetylcholine in the lateral cerebral ventricle all contained histamine in a physiologically active form. It is striking that the histamine concentration of the juice is rather independent of the nature of the stimulus employed to activate the parietal cells. It is also striking that the histamine concentration of the gastric juice is of the same order as in blood plasma.

The parietal cells are permeable to histamine. If the histamine concentration in the plasma is raised by prolonged intravenous injection of histamine this substance appears in the juice in higher concentrations than with physiological stimuli (Emmelin and Kahlson, 1944).

I am fully aware that these experiments do not prove that histamine is actually liberated in the mucosa under the influence of gastrin or other stimuli. Emmelin and I have spent a lot of time examining the histamine concentration in the venous plasma emerging from the stomach before and during stimulation of the parietal cells. We obtained no definite evidence of excess histamine in the venous plasma from the stomach during activity of the parietal cells. This obviously does not disprove the idea that histamine is locally engaged as an excitant, since histamine may be liberated in very close proximity to the parietal cells without diffusing in detectable amounts into the blood capillaries, or the liberated histamine may be destroyed before it reaches the absorbing blood vessels. It may be appropriate here to recall that we still lack generally accepted evidence of a liberation of histamine in any type of physiological reaction. With anaphylaxis and animal poisons, so far as histamine is concerned, the situation certainly is clearer (Gaddum, 1948). Unfortunately we know of no substance which inhibits the factors responsible for the destruction of histamine in the different tissues, and we know of no substance which specifically antagonizes the effect of histamine on the parietal cells. Those engaged in this field of endeavour, however, will remain confident that Nature has not embedded the parietal cells in copious quantities of the most potent gastric excitant so far known just to seep through the secreting cells to deceive physiologists.

### Conclusion

If tentatively we try to link together the pattern of facts as they are seen so far, the contours above the horizon of unjustified speculation are as follows. Gastrin is contained in the pyloric mucosa, and in man and pigs in the duodenum as well. This agent is liberated by vagus impulses or when chemical substances such as food come into contact with the mucosal regions concerned. The liberated gastrin is carried by the blood to the fundic mucosa, where it causes some change so that histamine is liberated in quantities sufficient to stimulate the parietal cells. In this picture gastrin enters as a common factor in the nervous, gastric, and intestinal phases of acid gastric secretion.

Obviously much work remains to be done before this view can be accepted even by those who are suggesting it as a working hypothesis.

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## RESULTS OF PARTIAL GASTRECTOMY FOR PEPTIC ULCER

by

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An attempt is here made to assess the merits of four types of anastomosis used in partial gastrectomy. The operations were performed for chronic gastric and duodenal ulcer during the six years ending Dec. 31, 1946. We have excluded all cases of carcinoma, those cases of peptic ulcer in which a previous operation other than suture of a perforation had been performed, emergency gastrectomies for haemorrhage, and a few operations in which the pylorus was not removed but was excluded. The series consists of 248 patients, and in reviewing the results we have paid particular attention to (a) the immediate post-operative course, with special reference to complications due to the type of anastomosis, and (b) the functional results. These have been divided into good, fair, and poor. The result is good if the patient is satisfied with the operation and admits to no significant side effects. It is fair if the patient is satisfied with the operation but is found to have modified his diet or eating habits to avoid unpleasant symptoms. It is classified as poor when the patient is dissatisfied with the operation or when we have considered the functional result to be unsatisfactory.

The length of time since the operation ranges from one to six years, the average period being thirty-seven months. Fifteen patients have not been traced. The last known residence of eleven of these has been visited, but they had left the district and all attempts at follow-up have failed. Visits were not paid to the residences of the other four, as two were known to have left the country and two lived a long distance away.

The following four types of anastomosis were used.

Type I. An end-to-side anastomosis with an antecolic proximal loop attached to the greater curve (Fig. 1).

Type II. An end-to-side anastomosis with a long antecolic proximal loop attached to the lesser curve with a valve and a small stoma (Fig. 2). Type III. An end-to-side anastomosis with a short post-colic proximal loop attached to the lesser curve with a small valve and a small

stoma (Fig. 3). Type IV. An end-to-end anastomosis of the Billroth I type, joining the duodenum to the greater curvature of the stomach (Fig. 4).

### Type I. Antecolic Anastomosis

Average period since operation	61 months
Number of operations	45
Operative mortality	1 (duodenal ulcer)
Cause of death	Bronchopneumonia
Traced	
Good	18 (8 duodenal 10 gastric)
Fair	15 (4 " 11 ")
Poor	2 (1 " 1 ")
Since died	1 (1 " 0 ")
Causes of death	homb injury (gastric) cardiac failure (duodenal) torsion of caecum (gastric)
Untraced	
	(1 duodenal 2 gastric)
Male duodenal ulcer	Very fit 4 months after operation. Changed address.
Male gastric ulcer	Good 3 months after operation. Changed address.
Female gastric ulcer	Changed address.

**Post-operative Period.**—The operation seemed to be safe and satisfactory. The only objection was that the stomach remnant was slow to begin emptying into the efferent loop. Accordingly a nasal suction tube was left *in situ* for several days until the stomach contents began to pass through into the efferent loop.

**Late Function.**—This operation is not really satisfactory. Many writers including Ogilvie (1947) have pointed out that an anastomosis of this type leads to proximal-loop filling in many cases and consequent postprandial distress. Investigations show that proximal loop reflux is present in most of the patients in this group. The barium meal can be seen to pass through the stomach remnant straight into the proximal loop; this contracts and gradually pumps its contents back through the stomach into the distal loop. In spite of the high incidence of proximal loop reflux the results are quite good some years after operation. Most patients complain of side effects for some months after the operation. Eighteen now claim to have a very good digestion. Eighteen are classed as fair; as a group these eighteen are very pleased with the operation and are living a reasonably normal life, but most of them like to rest for a period of half to one hour after their principal meal and find that certain articles of diet, especially fats and fried food, should be taken with care. The results in the following two cases are poor.

**Case 1.**—A man aged 35 at operation in 1942 had severe postprandial distress including nausea and occasional vomiting. In 1944 he was investigated at another hospital and his troubles were attributed to proximal loop reflux. Laparotomy showed no other abnormality and an entero-enterostomy was performed. The patient says that he has had little relief from this operation.

**Case 2.**—A man aged 44 at operation in 1943 has complained ever since of nausea and distension after meals. A barium meal shows considerable proximal loop reflux but no other abnormality. He has worked continuously since operation and has maintained his weight, but the functional result is a poor one.

Although most patients are well satisfied this anastomosis does not give first-class results. We suggest two reasons for this unexpected contentment with an operation which has given so high an incidence of proximal-loop reflux.

(1) All these patients were operated on at a time when only those with very large penetrating ulcers were recommended for surgery. The more severe the pre-operative symptoms the more tolerant is the patient of a moderate post-operative function. (2) All these operations were performed at least five years ago. The symptoms attributable to proximal loop reflux become less severe with the passage of time.

We note that Watson (1947) has often used this anastomosis and has seldom detected proximal loop reflux, but it

has been a common feature in our series, and, believing it to be responsible for postcibal distress, we abandoned the method some years ago

### Type II Antecolic Anastomosis

Period since operation (Average 37 months) 1 to 4 years

Number of operations 130

Operative mortality 3

Causes of death (duodenal ulcers)  
Burst duodenal stump twisted proximal loop, pulmonary embolus

Traced 118

Good 88 (61 duodenal, 27 gastric)

Fair 19 (14 " 5 " )

Poor 6 (5 " 1 " )

Since died 5 (2 " 3 " )

Causes of death Carcinoma of uterus (gastric) pulmonary tuberculosis (gastric) carcinoma of prostate (gastric) carcinoma of lung (duodenal), not known (duodenal)

Untraced 9

(6 duodenal, 3 gastric)

Male, gastric ulcer Untraced since leaving hospital

Male duodenal ulcer Very good 2 years later

Changed address

Male duodenal ulcer Good at 6 months Changed address

Male duodenal ulcer Fair at 12 months Changed address

Male gastric ulcer Fair at 12 months Left country

Male duodenal ulcer Fit 2 months later Changed address

Male gastric ulcer Good at 3 months Changed address

Male duodenal ulcer Never reported Changed address

Male duodenal ulcer Good at 3 months Changed address

**Post-operative Period**—We have experienced disturbing complications which appear to be due to the length of the proximal loop. One patient died on the fourteenth post-operative day, and necropsy revealed a proximal loop which

was obstructed at its junction with the lesser curve and which rotated behind the stomach.

Two other patients suffered this complication—one on the tenth and the other on the fourteenth post-operative day—but were rescued by operative correction of the fault. In these two patients the symptoms were the same both suffered a severe attack of colicky pain in the left hypochondrium and both vomited gastric contents free from bile, suggesting obstruction of the proximal loop. In each case laparotomy revealed the grossly distended proximal loop

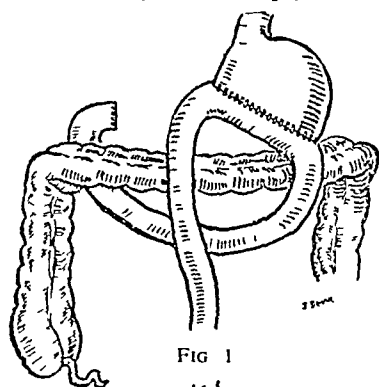


FIG 1

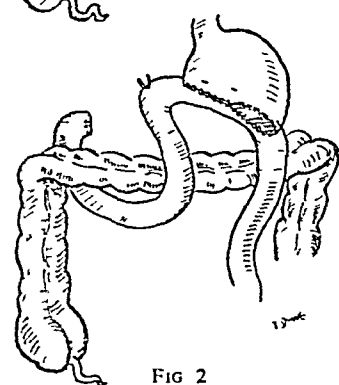


FIG 2

rotated behind the gastric remnant. In one an entero-anastomosis was performed, in the other the loop was untwisted and a stitch inserted to fix the proximal loop to the right of the stomach remnant.

It is impossible to say whether the primary trouble was obstruction at the lesser curve, leading to dilatation and rotation of the loop, or rotation of the loop, leading to obstruction at the anastomosis. Nor is it possible to say whether in our one fatal case, in which the duodenal stump

leaked on the second post-operative day, the leakage was due to poor closure of the duodenal stump or to pressure in an obstructed afferent loop. We have never found this complication in any anastomosis where there was no long proximal loop, and we cannot help feeling that it may add some small risk in the post-operative period. It is fair to point out that at the time these troubles occurred we were not using the stitch advocated by Maingot (1948) to anchor the proximal loop towards the right of the stomach. If this operation is performed the possibility of a loop twist should be borne in mind in the event of an attack of abdominal pain associated with a bile-free vomit.

### Late Results—On

the whole this has proved a satisfactory operation. Results in 88 cases are classified as good and 19 as fair. We have had barium meal tests of all the patients who had fair results. Proximal loop reflux did not occur, and we could detect no mechanical failure. Fats and fried food in excessive amounts are usually mentioned as apt to cause trouble. The results in the following six cases are definitely poor, and are worth closer review.

**Case 3**—A man, aged 58 at operation in 1943 complained of pain in the chest and left hypochondrium after meals. Two years later his abdomen was explored. No ulcer or other abnormality was found. His troubles persist but the pain is now chiefly in the back and he has some osteoarthritis of the spine. It is doubtful if his symptoms are digestive in origin, though there is no doubt that he is not a satisfied patient.

**Case 4**—A man, aged 57 at operation in 1944 complained of severe postcibal distress, including nausea and vomiting. During a fortnight's stay in hospital recently he appeared to be having very little trouble with his digestion. Investigations with a barium meal, test meal and glucose tolerance test disclosed no obvious cause for his reported symptoms.

**Case 5**—This patient, aged 20, had an antecolic gastrectomy with a rather long loop performed in 1943. The immediate result was satisfactory, but three months later he began to be increasingly troubled. Each meal particularly a large one or one containing fats, caused lassitude, distension and nausea so that he had to lie down. These would pass off in an hour to an hour and a half but occasionally he vomited fluid deeply stained with bile. Attacks of diarrhoea occurred. A barium meal emptied very rapidly indeed and caused some pooling in the small intestine. A test meal showed that there was no secretion of acid in the stomach. An indwelling Ryle's tube over twenty-four hours suggested that the meal left the stomach very rapidly, that the stomach then filled about half an hour later with a mixture of bile and pancreatic juices from the proximal loop and that his nausea came at the time when his stomach filled with fluid. It was decided that a laparotomy was justifiable since no simple remedies were of any avail and the patient was below weight and considerably disabled by these symptoms even though he managed to do his work.

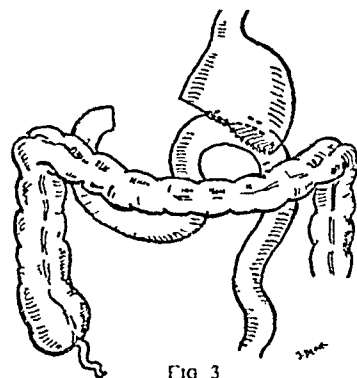


FIG 3

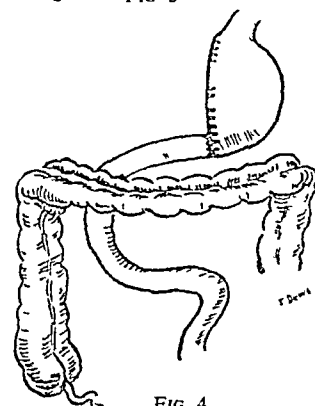


FIG 4

An unduly long and dilated proximal loop was found. The anastomosis was unpicked and remade with a very short proximal retrocolic loop with a small valve. This brought considerable improvement. It seems reasonable to suggest, therefore, that the long proximal loop emptied badly into the gastric remnant, possibly through slight rotation and that food passed rapidly out of the remnant into the small intestine without a satisfactory mixture of bile and pancreatic juice.

**Case 6**—A man, aged 34 at operation in 1945 now complains of postcibal distress. He looks well and has gained weight. Full investigation at hospital showed no apparent abnormality and observation did not endorse his statement. He is in receipt of a pension for his gastric disorder, and has not attempted any work since the operation.

**Case 7**—A woman aged 42 at operation twenty months previously made satisfactory progress at first but in the last few months has complained of pain and flatulence after meals. Investigation revealed no apparent gastric cause of postcibal distress but showed the presence of gall stones. Cholecystectomy has since been performed, with relief of her symptoms.

**Case 8**—A man aged 56 at operation three years ago, was fit for two years but then developed oedema and ascites the cause of which was found to be cirrhosis of the liver.

Of the six patients in whom the results were classified as poor we can only be certain that two are suffering severe postcibal distress following their gastrectomy. This operation is still used, but is employed less than formerly. The loop is shorter and is stitched in position to the right of the gastric remnant to prevent the risk of rotation.

### Type III Post colic Anastomosis

Average period since operation	29 months
Number of operations	26
Operative mortality	Nil
Traced	23
Good results	16 (14 duodenal, 2 gastric)
Fair	4 (3 " 1 " )
Poor	1 (gastric)
Since died	2 (duodenal)
Causes of death	Car accident coronary thrombosis
Untraced	3
	(duodenal)
Male	Good at 6 months Changed address
Male	Left country after operation
Male	Fair at 3 months Changed address

In this procedure the anastomosis lies below the mesocolon, the edges of the aperture in this structure being stitched to the stomach. To enable this to be done the jejunum is not carried up to the lesser curve, which necessitates the construction of a smaller valve than that in the antecolic anastomosis.

Suction from an indwelling Ryle's tube in the immediate post operative period shows that the bile enters the stomach very rapidly. This suggested that it was the most suitable anastomosis to use if pressure in the duodenal stump was specially to be avoided.

During the period under review this anastomosis was employed in cases in which the antecolic anastomosis seemed to be inadvisable for the following reasons: (a) a very large transverse colon or mesocolon which, it was thought, might drag on the proximal loop, and (b) unsatisfactory closure of the duodenal stump due to extensive ulceration of the duodenum, which might lead to leakage if there was any pressure in the proximal loop.

**Post-operative Course**—The immediate post-operative course has been very satisfactory. The short loop has given no trouble, and as the whole anastomosis is below the mesocolon there has been no herniation of small intestine. We have not yet seen trouble from fibrosis of the mesocolon and compression of the anastomosis, which is suggested by Ogilvie (1947) as a possible sequel of this type of operation.

**Functional Result**—From the functional point of view the result seems satisfactory and the reduction in size of the valve does not appear to have had an adverse effect.

Sixteen are classified as good, four as fair functional results, and one (Case 9) as poor.

**Case 9**—A man aged 38 at operation three and a half years ago, has had considerable trouble from postcibal distress. This comes on immediately after a meal and consists of a feeling of distension and fatigue accompanied by sweating. It lasts about half an hour and then suddenly disappears often accompanied by a loud gurgle. He can always produce these attacks by taking fat and fried food and by moving about immediately after a meal. He can avoid them if he does not eat fats and if he rests for half an hour at the end of a meal. Barium meal examination shows rapid emptying of the stomach and some dilatation of the small intestine. The proximal loop here was made rather unnecessarily long and it is probable that his trouble is due to delayed emptying of this loop.

### Type IV Billroth I Anastomosis

Average period since operation	23 months
Number of operations	47
Operative mortality	1 (gastric ulcer)
Cause of death	Pulmonary embolus
Traced	
Good	36 (1 duodenal, 35 gastric)
Fair	7 (1 " 6 " )
Poor	1 (duodenal)
Since died	2 (gastric)
Causes of death	Jaundice 18 months later apastic
Untraced	Nil

**Post-operative Period**—In the immediate post-operative period this procedure has been entirely satisfactory, except in Case 10 described below. It has the merit of dispensing with the proximal loop, the foramen in the transverse mesocolon, and the duodenal stump, and thus avoids all the possible complications these may cause. From the point of view of safety, therefore, this technique appears to have advantages over any other type of anastomosis.

**Functional Result**—From the functional aspect we have found it as satisfactory as any other.

**Case 10**—A woman, aged 46 at operation in 1945 suffered from duodenal ulcer. At the operation it was noticed that the duodenal lumen was small consequently the anastomosis was a narrow one. An indwelling Ryle's tube suggested that the anastomosis did not become patent until the fifth day. She now complains of fullness during meals and has to take small ones. Barium meal examination shows a remnant which retains a barium meal for two and a half hours and empties slowly via a stenosed anastomosis.

This technique was used on two other patients suffering from duodenal ulcer, and one of them also shows a stomach which empties slowly, though it did not cause symptoms. There has been no sign of stenosis at the anastomosis in the gastric ulcer cases.

We are satisfied that as a treatment for gastric ulcer this anastomosis is sound, but the increased difficulty of mobilizing an ulcerated duodenum and the risk of late stenosis render it an unsuitable method for the patient with a duodenal ulcer.

### The Follow-up

Consideration of the cases whose results are listed as fair or poor leads to three conclusions: (1) That pain of the ulcer type is most unusual, and in the patients we have followed we have been unable to prove the presence of an anastomotic ulcer. (2) That the departure from a normal digestion is due to the incidence of what is described as "side effects" or postcibal distress. The symptoms of which the patients complain are nausea and, less often, vomiting, a feeling of distension, lassitude, sweating, and attacks of diarrhoea, and these come on at varying periods during or after a meal. (3) That fats and fried food are the articles of diet most likely to cause trouble.

### Side-effects

**Incidence and Severity**—If we consider that all patients in whom the results are classified as fair are suffering from



mild side effects then the incidence is 47 (22%) out of 216 followed up. But in these patients the side effects either are occasional or are preventable by eating only small or moderate meals. These restrictions do not interfere unreasonably with the life and habits of a normal person. From the ten patients whose results are classified as poor we can exclude two (Cases 7 and 8) whose trouble is due in one instance to gall-stones and in the other to cirrhosis of the liver. This leaves us with eight (3.6%) patients in whom side-effects due to the operation appear to be a serious problem.

**Causation and Treatment**—Various causes have been suggested in the literature, and we have examined our eight cases with these in mind. They have been investigated with barium meal, an indwelling Ryle's tube for twelve hours with a normal diet, blood counts, and sugar-tolerance curves. Three causes seem to us to fit certain of our patients and, moreover, to be due to the type of anastomosis used. They are proximal-loop filling, slow emptying of the stomach remnant and delayed emptying of the proximal loop.

**Proximal loop Filling**—Cases 1 and 2 come into this category. These patients may show one or more of the following symptoms coming on shortly after a meal: distension, lassitude, nausea, vomiting, sweating and a feeling of "bile rising in the back of the throat." Post-operative barium meal examination shows the meal entering a dilated proximal loop and gradually passing back through the stomach into the distal loop. They therefore empty slowly into the jejunum and the meal should have ample time to mix with the bile. It is noteworthy that diarrhoea does not seem to be associated with this group. Proximal-loop filling has occurred only with anastomosis of the afferent loop to the greater curve, a method which should not be used. In our patients who show proximal loop filling the symptoms are partly relieved by resting for half an hour after a meal and by avoiding excess fats and fried food.

**Slow Emptying of Stomach Remnant**—One patient (Case 10) who had had a Billroth I gastrectomy for duodenal ulcer comes into this category. The chief symptom is fullness coming on during a meal, this prevents further eating and takes some time to pass off. In this particular case a barium meal showed retention of the meal in the stomach remnant up to two and a half hours. The meal given was the usual fluid one and it is to be expected that any solid food would take even longer to leave the stomach. The cause of this delayed emptying is stenosis of the anastomosis in a Billroth I operation performed for a duodenal ulcer. This complication can be prevented in duodenal ulcer cases by performing an end-to-side anastomosis.

**Delayed Emptying of Proximal Loop**—This complication is mentioned by Lake (1948) as a possible cause of postcibal distress. If there is any obstruction to the outlet of the proximal loop the bile and pancreatic juice secreted during a meal will accumulate there and emptying of the loop across the anastomosis will be delayed. On the one hand distension of the proximal loop may be produced causing symptoms similar to proximal-loop reflux. On the other hand the food may proceed on down the jejunum unmixed with bile and pancreatic juice causing a tendency to fatty diarrhoea. The symptoms are therefore very similar to those of proximal-loop reflux with the addition of diarrhoea. Fatty diarrhoea does not seem to be a complication of proximal-loop reflux where the meal is well mixed with bile and pancreatic juices and empties slowly into the jejunum. In the obstructed-proximal-loop syndrome the meal may empty rapidly down the jejunum although the bile and pancreatic juices are detained at the upper end of the intestinal tract. Two patients (Cases 5 and 9) fit into this category.

In Case 5 the evidence is (a) Investigation shows that the proximal loop empties its contents into the stomach some time after the meal has passed through. (b) The patient obtains relief by vomiting a mixture of bile and pancreatic juice containing no food about one hour after the meal. (c) At operation the proximal loop was found to be dilated and

remaking the anastomosis has given considerable relief of his postcibal distress.

In Case 9 there is some clinical evidence that the distress is due to obstruction of a proximal loop. The patient notes that his distress is largely obviated if he lies on the left side and also that when he is experiencing the distress relief occurs suddenly and is accompanied by a loud gurgle in the upper abdomen.

Both these patients find fat and fried food very troublesome and should they eat much of this type of food they are liable to attacks of fatty diarrhoea. The trouble here is presumably either making too long a proximal loop or making one which at its junction with the stomach is slightly rotated or in some other way obstructed. If the symptoms are severe enough remaking of the anastomosis seems justifiable.

It is more difficult to ascertain the cause of the other cases of postcibal distress. Adlersberg and Hammerschlag (1947) divided their cases of this syndrome into early and late postprandial types, and this is a convenient arrangement. The early cases showing distress and coming on within an hour of taking a meal were considered to be typical of the so-called "dumping" stomach, whereas the late cases, coming on one to three hours after a meal, were thought to be due to hypoglycaemia. We have classified the remaining "poor" cases on these lines.

### The "Dumping" Stomach

This syndrome was described by Hertz (1913) as occurring after gastro-enterostomy. The term "dumping" stomach appears to have been first used by Mix in 1922 again in relation to gastro-enterostomy. In this paper the term is used to cover any cases of early postprandial distress for which no other explanation is available. Ingelfinger (1944) has reviewed the symptoms and possible causes of this syndrome. The symptoms include sweating, nausea, palpitations, and a feeling of weakness coming on toward the end of or just after a meal and lasting up to a hour. The cause of this is not clear; many suggestions as well as the original one of a rapidly emptying stomach have been made. It is difficult to believe that rapid emptying by itself is the cause of the trouble, because so many patients with no symptoms show extremely rapid emptying of a barium meal.

Glaessner (1940) considered that the symptoms might be due to hyperglycaemia, and Zollinger and Hoerr (1947) thought that rapid absorption of sugar was the cause. Custer *et al* (1946) blamed the sudden mechanical distension of the jejunum due to rapid emptying of the stomach.

This syndrome in a mild degree is seen in some of our cases which are listed as "fair" functional results. It has been observed after a Billroth I anastomosis, and H. Daintree Johnson (1948—personal communication) has reported similar symptoms following simple vagotomy without gastro-enterostomy. It is therefore not necessarily due to the stomach emptying straight into the jejunum when an end-to-side anastomosis is made. We agree with the usual view that this anastomosis is less likely to be followed by dumping symptoms if it has a small stomach and an adequate valve.

We have placed two of our "poor" cases (Nos 4 and 1) in this ill-defined category.

### Hypoglycaemia

Barnes (1947) described several cases in which hypoglycaemia appeared to be the cause of postcibal distress. The symptoms begin one hour or more after a meal and the patient experiences weakness, giddiness, and nausea; sweating and pallor may be noted.

After careful investigation none of our poor results can be attributed to hypoglycaemia. Questioning has revealed

that a few times in the year two patients listed under "fair" results have had attacks that are suggestive of hypoglycaemia, and their glucose tolerance curves, though not conclusive, lend support to this belief. Apart from this there is nothing to suggest that hypoglycaemia is either a frequent or a troublesome factor in producing postcibal distress, and we find nothing to support Gilbert and Dunlop's (1947) view that it is the essential cause of that distress.

In this series the symptoms usually begin during or shortly after a meal, at a time when the blood sugar curve is high. In addition the symptoms are exacerbated, not alleviated by taking meals with a high fat content.

### Neurosis

We have been loath to attribute post-gastrectomy symptoms to neurosis, though there is some evidence of this in Cases 4 and 6. While under observation in the ward they did not complain of postcibal distress, nor did they show the objective phenomena, such as sweating, which are associated with this condition. They probably have occasional symptoms. These two patients come under the ill-defined heading of the 'dumping' stomach, but both are in receipt of a pension on account of their gastric disability which may well be a factor in their symptomatology.

There is one other patient (Case 3) whose chief post-operative symptom is backache. Neither his symptoms nor investigations suggest that his alimentary tract is the cause of the trouble.

### Conclusions

The review of this series has brought out the following points:

That the operation of partial gastrectomy for simple ulcer carries a reasonably low mortality. In this series it was 2%.

That in the main the patients who have had a partial gastrectomy for ulcer are satisfied. 73% are symptom-free and 22% have slight symptoms which are not severe enough to make them dissatisfied.

Approximately 5% either have a poor functional result or are dissatisfied. Investigation of this group is worth while in some cases, faults due to the technique of the operation are disclosed and can be remedied. Intercurrent disease may be the cause in other cases.

That the more troublesome and chronic the original ulcer the more tolerant is the patient of minor functional disturbances in his post-gastrectomy result.

With the exception of anastomosis of the afferent loop to the greater curve which leads to a high incidence of proximal loop filling there is nothing to choose between the functional results of the other three anastomoses employed.

The long proximal loop needed in the antecolic operation is more likely to lead to complications than the short loop used in the retrocolic operation. The Billroth I anastomosis is probably the safest of all as it has no afferent loop. Owing to the risk of stenosis this is not a suitable anastomosis after gastrectomy for duodenal ulcer.

That in this series there is no evidence to support the view that gastrectomy for duodenal ulcer gives worse results than for gastric ulcer. 80% of operations for duodenal ulcer were classified as good, as opposed to 58% for gastric ulcer. In both types of ulcer the incidence of poor results was 5%.

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## THE STREPTOMYCIN-SULPHADIAZINE TREATMENT OF UNDULANT FEVER

BY

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The results of chemotherapy in undulant fever have hitherto been disappointing. *Brucella abortus* is sensitive to sulphonamides, but a full course of treatment with these drugs, though often of temporary benefit, does not usually eradicate the infection. Possibly sulphadiazine together with blood transfusions as recently advocated by Holmes and Hughes (1948), may give better results. Penicillin is useless owing to the insensitivity of the organism. On the other hand, *Br. abortus* is sensitive to streptomycin, its growth being inhibited by from 0.5 to 3.75 µg per ml (Report, 1946), a finding well within limits compatible with successful treatment.

Such *in vitro* findings accurately reflect the therapeutic capacity of penicillin, but in connexion with streptomycin they are sometimes misleading and the two principal diseases which have not responded to streptomycin treatment in accordance with expectation on these grounds are typhoid fever and undulant fever. Earlier reports from the U.S.A. (Reimann et al. 1945; Report 1946; Nichols and Herrell, 1946) all based on the treatment of a substantial number of patients, usually with full doses given for what should be an adequate period, are unanimous in their disappointment with the results. Some patients have not appeared to respond in any way, fever continuing and blood culture remaining positive even during the course; others have improved temporarily but few have apparently been cured.

When two chemotherapeutic agents of partial efficacy are available it is likely that they will have an additive if not a synergic effect when administered together. Hence it was clearly indicated that a trial should be made of the combined effect of streptomycin and sulphadiazine. Eisele and McCullough (1947) claim to have reported the first case so treated; it is very fully described and the result seems highly significant. The patient was severely ill and his blood culture was regularly positive during earlier courses of treatment which included periods during which streptomycin and sulphadiazine were administered separately. Only when the two drugs were given together, at the rate of 6 and 12 g. respectively per day for ten days, was there a response. This was complete, the temperature reaching normal levels at the end of this short course and remaining there; no relapse occurred during the ensuing 17 months. Six cases were treated by Pulaski and Ampsicher (1947) who recommend that 0.5 g. of streptomycin and 6 g. of sulphadiazine should be given four-hourly for fourteen days. In one patient the treatment was a complete failure; it is mentioned that *Brucella* could not be cultivated from the blood, and the evidence on which the diagnosis was based is not given. In the other five patients, four of whom had positive blood cultures, treatment was successful; evidently the six cases described by Pulaski and Seeler (1948) are the same, and in this further paper it is recorded that two patients had recurrences after six and twelve weeks respectively. It is to be noted that the dose of sulphadiazine advocated by these authors is only half that used by Eisele and McCullough.

We have had the opportunity of testing this treatment in two severe cases of undulant fever—one at an early and one in a later state. The regime decided on was 2 g of sulphadiazine four-hourly (i.e., 12 g daily) by mouth, and 1 g of streptomycin eight-hourly (3 g daily) by intramuscular injection, continued for fourteen days. In both cases the treatment seems to have been completely successful.

### Case 1

A surgeon dentist aged 53 was admitted to hospital on May 9, 1948. Eight months ago he had noticed vague ill health; he was easily tired and exhausted, and was losing weight. This ill-health was followed in the course of a few weeks by an attack of gastro enteritis which lasted for ten days. He recovered from the gastro enteritis but vague ill-health remained. Investigations at that time with barium meal and enema revealed no abnormality. This state of affairs continued until five months ago, when he developed pain in the ears and fever. With treatment the pain in the right ear subsided but not in the left; the left mastoid was explored and drained. After three weeks convalescence he went to Cornwall to recuperate. A few days later he developed a sudden rigor, with high fever, and returned to London. The upper respiratory tract was investigated carefully and both antra were punctured, with negative results. Finally the left mastoid was explored again but no abnormality was discovered. The fever continued and further investigation revealed at this time a positive agglutination for *Br abortus*. For the next two months fever continued to undulate, as can be seen on the accompanying Chart, and was uninfluenced by full courses of both sulphamezathine and penicillin.

During the last week before admission to hospital the fever had recurred rather more severely, the general condition deteriorated dramatically, and he developed some jaundice and ascites.

On May 9, 1948, the day of admission to this hospital he was critically ill with high fever, marked prostration, and with periods of mild delirium. The agglutinin titre for *Br abortus* was 1 in 12,500 with a marked pro zone phenomenon. Blood cultures taken at that time were sterile. The blood count showed a Hb of 86% with a white count of 12,600, polymorphs 6,300, lymphocytes 4,158, large mononuclears 1,008, eosinophils 1,008, basophils 126. The ascites was tapped and a slightly opalescent straw coloured fluid removed with a protein content of 0.48 g per 100 ml and a cellular content of 248 per c mm of which 104 were polymorphonuclear and the remainder mononuclear cells. The severity of the condition precluded any further investigation as it was felt that treatment must be started immediately.

Treatment was begun on May 10 with 1 g of streptomycin intramuscularly every eight hours and 2 g of sulphadiazine by mouth every four hours. The urine was kept alkaline by the administration of sodium bicarbonate. After three days the patient was afebrile and the jaundice was disappearing. He remained afebrile but treatment had to be interrupted on the twelfth day, as haematuria began. No further chemotherapy was used and the patient has remained afebrile during the last six months. The splenomegaly which was present on admission slowly regressed and the spleen has not been palpable for the last two months. The agglutinin titre for *Br abortus* on June 14 had fallen to 1 in 1,250, and has been found recently (Nov. 27) to be 1 in 500.

Ascites has remained ever since its original occurrence and has required paracentesis every two to three weeks. The plasma protein on July 6 showed an albumin of 2 g per 100 ml and a globulin of 4.5 g per 100 ml. This ratio was brought back to normal by intravenous serum albumin, but in spite of this, a high protein intake, and injection of liver extract ascites has continued to recur.

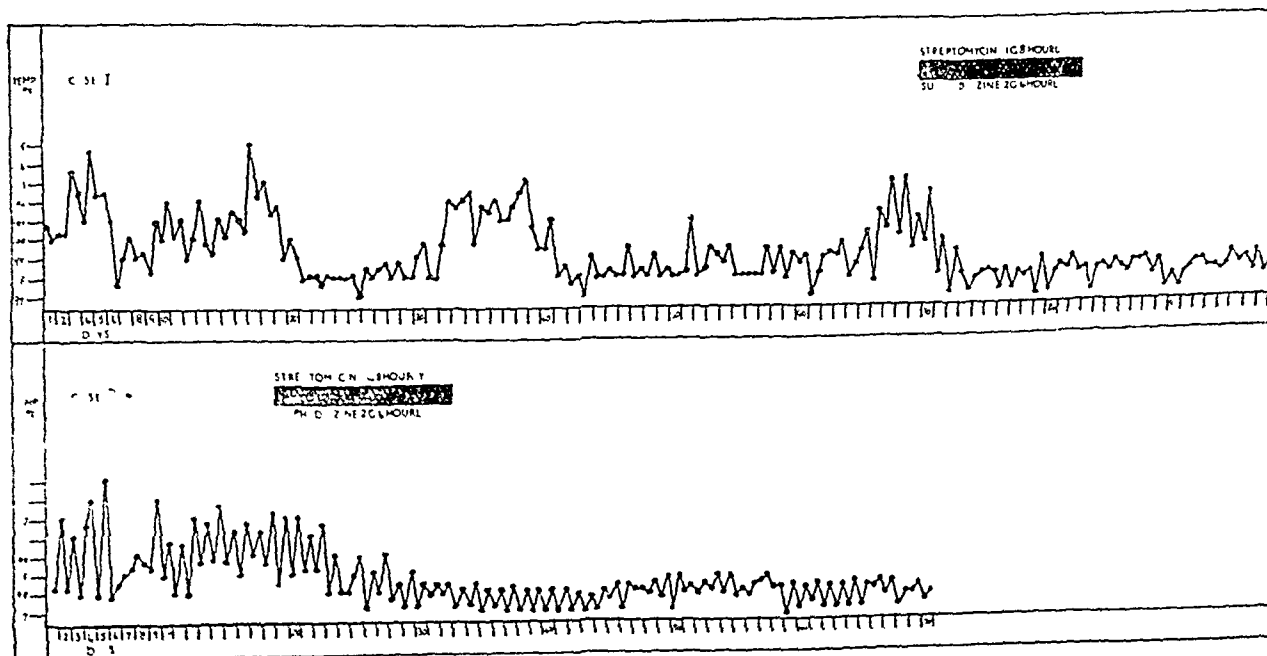
This patient was known to have had splenomegaly for many years, and the ascites is considered to be due to an exacerbation of his primary condition during the course of the present superimposed long febrile illness.

### Case 2

A nurse aged 35 was admitted to hospital on Sept. 16, 1948, complaining of abdominal pain and fever. For many years she had been subject to attacks of vague abdominal pain in the right iliac fossa, with occasional attacks of slight diarrhoea. Appendicectomy had been performed ten years previously, but the appendix showed no lesion. Fourteen days before admission vague abdominal pain had begun and she was noticed to have an evening pyrexia. During these fourteen days there was intermittent fever with temperatures up to 103 to 104° F (39.4 to 40° C) in the evenings and slight rigors. Examination showed no physical signs of abnormality but the blood count had shown a leucopenia of 5,200 of which 64% were polymorphonuclears, and a sedimentation rate of 9 mm in one hour. A positive agglutination for *Br abortus* had been discovered during that time.

On admission to hospital there was pyrexia as is shown on the chart but physical examination was still negative. An agglutination test gave the following result:

	1:25	1:50	1:125	1:250	1:500	1:1,250	1:2,500	1:5,000
<i>Br abortus</i>	—	—	+	+	+	+	Trace	—
<i>Br melitensis</i>	—	—	Trace	—	—	—	—	—



Blood cultures taken at this time became positive on Sept 30, and on the same day the spleen became palpable for the first time

Treatment with 1 g of streptomycin eight-hourly intramuscularly, and 2 g of sulphadiazine four hourly by mouth, was begun on Sept 24 and continued for fourteen days. On the sixth day of treatment fever began to fall. By the end of treatment the patient was afebrile, but immediately after its cessation occasional pyrexia up to 99° F (37.2° C) recurred, but this disappeared without any further treatment and the fever has not recurred up to the present time over the last two months. There have however, been during this time several attacks of abdominal discomfort to which she has been prone for the last few years. The agglutinin titre for *Br. abortus* had fallen to 1 in 1250 on Oct 19 and to 1 in 500 on Nov 26. The splenomegaly had disappeared two weeks after treatment was completed.

**Characters of *Br. abortus***—This organism was found in only one of many tubes after incubation for twelve days in 10% CO<sub>2</sub>. On first isolation it was fully CO<sub>2</sub>-sensitive, but after four sub-cultures growth, poor at first but later fairly profuse, was obtained in a normal atmosphere. The sensitivity to streptomycin was tested by preparing slopes of beef heart extract peptone agar of pH 7.4 containing falling concentrations of streptomycin and inoculating them with a 2-mm loopful of an approximate 1 in 500 dilution of a broth culture. The minimum inhibitory concentration was found to vary with the atmosphere as follows

	Minimum Inhibitory Concentration	Maximum Concentration Permitting Growth
No added CO <sub>2</sub>	0.5 µg per ml	0.25 µg per ml
10% CO <sub>2</sub>	1.5	1.0
25% CO <sub>2</sub>	2.5	2.0

These differences are evidently due to the alteration in pH of the medium produced by CO<sub>2</sub>. It is well recognized that even a slight shift towards the acid side diminishes the activity of streptomycin. The findings indicate that this strain is fully streptomycin sensitive.

### Comment

Of these two cases, one was of several months' duration and the other was recent. Both responded to combined treatment with streptomycin and sulphadiazine, the former with a fall in temperature to normal within three days, the second somewhat more gradually, the temperature reaching normal only at the end of the course. They have now been afebrile for six and two months respectively. These observations confirm American reports of the efficacy of this treatment. We do not claim that the optimum scheme of dosage has been defined, but from the successful results in these two cases and the case described by Eisele and McCullough, all of which were given 12 g of sulphadiazine daily, contrasted with the relapses in Pulaski and Amspacher's series, it seems likely that the larger dose is necessary.

We are indebted to the Streptomycin Clinical Trials (Non-Tuberculous Conditions) Committee of the Medical Research Council for the streptomycin used in the treatment of these patients, and to Mr Daniel T. Davies for earlier clinical details of Case 1.

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The Ministry of National Insurance announces that the National Assistance Board has appointed Mr H. Fieldhouse as secretary in succession to Sir Geoffrey King.

## THE TREATMENT OF ANURIA

BY

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AND

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Although anuria is not a common emergency in medical practice it is an important one, partly because two of the commoner forms of anuria are iatrogenic and partly because persistent anuria is surely followed by death. The causes and treatment of anuria have alike been illuminated in the past few years, the one by important advances in our knowledge of renal function, the other by the painstaking ingenuity of workers like Kolff and Alwall in devising means of maintaining excretion during what is hoped may be a temporary suspension of renal activity.

Suppression of urine has been observed in so many different disease states that it is doubtful whether the same underlying mechanism can be present in all. Sometimes as in acute nephritis or bilateral urinary obstruction, there is a clear background of morbid anatomy to account for the anuria. Sometimes, as in patients with shock or dehydration, the anuria is just as clearly the result of the patient's general state, and the kidneys cannot be primarily incriminated. The greatest interest, however, attaches to those types of urinary suppression, such as transfusion kidney and the crush syndrome, in which the ultimate cause is extrarenal but the kidneys show definite morbid anatomical changes. Further examples of anuria, not primarily renal, in which there are renal changes of doubtful significance may be found in sulphonamide anuria, blackwater fever, anuria following abortion, and poisoning with uranium or mercury salts.

### Pathogenesis of Anuria

Leaving aside the primary aetiology of anuria, which concerns prophylaxis, we come to the mechanism or mechanisms by which anuria may be produced. It is here if anywhere, that we may expect to find clues to the rational treatment of the established condition. We shall exclude from present consideration anuria associated with a definite pre-existing renal lesion or gross urinary tract obstruction and assume that we are dealing with a kidney which is normal so far as the general arrangement of nephrons is concerned. In the normal kidney the raw material of urine is formed in the glomeruli, and the tubules have the function of transmitting glomerular filtrate to the renal pelvis, modifying it on the way so that the dilute ultrafiltrate of plasma becomes the concentrated and highly selected final urine. A failure of the glomeruli to form filtrate and a failure of the tubules to transmit it to the right place, would alike be followed by anuria. The possibilities for impaired function of glomeruli and tubules can be considered separately.

Normally the glomeruli filter off about one-fifth of the plasma which is presented to them, and so far as is known this process is a purely physical one, influenced only by the amount and pressure of glomerular blood flow and by the physical permeability of the glomerular membrane. A loss of glomerular permeability need not be seriously considered as a cause of complete anuria, but alterations in the supply of blood to the glomeruli are obviously important. Van Slyke (1948) has reviewed extensive experimental work carried out on renal function during shock, when blood volume and cardiac output are diminished the renal

blood flow falls to a much greater extent than does the cardiac output. The dog's kidney can survive experimental deprivation of its blood supply for as long as two hours a time which causes irreversible renal damage in the rabbit. Badenoch and Darmady (1947) express the opinion that more than six hours occlusion might be required in man to cause irreversible renal damage. Results obtained in man by clearance techniques show very low renal blood flow after haemorrhage (Black *et al.* 1941) and during surgical shock (Lauson *et al.*, 1944).

Until recently a partial or complete "renal shutdown" was the only form of circulatory upset that had to be considered, but Trueta, Barclay, and their colleagues (1947) have shown that in rabbits a shunting of the circulation within the kidney may occur so that the glomeruli of the renal cortex are no longer fully perfused. They found anatomical and radiological evidence of an alternative circulatory pathway through large glomeruli in the boundary zone of the kidney and the medullary vasa recta. Although the vessels involved in the Barclay-Trueta shunt can be demonstrated in man, direct proof of the occurrence of the shunt in man has not yet been obtained, and the effect of the shunt on renal function is also not fully established. While it is certain that the shunt will not explain all the unsolved problems of renal disease, the possibility of its presence cannot be neglected in any of them. When a technique has been worked out for determining in the intact patient whether the shunt is in operation or not, then it may be found that some types of anuria, such as reflex anuria, which are difficult to explain in any other way involve the presence of a shunt.

There are, however, several types of anuria, such as sulphonamide and mercurial anuria, in which it is hard to conceive of the renal damage as being due to suppression of glomerular filtration. Damage to the renal tubules could cause anuria in several ways—by blockage, by excessive reabsorption, or even by direct communication between the distal tubule and the blood stream. Tubular blockage of significant degree may be found in multiple myeloma, in transfusion kidney, and in sulphonamide anuria, though here the blockage may be more of pelvis and ureter than of the tubule proper. It is exceptional, however, for tubular obstruction to be universal, and the general opinion is that simple blockage will not account for complete anuria in such conditions as blackwater fever (Maegraith, 1944).

More important probably than actual blockage of the tubules is damage to the tubule epithelial cells of such a nature as to destroy the selective permeability on which the formation of urine from glomerular filtrate depends. The changes which have been observed in the tubule cells in functional renal failure range from hyaline droplet change to complete necrosis and desquamation, followed later by regeneration. The lack of constancy in the histological picture, and the known liability of the renal tubules to early post-mortem change, have led to relative neglect of the part played by the tubules in the pathogenesis of oliguria and anuria. However, they have been restored to full prominence by the work of Bywaters (1941, 1944) on the crush syndrome, and of Lucke (1946) on the post-traumatic syndrome, which he designates 'low nephron nephrosis'. Moon (1948) accepts Lucke's views on the importance of tubular lesions in renal damage following "shock" but denies that the lesions are limited to the distal segment of the nephron. Shaw Dunn used the telling metaphor of "a morass" to describe the state of affairs in which fluid leaks freely back from damaged tubules into the peritubular blood vessels, he was the first to demonstrate direct communications between tubules and veins similar to those found in experimental phosphate poisoning (Dunn *et al.* 1941).

Summarizing present views on the pathogenesis of anuria, it may be said that emphasis in this country has generally been laid on circulatory changes, Maegraith *et al.* (1945) put forward the unifying hypothesis of "renal anoxia" to account for many types of functional renal failure, and this view has derived support from the discovery of unsuspected possibilities of disturbance in the renal circulation. On the other hand, in a recent American symposium on "renal insufficiency in the shock syndrome" Moon (1947) and others emphasized the tubular damage, so much more impressive anatomically than anything that can be seen in the glomeruli of such kidneys. These two views represent a difference in emphasis rather than a complete contradiction, for any serious impairment of the circulation to the glomeruli is likely to cause damage to the tubules, whose blood supply is dependent on glomerular integrity, and we might even hazard a guess that in the long run both circulatory and tubular factors will be proved important, though in varying degree from patient to patient. The past history of renal physiology should warn us against the "either-or" type of mental approach to this fascinating and versatile organ.

### Methods of Treatment

The sudden occurrence of anuria after operation or transfusion may produce a mood of therapeutic desperation in which all sorts of procedures have been carried out, from dry cupping to decapsulation. Since urine flow may be re-established quite spontaneously at any time it is impossible to assess the various possible modes of therapy by the usual method of considering their results, for no single centre is likely to encounter enough anuric patients to do a controlled trial of even one method of therapy. Since reliable conclusions cannot be drawn from the apparent results of therapy, we can only consider the proposed ways of treatment in relation to our present information on the pathogenesis of anuria.

In a general way the objectives of treatment are to restore urine flow, and in default of this to prevent such distortion of the patient's internal environment that he will succumb before urine formation has been effectively restored. Believers in circulatory changes as the usual cause of anuria will approach the task of restoring urine flow with greater optimism than those who lay stress on tubular degeneration, for it is less likely that tubular lesions will be much influenced by any form of active therapy. The vasoconstrictor nerves to the kidney are sympathetic, and Barclay and Trueta found that splanchnic section would prevent the development of the renal shunt in rabbits. On this basis, anuria has been treated by paravertebral block, or by high spinal analgesia as a more certain way of blocking the entire sympathetic supply to the renal vessels. Successes and also failures have been reported with both methods, but it is never possible to exclude an opportune spontaneous recovery of urine flow. Nevertheless, it would seem justifiable to attempt splanchnic block, and the use of sympatholytic drugs such as tetraethylammonium bromide or dibenamine might be considered as an alternative to the use of local or spinal analgesia. Although such procedures may lower blood pressure for a short time they can safely be applied in patients without peripheral circulatory failure, and in a proportion of cases so treated there has been apparent success.

The use of alkalis and of diuretics, also designed to restore urine flow, is much more questionable. Mercurial diuretics would be ineffective on the "circulatory theory" and harmful on the "tubular damage" theory. Osmotic diuretics such as sodium sulphate are commonly used in surgical anuria, and Olson and Necheles (1947) report favourably on the use of sodium sulphate in dogs with

anuria secondary to experimental burns. Sodium sulphate acts osmotically by diminishing the proportion of glomerular filtrate which is reabsorbed, and it is difficult to see how it can be effective unless some degree of glomerular filtration is already established. The cessation of urine flow after experimental burns is obviously different in mechanism from other types of anuria and the results of Olson and Necheles cannot be generally applied. Sodium sulphate may have a place in the treatment of extreme oliguria but in complete anuria any addition of osmotically active substances to the body fluids is risky. Treatment with alkalis, although it may be effective prophylactically in preventing haemoglobin precipitation, cannot destroy casts already present in the tubules, and in any event tubular blockage is not considered an important cause of anuria. In the presence of anuria even small doses of alkalis are retained, and alkalosis is a very real danger. The only indication for giving alkalis in anuria is the presence of acidosis and in such cases correction of the acidosis may be followed by the restoration of urine flow (van Slyke, 1948).

While attempts to restore urine flow are being made attention has also to be directed to the prevention so far as possible of clinical and biochemical deterioration. On the 'tubular damage' theory conservative measures are the sensible ones to adopt, and this is far from being therapeutic nihilism for the kidneys in fatal anuria commonly show extremely active regeneration of tubular cells in injured areas (Corcoran and Page, 1947), giving hope that artificial maintenance of excretory and homeostatic function for a longer period might have allowed recovery. Moreover, correct maintenance therapy demands an attention to important detail for which "doing nothing" is the least suitable epithet imaginable.

#### Protein Metabolism

Although no one now believes that urea itself is responsible for the symptoms of uraemia, the estimation of urea or of non-protein nitrogen can still be used as a convenient measure of the extent to which the body is failing to get rid of harmful end-products of protein metabolism. Maintenance therapy in anuria should aim both at reducing the amount of protein which is being broken down and at eliminating nitrogenous and other waste products by extra-renal channels.

Nitrogen catabolism is at its lowest when the intake of food protein is minimized and the calorie needs of the body are fully supplied by carbohydrate and fat. Borst (1948) has used a butter-sugar diet which has a high calorie value and a negligible protein content, the urinary nitrogen falls to very low levels in normal people on this type of diet. Such a diet is, however, remarkably unpalatable, and would not seem to offer any corresponding advantage over a more varied diet containing about 30 g of protein per day and 2,500 calories, made up mostly in fat and carbohydrate. So long as the amount is small it does not seem greatly to matter whether the irreducible minimum of protein for catabolism comes from the food or from the tissues, but it has to be remembered that infection may increase the rate of tissue breakdown, and Borst (1948) records a case in which infection seemed clearly responsible for the very rapid development of uraemia. There is therefore a clear indication for the active treatment of any infective process in an anuric patient as part of the programme for cutting down the breakdown of protein. Another likely cause of accelerated protein catabolism is disturbance of salt-and-water metabolism, and the fluid balance demands careful attention for this reason, as well as in its own right. As a general approximation, in a temperate climate the urine accounts for about half of our total fluid loss, suppression of urine

therefore calls for some restriction of the fluid intake, and so long as no urine is being passed a litre of fluid a day is sufficient for any patient who is not visibly sweating and has no fever. Restriction of salt intake is even more important, for in the absence of urine formation the only significant remaining channel of salt loss is the sweat, and sweat has a salt content much lower than plasma or extracellular fluid. When the kidneys fail the body has no means of excreting salt in hypertonic solution, and so cannot protect itself from being pickled by excessive salt in the diet. A "salt-free" diet, in the conventional sense, should accordingly be used. The essential value of such conservative treatment is to prolong the period of survival in total anuria and so allow more time for repair of kidney tubular structure and function.

#### Elimination of Waste Products

As means towards the same end many methods have been tried for getting rid of waste products by routes other than the kidneys. Sweating and purging are inefficient ways of lowering the blood urea, because the strain imposed on a patient and the amount of fluid lost are out of proportion to any decrease in the urea content of the body which can be achieved. A more helpful approach is the continuous dialysis of blood in a "cellophane" tube against some form of Ringer-Locke solution, as alternatives to a cellophane tube the peritoneum and the mucosa of isolated loops of bowel have been used as dialysing membranes. Kolff (1947) gives an extended account of the use of methods of this type, and it is quite clear that in special clinics these methods are safe and can be useful in getting rid of significant amounts of urea and presumably of other waste products. On the debit side, these methods are far from being generally applicable with safety, for they involve the use of heparin when blood is the perfusing substance, or of large amounts of aseptic solutions when the body cavities are used for perfusion. An isolated loop of bowel avoids some of these troubles but it is likely to become atonic and even to rupture. An ingenious method described by Maluf (1948) avoids the necessity for heparin or any operative procedure or the use of aseptic irrigating fluid.

In this method a triple Miller-Abbott tube is introduced until the balloon lodges in the caecum, slightly hypertonic sodium sulphate solution is run into the duodenum and withdrawn from the terminal ileum the rate of flow aimed at being 20-30 ml per minute. Early reports of the use of this type of method are now appearing (Oppenheimer and Rosenak, 1948, Odel and Ferris 1948) and we have ourselves had the opportunity of using it in one patient, whose case history is appended. Like other users of the method we have encountered two main practical difficulties. First it is difficult to get the tube into the right place without provoking nausea. Secondly, we found it quite impossible to get back the solution at anything like the recommended rate, for any tube which can reasonably be passed is much too fine to allow adequate suction of large amounts of fluid. The first difficulty can be overcome only by patience, and by letting the tube stay down once it is down, avoiding the need for frequent manipulation. The second difficulty resolves itself with some discomfort to the patient, by the passage of copious watery stools. It would seem reasonable, instead of trying to suck the fluid all the way back to the mouth, to let it flow on through a simple duodenal tube and withdraw it by a wide rectal tube. Although we had these initial difficulties it was possible to rid the body of 15 g of urea, this amount is much larger than that recorded by Odel and Ferris, using the same principle. This may be partly because they employed only a modified Ringer solution, while we followed



blood flow falls to a much greater extent than does the cardiac output. The dog's kidney can survive experimental deprivation of its blood supply for as long as two hours, a time which causes irreversible renal damage in the rabbit. Badenoch and Darmady (1947) express the opinion that more than six hours occlusion might be required in man to cause irreversible renal damage. Results obtained in man by clearance techniques show very low renal blood flow after haemorrhage (Black *et al.* 1941) and during surgical shock (Lauson *et al.*, 1944).

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#### Protein Metabolism

Although no one now believes that urea itself is responsible for the symptoms of uraemia, the estimation of urea or of non-protein nitrogen can still be used as a convenient measure of the extent to which the body is failing to get rid of harmful end-products of protein metabolism Maintenance therapy in anuria should aim both at reducing the amount of protein which is being broken down and at eliminating nitrogenous and other waste products by extra-renal channels

Nitrogen catabolism is at its lowest when the intake of food protein is minimized and the calorie needs of the body are fully supplied by carbohydrate and fat Borst (1948) has used a butter-sugar diet which has a high calorie value and a negligible protein content, the urinary nitrogen falls to very low levels in normal people on this type of diet Such a diet is, however, remarkably unpalatable, and would not seem to offer any corresponding advantage over a more varied diet containing about 30 g of protein per day and 2,500 calories, made up mostly in fat and carbohydrate So long as the amount is small it does not seem greatly to matter whether the irreducible minimum of protein for catabolism comes from the food or from the tissues, but it has to be remembered that infection may increase the rate of tissue breakdown, and Borst (1948) records a case in which infection seemed clearly responsible for the very rapid development of uraemia There is therefore a clear indication for the active treatment of any infective process in an anuric patient as part of the programme for cutting down the breakdown of protein Another likely cause of accelerated protein catabolism is disturbance of salt-and-water metabolism, and the fluid balance demands careful attention for this reason, as well as in its own right As a general approximation, in a temperate climate the urine accounts for about half of our total fluid loss suppression of urine

therefore calls for some restriction of the fluid intake, and so long as no urine is being passed a litre of fluid a day is sufficient for any patient who is not visibly sweating and has no fever Restriction of salt intake is even more important, for in the absence of urine formation the only significant remaining channel of salt loss is the sweat, and sweat has a salt content much lower than plasma or extracellular fluid When the kidneys fail the body has no means of excreting salt in hypertonic solution, and so cannot protect itself from being pickled by excessive salt in the diet A "salt-free" diet, in the conventional sense should accordingly be used The essential value of such conservative treatment is to prolong the period of survival in total anuria and so allow more time for repair of kidney tubular structure and function

#### Elimination of Waste Products

As means towards the same end many methods have been tried for getting rid of waste products by routes other than the kidneys Sweating and purging are inefficient ways of lowering the blood urea, because the strain imposed on a patient and the amount of fluid lost are out of proportion to any decrease in the urea content of the body which can be achieved A more helpful approach is the continuous dialysis of blood in a "cellophane" tube against some form of Ringer-Locke solution, as alternatives to a cellophane tube the peritoneum and the mucosa of isolated loops of bowel have been used as dialysing membranes Kolff (1947) gives an extended account of the use of methods of this type, and it is quite clear that in special clinics these methods are safe and can be useful in getting rid of significant amounts of urea and presumably of other waste products On the debit side, these methods are far from being generally applicable with safety, for they involve the use of heparin when blood is the perfusing substance, or of large amounts of aseptic solutions when the body cavities are used for perfusion An isolated loop of bowel avoids some of these troubles, but it is likely to become atonic and even to rupture An ingenious method described by Maluf (1948) avoids the necessity for heparin or any operative procedure, or the use of aseptic irrigating fluid

In this method a triple Miller-Abbott tube is introduced until the balloon lodges in the caecum, slightly hypertonic sodium sulphate solution is run into the duodenum and withdrawn from the terminal ileum, the rate of flow aimed at being 20-30 ml per minute Early reports of the use of this type of method are now appearing (Oppenheimer and Rosenak, 1948, Odel and Ferris 1948) and we have ourselves had the opportunity of using it in one patient, whose case history is appended Like other users of the method we have encountered two main practical difficulties First it is difficult to get the tube into the right place without provoking nausea Secondly, we found it quite impossible to get back the solution at anything like the recommended rate, for any tube which can reasonably be passed is much too fine to allow adequate suction of large amounts of fluid The first difficulty can be overcome only by patience, and by letting the tube stay down once it is down, avoiding the need for frequent manipulation The second difficulty resolves itself with some discomfort to the patient, by the passage of copious watery stools It would seem reasonable, instead of trying to suck the fluid all the way back to the mouth, to let it flow on through a simple duodenal tube and withdraw it by a wide rectal tube Although we had these initial difficulties it was possible to rid the body of 15 g of urea, this amount is much larger than that recorded by Odel and Ferris, using the same principle This may be partly because they employed only a modified Ringer solution, while we followed

Maluf (1948) in using a slightly hypertonic sodium sulphate solution (in our case 4.5 g per 100 ml) The use of the method leads to loss of sodium chloride from the body as well as of urea, and the most convenient way of dealing with this is to carry out dialysis during the day and run in normal saline or Ringer's solution by slow drip through the tube during the night, the amount of saline used depending on the amount found to be lost in the dialysate

Restoration of urine flow, spontaneous or otherwise, is not synchronous with full recovery of renal function, and an apparently satisfactory diuresis may coexist with low values for renal function tests. The patient described here, with post-transfusion anuria, had inulin and "diodrast" clearances of only about half the normal some weeks after urine flow was re-established. Moreover, we have observed inulin-diodone clearance of only a few millilitres per minute in two patients recovering from extreme oliguria following abortion, at a time when both of them were passing large volumes of urine. Patients who have had an episode of anuria should therefore be followed up in much the same way as those who have had an attack of acute nephritis.

Summarizing our present views on the treatment of anuria, we would say that an attempt should be made as early as possible to induce a splanchnic block by medical or surgical means. When this measure fails, as it often will, the patient should be maintained on a diet with about 30 g of protein, a fluid intake limited to one litre a day, and a low salt intake. If spontaneous restoration of urine flow is delayed for more than a few days intestinal dialysis should be carried out in order to lengthen the time available for repair of the damaged kidneys.

### Case Report

A housewife aged 48 was admitted to another hospital for hysterectomy on account of severe menorrhagia and anaemia. On March 30, 1948 she was given a pre-operative blood transfusion of 1 pint (570 ml) of compatible group O packed red cells followed by 1 pint of incompatible stored group A whole blood. She developed lumbar pain and tightness in the chest during the second infusion of blood, and from that time there was virtual anuria. We first saw her on April 2 when the daily output of urine was probably less than 50 ml. The patient appeared well apart from anaemia (60% Haldane) and there was no jaundice (serum bilirubin 0.3 mg per 100 ml). There was a constant slight uterine haemorrhage, making accurate urine collection impossible, but no urine was obtained by catheterization. The blood pressure was 155/100 and the blood urea was 120 mg per 100 ml.

The following measures were carried out in an attempt to establish urine flow. On April 2 she was given 300 mg of tetraethyl ammonium bromide intravenously. This produced a slight fall in blood pressure. On April 3, in an attempt to produce intrarenal vasodilatation (Smith, 1943), a pyrexial reaction was induced by intravenous T A B vaccine (25 million organisms). On the 4th spinal analgesia to D2 produced a small fall in blood pressure but like the other two procedures, failed to induce diuresis. Urine production was still either absent or minimal. The blood urea had risen to 154 mg per 100 ml on April 5 and it was decided to attempt intestinal perfusion. A double lumen intestinal tube without balloon was passed and its entry into the jejunum confirmed by fluoroscopy.

A 4.5% solution of  $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$  was led by gravity into the duodenum at the rate of 1 pint in half an hour. Considerable difficulty was experienced in aspirating from the distal end of the tube and vomiting terminated the attempt. Seven pints (4 litres) of solution had been infused and a watery diarrhoea induced, 2,520 ml of watery stools was recovered with a urea content of 150 mg per 100 ml. A total of 3.78 g of urea was recovered in this way and the urea content of the watery faeces reached 97% of the blood level.

The tube was left in the stomach and slowly advanced the next day, glucose saline solution being administered. On April 7 the ninth day of oliguria, the patient was drowsy and apathetic and the blood urea was 186 mg per 100 ml. Perfusion was restarted and 10 pints (5.7 litres) was infused in about six hours. Aspiration was now more successfully accomplished, but in spite of this a profuse diarrhoea was produced and a not inconsiderable volume of fluid was lost by incontinence. The fluid, urea, and chloride are shown in the accompanying Table. Towards the end of this perfusion the patient

Date	$\text{Na}_2\text{SO}_4$ Infused	Aspirated Dialysate			Watery Faeces		
		Volume (ml)	Cl (as NaCl) mg/100 ml	Urea mg/100 ml	Volume (ml)	Cl (as NaCl) mg/100 ml	Urea mg/100 ml
April 5	7 pints						
7	10 "	5 880	70	34	2 520	140	150
8	3 +	Not collected			5 460	59	184

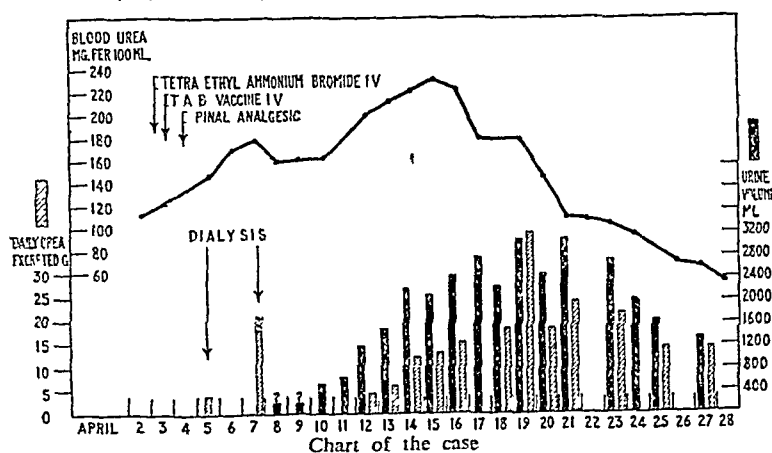
experienced scalding and was aware of passing urine for the first time since admission to hospital (see Chart). The following day she was brighter, and since urine flow was established no further perfusion was carried out although the tube remained indwelling. The blood urea was now 166 mg per 100 ml. Taking into account the steady daily rate at which the blood urea had been rising, a level of approximately 200 mg per 100 ml might have been anticipated. Reckoning a body fluid volume of 50 litres, this represents an extrarenal excretion of approximately 17 g. Actually 14.7 g of urea was recovered and the deficit might be accounted for by incontinence. On subsequent days the urine volume steadily increased, but it is noteworthy that it was the ninth day after establishment of diuresis before the kidney excreted more than 10 g of urea in the 24 hours, and even this was at a time when the blood urea level was 238 mg per 100 ml and the urine flow 2,200 ml.

On June 5 four weeks after urine flow was re-established, the inulin clearance was still only 54 ml per minute, and diodone clearance 288 ml per minute giving a filtration fraction of 0.19. At this time the blood urea was only 30 mg per 100 ml and the haemoglobin was 46% (Haldane). This degree of anaemia would account for some

depression of renal function, but simple anaemia of this degree does not lead to such low figures for inulin clearance, and would moreover, be associated with a change in the filtration fraction (Bradley and Bradley 1947). The patient made a good clinical recovery.

### Comment

It will be noted that the total fluid volume recovered after perfusion was greater than that of the sulphate solution introduced. This may indicate that the procedure interferes



with the reabsorption of the water of intestinal secretions. Peritoneal dialysis is often complicated by overhydration, which is one of its many disadvantages. This first experience with hypertonic sulphate dialysis suggests that dehydration and salt loss may be a more likely complication. Since, however, the duodenum is intubated, it is possible, by means of saline or other solution during the night, to make good the losses produced by dialysis during the day.

### Summary

Anuria may be caused by a failure either of the glomeruli to form filtrate or of the tubules to transmit the filtrate in the usual way. Although a circulatory upset would primarily affect the glomeruli, the morphological changes in anuria are predominantly tubular, and it is still an open question whether glomerular or tubular functional impairment is the more important. This uncertainty is reflected in the confused opinion about the treatment of anuria. Some methods of treatment (paravertebral block, spinal analgesia) assume a circulatory disturbance to be the cause of anuria, other methods (low-protein diet, the artificial kidney, peritoneal and intestinal lavage) are designed to prolong life until reparative processes can take place in the tubules. At present it seems justifiable to employ suitable methods of the first type as soon as possible, and, if need be, to resort to the second type of method as well. A patient is described whose treatment illustrates some of the points discussed, in particular the use of intestinal lavage with hypertonic sodium sulphate solution.

We are grateful to Mr H Varley for the estimations on the dialysate and for the clearance results.

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### ADDENDUM

Marquis and Schnell (*Amer J med Sci* 1948, 215, 686) report sudden death in a patient after 10 days of intestinal perfusion, the serum potassium just before death was only 1.2 mEq/litre. The danger of death from potassium depletion, once recognized, can easily be avoided by using Ringer's solution rather than normal saline to replace fluid loss overnight.

The American Medical Association sponsored a Public Relations Conference in St Louis recently. The theme was "Common Targets in Medical Public Relations." About 125 State and metropolitan county medical society leaders participated in the public relations meetings. The problems under discussion included 'Selling the Need for Public Relations to the Profession', 'Using Public Relations to Aid Medical Prepayment Plans', 'Handling Emergency and Night Calls', 'The Rebate Problem', 'Co-operating with Special Publics' and 'Co-operating with Health Agencies'.

## SPLENIC ANEURYSM AND SPLENIC ENLARGEMENT IN PREGNANCY

BY

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AND

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Rupture of an aneurysm of the splenic artery is a well-recognized complication of pregnancy. In a previous paper (Lennie and Sheehan, 1942) four cases of rupture of splenic and renal aneurysms in pregnancy were described and a review was given of 20 previous cases in the literature. More recently Ogden (1948) recorded a ruptured splenic aneurysm in a woman 35 weeks pregnant and gave details from the literature of three additional cases (one splenic and two renal) in pregnant women. The following is a further example of rupture of a splenic aneurysm in the course of pregnancy.

### Case Report

The patient, aged 32, was a 3 para at 36 weeks' gestation. One day, at 1 p.m., she had a sudden onset of abdominal pain, felt faint, and went to bed. Foetal movements ceased at this time. She vomited in the evening and was sent into the Rotunda Hospital with the diagnosis of concealed accidental haemorrhage. There was no vaginal haemorrhage or albuminuria, but foetal heart sounds could not be heard and the abdomen was resistant and slightly tender. Her general condition was poor, pulse 80, B.P. 105/80. At 6 a.m. next day she suddenly developed severe shock, which was treated with saline and blood transfusion. The os was dilated two finger breadths so the membranes were punctured and "pitocin" was given, the liquor amni was not blood-stained. Labour did not begin but at 8 a.m. she suddenly became very collapsed and a further blood transfusion was necessary. Soon afterwards a classical section was carried out, this showed no uterine haemorrhage, but a large retroperitoneal haemorrhage in the region of the pancreas and left kidney was found. This was diagnosed as a ruptured aneurysm of the splenic or renal artery, but the patient was considered to be too ill for a surgical exploration of these vessels. At 10 p.m. the patient suddenly collapsed again and in a few minutes she died. The time from the first symptoms to death was thus 33 hours. Post-mortem examination showed a rupture of a small aneurysm of the splenic artery, the blood had finally burst through into the peritoneal cavity.

### Discussion

The case is fairly typical—the diagnosis of some intra-abdominal catastrophe, the operative discovery of the haematoma in the region of the pancreas, the latent period (which varies in different cases between one and seven days), and the terminal haemorrhage into the peritoneal cavity. The only hope for such a patient is heroic surgery by the operator who has opened the abdomen, usually the obstetrician who has performed caesarean section. The details have been discussed by Lennie and Sheehan (1942).

The aetiology of these aneurysms is not known. One peculiar aspect of the problem is that, of the cases so far recorded in patients below the age of 45, splenic aneurysms are much commoner in women (41 female, 12 male), whereas renal aneurysms are commoner in men (9 female, 21 male). What is of more direct interest here, 23 of the splenic aneurysms ruptured in connexion with pregnancy, nearly always at seven to nine months' gestation. This raises the question whether the rupture may possibly be related in any way to alterations of the blood supply to the spleen during pregnancy. No direct evidence is available on this subject, but some facts which may have a

possible bearing on it have been obtained from observations on the spleen in an unselected series of 163 routine obstetric necropsies. In the course of this work it became obvious that there was some relation between splenic enlargement and gross hyperplasia of bone marrow, so the details about the latter are included in this analysis.

In the normal adult the spleen has a mean weight of 150 g, with a range of from 80 to 200 g. The observations made by Turnbull (Vaughan, 1936) on the bone marrow in normal non-pregnant patients may be briefly summarized here. His data were obtained, as in the present cases, from longitudinal section of the whole length of the femur. He found that between the ages of 15 and 20 the marrow is fully red with specific gravity over 1000,

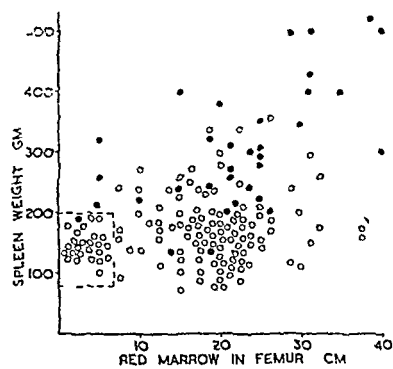


Chart showing weight of spleen and length of red marrow in femur in obstetric necropsies. ● = Severe anaemia of pregnancy, accidental haemorrhage, or uterine sepsis and thrombophlebitis. ○ = Other clinical conditions. The panel in the left lower corner encloses the normal range in non-pregnant adults.

but in the other 40% it has a weight range of from 200 to 550 g, so that the mean weight over the whole series is 200 g. The red bone marrow of the femur is usually hyperplastic, though it varies from only a slight amount at the head of the bone to a complete replacement of all the yellow marrow down to the condyles. The age of the patient is without influence on the marrow hyperplasia. On the average the upper 16 cm is fully red marrow with a specific gravity of over 1000, and the next 6 cm is partly red marrow with a specific gravity below 1000. For convenience the amount of red marrow is represented in this paper by a single figure—the length of the fully red marrow plus half the length of the partly red marrow.

The relation between the size of the spleen and the amount of bone marrow in the present series of obstetric necropsies is shown in the above Chart. Apart from the conditions specifically mentioned below, there were no diseases of the type which give rise to enlargement of the spleen and bone marrow in ordinary pathology—e.g., leukaemias, Bant's disease, tropical diseases, etc. The individual cases have been analysed in a search for significant factors. This analysis shows that in obstetric patients the following three clinical conditions are commonly associated with enlargement of the spleen and red marrow.

1 *Severe Anaemia of Pregnancy*.—In 9 cases the mean weight of the spleen was 360 g and the mean length of the red marrow of the femur was 29 cm. It is possible that some of the other patients with enlargement of the spleen and red marrow were anaemic but were not noted as such in the clinical records; many of them were obstetric emergencies and had not been examined haematologically.

2 *Accidental Haemorrhage of Abruptio Type*.—In 10 cases the mean weight of the spleen was 275 g and the mean length

of the marrow 23 cm. Eclampsia and the other toxæmias of pregnancy and shock or haemorrhage did not appear to be associated with these pathological increases.

3 *Puerperal Thrombophlebitis or Gross Septic Endometritis*.—In 15 cases the mean weight of the spleen was 290 g and the mean length of the marrow 18 cm. On the other hand, general peritonitis, empyema, pneumonia, pyelonephritis and chronic valvular disease of the heart were not associated with enlargement of the spleen or marrow.

In the Chart these three clinical conditions are differentiated from the others. It will be seen that they account for most of the large spleens and red marrows, though they do not invariably cause such enlargement. Most of the small spleens in this group were in cases of septic endometritis without thrombophlebitis.

Two other findings from the analysis may be mentioned: (a) the pathological changes were not related to the age or parity of the patients, nor to whether the patient was still pregnant or had been delivered, and (b) there was some association between the enlargement of the spleen and the duration of pregnancy. The higher figures in the

Gestation	No. of Cases	Mean Size	
		Spleen	Marrow
0-20 weeks	16	145 g	16.0 cm
21-30	10	175 g	18.5 cm
31 weeks to term	137	203 g	19.0 cm

cases after the thirtieth week of gestation are partly due to the inclusion in this group of most of the patients suffering from the three significant clinical complications. It is, however, worthy of note that the largest spleen in the patients before the twentieth week of gestation weighed only 190 g.

The essential point that emerges from this analysis is that during the course of pregnancy a number of patients have considerable splenic enlargement, which develops in the second half of gestation and is usually associated either with anaemia or with accidental haemorrhage. This is presumably accompanied by some alteration of the blood supply to the spleen. There is as yet insufficient information to indicate whether or not this is related to the relatively high incidence of rupture of splenic aneurysms in late pregnancy, but this aspect should be considered in future cases of such aneurysms.

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## CALCIFIED CYST OF SPLEEN

BY

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The following seems to be the seventh recorded case of calcified splenic cyst, and the second reported in this country. There is little to be found about cysts of the spleen in the textbooks. The literature of the condition was reviewed by Harmer and Chalmers (1946), and at that date 163 cases of splenic cysts of all types had been recorded. Different classifications of the types of cyst have been made, that of Fowler (1940) being the most comprehensive. For practical purposes it would seem sufficient to classify them as parasitic, true, and false. Hydatid disease accounts for approximately 2% of recorded cases. True cysts are of endothelial origin and are usually multiple—numerous daughter cysts surrounding a large mother cyst. Congenital

polycystic spleen is occasionally found post mortem. The solitary false cyst is probably the end-result of a haematoma.

### Case Report

A spinster aged 50 complained of vague abdominal pain and intermittent attacks of nausea and vomiting. During routine barium meal examination a shadow was seen, no other abnormality was found. Of the possible diagnoses, calcified hydatid cyst of the liver was thought to be the most probable. Casoni's reaction was negative and the blood investigations were normal. The diagnosis of calcified aneurysm of the splenic artery, of which 90 cases are on record, was discounted because of the absence of bruit. The spleen was not palpable in the other recorded cases; the palpability of the spleen was stressed as a diagnostic factor.

By transthoracic approach a portion of the left ninth rib was removed under closed-circuit cyclopropane anaesthesia and the lung partially collapsed. The cyst could then be seen pressing the diaphragm upwards. On opening the diaphragm over the bulge the cyst was found to occupy the greater portion



of an otherwise normal spleen (see Fig.). There were numerous adhesions, especially to the stomach, and it is assumed that these were the cause of the symptoms. Splenectomy was performed and the wound closed. Convalescence was uneventful and the patient left hospital two weeks after operation.

### Discussion

In the case recorded by Snoke (1943) the patient had been examined a few months previously for subacute cholecystitis, and no calcified shadow had then been visible on the radiographs. When the calcified cyst was removed and investigated no lining membrane was found, and Snoke considered it to be a calcified haematoma. The cholecystogram had revealed impaired liver function, and the haematoma probably resulted from the consequent hypoprothrombinaemia. Since calcification has been demonstrated in haematomata within twelve days of their appearance this seems a very reasonable hypothesis. In my case no lining was found, the cyst contained a few drachms of serum. It is interesting to note that two weeks after the patient left hospital she had a transient attack of jaundice, and therefore probably an associated hypoprothrombinaemia. I consider that this also was a calcified haematoma. Bazeley (1948) presents a similar case for diagnosis, which at the

time of writing has not been confirmed by operation. In the discussion on his case the point is made that trauma may play a part in the aetiology. If there is a preceding prothrombin deficiency, trauma may well be a precipitating factor. No history of trauma could be elicited in my case.

### Summary

A case of calcified cyst of the spleen is recorded.

Calcified shadows discovered by the radiologist in the left upper quadrant of the abdomen may be hydatid disease of the liver or spleen, calcified haematoma of spleen, or calcified aneurysm of the splenic artery, of which 90 cases are recorded and which are accompanied by bruit. Calcified tuberculoma of the spleen may occur.

Cysts of the spleen are not necessarily palpable.

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## Medical Memoranda

### A Case of Dracontiasis

The following case of infestation with *Dracunculus medinensis* is considered worthy of record on account of the highly unusual pathological features.

#### CASE REPORT

An adult male African aged 26 was admitted to hospital on Nov. 1, 1944, with a diagnosis of left indirect inguinal hernia. He stated that he had had a lump in his groin for four years. He had never had any pain or discomfort.

On examination he was found to have a small indirect left inguinal hernia, which was easily reducible and which did not extend into the scrotum. No other abnormality was discovered. Blood films were negative for both malaria parasites and microfilariae. A differential white cell count showed an eosinophilia of 8%.

Operation was performed on Nov. 4 through a left inguinal incision. When the hernial sac was isolated its wall was seen to be grossly thickened and fibrosed. On opening the sac it was found to contain part of a female guinea-worm. The head and about 2 in. (5 cm.) of the body of the worm were lying free in the lumen, the remainder being embedded in the wall of the sac on the antero-lateral aspect. The head of the worm was gently grasped in a haemostat, and by twisting the instrument slowly steady traction was maintained on the worm, which was drawn out intact. The operation was concluded in the normal manner, convalescence was uneventful, and the wound healed by first intention. The sutures were removed on the seventh day and the patient was discharged on the 21st day.

**Pathology.**—Although the worm closely resembled *Dracunculus medinensis* on superficial examination, the unusual site of infestation led to some doubt about the diagnosis. The worm was therefore carefully examined in order to make certain of the species. The overall length was 23.7 cm. and the mean diameter 1.4 mm. The body was an elongated cylindrical cord with a rounder anterior end and a hooked posterior end. The mouth parts and genitals were typical of *Dracunculus medinensis*. No male was found, and the worm did not appear to be gravid.

#### COMMENT

Although rather smaller than usual, the worm, as described, conformed in all other ways to the characteristics of the species *Dracunculus medinensis*.

Stitt (1943) states that in 1% of cases of dracontiasis the site of infestation is the scrotum. There seems to be, however, no previous record of the worm occurring in a hernial sac.

I am indebted to the Director of Medical Services, Nigeria, for permission to publish this case.

W. L. M. PERRY, M.D.

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- Stitt, E. R. (1943) *Diagnosis and Treatment of Tropical Diseases*, 6th ed. p. 1388.



## Reviews

### RHEUMATIC DISEASES

*Textbook of the Rheumatic Diseases* Edited by W S C Copeman OBE, M.D., F.R.C.P. Compiled by 24 contributors (Pp 612 351 illustrations some in full colour £2 10s) Edinburgh E and S Livingstone 1948

A good textbook should reward the reader with understanding, not merely with information. This attribute demands a very carefully planned structure, a perfect architecture. Dr Copeman has edited what is intended to be a textbook for those young medical men who have decided to embark on a specialist career in the rheumatic diseases. But if you ask twenty-four men to write a book it is exceedingly difficult to give it any structure at all—a good integration of the teaching they have to offer would involve co-operation in the making of each chapter. In this case the result is not a textbook but a symposium, with the inevitable repetitions and sense of discontinuity. It is, however, a very good book of its kind. A volume of thirty chapters, it is superbly produced, profusely and well illustrated.

Among the outstanding contributions is Professor Henry Cohen's chapter on gout, probably the best general account in modern writings. M J Gibson, in his chapter on clinical pathology agrees with him that the estimation of blood uric acid should be carried out on plasma or serum and not on whole blood and states that plasma uric acid is higher than whole blood uric acid by 1.0 to 2.0 mg, making the upper limit of normal 6 mg per 100 ml. This figure should not be accepted without confirmation. We have reason to believe that it will not be confirmed for we have found no difference greater than 0.25 mg, and sometimes identical figures, if it is inaccurate it may lead to serious diagnostic errors. Professor Cohen agrees with the old statement that in gout "the roentgen ray is of very little service from a diagnostic standpoint." Dr Campbell Golding in a most helpful chapter on radiology, shows how the diagnosis may often be established by an examination of both hands even in the absence of local clinical signs.

Mr H J Kellgren contributes two chapters summarizing and discussing the significance of his experimental work on somatic pain. They would perhaps be more appropriately placed immediately before the editor's chapter on non-articular rheumatism. Dr Copeman discusses several hypotheses on the nature of those "trigger points" from which the pain of fibrositis is referred segmentally including his own recent addition to our knowledge of oedema and tension in fat lobules and herniation of a bit of fat through its fibrous covering. The student may get the impression that what is merely hypothetical in this chapter—and there is much of it—is well verified theory. He is told for example, that he should inject a "trigger point" with a comparatively large volume of novocain solution, driving the fluid forcibly into its substance to disrupt it—a procedure grounded on a speculative proposition.

Dr M J McArdle contributes a chapter on brachial neuralgia. The reader may ask what descriptions of cervical disk lesions, cervical rib and allied pressure syndromes, acroparaesthesia, pachymeningitis, causalgia, and other neurological disorders are doing in a book on rheumatism. They are not rheumatic diseases by any definition of this muddle-headed name but are properly included for their importance in differential diagnosis. But tuberculous arthritis is at times quite alarmingly important in diagnosis, and yet its clinical description is confined to one entirely inadequate paragraph.

Sr Reginald Watson Jones and Mr H Osmond Clarke contribute two chapters on the orthopaedic treatment of arthritis. "The day has passed," they say "when patients with generalized arthritis were distributed fortuitously between orthopaedic surgeons who sometimes failed to recognize metabolic or biochemical aspects of the problem and physicians who sometimes failed to preserve joint function or prevent deformity. Has it? Not until the physicians have absorbed the relevant orthopaedic principles so ably expounded in these excellent chapters and their surgical orthopaedic colleagues have become

aware that there is a science of orthopaedic medicine can we hope for more rational distribution or timely co-operation.

KENNETH STONE

### ENDOCRINE DISORDERS

*Major Endocrine Disorders* By S Leonard Simpson, M.A. M.D., F.R.C.P. Second edition (Pp 552 89 figures £2 2s) Oxford Medical Publications London Geoffrey Cumberlege (Oxford University Press) 1948

The second edition of this well-known work appears ten years after the first. Not only has the author brought it thoroughly up to date, but he has further improved it by giving a list of references at the end of each section. The result is a work which combines in good balance the extensive personal experience of the author in clinical endocrinology with a critical appreciation of the relevant literature. The references are well chosen and are designed to enable the student to pursue the subject further for himself.

The author introduces many of his own ideas, and discusses, for instance such clinical conditions as diabetes tenuis and adipose gynandrium, which have been described by him. He rightly points out that failure of sexual maturation should be an essential feature of true Frohlich's syndrome, but that the majority of cases of the Frohlich type do eventually achieve some degree of sexual maturity. It is to these that he gives the name adipose gynandrium.

The style of the book is throughout stimulating and thought provoking. In the chapter on adrenal hypercorticalism the author states as his aim "to attempt a rationalization of existing knowledge aiming at lucidity undivorced from factual evidence, and indicating discrepancies where such exist." He has achieved his aim well, not only in the chapter on hypercorticalism, in the development of knowledge of which the author has played such a prominent part, but also in many other sections of the book. The sections on eunuchoidism, castration, and sexual disorders are also well written, presenting as they do the results of the author's own wide experiences in these fields. He refers to the treatment of hyperthyroidism with radioactive iodine, having seen excellent results with this method.

In the chapter on obesity he does not mention the recent vogue for the use of amphetamine to control appetite, and we are left in doubt of his views on the subject. All references relating to diseases of the thyroid are grouped together, since some of the authors listed are not directly referred to in the text, the subject matter of some of the papers quoted cannot be determined from the text. But these are minor points of criticism. The book is well illustrated and well produced and may be thoroughly recommended to students, general practitioners, and consultants.

C L COPE

### DEMAND ON UNIVERSITIES

*The Problem Facing British Universities* Nuffield College (Pp 131 5s) London Geoffrey Cumberlege (Oxford University Press) 1948

The problem is how to cope with the increased demand for university education. Some of the demand is unreal. A university degree is no more necessary for sick-nursing than for breast-nursing and the committee therefore makes no allowance for student nurses in the calculation of future numbers in medical schools. It estimates the real demand as an increase of intake into the universities from 14,200 to 22,200 a year, and an increase in the total undergraduate population from 50,590 to 80,000. There are two main sources of demand. The first is the need for more scientists of all kinds in particular scientists for industry and more science teachers in the secondary schools. The second is the raising of the age for leaving school, the increased number of children taking the Higher Certificate examination and the growing subsidy of university education by the Government and the local authorities. Up to the present the solution of the problem has been postponed by overwork, overcrowding, and some lowering of standards in the universities. There were nearly 77,000 university students in the autumn term of 1947. What is to be done in the future?

Post-war planning has hitherto been vitiated by two major errors. The one is the fallacy of "the bigger, the better." Any

scientist knows that you cannot enlarge a flea to the size of an elephant and still expect it to jump or put a plank bridge across Niagara, but the social planners still seem to have to learn this natural law by painful experience. The other fallacy is what has been called "the blue print without the engine," in other words, the disregard of incentives. The Vice-Chancellor of Oxford in his Annual Oration this year pointed out that the two major problems facing the university today are: What is to be its size? and, How is a proper balance of studies within it to be maintained? Our universities have already reached, if they have not passed the limits of effective size for a community within which all the arts and faculties are taught and studied and there is free exchange of ideas. Administration takes up so much time that the last thing a man who loves learning and the pursuit of knowledge now wishes to be is the head of a university department.

The Nuffield College Committee states the problem and barely hints at a solution. It seems clear that there must be a more ruthless separation of university and technical education and the creation of more technical colleges. The distinction between university and technical education is fully discussed in Aldous Huxley's *Ends and Means* so I need not go into it here. It is more urgent to think of the future of the medical schools. They are being affected by three tendencies which were overlooked in the Goodenough and B.M.A. curriculum reports. The first is the pressure on the universities to extrude technical forms of education. The second is the increasing preoccupation of the clinical schools with regional medical planning and administration. The third is the widening of the rift between clinical and non-clinical teachers by the Spens Reports. The effect of these tendencies may well be to bring about a complete break between preclinical and clinical education. In other words the Oxford and Cambridge practice of a preclinical education within the university and a clinical education in separate and autonomous teaching hospitals may become the pattern for medical education throughout Britain in the future.

L J WITTS

### TEXTBOOK FOR ALMONERS

*Textbook for Almoners* By Dorothy Manchec, Almoner, St Mary's Hospital, with foreword by Sir Alfred B. Howitt, CVO, MD (Pp 466, 7 plates 49 figures £1 7s 6d) London: Baillière Tindall and Cox 1947

This is the first textbook written for hospital almoners. It lacks encyclopaedic accuracy but it is written in a pleasant style. The account of the first 50 years of the profession is interesting. The first almoner was appointed in 1895 at the Royal Free Hospital. It was Sir Charles Loch, of the Charity Organization Society, who had seen the need for the almoner, a man or woman of some insight, prompt decision, and firmness to supplement the work of the medical man by obtaining the general assistance without which medical relief would often fail in its purpose.

After a slow start the number of almoners appointed to hospitals increased rapidly during the decade 1915-25, but the reasons behind the new interest in almoning were regrettable. Many almoners were appointed only to assess the patient's ability to pay. It is true that the newly appointed almoners eagerly seized the opportunity to do invaluable social work for the patients but a misconception grew up in the public mind that the almoner was a tax gatherer. Now the almoner can look forward to a new phase in her career when the National Health Service Act banishes the uncongenial duties of assessment and leaves her with increased time and opportunity for her real work. The general practitioner can hope that eventually he too will have her invaluable consultant assistance with the growth of health centre practice.

For the rest the author is unfortunate in her times, which make so much of the detailed information she provides on social agencies already out of date. There is altogether too much about London in a book intended for almoners everywhere. The value of the sketches and sometimes inaccurate accounts of clinical details is questionable. It would have been interesting to have seen more discussion of the social background of disease in a book for almoners. But the author deserves the credit which goes to the pioneer.

J H F BROTHERSTON

### BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

*Twelve Years with Roosevelt* By Vice-Admiral Ross T. McIntire (Pp 244 12s 6d) London: Putnam 1948

The author was physician at the White House and a personal friend of President Roosevelt.

*Osteo Arthritis of the Hip-Joint* By H. Warren Crowe D.M., B.Ch., M.R.C.S., L.R.C.P. (Pp 70 No price) London: George Pulman and Sons 1948

A monograph on treatment based on the author's experience.

*History of Factory and Mine Hygiene* By L. Teleky M.D. (Pp 342 25s) London: Geoffrey Cumberlege 1948

The author discusses the prevention of occupational illness from antiquity to the present day.

*A Penicilina por Via Arterial nas Osteomielites* By E. B. Ribeiro (Pp 124 No price) Brazil: São Paulo 1947

A monograph on the treatment of osteomyelitis with intra arterial penicillin.

*New Fields of Psychiatry* By D. M. Levy, M.D. (Pp 171 12s 6d) London: Chapman and Hall 1948

An account of psychiatry in child guidance, delinquency, education, industry, and other spheres outside the hospital.

*Handbook of Orthopaedic Surgery* By A. R. Shands Jr. B.A. M.D., and R. B. Rancy, B.A., M.D. 3rd ed. (Pp 574 \$6.00) St. Louis: C. V. Mosby 1948

A manual for the student and general practitioner.

*A Textbook of Histology* By A. A. Maximow and W. Bloom 5th ed. (Pp 700 42s) London: W. B. Saunders 1948

The authors present the subject from a functional point of view.

*General Cytology* By E. D. P. De Robertis, M.D., and others (Pp 345 27s 6d) London: W. B. Saunders 1948

A review of modern cytology translated from the Spanish.

*Black's Medical Dictionary* By J. D. Comrie, M.D., F.R.C.P. Ed., revised by W. A. R. Thomson, M.D. 19th ed. (Pp 995 25s) London: Adam and Charles Black 1948

The material has been revised and some new plates included.

*The Skin Diseases* By J. Marshall, M.D., B.S., M.R.C.S., L.R.C.P. (Pp 363 30s) London: Macmillan 1948

A manual for students and general practitioners.

*Preoperative and Postoperative Care of Surgical Patients* By H. C. Ilgenfritz, A.B., M.D., F.A.C.S. (Pp 898 \$10.00) St. Louis: C. V. Mosby 1948

The author gives the physiological basis for his recommendations as well as detailed instructions.

*Rh Factor Selected Reprints* By A. S. Wiener A.B., M.D., F.A.C.P. (No price) Brooklyn: New York 1948

Bona reprints of the author's papers on the Rh factor intended chiefly for libraries.

*The Epithelia of Woman's Reproductive Organs* By G. N. Papanicolaou, M.D., and others (Pp 53 55s) London: Geoffrey Cumberlege 1948

The author emphasizes the relation between cytological changes and the phases of the menstrual cycle.

*Investigations on Agonal Acidosis* By I. F. Hansen (Pp 134 No price) Copenhagen: Povl Branner 1948

The study is based particularly on electrolyte determinations on blood collected just before or after death.

*An Introduction to Surgery* By R. Morrison, M.D., F.R.C.S., F.R.C.S. Ed., M.A., D.C.L., LL.D., and C. F. M. Saint CBE, M.D., M.S., F.R.C.S., F.R.A.C.S. 4th ed. (Pp 330 42s) London: Simpkin Marshall 1948

A guide to make the student think for himself about problems he encounters in the wards.

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## CONTROL OF GASTRIC SECRETION

The stomach is a much more complicated organ than is generally supposed. The mucous membrane of the fundus and body contains the main gastric glands composed of chief cells and oxyntic cells which secrete pepsin and hydrochloric acid respectively, the distal or pyloric part contains glands which secrete mucus and alkali, and the surface epithelium secretes mucus only. The intrinsic factor has been demonstrated in the region where the main gastric glands are found, and it is well established that lesions of the proximal part of the stomach may give rise to pernicious anaemia. By a time-honoured convention the term gastric juice is applied to the acid-pepsin mixture which is secreted by the proximal part of the stomach, but the juice secreted by the stomach as a whole is also rich in mucus, and its reaction depends largely on the relative amounts of acid and alkali secreted by the proximal and distal parts. It has also been proved that the stomach releases into the portal circulation a hormone, gastrin, the structure of which has not yet been identified. The control of gastric secretory activity is both nervous and chemical. The vagi are the secretory nerves which are stimulated reflexly from receptors of taste, sight, and smell to produce the appetite or psychic juice which is rich in acid, pepsin, and mucus. Vagal activity is also accompanied by marked vasodilatation. It is not yet known whether the vascular changes are due to specific dilator fibres in the vagi or whether they are secondary to the release of dilator metabolites as a result of gastric activity.

The influence of emotion on the activity of the stomach is now generally recognized, especially since Wolf and Wolff<sup>1</sup> published the results of their studies. Fear leads to sympathetic overaction: the gastric mucosa becomes blanched and its secretory activity is depressed. States of anxiety and resentment lead to vagal overaction, with excessive secretion of acid, pepsin, and mucus and intense congestion and swelling of the mucous membrane, in extreme cases haemorrhage and destructive changes in the mucosa may occur. It is reasonable to suppose that such gastric reactions may precede the development of gastric ulcers and prevent their healing, the surgeons have put this hypothesis to the experimental test and are studying the effects of double vagotomy on gastric ulcers. The immediate results, though encouraging, are as yet inconclusive: so many cures of gastric ulcer have come and gone that a final decision on the value of this new operation must await the follow-up of the cases over a long period. The physician too has something to learn from these observations—namely, that the treatment of gastric ulcer should be directed to the mind no less than to the stomach. The disease is an outstanding challenge to the advocates of the importance of psychosomatic relationships.

The chemical phase of gastric secretion has been the subject of so much controversy that Professor Georg Kahlson's authoritative review of the subject in this issue is particularly welcome. Pavlov<sup>2</sup> demonstrated that after cutting the vagi and sympathetic nerves and thus severing all the connexions between the stomach and the central nervous system the introduction of certain foodstuffs into the stomach or intestine called forth a further flow of gastric juice rich in acid but poor in pepsin. The most potent excitants are meat extracts and certain products of food digestion, but the full list of effective agents is a long one and includes acids, alkalis, salt, alcohol, saliva, pancreatic juice, and bile. These substances do not act by being themselves absorbed into the circulation, since they have no secretagogue action when they are injected intravenously, and there is convincing evidence that they release the hormone now called gastrin into the blood. Mechanical stimulation of the pyloric region also releases gastrin, this result may explain why gastric distension is commonly associated with increased gastric secretory activity. The experimental evidence indicates that gastrin is released mainly but not exclusively from the pyloric region, it is also formed in the adjacent region of the body of the stomach (the "intermediate zone"), the duodenum, and perhaps over a wider area.

The chemical identity of gastrin has now been satisfactorily established, thanks to researches carried out in the laboratories of Kahlson and Babkin.<sup>3,4</sup> Both groups of workers agree that gastrin is a protein of low molecular weight closely resembling secretin in its chemical properties. Relatively crude gastrin preparations stimulate the stomach to secrete a juice which is rich in acid and poor in, or even devoid of, pepsin, they also have some action on the pancreas and liver. More carefully purified preparations act only on the stomach and on no other glands, they have no effect on the circulation. These results finally dispose of Ivy's original suggestion that gastrin is identical with histamine. This view was put forward on the grounds that gastric extracts are rich in histamine and that histamine stimulated gastric secretion. It always seemed unlikely from teleological considerations that the gastric hormone should be a substance, like histamine, which had a widespread secretagogue action (promoting, for example, a flow of saliva and tears) and which also produced generalized vasodilatation and other undesirable circulatory effects. The specific action on the stomach of the newly isolated gastrin and the absence of side effects seem to fit the substance well to carry out its function as a secretagogue hormone released during gastric digestion and reinforcing the initial flow of vagus juice.

It is doubtful whether gastrin fully accounts for the chemical phase of secretion. As Pavlov showed, the introduction of an excitant into the stomach produces a flow of juice which contains less pepsin than vagus juice but more pepsin than is found in the juice secreted after the injection of gastrin. This discrepancy suggests the possibility that a second hormone may be liberated which acts on the peptic cells and not on the oxyntic cells to which gastrin confines its action. Kahlson now reports that crude pyloric extracts have been prepared which in fact do increase the secretion of pepsin, if this work is

confirmed and a name is needed for the new substance, then the term gastrozimin might not be inappropriate, since it would bring the terminology for the gastric hormones in line with that of the hormones controlling pancreatic secretion. It will be recalled that Bayliss and Starling first isolated from the intestine the substance secretin, which stimulates the pancreas to secrete an alkaline enzyme-free fluid, while quite recently Harper and Raper<sup>5</sup> have isolated a second hormone from the intestine which they have named pancreozymin, which stimulates the secretion of the pancreatic enzymes. There are thus very close resemblances between the mechanisms which control the secretion of gastric juice and pancreatic juice.

Although it is now known that gastrin is not histamine, the latter still remains a substance of great interest in relation to gastric function. When injected in man it specifically stimulates the oxyntic cells of the stomach to secrete a profuse, highly acid secretion which is poor in enzyme content. The absence of this acid response to repeated injections of histamine indicates temporary dysfunction, atrophy, or destruction of the oxyntic cells. Histamine may, however, also play a part in the normal control of gastric secretion. It has been proved that the post-ganglionic fibres of the vagi, like all parasympathetic post-ganglionic fibres, release acetylcholine at their terminals. There is now good reason to suppose that, though the acetylcholine acts directly on the peptic cells, it acts indirectly on the oxyntic cells through a second intermediary which is probably histamine. Kahlson discusses the evidence for this suggestion and draws attention to some significant observations such as the high histamine content of gastric extracts and the absence of the histamine-destroying enzyme (histaminase) from the gastric mucosa. Though there is still a conflict of testimony, some workers<sup>6</sup> claim to have demonstrated the presence of histamine in the gastric juice in higher concentrations than are found in the plasma, whether the secretion was stimulated by the vagus or by the presence of food in the stomach. Support to this view is given by the recent demonstration<sup>7</sup> that the injection of a purified preparation of histaminase annuls the secretion of acid normally produced by food or by the parasympathomimetic drug mecholyl, but it is as yet uncertain whether histaminase was the gastric depressant agent in the preparation used, though that seems the probable explanation. The secretion of gastric juice in response to nervous or chemical stimuli is inhibited by enterogastrone, which is released when fat comes in contact with the mucosa of the duodenum and stomach.

Professor Kahlson reviews the findings of Uvnas,<sup>8</sup> which suggest that gastrin (or some associated pyloric hormone) is linked up with the gastric vagal secretory mechanism in a number of ways. The vagus fibres which supply the pylorus (and regulate the secretion of alkali and mucin by the mucosa) may stimulate the release of gastrin into the blood, the unidentified gastrin-forming tissue is thus supposed to be activated by nervous as well as by chemical

influences (various foodstuffs and products of digestion) and by mechanical stimuli. This would not be an unusual arrangement, for other endocrine tissues are controlled predominantly by chemical and to a minor extent by nervous influences, the islets of Langerhans and the thyroid are examples. Uvnas claims further that the role of gastrin is not merely to stimulate the oxyntic cells directly to secrete acid, he believes that gastrin must be present if the vagus is to exert its secretory action on the main gastric glands. Thus he finds that, if the pylorus is excised, deprived of its blood supply, or poisoned with cocaine, stimulation of the vagi in the fasting animal fails to elicit the usual profuse flow of an acid- and pepsin-rich juice from the main gastric glands, though these are directly innervated by the vagi, but if gastrin is infused into these animals (in concentrations which in themselves are ineffective) concurrently with vagal stimulation, the normal response characteristic of the intact animal is obtained. Uvnas thus argues that gastrin is an indispensable part of the transmission mechanism at the vagal terminals in the stomach. His conclusions, if confirmed, would open a novel field of inquiry of great theoretical interest, and they would have their practical implications too. The operation of pylorotomy, by removing much of the gastrin-producing mucosa, might be supposed not only to decrease the chemical stimuli to gastric secretion but also to depress the efficacy of the nervous mechanisms. Similarly the operation of vagotomy, in addition to abolishing the nervous control, might also be expected to depress the chemical stimuli to the stomach. The fact that opinions are still so divided about the most appropriate surgical treatment for gastric ulcer suggests among other conclusions that the secretory control of the stomach, being multiple, can continue to function at a moderate level even if some of the secretagogue agencies are put out of action. A more detailed study of the response to insulin, which stimulates the vagal secretory fibres to the stomach in patients subjected to pylorotomy, might help to solve the questions raised in this discussion.

## TREATMENT OF ANURIA

The term "low nephron nephrosis" was used by Lucke<sup>1</sup> to describe the renal lesions produced by a wide variety of conditions which may be associated with shock. In this issue of the *Journal* Drs D A K Black and S W Stanbury discuss the pathogenesis and treatment of anuria with special emphasis on anuria caused by the lower nephron nephroses. Shock is probably not a necessary precursor, for a similar clinical picture may be found in its absence. The lesions of lower nephron nephrosis are found in the crush syndrome, after intravascular haemolysis, abortion, various poisonings, and in many other states. Microscopically the condition is characterized by widespread tubular damage. There has been much discussion about its pathogenesis, and two rival hypotheses have been put forward to explain it. The one school, headed by Trueta and Barclay and their colleagues,<sup>2</sup> believes that the primary disturbance is a rearrangement of the circulation in the kidney, blood from the cortical nephrons being shunted to the relatively scanty

<sup>1</sup> *Human Gastric Function*, 1944. London: Oxford University Press.

<sup>2</sup> *Work of the Digestive Glands*, 1910. London: Griffin and Co.

<sup>3</sup> *Secretory Mechanism of the Digestive Glands*, 1944. London: P B Hoeber.

<sup>4</sup> Komarov, S A. *Rev canad Biol*, 1942, 1, 191 and 377.

<sup>5</sup> *J Physiol*, 1943, 102, 115.

<sup>6</sup> MacIntosh, F C. *Quart J exp Physiol*, 1938, 28, 87.

<sup>7</sup> Grossman, M I, and Robertson, C R. *Amer J Physiol*, 1948, 153, 447.

<sup>8</sup> *Acta physiol scand*, 1942, 4, Suppl. XIII.

juxtamedullary nephrons According to Trueta these inner nephrons are less efficient in filtering the plasma than the cortical ones, with the result that there is a very considerable diminution of glomerular filtration, and anuria or extreme oliguria results By injecting glass beads of various sizes into the renal artery and recovering them from the renal vein Simkin and his colleagues<sup>3</sup> have produced evidence of arterio-venous anastomoses in the normal kidney of up to 440  $\mu$  in diameter These anastomoses are not the same as the shunt described by Trueta, and their discovery further widens the field of speculation about the importance of vascular rearrangements in causing this condition The other school of thought postulates that the tubules are at fault either these are blocked, or the filtrate is reabsorbed almost completely through the damaged epithelial membrane or through tubulo-venous anastomoses<sup>1,6</sup>

Black and Stanbury discuss the relative merits of these two views and conclude that it is probable that both vascular and tubular factors are responsible for the anuria Treatment, they consider, should have three main purposes First, efforts should be made to restore normal renal circulation The Trueta shunt can be prevented by cutting or blocking the sympathetic nerve supply to the kidney With this end in view splanchnic block or spinal anaesthesia may be carried out, or sympatholytic drugs such as tetraethyl-ammonium bromide or dibenamine can be used Black and Stanbury rightly point out that it is "never possible to exclude an opportune spontaneous recovery of urine flow" Experimental proof of the part played by the Trueta shunt in the lower nephron nephroses and proof of the efficacy of this type of treatment are still lacking, but should be possible to obtain In the meantime there appears to be little danger in such measures provided that the patient's peripheral circulation is adequate

The second purpose of treatment is to maintain a normal internal environment by regulation of the intake of potentially toxic substances It seems likely that the end-products of protein breakdown other than urea are toxic, and protein metabolism should therefore be kept at the lowest possible levels Because of the protein-sparing effect of carbohydrate Black and Stanbury recommend a diet of 2,500 calories, made up mostly of fat and carbohydrate but with 30 g of protein This amount of protein contains approximately 5 g of nitrogen In principle they follow Borst,<sup>7</sup> who gives a high calorie diet almost completely free of protein, but they consider Borst's diet so unpalatable as to be impracticable There is no evidence that a diet containing 5 g of nitrogen spares the body's nitrogen stores

and is as effective as Borst's regime, and it might be argued that this amount of nitrogen allows protein breakdown to go on at approximately twice the desirable absolute minimum rate<sup>8</sup> It is generally agreed<sup>9,12</sup> that an excessive fluid intake is dangerous in anuria, and Black and Stanbury recommend restriction of fluid intake to approximately 1 litre per day They point out that the body has no effective path for electrolyte loss other than from the kidneys and accordingly recommend a salt-free diet during the period of anuria It is also important that the diet should be as nearly as possible free of potassium In anuria the level of potassium in the blood may rise to dangerous heights and cause death<sup>13</sup> Common sources of potassium which should be avoided are potassium citrate given as a diuretic and bottled fruit drinks

The third purpose of treatment is to maintain a normal internal environment by the removal of toxic substances through extrarenal routes There are a number of dialysis methods which effectively remove toxic substances from the body After consideration of some of the difficulties in the use of peritoneal dialysis,<sup>14,15</sup> the artificial kidney in its various forms,<sup>16,18</sup> and different types of intestinal dialysis<sup>16,19</sup> Black and Stanbury fall back on what seems little more than a return to the old purging method If anuria persists "for more than a few days" they recommend that intestinal dialysis with a slightly hypertonic solution of sodium sulphate should be carried out, to overcome the difficulty of sucking the solution back from the distal end of the duodenal tube they suggest that the washings should be collected through a wide-bore rectal tube While it seems certain this is an effective method, the procedure shares the defects of all the dialysis methods in that, unless considerable care is taken, gross disturbances of water and electrolyte balance may result Deficiencies or excess of sodium chloride or potassium may occur with any method, and to be safe, dialysis should always be supervised by a trained team with adequate facilities for chemical analysis Other forms of therapy such as the use of diuretics and alkalinization have had their advocates, but Black and Stanbury conclude that they are potentially dangerous or ineffective They do not comment on Peters's suggestion<sup>20</sup> that the kidney should be decapsulated Convincing evidence that this is an effective method of therapy is still lacking

## ANTIBIOTICS FROM STREPTOMYCES

At least five antibiotics of considerable interest are now known to be produced by various species of streptomyces isolated from soil Streptomycin has already found its place in medicine, streptothricin is probably of little practical value There are three others of importance, grisein, chloromycetin, and aureomycin Grisein is the name given by Reynolds and Waksman<sup>1</sup> to a new antibiotic derived from certain strains of *Streptomyces griseus* This substance develops in surface and submerged cultures of the streptomyces it is quite distinct from streptomycin and is unaffected by sulphhydryl compounds or carbonyl groups The antibacterial spectrum is very similar to that of streptomycin and streptothricin, but is considerably narrower, and organisms that are resistant to streptomycin are not

- <sup>1</sup> *Mil Surg* 1946 99 371
- <sup>2</sup> *Studies of the Renal Circulation* 1947 Oxford Blackwell
- <sup>3</sup> *Arch Intern Med* 1948 81 115
- <sup>4</sup> Bywaters E G L *Brit med Bull* 1945 3 107
- <sup>5</sup> Dunn J S C, Hesprie M, and Niven J S F *Lancet* 1941 2 549
- <sup>6</sup> Mallory T B *Amer J Clin Path* 1947 17 427
- <sup>7</sup> *Lancet* 1948 1 824
- <sup>8</sup> Deuel H J, Sandiford I, Sandiford K, and Boothby W M *J Biol Chem* 1928 76 391
- <sup>9</sup> Fishberg A M *Hypertension and Nephritis* 1939 London Baillière Tindall and Cox
- <sup>10</sup> Bradley S *The Pathological Physiology of Uremia in Chronic Bright's Disease* (American Lecture Series No. 15) 1948 Springfield
- <sup>11</sup> Thorn G W *J Urol* 1938 59 119
- <sup>12</sup> Hall A D and Luetscher J A *New Eng J Med* 1948 239 621
- <sup>13</sup> Finch C A, Sawyer C G, and Flynn J M *Amer J Med* 1946 1 337
- <sup>14</sup> Fernald H A, Fine, J, and Seligman A M *J Amer med Ass* 1946 130 703
- <sup>15</sup> Kop P S M *Peritoneal Dialysis* 1948 Kampen Holland Hok
- <sup>16</sup> Kolff W J *New Wave of Treating Uremia* 1947 London Churchill
- <sup>17</sup> Murray G *Arch Surg* 1947 55 405
- <sup>18</sup> Alwall N, Norvall L, and Steins, A M *Lancet* 1948 1 60
- <sup>19</sup> Malins N S R *Led Proc* 1948 7 77
- <sup>20</sup> Peters, J T *Ann Intern Med* 1945 23 221

necessarily resistant to grisein. Resistance to grisein seems to develop more rapidly than that to streptomycin, a finding which limits its value in chemotherapy. However, the addition of grisein in small amounts to streptomycin solutions has a synergistic effect on organisms sensitive to both antibiotics and appears to retard the development of resistant strains. As grisein is well tolerated by animals and is also active *in vivo* against organisms which are sensitive to it *in vitro* it may well be of value in supplementing streptomycin therapy by suppressing the rapid development of resistance in certain strains of coliform bacteria.

We have already drawn attention in a leading article<sup>2</sup> to the chemotherapeutic possibilities of chloromycetin. In addition to its action on rickettsial infections it now seems that chloromycetin may become the drug of choice for the treatment of typhoid, a disease which up to the present has not been amenable to treatment with either sulphonamides or antibiotics. Woodward and his colleagues<sup>3</sup> in Malaya treated with oral chloromycetin ten cases proved to be due to *Salmonella typhi*. The initial dose was 50 mg per kilo of body weight thereafter 0.25 g was given every two hours till the temperature was normal, and the same dose was continued every 3 to 4 hours for the first 5 days of normal temperature. The total dosage averaged 191 g in 81 days. The drug was well tolerated and no clinical evidence of toxicity was noted. The blood level of chloromycetin during the first 24 hours averaged from 40 to 80 µg per ml, and 20 µg during the next three days. *Salmonella typhi* is inactivated *in vitro* by 0.25 µg per ml. In ten treated cases, all in the first two weeks of fever, the mean duration of fever was 3.5 days after treatment. All blood cultures 5 days after beginning treatment were sterile, but positive stool cultures were observed in two patients up to the twelfth day of convalescence. Two of the ten patients relapsed with bacteraemia after afebrile periods of 10 and 16 days respectively, but the recurrences were promptly controlled in 2 and 3 days by second courses of chloromycetin. No evidence was found that the typhoid bacilli had become resistant to chloromycetin. Two serious complications were seen. One patient had an intestinal perforation on the second day of normal temperature, the second had a massive intestinal haemorrhage on the fourth afebrile day. Both patients recovered. Eight cases were used as controls. One patient died on the seventeenth day, and the average duration of fever was 35 days. Further studies on the effects of chloromycetin in typhoid and paratyphoid will be awaited with interest.

Aureomycin is a new antibiotic derived from *Streptomyces aureofaciens*, its antibiotic action has been described by Brer and his colleagues<sup>4</sup>. It is a yellow crystalline salt, supplied as a hydrochloride. It is soluble in distilled water but rather less soluble in isotonic sodium chloride solution. The solutions have a pH about 4.5, and in alkaline solution the activity of the antibiotic deteriorates rapidly at room temperature. Both Gram-positive and Gram-negative organisms are inactivated *in vitro* in broth: haemolytic streptococci by from 0.3 to 1.25 µg per ml, pneumococci

by 0.1 to 0.3 µg per ml, staphylococci by 0.6 µg per ml, various strains of *Bact. coli* by 50 µg per ml, Friedlander's bacillus by 1.0 to 5.0 µg per ml, *H. influenzae* by 2.0 µg per ml, *Brucella suis* and *Br. abortus* by 0.75 µg per ml. Strains of proteus and *Ps. aeruginosa*, however, are not affected by 20.0 µg per ml. Human serum seems to have an inhibitory effect on the antibiotic activity of aureomycin, which is bacteriostatic rather than bactericidal. If the broth contains 50% serum the concentration of the drug has to be increased about fifty times in order to bring about inhibition.

Patients suffering from coliform and *Str. faecalis* infections of the urinary tract, typhoid fever, brucellosis, and Rocky Mountain spotted fever have been successfully treated with aureomycin. The usual oral daily dosage varied from 10 to 60 mg per kilo of body weight given in six to twelve doses. Intramuscularly a total of 3 mg per kilo of body weight per day has been given, but signs of local irritation were seen. Five patients with Rocky Mountain spotted fever were all asymptomatic and afebrile in 12 to 72 hours, and a patient infected with chronic brucellosis due to *Br. suis* was afebrile three days after aureomycin therapy was begun.

## THE CHEMOTHERAPY OF UNDULANT FEVER

The chemotherapy of brucella infections has for long been a difficult problem. Even before the advent of sulphonamides it had been claimed that injections of neoarsphenamine occasionally worked like a charm, but in other cases they failed completely. There were strong hopes that the sulphonamides would be effective, but though temporary benefit occurred and some patients were apparently cured there was no clear evidence that the drug treatment had anything to do with the fall in temperature and the cessation of symptoms, since undulant fever is a self-limiting disease which after a shorter or longer period cures itself. It is now generally agreed that no sulphonamide by itself is able to cure any great proportion of cases. Possibly sulphadiazine accompanied by multiple blood transfusions, as originally proposed by Huddleson<sup>1</sup> and reported on by Holmes and Hughes,<sup>2</sup> may give rather more consistent results. Penicillin also is without effect on brucellae, and attempts to cure patients with it have failed. The sensitivity of brucella organisms to streptomycin was first demonstrated by Jones and his colleagues,<sup>3</sup> but earlier reports of treatment from the U.S.A. were disappointing. Only Finch<sup>4</sup> has claimed excellent results, he treated six patients with total doses of streptomycin varying from 20 to 51 g in 5 days. It is noteworthy that of his six cases five were due to *Brucella suis* and only one to *Br. abortus*. In addition, each patient received 500 mg of ascorbic acid daily.

The possibility of obtaining an additive if not a true synergic effect by combining sulphadiazine and streptomycin in the treatment of undulant fever was first explored by Eisele and McCullough,<sup>5</sup> who reported the results in a single case. Pulaski and Amspacher<sup>6</sup> and Pulaski and Seeley<sup>7</sup> treated six patients by the same method, though with smaller doses of sulphadiazine: two of their patients

<sup>1</sup> Huddleson I. F. Communication to the Fourth International Congress of Microbiology, Copenhagen, 1947.

<sup>2</sup> British Medical Journal 1948 2 859.

<sup>3</sup> Science 1944 100 103.

<sup>4</sup> Amer J Med 1947 2 485.

<sup>5</sup> J Amer med Ass 1947 135 1053.

<sup>6</sup> New Engl J Med 1947 237 419.

<sup>7</sup> J Lab clin Med 1948 33 1.

<sup>8</sup> Amer J vet Res 1948 9 164 169.

<sup>1</sup> J Bact 19-8 55 739.

<sup>2</sup> British Medical Journal 1948 2 428.

<sup>3</sup> Ann. intern. Med. 19-8 29 (O.S. 33) 131.

<sup>4</sup> J Amer med Ass 1948 138 117.



relapsed In this issue of the *Journal* Dr E F Scowen and Professor L P Garrod describe the treatment of two further patients with the same combination of drugs The results in both cases were excellent, though it is not claimed that the best scheme of dosage has yet been worked out Further results, however, will be awaited with interest In the meantime it is worth while drawing attention to the remarkable experimental results obtained by Cotton and Swope<sup>6</sup> with *para*-aminobenzoic acid and sodium *para*-aminobenzoate In guinea-pigs inoculated with a virulent strain of *Br abortus* a 5% solution of the soluble sodium salt given subcutaneously in doses of 5 ml every four hours for 21 days completely eradicated infection when treatment was begun 3 days after the infective dose had been administered When treatment was delayed for 2 weeks after infection 8 out of 10 animals were cured *In vitro*, the growth of *Br melitensis*, *Br suis*, and *Br abortus* is inhibited by *para*-aminobenzoic acid in a concentration of 2 mg per ml of tryptose agar medium There is hope that a satisfactory treatment of brucella infections may at long last be in sight

### PHYSIOTHERAPY

The exact organization of physiotherapy under the National Health Service has not yet been announced, but it is certain that physiotherapists will play their part in the Service The great majority of practising physiotherapists are members of the Chartered Society of Physiotherapy, but their numbers would seem insufficient to fill all the posts that will become available, the recruiting of enough physiotherapists with adequate training and professional standards will therefore present a problem The Chartered Society has always shown itself to be progressive and aware of the problems of the moment, and there is no doubt that it has made its preparations to meet the calls which will be made upon it At a time when a new situation has to be faced it would seem opportune to review the relationship which exists between medicine and physiotherapy Members of the Chartered Society are pledged to work only under medical instruction That this pledge is not always honoured is to some extent the fault of the medical profession Doctors very frequently order physiotherapy but seldom take the trouble adequately to instruct the physiotherapist, and the patient may be advised merely to "go and have some massage" Such an attitude is naturally unsatisfactory to a professional body whose aim it is to work in close conjunction with the medical profession Furthermore, while it is the avowed aim of the Chartered Society always to work under medical direction, doctors are not always careful to select members of the Chartered Society to carry out their work and may not inquire into the qualifications of the masseuse to whom they send their patients In the British Medical Association's report, *The Training of a Doctor*,<sup>1</sup> the following comment is quoted in paragraph 394 "Physical medicine is frequently prescribed but seldom understood"

In these circumstances it is not surprising that the Chartered Society may sometimes tend to adopt an attitude of less dependence on the medical profession Physiotherapists have left the Board of Registration of Medical Auxiliaries, probably for good reasons, but now it seems that they intend to recognize prescription of treatment by members of their Society on a doctor's diagnosis Hitherto both diagnosis and prescription

have been the sphere of the doctor, while the technique and practice of treatment have rested with the physiotherapist This again is contrary to the BMA report, in which it is stated, "Physiotherapists are highly trained technicians, diagnosis and prescribing are no part of their duties Doctors would certainly be shirking their responsibilities if after making a diagnosis they handed over their patients to auxiliaries for prescription"

Under the National Health Service physiotherapists will presumably form part of the therapeutic team led by the doctor But team-work will not be easy if the members no longer think along the same lines Pathology connotes one thing to the doctor, to the physiotherapist often quite another Physiotherapists are taught their medicine by their own teachers It is understandable that to the physiotherapist the treatment of rickets and lupus vulgaris is general and local ultra-violet irradiation, despite the potent remedies available in vitamin D and calciferol But it is less understandable that to the physiotherapist the treatment of gout is lithium ionization, when the use of lithium in any form is rejected by no less an authority than Professor Henry Cohen<sup>2</sup> "Hepatic massage" is advocated for right heart failure in a book<sup>3</sup> written for physiotherapists by a teacher of physiotherapy and published in 1948 Similarly 'abdominal massage' is advocated for "gastritis" There are other instances which might be taken to indicate that physiotherapy is establishing a pathological and therapeutic system of its own and is tending to follow the footsteps of chiropractic and osteopathy Such a possibility is remote Nevertheless the time is ripe for the closer co-ordination of medicine and its handmaiden physiotherapy Good will on both sides will easily achieve this, and since physiotherapy is on the eve of great expansion this co-ordination should be fostered and encouraged by both the Chartered Society and the medical profession

### TUBERCULOSIS AND VOLUNTARY ACTION

Last week the National Association for the Prevention of Tuberculosis celebrated the fiftieth anniversary of its foundation by King Edward VII, who, as Prince of Wales, called an informal gathering of medical men at Marlborough House and launched what has proved a most successful scheme The NAPT remains a voluntary body, and its policy is to encourage research and to seek public support for all measures which may help to suppress the disease In the National Health Service there is a definite place for the non-official agencies which are interested in the prevention of tuberculosis In this field the NAPT has been the leading organization The next ten years should see no restriction of its activities We have already remarked in a leading article<sup>1</sup> that the prevention of tuberculosis might well form the main task of medical officers of health now that they are freed from routine hospital administration, and their work will be made easier if the interest and sympathy of the public are maintained by the NAPT and similar voluntary agencies The NAPT can truly call itself a "voluntary body, for it receives no money at all from Government sources and is financed entirely by public subscriptions It is now extending its activities to the British colonies where the scope for pioneering work is as wide as as it was in this country 50 years ago The Jubilee issue of the NAPT *Bulletin* has been published this month, it contains a message of congratulation from the King and from many distinguished persons in this country and abroad, including the chairman of the Council of the British Medical Association

<sup>1</sup> *The Training of a Doctor* Report of the Medical Curriculum Committee of the British Medical Association 1948 London

<sup>2</sup> *Textbook of Rheumatic Diseases* 1948 Edinburgh Edited by W S C Copeman

<sup>3</sup> Angerer H *Remedial Exercises for Certain Diseases of the Heart and Lungs* 1948 London

<sup>4</sup> Tidv N M *Massage and Remedial Exercises* 1947, Bristol

## HEALTH REGULATIONS FOR AIR TRAVEL (II)

BY

J KYLE

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In the first article on the above subject (*Journal* 1947, 2, 741) Dr Barrett focused the attention of practitioners on quarantine procedure in air travel as it affects general practice to day. It is felt that, having read that article, medical practitioners may well ask where they are to find current quarantine requirements and how they are to keep themselves informed of any future variations. An endeavour is made in the following paragraphs to answer these questions as briefly and clearly as possible in a limited space.

The provision of inoculation and vaccination certificates against one or more of the following diseases—smallpox, yellow fever, cholera, plague, and typhus—is, as a rule, an essential part of the formalities of air travel, and passengers are informed of their particular immunization requirements at the time of booking. Under normal epidemiological conditions these remain fairly constant, and, so far as the routes operated by British Overseas Airways Corporation are concerned, are here tabulated.

It is of assistance to the passenger for the practitioner to check any existing certificates to ensure that they conform to the requirements of the route along which he proposes to travel and, if necessary, to inoculate him afresh and issue new certificates. The wise traveller should take no avoidable risk in playing for absolute safety in this respect, and certainly will not do so if he has any experience of the delays that are apt to occur. In all cases it is essential that the international form of certificate recommended by the International Sanitary Convention

for Aerial Navigation, 1933, as amended in 1944 (which may be obtained from the Ministry of Health, Section 5C, Whitehall, SW 1) should be used.

The outbreak of cholera in Egypt in the autumn of 1947 emphasized the need for compliance with new quarantine regulations immediately they are issued. In the present state of the world, both politically and from the epidemiological angle, new restrictions and/or variations of existing ones must be anticipated. Amendments to quarantine requirements are notified to the British Overseas Airways Corporation by "Line" authorities immediately and by World Health Organization and the Ministry of Health weekly, and the Editor of the *British Medical Journal* has kindly agreed to publish them in the *Journal* as necessary, in order that practitioners may keep themselves up to date on the subject.

These notes and the accompanying Table are not the complete picture of immunization for air travel, but only a practical guide to actual route requirements based on a continuous scrutiny of the current quarantine regulations in all those countries or areas which B O A C or British aircraft transit. It will be appreciated that it is the right of each individual country to enforce quarantine restrictions on its airports at its discretion, and it will be apparent therefore that one country alone doing so, out of perhaps six or eight transited, means that a certificate of immunization is required for all travellers along that particular route. Moreover, the validity of a certificate, as regards either its commencement or cessation and even the dosage of the vaccine or serum to be used, varies among the countries which have signed the Convention.

A chart indicating all these details and variations in requirement for embarkation, disembarkation, and transit, and the actual countries declared infected by the quarantining country is maintained up to date, and provides the source of supply of information for inquirers, but it will be understood that such a chart is too elaborate and extensive for reproduction in this article.

*Passenger Protective Requirements for Specific Routes from England and Return Including Stopping Places on Each Route (Revised November 19 1948)*

	Route	Yellow Fever	Smallpox	Cholera	Typhus	Plague	T A B	
No 1 Line	London-Cairo	—	Yes	R	R	R	R	
No 2 Line	Cairo-London	—	R	R	R	R	R	
No 4 Line	Southampton-Alexandria	—	R	R	R	R	R	
	Alexandria-Southampton	—	R	R	R	R	R	
No 1 Line	London-Accra	Yes	Yes	R	R	—	R	
	Accra-London	Yes	Yes	R	R	—	R	
No 1 Line	London-Teheran	—	R	R	R	R	R	
	Teheran-London	—	Yes	R	R	R	R	
No 2 Line	London-Johannesburg	Yes	Yes	R	R	R	R	
	Johannesburg-London	Yes	Yes	R	R	R	R	
No 2 Line	London-Sydney	R	Yes	Yes	R	R	R	
	Sydney-London	R	Yes	Yes	R	Yes	R	
No 2 Line	London-Calcutta	—	Yes	R	R	R	R	
	Calcutta-London	—	Yes	Yes	R	Yes	R	
No 3 Line	London-(a) New York	(a) —	Yes	—	—	—	R	USA requires passengers from India Pakistan and Syria to have cholera certifiat
	(b) Montreal and return	(b) —	No	—	—	—	R	
No 4 Line	Southampton-Singapore	R	Yes	Yes	R	Yes	R	
	Singapore-Southampton	R	Yes	Yes	R	Yes	R	
No 4 Line	Southampton-Iwakuni	R	Yes	Yes	R	R	Yes	Japan requires children 1-15 years to be inoculated against diphtheria
	Iwakuni-Southampton	R	Yes	Yes	R	R	R	
No 4 Line	Southampton-Hong Kong	R	Yes	Yes	R	Yes	R	
	Hong Kong-Southampton	R	Yes	Yes	R	Yes	R	
No 4 Line	Southampton-Sydney	R	Yes	Yes	R	Yes	Yes	
	Sydney-Southampton	R	Yes	Yes	R	Yes	Yes	
No 4 Line	Southampton-Bahrain	—	Yes	R	R	R	R	
	Bahrain-Southampton	—	Yes	R	R	R	R	

— Yes indicates that the inoculation or vaccination is an essential requirement without which the passenger will be held in quarantine on arrival or may not be permitted to embark.

— indicates there is no requirement.

R indicates that owing to the presence of the disease or other circumstances the inoculation or vaccination is desirable for the passenger but it is not an essential requirement.

Protective inoculations against major epidemic diseases are required as follows: *Smallpox* for practically all routes. *Yellow fever* for journeys to and from West and South Africa. *Cholera* for all journeys to and from India and Far East. It is also advisable to be protected if en route to West Africa and Egypt. *Typhus and typhoid group (T.A.B.C)* for these diseases protective inoculation is recommended though not essential on all routes. *Plague* for journeys from some airports in the Orient.

## Nova et Vetera

### THE LIBRARY OF CALEB HILLIER PARRY

Mr Reginald W M Wright, city librarian of Bath, has lately published in the *Record-Bulletin* of the municipal library (1948, 1 225) an account of the Bath Hospital Medical Library. The library has been under his care for many years, and has now been formally presented by the hospital to the city. Bath has been famous as a health resort since Roman times. It is therefore right that the city should own a medical library. But this library has the special value that it was formed by Caleb Hillier Parry, the great Bath physician who made valuable observations on the cause of angina pectoris and described the syndrome of exophthalmic goitre. At his death in 1822 Parry bequeathed to the Bath Hospital his collection of 555 medical books covering a remarkably wide range of history. His successor as physician to the hospital, Dr John Soden, added a further 220 books when he died in 1863.

Parry's library contains many Renaissance books, both texts of the Greek and Arabic medical writers and original works of the sixteenth century. It is instructive to find that he owned works of English medical writers of the Tudor period, such as Elyot, Borde, Vicary, Peter Lowe and William Clowes, who are generally thought to have been despised in Parry's time. The library is also broadly representative of European medicine of the seventeenth and eighteenth centuries.

Edward Jenner was one of Parry's intimate friends. He dedicated his *Inquiry into the Cow-pox* to Parry, and a copy of the original edition of 1798 is in the library. Twenty-four years later Jenner published *A Letter to Charles Henry Parry* (Caleb Parry's son), his presentation copy is also in the library. The elder Parry's own writings are fully represented; he was an agriculturist and geologist as well as a physician.

W R L

## Reports of Societies

### FOOD-POISONING

A meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine was held on Dec 6, with Sir ALLEN DALEY, the president in the chair.

Dr E T CONYBEARE opened the discussion with a reference to the pioneers in this branch of preventive medicine, notably Ballard and Savage, the former considered that cleanliness in food handling would by itself eliminate these diseases while the latter stressed the importance of the reservoirs of infection, especially of salmonella diseases. The recent increase of food poisoning outbreaks in this country, which began about 1942 and has continued since, was doubtless attributable in large measure to increased consciousness on the part of doctors and patients of the importance of even mild or missed cases in causing spread and to better laboratory facilities for diagnosis but there was reason to believe that there had been an actual increase due to greater use of prepared foods and to storage of food in homes where there were no proper facilities. Although the current Ministry of Health memorandum was now obsolete and should be revised, it remained a moot point whether further progress might be expected to result from fresh legislation, which was most applicable to the control of large scale food manufacture and catering. In relation to personal hygiene and to the smaller units engaged in food distribution, legal powers such as those available in the Food and Drugs Act 1938 though useful were less effective. It might well be that education in personal and domestic hygiene as foreseen by Ballard sixty years ago, was the only real precaution against food poisoning.

Dr V D ALLISON outlined the different factors in the wartime increase of food poisoning: the use of synthetic cream, cooked meats including sausages, shortages of hot water, soap, towels and crockery which too often was cracked, and the

employment of insufficiently trained kitchen staffs. Contamination with staphylococci was a not uncommon cause of food poisoning. It was characterized by a short incubation period (one to seven hours, average three hours), acute onset with abdominal pain, nausea, vomiting and often diarrhoea lasting three to twenty-four hours, and this was followed by rapid recovery even in those cases in which there were symptoms of collapse. Recent surveys had shown that 50% of normal adults harboured such organisms in the nose, and in some 10-20% they were present on the skin of the hand. The current accepted criterion of actual or potential pathogenicity among staphylococci was the ability to produce plasma coagulase. The organisms could be identified by serological and bacteriophage techniques, but these methods were as yet inapplicable to routine laboratory and epidemiological investigation. Human volunteers and suitable workers were still necessary for proof of pathogenicity. When the organism had been destroyed by cooking or processing (leaving the toxin intact, as it resisted boiling even for thirty minutes) the difficulties were great, as the kitten test for enterotoxin was no longer accepted in many cases the evidence was no more than circumstantial.

Dr JOAN TAYLOR discussed the salmonella group and recent work on the identification of strains. These organisms were generally resistant to specific therapy and persisted in the gut longer than was formerly thought. An animated discussion followed in which current practice in food handling, including the routine inspection of meat, was severely criticized. The need for education in the school and by means of the Press, radio and film was stressed.

### DEEP PAIN SENSIBILITY

#### MANCHESTER MEDICAL SOCIETY

At a meeting of the Manchester Medical Society on Dec 1, Dr J H KELLGREN delivered an address on "Deep Pain Sensibility." He said that the phenomena of pain were usually described in terms of distribution, time intensity, and relation to other phenomena such as movement and rest. Not all the differences between one pain and another could be described in these terms only, for there were three main types of pain that could be distinguished by their qualities: deep pain arising in muscles, bones and joints, and cutaneous pain, which might be immediate or delayed. The delayed pain had an "itch" component which gave it a distinctive quality. These three types of pain sensibility could be dissociated in disease or by nerve blocks, so they were probably mediated by different types of nerve fibres.

The normal sensory gradation which accompanied a graded stimulus might be lost so that a threshold stimulus set up severe prolonged pain. This explosive exaggerated response affected all three types of pain, and such terms as 'protopathic', 'hyperpathia', and 'peculiarly unpleasant' probably described this phenomenon rather than an alteration in quality.

The deep tissues varied in sensitivity to pain. In the less sensitive tissues pain sensitive spots were infrequent, varying sensitivity of the tissues probably resulted from a varying density of innervation. Pain from deep tissues was also localized with varying accuracy. Thus subcutaneous periosteum, ligaments and fascia gave rise to local pain while structures lying deeply within the trunk and limb girdle caused diffuse pain of segmental distribution. Intermediate structures gave rise to segmental pain more or less modified by a crude attempt at localization. The areas of cutaneous hyperalgesia occasionally found in visceral disease were entirely different phenomena from deep pain of segmental distribution, it was a misstatement of fact to say that pain was referred to this or that dermatome because segmental deep pain was felt in the deep structures and not misinterpreted as arising from the skin. The possible mechanisms of pain localization and referral were then discussed.

Deep pain was accompanied by segmental muscle spasm. This spasm had been studied in decapitated cats and found to be produced by a spinal reflex. Electromyographic studies in diseases such as sciatica, rheumatoid arthritis and fibrositis often revealed this type of muscle spasm. Its presence had been held to support the view that these diseases were primarily

neurogenic, but the only conclusion that could be drawn from these findings was that the subject's pain was deep, since cutaneous pain was not accompanied by this type of muscle spasm. Of more interest was the possibility that this continuous motor activity might lead to muscle fatigue and so to secondary sources of pain.

#### Effect of Cooling

Deep pain sensibility was peculiarly susceptible to cooling. Cooling tissues rapidly caused severe pain while the temperature was falling from 30° to 15° C, but with further cooling the pain faded away because deep analgesia developed, becoming complete at about 10° C. With slow cooling analgesia was effected without preceding pain so that the usual climatic fluctuations of temperature gave rise to no pain in the normal individual. If deep hyperalgesia was present, even slow cooling of the affected part might cause prolonged and severe pain and the analgesia developed imperfectly. Pain produced by cooling and relieved by warmth was a feature of many conditions affecting the extremities: post-traumatic syndromes, painful nerve injuries, glomus tumours, and many forms of arthritis and rheumatism. In these cases the cold pain was mainly due to abnormal sensitivity of the deep pain nerves, though vascular disturbances might contribute to the symptoms by allowing abnormal cooling.

Dr Kellgren concluded that deep pain sensibility had certain attributes such as characteristic quality, frequent false localization, associated muscle spasm and susceptibility to cooling which distinguished it quite clearly from cutaneous pain. Deep and cutaneous pain sensibility might be dissociated, so they were probably mediated by different types of nerve fibres. Furthermore, the clinical syndromes produced by disturbances of deep and cutaneous pain sensibility might differ markedly, and what was true of cutaneous pain was not necessarily true of deep pain. It would therefore seem wise to distinguish between these two main types in all clinical and experimental work.

A brisk discussion followed in which Professor Schlapp, Professor Jefferson, Professor Morley, and Dr Marshall took part.

#### FACIAL PALSY

A meeting of the Liverpool Medical Institution was held on Nov 25, with the president, Professor T P McMURRAY, in the chair.

Mr R P OSBORNE said that, whatever the cause of facial paralysis if signs of recovery were not manifest within four months support to the paralysed side should be provided by means of fascia lata slings. The view that plastic surgery was only of value when the paralysis was deemed permanent was incorrect. Many of the results of other procedures—for example, nerve grafting—were spoilt by the stretching of the muscles which occurred during the long interval, possibly two years, before return of function. No matter what operation was contemplated on the nerve itself the provision of a fascia lata sling at an early stage could do nothing but good. In cases in which operation on the nerve was not contemplated the insertion of fascia lata slings would not prevent full recovery where this was possible and would tide over the period of stretching which would otherwise follow. The difficulty was in finding some exact method to decide whether recovery was probable and whether it would be progressive. The ordinary faradic test was too crude for this purpose. Electromyography while still in its infancy showed signs of being a much more delicate and reliable means of obtaining the necessary information.

At the same meeting Mr D ANNIS read a short paper on experimental pancreatico gastrostomy.

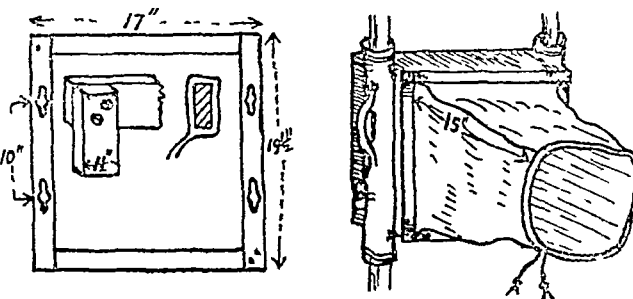
On Dec 10 and 11 the Fever Hospitals Medical Services Group of the Society of Medical Officers of Health held a week-end meeting at the North Eastern Hospital St Ann's Road, N 15. The president of the Group Dr E C BENN (Leeds), was in the chair. On Friday Dr J E FRANCIS read a paper on palatal paralysis in children. Dr F O MACCALLUM spoke on the laboratory diagnosis of some virus infections and Dr N H BRADLEY presented a film on poliomyelitis. In the afternoon Dr M B ALEXANDER discussed infantile diarrhoea and vomiting and Dr JOAN TAYLOR read a paper on recent research on the aetiology of infantile enteritis. On

Saturday the subject for discussion was the role of the nasal carrier in the spread of infection. Dr G W RONALDSON spoke on the carrier of diphtheria, Dr R CRICKSHANK on the carrier of haemolytic streptococci, and Miss WINIFRED HALL on the treatment of the nasal carrier.

## Preparations and Appliances

### DAYLIGHT SCREENING AID FOR MASS RADIOGRAPHY

Dr S W VIVIAN DAVIES, Assistant Medical Director, Mass Radiography Unit Warwickshire and Coventry Joint Committee for Tuberculosis, writes: With the accommodation placed at the disposal of mass radiography units it is not always possible to get a satisfactory black-out for screening



purposes. The factories concerned are already subsidizing the running of the set at their premises, and anything which reduces the cost and also the difficulties of preparing accommodation is of advantage. Moreover, on public surveys large halls have often to be used where an adequate black-out is impossible. Further, it is necessary to have the staff working in as natural a light as possible.

I have therefore devised a simple radioscopy hood, which I have now used on several surveys and have found very satisfactory. The materials employed are four 18 by 1½ by ¼-in (45 by 3.75 by 0.6 cm) pieces of ebonite 2 yards (1.8 m) of thick black-out non-coupon material and eight small nuts and bolts. The accompanying diagrams will give sufficient details for making one of these hoods. A frame is constructed to correspond with the camera tunnel the slot-holes, etc., being made to measure. The hood material (black-out), in double thickness, can then be sewn round the frame with buttonholing to match the slots. To exclude light a draw-string is used in the skirt of the hood.

When using this device I have found that the patient being screened is less apprehensive and more co-operative, thus materially compensating for its defects.



A collection of over 300 surgical instruments given for use in Scottish hospitals during the war by the late Mr J Hogarth Pringle has been handed over by the Department of Health for Scotland to the Glasgow Royal Infirmary where it will be housed to commemorate Mr Pringle's services there and his patriotism in making the gift. Mr Pringle presented his valuable collection to the Department in January, 1940, when Scottish hospitals were seriously short of surgical instruments in response to an appeal made by the Rt Hon Thomas Johnston, then the Regional Commissioner for Scotland. It was arranged that the collection be permanently associated with his name and used at a Scottish emergency hospital, and the hospital was closed they were returned to the Department, and they have now been accepted by the Glasgow Royal Infirmary, where Mr Pringle was in charge of the surgical wards for 27 years.

## Correspondence

### Whither Tuberculosis?

SIR,—At this season of the year we take the children and enjoy a visit to Olympia and the circus. How skilfully two horses are ridden round the ring, the standing rider has a foot on each and never falls. So rode the tuberculosis officer, especially in parts of the provinces, the good steeds Prevention and Treatment, both from the same stable, and did not fall. But now the tuberculosis physician of the National Health Act is given a fresh big horse from the region stables matched with a little one from a local authority mews. Running round with him are the performing ponies, Mass Ray, Orthopod, Pathlab, Pediatric, and Radiol. Will he get round the ring?

Up to date the tuberculosis service has been good and bad in varying degree throughout England, Wales, and Scotland according to the personalities and framework existing in different places. Medical officers of health were rarely interested, or left everything to the tuberculosis officer, which was better than obstruction. Where there was a Sir John Robertson progress matched proficiency, but Robertsons were very rare. We owe mass radiography and treatment allowances to the initiative and drive of Sir Wilson Jameson. Throughout the years a pleasant but unexciting section of the Ministry of Health wisely left direction and investigation of new fields to the service itself, helped by deliberations of voluntary bodies like the NAPT, BTA, and JTC. The last, the Joint Tuberculosis Council, composed of all the different specialties inside the specialty itself, with a core of the hard boiled whole-timer, brings some degree of integration to the ever changing emphasis on this and that aspect of prevention and treatment. Its work is likely to be more important in the future and, with the other two, may preserve our intellectual freedom. And then there is the small Standing Advisory Committee to the Minister, consisting chiefly of representatives (not hand-picked persons) of the three voluntary bodies mentioned above (this committee is now under sentence of death), dealing direct with the Minister of Health and the Ministry—a small active body which can and does quickly answer practical questions. This body is to be entirely altered and enlarged and its members chosen by the Minister. The new committee will not deal direct with him but will submit its findings to the big Central Health Services Council, on which there is at present, we understand, no tuberculosis specialist and only one medical officer of health, the lonely Sir Allen Daley.

It must be clear to everyone that a new framework is coming into use. Tuberculosis, environmental and clinical, now merges into a general medicine directive. For long the university departments of medicine have itched to take over the control of policy. There is now the opportunity, and with this in mind we submit some comments in this period of disruption and change.

Why has all this happened? Chiefly because there were here and there small inefficient units for prevention and treatment coupled with the unmanageable and quite peculiar London framework. Hence in theory there should be good results on a regional organization if the essential unity of prevention, treatment, and care work (rehabilitation) is unbroken. The chief danger at present is a serious lack of understanding of this unity and how in the past it was effected. So many new persons, so many new bodies, so many Ministries overlap and wrestle with too many details that the patient is seen more and more dimly in his family setting. If the new chest physician never visits a home or a factory if he has no health visitors under his direction, if he becomes tied down to a bad outpatient kind of routine if he exalts diagnosis and treatment and ignores prevention he may gain an entry into the dazzling outer portals of general medicine but will have lost his soul—I am, etc.,

Church Stretton Salop

G LISSANT COX

### The Achievements of B.C.G. Vaccination

SIR—May I through your correspondence columns draw attention to a recent publication which throws much valuable light on B.C.G. vaccination? The 224-page book in question (published in English with the above title by John Grundt Tanum in 1948, price 15 kroner) is a study by Dr Gerhard Hertzberg of the material of the tuberculosis department of the Oslo public health service in which over 100,000 persons were registered in the period 1936–46. Among them were over 18,000 vaccinated with B.C.G. With the aid of experts in statistics and various control groups Dr Hertzberg has sought to disentangle from this vast material essential facts over which all may ultimately agree. He comes to the conclusion that B.C.G. vaccination is not dangerous, that it affords considerable protection against tuberculosis and that intracutaneous vaccination with B.C.G. gives more lasting results than the Rosenthal method—I am, etc.,

Sunnfjord Norway

CLAUDE LILLINGSTON

### Treatment of Infertile Marriage

SIR,—In reply to the criticisms made by Miss M. Moore White and Dr E. Friedmann (Dec 11, p. 1035) of my paper (Nov 13, p. 851) on the treatment of the infertile marriage may I make the following observations.

The cases recorded were definitely selected cases in that as I described, they were all women in whom no gross cause for infertility was found by ordinary clinical examination. I did not claim that the successes recorded were "due to the administration of 0.6 mg. 'dienoestrol' and 10 mg. 'ethisterone' taken daily for not more than 14 days." The results were due, in my opinion, to the adoption of a plan which consisted of (a) the choosing of the fertile days for intercourse, (b) the maintenance of a period of abstinence before intercourse, and (c) the administration of the hormones named during the premenstrual phase, the important fact being that these hormones are given together.

I did not give the number of cases who became pregnant within four, five, and six months, but merely included in one group those patients who became pregnant in the last three months of a six-months period, and the 'comparatively high figure' is not due to the fact that any investigation or other treatment was undertaken.

Your correspondents misinterpret not only my paper but also that of Mr P. Malpas<sup>1</sup> and this fact tends to invalidate their criticism. Referring to my own paper, they state, "No mention was made as to how many years the patients have been trying for conception, only that all of them had been sterile for more than two years." My actual words were, "All of them had been sterile for more than two years and 87 of them for periods varying between three and ten years."

In his paper Mr Malpas made it clear that where women have had two previous miscarriages he would expect 62% (not 78.4% as your correspondents assume) to go to term during their third pregnancy without any treatment, where they have had three previous miscarriages he would expect 27% to go to term in their fourth pregnancy. In fact to quote his own words (p. 936), 'Even after a woman has had three successive abortions the chances of her continuing to term in the fourth pregnancy are 27%, whether anything is done for her or not.' Likewise 6% of those women who have had four previous miscarriages would go to term in their fifth pregnancy. Consequently the comparable figures in Mr Malpas's series and my own should be as follows (and not as your correspondents state).

	Spontaneous Cure Rate (Malpas)	Cure Rate (Christie Brown)
(1) 2 previous miscarriages (i.e. 3rd pregnancy)	62%	57.5%
(2) 3 " " ( " 4th " )	27%	50.0%
(3) 4 " " ( " 5th " )	6%	—
(4) 5 " " ( " 6th " )	—	25%

This treatment was never given for a period of six months on my advice, but many patients failed to report progress and continued with the treatment themselves. I cannot consider the psychological effect of medical treatment to be any more harmful than the repeated investigations to which many of

these unfortunate women are subjected, often with no greater success. May I conclude, therefore, by saying that not only are their criticisms inaccurate but Drs Moore White and Friedmann have missed the object of my article. I have described a simple plan which, without any other treatment or investigations, appears to be followed by a sufficiently high percentage of successes to justify it being tried, if not alone at least whilst awaiting the propitious moment for the carrying out of diagnostic tests—I am, etc.,

London W1

R CHRISTIE BROWN

## REFERENCE

1 *J Obstet Gynaec Brit Emp* 1938 45 932**A Sign of Pregnancy**

SIR,—I am grateful to Dr Albert W Bauer and Mr Keith Varian (Nov 27, p 956) for their letters with regard to Piskacek's sign. I had felt that it was a sign which, when recognized, was so unmistakable that it must have been described previously, although I had been unable to find a record of it. In addition to the references quoted in these letters Professor R A Lennie and Dr A S Duncan have drawn my attention to an account of the condition in Munro Kerr's textbook.<sup>1</sup> This, however, makes no reference to Piskacek.

Although the sign appears to be fairly widely known, it is by no means as generally recognized as perhaps it ought to be and my old friend and teacher, Dr W F T Haultain, assures me that the danger of taking such a swelling for a large cystic ovary or even an extrauterine gestation was such that it used to be said that no one was a real gynaecologist unless he had opened a pregnant abdomen owing to such a mistaken diagnosis. Dr Haultain disagrees with my assertion that examination under anaesthesia will reveal the true state of affairs, since even under anaesthesia the gynaecologist has very often been "had for a mug." Perhaps this correspondence, by reviving interest in the sign, as Dr Bauer suggests, may help to prevent some further instances of this error—I am, etc.,

Inverness

J A CHALMERS

## REFERENCE

1 *Combined Textbook of Obstetrics and Gynaecology* 1944 p 291 Edinburgh E. and S. Livingstone**Syringe-transmitted Jaundice**

SIR—Dr R S Morton is to be congratulated on his courage in writing an article (Nov 27, p 938) which is a salutary reminder that the medical officer in charge of the conduct of the session is responsible not only for the clinical aspects of the work but also for seeing that all the available precautions and safeguards to prevent untoward happenings have been religiously observed but alas, "The best laid schemes of mice and men."

In the past the standards of sterilization were dangerously inefficient in some clinics, and yet jaundice rates of the order observed by Dr Morton did not occur vice versa, in departments where the technique employed left nothing to be desired outbreaks occurred sporadically. The incidence in the series of cases reported on is so remarkable (20.7–33.6%) as to suggest a local epidemic. From the information given it is impossible to separate Dr Morton's series into cases of (a) possible infective hepatitis, and (b) possible homologous serum jaundice. Differentiation into these groups would have been of value. The first group is obviously related to the incidence of jaundice in the general population of the clinic catchment area. It would therefore be interesting to learn the incidence of hepatic infection in the households of the cases quoted, also whether any infections occurred in the members of the clinic staff or in patients not undergoing injection therapy. Dissemination of hepatitis by droplet infection a possibility often ignored these days can occur as is instanced by the following case.

A few months ago a patient on sero surveillance for syphilis, reported with jaundice. Some 3–4 weeks previously he had had a blood test and reporting for the result two days later he met and had a long conversation in the waiting room with two seamen. These patients were traced (original diagnosis presumably gonorrhoea), treated aboard ship with minimal doses of sulphathiazole and having had no serological tests and found to be jaundiced on examination. In view of their general condition no tests were taken, they were advised to return when the jaundice had been treated.

In recent years there has been little epidemic jaundice among the general population in Bristol, consequently jaundice has rarely appeared in the clinic.

One would also question the role of a hepato-toxic drug in the precipitation of jaundice in a patient subclinically infected. It is inferred that serological tests, penicillin, and heavy-metal injections are carried out in parts of the Newcastle General Hospital clinic other than in the medical officer's room. It would be interesting to learn of the incidence of jaundice occurring in patients "needled" there, for it appears from the paper by Dr Malmros and his colleagues (Nov 27, p 936) that intramuscular injections and venepuncture for serological testing are equally suspect. Finally, the inclusion of comparative rates for a series of cases showing the effect of the resolute application of the measures advocated would have completed the pointing out of the obvious moral—I am, etc.,

Bristol

DONALD D BROWN

**Corneal Graft Surgery**

SIR—Dr F W Simpson (Dec 4, p 999) tells us that as a result of the New York eye bank thousands of corneal grafts have undoubtedly restored vision to many blind people and that there ought to be a bank in Britain. The excellent work of the American eye bank has been watched with great interest, but the idea is not new to British ophthalmologists. Mr Tudor Thomas initiated a similar project before the war at the Central London Ophthalmic Hospital.

Corneal-graft surgery, however, is not yet practised here as widely as it should be, nor to the extent that it is in Switzerland and the United States. There are many reasons—namely (1) Apart from an interested few British ophthalmic surgeons on account of war service and conditions have not had the opportunity to acquire the special experience necessary for this operation, which is one not to be undertaken lightly. (2) Judicial caution, therefore, has had to limit the indications which British surgeons consider justify the operation. Swiss and United States oculists, on the other hand, by virtue of greater experience and practice have been able to expand the scope of their graft operations, and have used them with success in cases which would be treated here by more conservative, though less effective, measures such as optical iridectomy. (3) The success of a corneal-graft operation is much influenced by perfection of instruments. In Great Britain there is an overall shortage of all eye instruments and needles. British instrument manufacturers are hard pressed to turn out special corneal-graft instruments in any quantity, as they are already weighed down by orders for routine eye instruments and likely to become more so. (4) There is no systematic practical course of instruction in corneal-graft surgery in this country, although there are occasional postgraduate demonstrations. These demonstrations do much to whet appetites for the operation, but they do little towards individual basic instruction in technique. At the last postgraduate demonstration at the plastic unit, East Grinstead over 30 students were striving to peer from gallery and floor at the manoeuvres being carried out on an area about 5 mm square.

Therefore, in my opinion the expansion of corneal-graft surgery in this country requires more than the establishment of an eye bank. Our distances are not great and, as yet, our cases do not run to "thousands," nor is there much difficulty at present in obtaining a living or preserved graft. However, if we are to draw abreast of our colleagues abroad, corneal-graft surgery must be treated as a subject of routine instruction in the surgery of ophthalmology. Courses of instruction will draw support from an eye bank and future research will come to be based on it—I am, etc.,

London W1

B W RYCROFT

**Procaine Penicillin**

SIR—I read with great interest the article by Drs P F Jones and R A Shooter (Nov 27, p 933) on the use of procaine penicillin. I think your readers may be interested to read of its use in general practice. I have used it in three cases and it has been most successful in its action.

The first case was a man with an abscess of the left inner canthus. The eye was closed, and he was in great pain. He received



of procaine penicillin G containing 300,000 units daily for four days. On the second day he volunteered the information that there was no pain felt at the injection site and the abscess was no longer painful. After the four injections the eye was healing well and a week later was normal.

The second case was a woman with a carbuncle of the forearm which was 2 in. in diameter. She received four daily injections of 300,000 units of procaine penicillin G, and she remarked on the complete absence of discomfort at the site of injection in contrast to injections of penicillin received on previous occasions. Within five days the carbuncle site was almost unnoticeable.

The third case was a man with an infected pulp space who had had his finger incised at a county hospital with local anaesthesia, followed later with a general anaesthetic and a thorough incision of the pulp. The finger was very painful and swollen, and there was an abundant discharge of pus. The man had toxic symptoms. He received three daily injections of procaine penicillin G (300,000 units), and after three days the finger was healed on one side and almost healed on the other. There was no pain and he felt very well.

As advocated by Jones and Shooter, a No. 1 serum needle was used to take up the penicillin and a No. 1 hypodermic needle was used to administer it. A 20 ml. syringe was used as the suction provided by a smaller syringe was found inadequate to provide the speed essential in a surgery. The site of injection was the lateral aspect of the thigh. It took 45 seconds to administer the 1 ml., with heavy pressure on the barrel of the syringe. A notable feature was the complete lack of pain or reaction at the injection site, and it was a great help to both patient and doctor to find that the patient was required to attend the surgery only once daily. The penicillin is not kept in a refrigerator and that, too, is an advantage in these days of shortages—I am, etc.

Eastcote Middlesex

T DAVID LAMBERT

### Antihistaminic Drugs and Radiation Sickness

SIR,—I would like to humbly comment on the paper with the above title by Drs W. M. Court Brown and R. B. Hunter (Dec. 4 p. 984) in the following manner:

(1) The comprehensive title is not justified by the investigation of only one drug of this series.

(2) The toxic symptoms of 'anthisan' are similar to those of radiation sickness—that is, drowsiness, fatigue, headache, nausea, and vomiting. The drug was used in the test in very heavy dosage. As will be noted, seven patients were unable to endure the full 1 g. daily dose. Surely aggravation of these symptoms might simply have been caused by combining two measures so liable to produce the same toxic manifestations. In other words the results would be more convincing if smaller and thus less toxic doses of anthisan were employed.

(3) To suggest that histamine not only plays a part but actually effects a beneficial physiological reaction merely superimposes conjecture on the insecure foundation of hypothesis—I am, etc.

Leicester

JAMES OVERTON

### Hypertension Complicated by Tetanus

SIR,—The interest of the following case lies in the occurrence of a near malignant phase of hypertension during an attack of tetanus.

On April 29, 1948, a tractor driver aged 44 complained of difficulty in swallowing and severe head pains. On May 3 he had stiffness all over especially in the back, neck, and jaws with pains shooting down the back and constricting pains in the chest. He could not open his eyes fully, and he had difficulty in commencing urination. Cold sweats were another symptom.

His past history was as follows: morning headaches and faintness for past few months; "gastric ulcer" some years ago; lacerated wound of nose from fall in a wood yard 7 months previously—wound healed within a few days without attention. No convulsant drugs had been taken.

He was admitted to hospital on May 5. There was severe rigidity of neck, back, abdominal and thoracic muscles, jaws and eyelids. A scirr, 1 in. long was present on his nose, testes absent from undeveloped scrotum, pulse rate 104, B.P. 220/150, no evidence of contraction of aorta, retinae showed arteriosclerosis and recent exudates, urine showed heavy albuminuria but no casts nor R.B.C., blood urea, blood counts, W.R. and C.S.F. were normal. X-ray showed left ventricular hypertrophy and aortic hypertensive changes.

Venesection on May 5 and 6 had no apparent effect. Blood pressures at various dates were: May 5, 220/150; May 7, 190/135.

May 8, 175/115; May 13, 165/110; May 24, 160/105; May 29, 170/120; May 30, 180/120.

An irregular pyrexia up to 101° F (38.3° C) commenced on May 7 and ended on May 12. Clonic spasms commenced on May 8, affecting the spinal muscles and jaws, resulting in a bitten tongue. By May 19 the clonic spasms were less frequent. On May 24 clonic spasm was not present and tonic spasm was receding. Retinal exudates were resolving. Urine now showed only a trace of albumin.

Rigidity had practically gone on May 29. Retinal exudates had completely resolved, the arteries remained tortuous, with linking of veins. Gravitational oedema was present, lungs clear, pulse rate 102, B.P. 180/120, Hb 95%, serum proteins, total 5.5 g (albumin 2 g, globulin 3.5 g), urea clearance normal, urea concentration test unsatisfactory owing to diuresis. Intravenous pyelogram showed only poor concentration of dye, a single large gallstone was seen in the gall bladder.

On June 16 the oedema was much less, serum proteins 6 g (albumin 4 g, globulin 2 g), urine still showed a trace of albumin. The patient felt perfectly well.

Thus it appears in this case that tetanus precipitated a rise of blood pressure, an increase in albuminuria, and retinal exudates in a patient with essential hypertension, these changes being partly or wholly reversible—I am, etc.,

Bishop's Stortford, Herts.

EMIL LEIGH

### Marxist Genetics

SIR,—Surely the important issue in this matter is not whether the opinions of Lysenko are or are not credible and satisfactory. The lamentable feature of the Soviet decision is that no criticism of these views is to be tolerated. Any scientist who may in future within the Soviet Union express any opinion contrary to the accepted Lysenko doctrine will be "dealt with" as an enemy of the State. The disaster is the prohibition of freely expressed opinions on a subject requiring research and investigation—I am, etc.

Bradford

JAMES PHILLIPS

### Fall of Blood Pressure after Pyelolithotomy

SIR,—The following case appears to me to be of interest for two reasons, first because of the drop in blood pressure, and secondly on account of the absence of haemorrhage during the operation for the removal of a stone from the pelvis of the kidney.

A female patient aged 64 complained of headache and back ache and was discovered to have a blood pressure of 240 systolic and 160 diastolic. On further investigation she was found to be suffering from a stone in the pelvis of the left kidney. Under a general anaesthetic the kidney was exposed and the stone removed. The operation was performed from beginning to end with an entire absence of haemorrhage, and not a single pair of Spencer Wells forceps was used. The patient made an uneventful recovery, and the blood pressure returned to normal and remained so for five years, when she left the district and I lost touch with her.

In my opinion the hypertension and the lack of haemorrhage at the operation were due to peripheral spasm of the blood vessels. The peripheral spasm was probably caused by the secretion of a pressor substance from the damaged kidney—I am, etc.

Newport Mon.

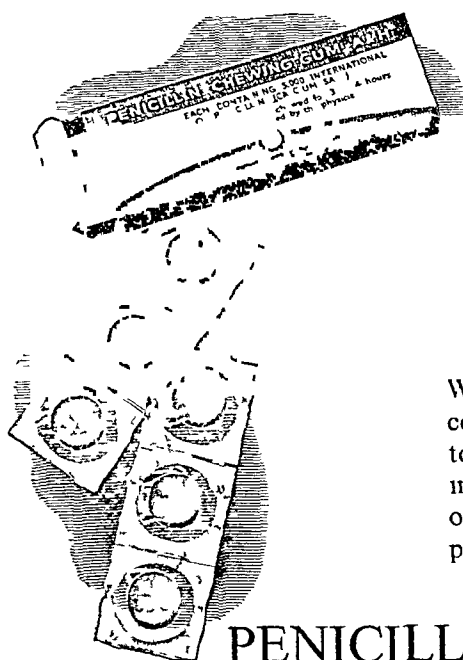
J. T. R. EDWARDS

### Breast-feeding

SIR,—Last night I was once more called out to see a baby screaming with pain and obviously suffering from colic. These cases are becoming more and more frequent, and this case was quite typical.

It was the usual story. The mother had her baby in a well equipped municipal home. She was splendidly looked after, pethidine, gas and air, wireless, marvellous food, and in her own words she could not have been treated better if she had been the Queen. Naturally breast-feeding was established, and she left the home after fourteen days. She was given full instructions and told there was no reason why she should not continue to feed her baby.

She returned to run her home, husband and invalid mother in law with no help. The milk does not come quite so freely and the baby cries a little at night (She had no idea that the baby would cry at night, as she had never seen it during the silent hours). Obviously she thinks her milk does not agree with it and she does one of two things. She either gives it a supplementary feed or takes



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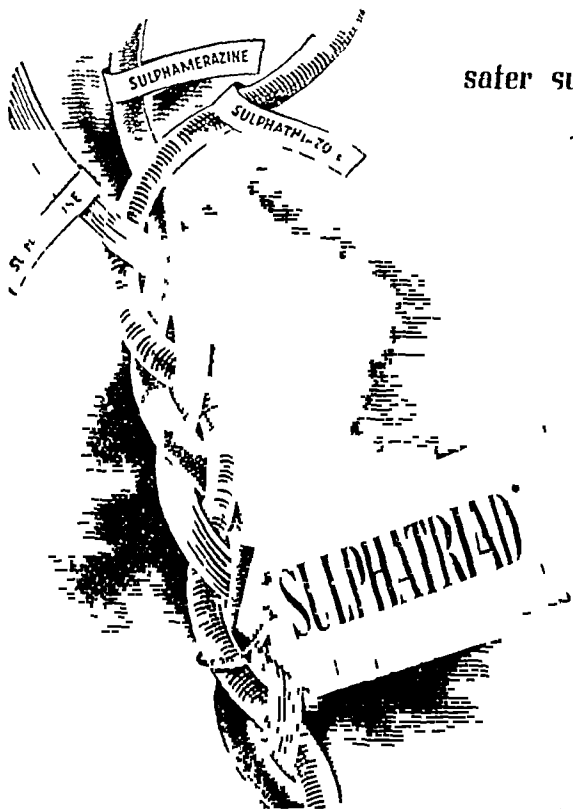
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it off the breast entirely. In either case the end result is the same: the baby goes on to the bottle. In my experience the mother *never* consults a doctor, nurse, or infant welfare clinic at this stage, as she has no intention of accepting their advice. She has no experience of bottle feeding, and almost invariably the baby develops colic. The mother, father, and "in laws" become distracted, and at last the wretched G.P. is dragged from his bed. To coax the child back on the breast is almost impossible, and the family doctor embarks on a long and somewhat tedious demonstration of the "art" of bottle feeding. He knows that he will be blamed by the powers that be for another failure in breast-feeding.

The mother who has her baby at home with the midwife in attendance and perhaps the doctor does not have such a pleasant time, but she knows a good deal about the baby by the fourteenth day. She sees the baby bathed, she knows about its navel and its nappies, and she knows that it can (and does) cry at night. The doctor and midwife know the home conditions and know what chances of success there are in breast-feeding, and before they take their leave the mother knows she can and will breast feed or the baby is well established on the bottle (I know it's disgraceful, but it is so).

If we are to have self-reliant mothers and strong babies I maintain that maternity hospitals, etc., should be for complicated cases and mothers who simply cannot have their babies at home for lack of space or help. In these days of shortage of hospital beds and nurses, of long waiting-lists of old people existing under dreadful conditions and needing hospital treatment, there is no excuse for 10% of available beds to be filled with healthy mothers who would be much better morally and physically, in their own homes—and perhaps I shall not be dragged from my bed at 2 a.m. to see a baby with colic—I am, etc.,

Weymouth Dorset

ELLIS PARKINSON

SIR,—Dr J. S. Hall (Nov 20 p 919) considers that artificial feeding has no deterrent effect whatsoever on children's health. He reports as examples his own four bottle-fed children. It would be unwise to generalize on such a small series, however, and the following figures may be more to the point. Grulee, Sanford, and Herron<sup>1</sup> studied 20,000 children under 1 year old in Chicago. Of 9,749 who were wholly breast-fed 15 died, of 8,600 partly breast-fed 59 died, and of 1,707 wholly artificially fed, 144 died. The morbidity rates (including minor infections) were breast-fed 37%, and artificially fed 63%. Assessing results from another view-point, Levi<sup>2</sup> reported 100 consecutive cases of breast-fed babies operated on for congenital pyloric stenosis at the Infants Hospital, Westminster, with no deaths. In the same period 46 artificially fed babies were operated on and five died (from gastro-enteritis). Is this enough "modern evidence"?—I am, etc.,

Bristol

HUGH R. E. WALLIS

#### REFERENCES

- <sup>1</sup> *J. Amer. med. Ass.* 1934 103 735
- <sup>2</sup> *British Medical Journal* 1941 1, 963

SIR,—The low incidence of breast feeding in this country is distressing but not surprising when one reads a letter from a maternity and child-welfare medical officer referring to it (Dec 4, p 994) as an "irksome tie". To establish satisfactory breast-feeding it is essential for the mother to accept it both antenatally and post-natally as the best and simplest way of feeding her baby. One must agree with Dr Grace Walker that babies are a tie, but fortunately in most cases not an irksome one. Husbands, wives and patients are also a tie, but the majority of decent people are still willing to give them the best that they can.

Psychologically, the chief asset of breast-feeding is that it ensures the mother feeding the baby herself and not handing him over to someone else or, worse still, propping the bottle up on a pillow. From my own observations I am convinced that the majority of breast-fed babies pass their "milestones" before the bottle-fed ones (I hope to be able to produce figures to substantiate this claim later). Medically the chief ailments of infancy are feeding difficulties and acute infections, particularly gastro-enteritis and respiratory infections. Feeding difficulties in a baby with whom breast feeding is established are almost non-existent. As you mention in your leading article (Dec 4 p 990) the greatest incidence of gastro-enteritis is among artificially fed infants. I have no

figures to quote for respiratory infections, but for general illnesses the fact that a 70-bedded general children's hospital provides only two beds for nursing mothers, and that those are more than adequate, speaks for itself. Dr Walker suggests that breast-fed babies suffer from lack of vitamins. I should like to point out that it is just as simple to give a teaspoonful of cod liver oil, etc., to a breast-fed baby as to a bottle-fed baby.

Leaving psychology and medicine, and writing as a housewife I am unable to understand Dr Walker's remark that breast-feeding is 'a primitive function which the majority of women find they cannot fulfil in the rush and bustle of urban life'. I can only wish that feeding the rest of my family was so simple—no cost, no coupons, no cooking and no washing up—I am etc.,

Portsmouth Somerset

MARGARET PARDOE

#### Spinal Anaesthesia and Caesarean Section

SIR,—It is surprising to read in Dr N. Beattie's letter (Nov 13 p 877) that spinal anaesthesia is still being used for caesarean section. About eleven years ago there was a discussion in these columns (October to December, 1937) on this subject, and several fatalities were reported. In each case the patient collapsed shortly after the spinal injection. Professor Sebrecht in 1930 expressed the opinion (quoted by Dr Bagot Walters Nov 13 1937, p 995) that pregnant women must be given a reduced dose of spinal anaesthetic if serious accidents were to be avoided; he suggested that these patients were "rich sensible," but that is not the whole truth.

The explanation of this sudden and false collapse lies in the arrangement of the vasoconstrictor nerves supplying the abdominal and pelvic viscera; it is these nerves which if paralysed by spinal anaesthetic, cause the marked drop in blood pressure due to the deviation of circulating blood into the dilated "splanchnic pool". Vasoconstrictor nerves for the abdominal organs arise from the lower half of the dorsal region of the cord, and they are not greatly affected except by a high spinal anaesthetic. The pelvic viscera on the other hand are supplied by nerves from the first two lumbar segments and are paralysed in both high and low spinal anaesthesia, but the flooding of a non-gravid pelvis does not appreciably lower the general blood pressure. If, however, the uterus is at full term, even a low spinal anaesthetic may cause a massive vasodilatation of the largest and bloodiest organ in the body and the patient rapidly bleeds to death into the musculature of her own womb. The use of ephedrine will reduce the risk but the danger which is courted is so grave that spinal anaesthesia for caesarean section ought nowadays to be branded as malpractice. An unexpected death on the table is always a tragedy, but at this operation it is overwhelming, almost without equal in surgical practice—I am, etc.,

Hayle Cornwall

D. STANLEY-JONES

#### Classical Caesarean Section

SIR,—I was very much impressed by the remarks of Dr N. Beattie (Nov 13, p 877), who makes the vital point that care and technique can make even this much-abused operation safe. May I add a small consecutive list of 84 cases done at the Victoria Hospital, Deal, during the past twenty years to confirm his experience? Although two thirds of them were in the pre-sulphonamide penicillin era and include many cases of failed forceps and obstetric emergencies, there have been no maternal deaths and no ruptured uteri in later pregnancies. The series includes 5 caesareans on one patient and 4 on another and several cases of multiple normal labours in later pregnancies.

In all cases the uterus was sewn up with four layers of No. 4 catgut, the last two burying the suture line to prevent adhesions. An assistant was always present to squeeze the uterine arteries and prevent undue bleeding so that the temptation to make the operation dramatic should at all costs be resisted. Recent review of the case notes shows only two major complications. One case developed a gangrenous appendicitis on the 10th day (most of the others had a routine appendicectomy at the time) and the first case in the series where the dramatic temptation had not been resisted, came back with uterine adhesions and endometritis six months later and had a subtotal hysterectomy.

Probably the later cases have a good deal to thank her for, as one learns best from one's own mistakes

Without holding any brief for a now outmoded operation I do feel that for many of the recorded bad results the surgeon may have only himself to blame. The same applies with greater force to some of the shocking figures published of recurrence after simple herniotomy. A possible explanation of these is the omission of adequate knot instruction in the training of potential surgeons. Many ruptured abdomens might be avoided if all candidates for a surgical Fellowship were required blindfolded to tie a reef knot behind their backs—I am, etc.,

Walmer Kent

JAMES S HALL

### Intra-abdominal Hydrocele

SIR—In this part of the world hydrocele is about the commonest surgical condition met with. In my nineteen years as a bush surgeon I have dealt with several hundreds of cases, so it was rather extraordinary that a few days after reading Dr A D Charters's letter (Sept 25 p 618) I should meet my first case of intra-abdominal hydrocele. The patient was a Hausa from the Wase area of Northern Nigeria. His hydrocele was moderately large by local standards, but after drawing off three pints of fluid by cannula and finding still more to come I realized the condition. A finger was easily passed up the inguinal canal into a large abdominal sac still containing fluid. Pressure on the lower abdomen rapidly emptied the sac of a further three pints of fluid. In this case the complication was easily dealt with for by moderate traction the abdominal sac was delivered into the scrotum. This supports the theory that the abdominal sac is formed by distension of a funiculo vaginal process—I am, etc.,

Pankshin N Nigeria

W McLELLAND

### Fowler's Position

SIR—The following objections have been made to the sitting-up of patients with peritonitis, particularly after perforation, and of patients after abdominal operations

(1) The position causes wrinkling of the abdominal wall, and in fat patients 'cutting in' of deep sutures and tendency to 'gaping' of the wound

(2) Crowding down of the intestines into the lower abdomen with impaction at the pelvic brim and consequent obstruction to the free onward passage of faeces

(3) The patient is exhausted by the need constantly to restore him to the upright position after his frequent lapses into the supine position

(4) The gas bubble in the peritoneal cavity rises to the top of the abdomen and reaches the subphrenic spaces. This causes the aspiration of liquid past the liver into the subphrenic spaces because the gas bubble contracts and expands in response to the variations in pressure transmitted to it by the diaphragm. In this way subphrenic abscess is rendered more likely

(5) There is said to be a thin film of liquid between the diaphragm and the liver which maintains cohesion between the two. The gas bubble destroys this, and the liver is said thereafter to hang by its ligaments. This causes reflex diminution in movement of the diaphragm and diminished air entry into the lungs

(6) The normal reciprocal antagonistic action between the downward thrust of the diaphragm and the returning pressure of the abdominal muscles goes to waste in compressing the bubble instead of being fully utilized for its proper purposes

The foregoing may be valid criticisms of the upright position, but they are not valid criticisms of Fowler's position. On March 1 1900 G R Fowler read a paper to the Brooklyn Surgical Society in which he gave his views and described nine cases. No case was of perforated peptic ulcer. All except one were cases of perforated appendix with general peritonitis. Later (June, 1900) he described three more cases of general peritonitis due to perforated appendix. They were consecutive cases and all recovered. Fowler advised that the head of the bed should be raised 12–15 in (30–38 cm). In one case only was it raised 18 in (45 cm). He did not advocate the full upright position of the trunk. Fowler knew of the danger of phlebitis from the presence of the pillow behind the knees and recommended daily massage of the lower limbs to counteract that. Fowler's position was in contrast to 'Clarke's position,' in vogue thereto in which the foot of the bed was raised

If Fowler's advice is correctly followed the objections disappear—the abdomen does not wrinkle, the viscera are not compressed, the patient does not slip down the gas bubble remains in contact with the anterior abdominal wall and does not rise to the top above the liver. It seems likely that Fowler's method has fallen into disrepute because it has been overdone—probably on the principle that you cannot have too much of a good thing. Fowler's back rest seems to have been devised by an assistant of G R Fowler, named R S Fowler, at a later date—I am, etc.,

Louth Lines

N J NICHOLSON

### Traumatic Forequarter Amputation

SIR—Dr J D C Millar's description (Sept 18, p 559) of a traumatic forequarter amputation and his remark that a search of the literature had failed to reveal another case prompts me to record this case

On April 25, 1947, a male Chinese railway workman aged 55 was brought to hospital in a state of shock and was seen by me. The history obtained was that the patient had been run over by a train four hours previously, being knocked unconscious and seriously injuring his left shoulder. There had been considerable haemorrhage.

On examination he was found to be semi-conscious, very pale with a feeble rapid pulse, and obviously shocked. There were abrasions over the left eyelids and face. A subconjunctival haemorrhage was present in the right eye and vision appeared impaired in both eyes. Eye movements and corneal and pupillary reflexes were normal. There was no bleeding from the ears, nose or throat.

Obliquely across the left side of the base of the neck and extending down and across the axilla the skin and subcutaneous tissues were split exposing torn fibres of the pectoral muscles, a fracture through the middle of the clavicle, the torn ends of the axillary vessels and brachial plexus, and the avulsed scapula with all its muscles. The scapula and head of the humerus were both badly fractured. A small piece of skin posteriorly was all that united the avulsed forequarter with the trunk.

There were diminished breath sounds and moist rales at the left base but no evidence of fracture of the ribs. He had also sustained a severe laceration of the index, middle, and ring fingers of his right hand, with exposure of the bones. No other injuries were evident.

Anti-shock measures were instituted, and when his condition had improved he was taken to the operating theatre and the forequarter removed by dividing the bridge of skin. The arm already showed rigor mortis. The torn muscles were trimmed, vessels and nerves ligated, and the wound closed with drainage, there being ample skin available. The drain was removed 24 hours later. The lacerations of the right hand were trimmed, sutured and dressed. A blood transfusion was given, and penicillin and sulphadiazine therapy instituted.

His subsequent course was smooth, a lumbar puncture revealing no blood in the CSF and an x-ray of the chest showing no fractured ribs. He complained of blurred vision and was found by Dr S C Liang to have some haemorrhage into the posterior chambers of both eyes. Primary union of his wounds was obtained, but the track of his drainage tube required curettage on May 21 before it finally healed. He was discharged on June 4.

I wish to thank Mr W R Welpy consultant orthopaedic surgeon for help in the preparation of and permission to publish this case

—I am, etc.,

Tongshan Hopei N China

CHEN MIN

### Animal Experiments

SIR—In the Harveian Oration (Oct 23, p 753) Dr F M R Walshe while emphasizing the first and simple order of experiment—clinical experiment—notes also the increasing use and value of animal experiment in the contemporary history of medicine. This trend is striking in much recent research and study. That animal experiment and the use of animals for scientific purposes such as the preparation of drugs, vaccines, sera, etc., are justifiable cannot be questioned and probably in this country the provisions of the Cruelty to Animals Act, under which vivisection is carried out, are properly observed. But it is a fact that on no occasion during the five years 1943–7 has an inspector under the Act given instructions that an animal which appeared to be suffering considerable pain should be killed at once (*Hansard* July 1, 1948 col 223).

That numbers of animals must have suffered considerable pain or misery does not seem in doubt from the nature of experiments described in the literature. To give one such example from the same issue of the *Journal* (p 752)—when referring to the assessment (in the U.S.A.) of tetraethylammonium compounds

by means of excision of the lower end of the tort in dogs, you state in your annotation, "In a control group nine out of ten animals died after one to seven days with cold, cyanosed, and paralysed limbs." I would suggest, Sir, that experiments involving animals in considerable pain, mutilation in which life is long preserved, or prolonged misery (such as food or water starvation) are unjustifiable and of doubtful value in the progress of clinical medicine—I am, etc.,

Birmingham 29

MICHAEL C PLATTEN

### H 11 in Malignant Disease

SIR,—I should be grateful if you will permit me to reply briefly to the letter of Mr Fauset Welsh (Dec 4, p 997), as it refers to my patient whose history I recounted in a previous letter (Nov 13, p 876). Mr Fauset Welsh is perfectly correct in stating that this was the patient he kindly treated for me early this year and subsequently, but I had no intention of making the assumption, which he attributes to me, that here was a case of secondaries in the liver disappearing under H 11 therapy. In fact, I stated clearly in my letter that the palpable nodules in the liver were *thought* to be due to secondaries.

The surgeon under whose care the patient was originally admitted to hospital has since died, but in a letter to my partner at the time he wrote, "The abdomen was opened on March 22 and the liver was found to contain secondaries and so nothing beyond a colostomy was performed." Subsequently we found that the laparotomy was performed by a surgeon who has since changed his opinion, as stated by Mr Fauset Welsh. Surely, however, one is entitled to consider that the observations of the operator made at the operation are possibly of more value than his reminiscences after a lapse of two years. However, this is a matter of opinion, and I quite agree that the disappearance of liver secondaries has not been proved in this case. My sole object in writing to you about the cases I have treated with H 11 was to show that a negative attitude to H 11 likely to be engendered by the report of the committee of the Medical Research Council published in your issue of Oct 16 (p 701) and your leading article in the same issue (p 716) might not be correct and might result in a therapeutic agent being abandoned without fair trial. I hope and believe that the correspondence you have published will prevent this from occurring—I am, etc.,

Birmingham 17

H JOSEPHS

### Dr Strickland Goodall

SIR—I have read with interest Professor John McMichael's Strickland Goodall Lecture (Nov 27, p 927). As one who was mainly responsible for instituting this memorial lectureship I should like to add a few words about Dr Strickland Goodall. He was one of the first to use small doses of digitalis in patients with failing heart long before the value of mercurial diuretics was recognized. I had the privilege of working with him for 15 years and had ample opportunity of appreciating his clinical acumen and the benefit patients derived from his treatment. Dr Strickland Goodall was one of the pioneers of modern cardiology and I shall be very sorry if his work is forgotten by later generations of cardiologists—I am, etc.,

London W 1

T JENNER HOSKIN

### Colour Index Nomogram

SIR—I have read with interest Dr R Elsdon-Dew's medical memorandum (May 24 1947 p 723) in which he describes a slide rule for the ready determination of the colour index. He criticizes the nomogram devised for this purpose<sup>1</sup> as being less accurate at low cell counts. While this is theoretically true, the nomogram remains more than sufficiently accurate for all practical needs and has been in regular use for over two years at the hospitals with which I have been associated.

Contrariwise, it may be argued that a slide rule needs time and skill for its construction and, if manufactured, would be comparatively expensive. Messrs Hawksley & Sons Ltd, have made a colour index nomogram to my design which is priced at 2s 6d.

It has been asserted that the colour index is a conception that has outlived its usefulness.<sup>2,3</sup> While this may be the case, its use is retained by popular convention. In any event it is

the mean corpuscular haemoglobin content that is measured, whether this is expressed as an index or in micromicrograms, and purists will find the nomogram equally useful if the centre scale is calibrated in the latter units—I am, etc.,

London S E 22

BERNARD FREEDMAN

### REFERENCES

- 1 Freedman B J *British Medical Journal*, 1946 1 838
- 2 Levy H *ibid* 1947 1 903
- 3 Wintrobe M M, *Clinical Hematology* 1946 p 73 Philadelphia

### Clouding of Surgeons' Spectacles

SIR—Like Mr G K Rose (Dec 4, p 998) I was greatly troubled with steaming when I first took to wearing spectacles at operations. As this is so universal I feel that any method of overcoming this nuisance is well worth while airing. I run a piece of thick silver wire about 4½ in (11 cm) long through a fold stitched along the top of the mask. When in place, the wire is moulded to the shape of the letter V. The mask then covers the nose but does not come in contact with it. The method is simple, allowing the mask to be removed between operations without any further adjustments—I am, etc.

Hereford

R WOOD POWER

### Safer Milk

SIR—Having read Dr W A Lethem's remarks (Dec 4, p 999) concerning remote places, such as in the Welsh mountains, I am prompted to write to you of my findings in the area of the practice in which I work, in the centre of which there is a dairyman who distributes pasteurized milk. In the Wareham area (of my practice) there are eight village schools. Of these five were being supplied with pasteurized milk, one with milk from TT cows and two with ordinary milk. In the Dorchester area there are three schools, one only of which received pasteurized milk as a rule, otherwise TT, the other two received ordinary milk. In none of the non-pasteurized schools was the precaution of 'scalding' the milk being taken—I am, etc.,

Wimfrith Dorset.

P R BOUCHER

### Medical Films

SIR—I should like to write in support of Mr Malcolm Donaldson's excellent letter (Nov 27, p 955) on this subject. The majority of medical films, and more especially those demonstrating surgical procedures, however technically excellent are valueless from the teaching aspect. Operations are the most difficult of all subjects but they seem to have a peculiar attraction for the film-maker, leading to a neglect of other subjects more amenable to cinematic treatment.

It would be well to consider the conditions necessary for the production of films of real teaching value. First, it must be determined exactly what procedure is to be demonstrated and whether in fact this can be done by the camera. In a film of operative technique each point to be brought forward must be individually considered and planned. It is not enough to say, "We will film this operation in its entirety." This will lead to a failure to make the essential teaching points and to the inclusion of irrelevant detail.

Secondly the film must be made for a limited audience—limited not in numbers but in their knowledge and capabilities. It is impossible to obtain the precision necessary for teaching if it is attempted to appeal to both the expert and the beginner.

Thirdly, the amount of time and trouble involved in making a good film is far greater than most medical people realize. It is fantastic to think as many do, that ten minutes of screen time can be successfully shot straight off in an operating theatre. This amount of screen time might easily in other circumstances involve several days shooting from a carefully prepared script. If the circumstances make this type of shooting unavoidable then planning and co-operation must be at the highest pitch of efficiency.

It is this co-operation between the medical producer and the film-maker that is the greatest factor in the production of a successful result. Unless the aims and methods are clearly understood and agreed upon the results will be vague and indefinite film lasting five minutes with the essentials driven home in twenty minutes of vague waffle. The time and trouble involved



in all this will be amply rewarded, for, although the audience is limited in scope their potential numbers on a nation-wide or international basis are very large indeed—I am, etc.,

The Photographic Department  
St. Mary's Hospital Medical School  
London W 2

PETER N CARDEW

SIR—I was particularly interested to read Mr Malcolm Donaldson's letter (Nov 27, p 955), with which I agree entirely, as it raises several important points regarding the use of films in medical teaching. The true worth of this medium as an aid to teaching is at last beginning to be recognized. But, as with all new toys, films at present are being made and used in a haphazard and often uneconomical manner. To make a film, and particularly a good film is an expensive business. It is essential, therefore, particularly as public money is often involved that films made for this purpose should be designed for the present at least to reach the largest audiences possible.

This brings us at once to the question as to the type of film to be made. The film of an unusual operation or obscure physiological process has little or no wide value for teaching purposes. On the other hand, many aspects of hygiene and preventive and social medicine are eminently suitable for teaching by means of films—not only to medical students but also to postgraduates and ancillary public health personnel, health visitors, sanitary inspectors, etc. Again, many subjects such as 'inflammation,' 'swellings,' "signs and symptoms, and certain of the common infectious diseases and disorders might well make excellent films for the teaching of students during their clinical training.

Finally let us see that the films which are produced are good. When the film is being made it is not enough to have a good technical staff and an eminent medical expert, the man who is to use the film, the teacher, must play a large part. Only he can say exactly what is most needed. If the best use is to be made of this most valuable aid to medical teaching let us not forget 'First things first'—I am, etc.,

London WC 1

E GOODWIN RAWLINSON

### Medicine and Economic Survival

SIR—We hear much of the economic crisis, of the backwardness of British industry, of the ending of the sellers' market. If the country goes down we all go down, in peace as in war. Doctors working in industry, and the general public also, hear of the working parties which are intended to cut out the dead wood, help the Chancellor balance his Budget, and prepare for the day when Marshall aid ceases. I believe we are over thirty millions on the wrong side every month. If then there is this situation of urgency, if every aid to efficiency is so vital, why is it that the number of doctors working on these problems is so small and why are they so badly paid? It is impossible to believe that there is any sincerity in Government measures designed to improve our economic position while this situation obtains.

Many unskilled workers in industry are as well or even better paid than a professional man who is endeavouring, after years of study to improve their conditions. But when the crash comes blame will be attached to those who ostensibly failed to improve the technique of production, and it will not be particularly obvious that they were never given a chance. I refer in particular to those working for the MRC. In my opinion the situation calls for immediate action by the Chancellor, acting in agreement with the Minister of Health—I am, etc.,

Birmet Herts

G C PETHER

### POINTS FROM LETTERS

#### Rasher Bone in Anal Canal

Dr M NAUGHTEN (Clonmel, Co Tipperary) writes. Lieut J S Happel (Nov 20 p 919) gave an account of a partridge bone which, swallowed by a woman was held up at the anal canal and I am prompted to mention a similar case. The victim was a male aged 47. He swallowed a rasher bone at breakfast. After suffering intense agony he was relieved of the bone at lunch time. Examination per rectum, difficult because of sphincter spasm, revealed a hard jagged object. It was about 2 in (5 cm) from the anus and was across the canal. It dropped into the axis of the bowel after some

fingering about, and was extracted later with the aid of dressing forceps. It was over 2 in long and  $\frac{1}{2}$  in (1.25 cm) wide at the broadest part. The patient had had teeth extracted some weeks previous to this experience. In his edentulous state he evidently was not acclimatized to the necessity for smaller bites. As in Lieut Happel's case, the differential diagnosis in the initial stage was difficult. The patient did not associate the swallowing of the bone with his intense anal pain and spasm. It was only towards the end that he recollected having momentary trouble in swallowing the bone. There was a history of vague ill health and of angina pectoris for a few years. The agonizing pain at first suggested some aberrant form of angina. When this was ruled out and a rectal examination done the presence of external piles suggested a strangulated internal pile. The bone itself even gave the impression of some sequestrum which had become detached and extended itself into the rectum. It is truly amazing what a length of bowel a large object can travel without causing much ado until the sphincter is reached.

#### The M'Naghten Rules

Dr THOMAS REES (Leigh on Sea, Essex) writes. I am shocked by Dr Clifford Allen's letter (Nov 27, p 955). May it not be that the prison doctor, besides being a general practitioner, is also a man? Being a man, he may also picture the mutilated little victim staring with uncomprehending terror into the face of a ravening beast as death mercifully clouds the dreadful scene. Let us by no means repeal the M'Naghten rules. Rather than these wild beasts should be sheltered behind a cloak of sentimentality, let the psychiatrists be excluded from such trials.

#### Breast-feeding

Dr I H J BOURNE (Hornchurch, Essex) writes. A point in breast-feeding which is generally overlooked and, in my opinion, is a clue to many problems is the period between the milk entering the baby's stomach and the nourishment entering the baby's blood stream. As in adults this interval can be one of continued hunger, that is if sufficient nourishment has been taken. The appetite normally disappears for one or both of two reasons. First, if the stomach is distended, and, secondly, if the blood sugar level has sufficiently risen. It follows that if a baby has had its calculated number of ounces of milk it may still cry with hunger for a period up to half an hour. After this time the blood is sufficiently enriched and the baby will sleep again. If the mother is uninstructed, and especially if she has no scales, she will be tempted to give more milk and overfeed the baby. This may overstretch the stomach and cause pain. Luckily the ritual of "bringing up the wind" for the baby gets most mothers over a period of crying, and the baby goes to sleep when the nourishment enters the blood stream. It is of course true that distension with swallowed air will terminate a baby's appetite and be the cause of pain after meals. I do not wish to suggest that bringing up the wind is not a helpful procedure in its own right.

#### Taking Children's Temperatures

Dr WINIFRED HALL (Northenden, Manchester) writes. I was very interested in the article by Professor Alan Moncrieff and Dr B J Hussey (Dec 4, p 972) on temperature recording in sick children. It seems to me that the resting pulse rate is a much more accurate guide to a child's state of health than a temperature taken at any point. I have so often found, particularly at the beginning and end of an illness, that the resting pulse is raised when the temperature is normal that I do not now regard a child as well unless the resting pulse rate is normal. If the pulse rather than the temperature were accepted for recording it would seem simple for a ward nurse to count the pulse when the child was asleep.

#### Early Rising after Operation

Mr K E H HALNAN (Cambridge) writes. I should like to express complete approval, from a patient's viewpoint, for your editorial 'Early Rising after Operation' (Dec 11, p 1026). Your references to improvement of morale and avoidance of bed pan and bottle are particularly apposite. I have recently undergone a partial gastrectomy, after which I got out of bed on the third day and felt much steadier on my legs than I had done fifteen years ago when I got up more than ten days after a quite ordinary appendicectomy. Condemnation of Fowler's position as a routine is also reinforced by the practical point that it increases many times one's difficulty in sleeping—also, being unable to move from an unaccustomed position, it becomes impossible to pull up the bed clothes to muffle the disturbing noise and lights that are still bound to occur in a general ward during the night. One minor additional suggestion (more applicable to medical wards) is that it should be recognized that an intragastric milk drip, etc., need not confine one to bed. Most patients are perfectly capable of disconnecting a Ryle's tube for a few minutes provided they are shown how and given a spigot to close the tube and a spring clip to shut off the milk drip. The screw clip controlling the speed of the drip need not be touched necessarily.

## Obituary

Dr ARCHIBALD DEANE died suddenly on Nov 8 at the age of 73. Although he retired from practice in 1946 he still continued to attend both the in-patient and out-patient clinical rounds of the Radcliffe Infirmary until the time of his death. From his early days as a practitioner his professional activities were wide and varied. A student at Aberdeen University and St Mary's Hospital, he graduated M.B., B.Ch. in 1902 and proceeded M.D. in 1910. After appointments as house surgeon at the Children's Hospital, Paddington, and the East Suffolk Hospital, and later as senior clinical assistant at the Brompton Hospital, he went into practice in Eastbourne. It was in 1912, not long after he settled there, that he first acted as assistant medical officer to the Princess Alice Memorial Hospital. In 1922 he was appointed a surgeon on the senior staff, and when the hospital became a teaching school for nurses and the post of physician was created he took over the duties of this office. Among his other activities he was police surgeon for many years. He was also chairman of the Eastbourne Branch of the British Medical Association in 1924-5 and a past-president of the Eastbourne Medical Society. To his colleagues in Eastbourne it was a matter of sincere regret when he decided in 1935 to leave the town and take up a less exacting practice in Abingdon. He left behind him a record of hard and skilful work for those under his care and the memory of one who hid behind a somewhat abrupt manner a kind and generous nature. From 1935 to his retirement in 1946 he was physician to Warren Hospital, Abingdon, and medical officer to Morris Motors. He died as he would have wished, able to the last to keep in active touch with his profession.—G D S

Dr EDWARD JOHN CROSS died on Nov 17 at his home in St Neots, Hunts, at the age of 83. Dr Cross was a student at St Thomas's Hospital and qualified in 1888. He took the Cambridge D.P.H. in 1893 and the M.D. of Durham University in 1906. He settled in St Neots soon after qualifying, in the first place as an assistant to Dr F. T. Good. When Dr Good died in 1894 Dr Cross took over the practice and continued there for just short of fifty years. He did not retire until December, 1943. He was medical officer of St Neots Urban and Rural Councils for many years and medical officer to the Post Office. Dr Cross served in the Middle East in the 1914-18 war and was in command of the Eastern Mounted Brigade Field Ambulance. He was twice invalided home, and in 1916 he took charge of the Citadel Hospital in Cairo. In the recent war Dr Cross undertook the usual air-raid and civil defence duties from 1939 until the end of the war in 1945. Dr Cross was one of the founders of the St Neots British Legion. He was the first chairman in 1922 and was later president of the branch. He was also county medical officer for the Red Cross and for many years president of the St Neots Conservative Association. Less than a year after his retirement Dr and Mrs Cross celebrated their golden wedding.

Dr WILLIAM REGINALD GROVE died at St Ives, Hunts, at the age of 79, on Nov 28. Dr Grove had been in general practice in St Ives for fifty-four years. After being a chorister at King's College, Cambridge, and a good rowing man at Sidney Sussex College, he went to Guy's Hospital, and would have done house appointments there had not his father's illness forced him to take over the family practice at St Ives. Acute observation of his patients and a keenness to absorb and try out new ideas in medicine were characteristic of him, but always with the belief that all the latest cure-alls have their day and vanish. Dr Grove made personal friends of his patients and knew their past history and domestic troubles. He always emphasized the fact that doctors have to deal with human beings, with troubles mental and physical and not with diseases. He took his M.D. whilst in busy general practice, writing his thesis on Graves' disease partly from observations made on more than one member of his own family. He was dogmatic and self-reliant, both good qualities in a country doctor. He was a member of the Church of England Men's Society and for many years president of the Ely Branch. Dr Grove was always a keen member of the B.M.A., and served as president of the Cambridgeshire and Huntingdonshire Branch during the whole of the 1914-18 war. His hobby was photography, and he was a pioneer in motor transport for doctors, starting in 1896 with a single-cylinder three-wheel car. He led a full and strenuous life and as he would have wished he died in harness.—C M S

Dr HUGH MUNDLE WILSON died at Linton, Cambs, on Nov 30 at the age of 63. Dr Wilson was born in Glasgow and educated at Glasgow High School and Glasgow University. He graduated M.B., Ch.B. in 1908. He spent two years in Liverpool, first at Stanley Hospital and later as a resident medical officer of the Liverpool Dispensary. In 1912 Dr Wilson went into general practice in Bridgeton, Glasgow, where his fine diagnostic skill and keen interest in his patients soon made him highly respected. During the first world war he served with the R.A.M.C. in India. On his return to this country he became the partner of Dr Wm. Mortlock Palmer in Linton. To this widespread country practice he devoted all his energies. Naturally shy, reticent, and self-effacing, he nevertheless became the adviser and friend of all manner of people, and was the initiator and advocate of numerous schemes of public welfare. Dr Wilson was forced to retire from active practice on account of ill-health in 1945, and from then until three weeks before his death he acted as a medical officer for the Ministry of Pensions and his painstaking qualities and clinical skill were much appreciated at medical boards. He leaves a wife and two children.—N G C

Professor G. Grey Turner writes: In the early days of the 1914-18 war, when Cyril Cuff (Nov 27, p. 960) was a sub-lieutenant in the R.N.V.R., he was in charge of a patrol vessel at the mouth of the Tyne, and it fell to the lot of this young medical student to undertake the responsible work of the examination of incoming craft. But most of his off-duty time and leave was spent at the Newcastle Royal Infirmary, and mostly in the operating theatres, for even in those early days he was intensely interested in surgery. Many a long morning he was at my elbow exhibiting that keenness which was characteristic of him throughout his career. In one of his resident posts just after qualifying he did quite a lot of major surgery, and with great success. Cuff was always fearless and that was exhibited in connexion with his own illness, for of course he knew the very ominous outlook in malignant larynx with involvement of the lymph nodes. When irradiation proved inadequate he came home to Newcastle from Cyprus and cheerfully submitted to the most radical surgery, buoyed up by the hope that he might be able to fulfil his great desire for a return to his surgical work. That he did resume practice and his operating, if only for a short time, was a great tribute to his courage and determination. Those who remember him as the light-hearted lad buffeted about week after week in a small craft at the mouth of a busy river at a critical stage of our naval warfare will be saddened that he has not been spared to carry on his chosen work in the same spirit for a few more years.

Sir Ernest Graham-Little writes: Your well-informed and very full obituary of my old friend, J. H. Sequeira (Dec 11, p. 1040), reinforced by the personal tributes from two of his pupils, deals more particularly with his very brilliant dermatological career. I would ask your permission to add a few comments on the remarkable Indian summer of his activities in a wholly new field which occupied the last twenty years of his life. Sequeira astonished his large circle of friends in London when, at the age of 62, he suddenly emigrated with his wife to Kenya, where, with the exception of two short visits to London, he remained until his death. During this period we corresponded frequently. He had been one of my original nominators for Parliamentary election in 1924 and he continued this support right to the end. His last letter to me from Nairobi is dated January, 1948 and he was able to say that he was still leading a very active and full life, notwithstanding the loss of the sight of one eye from glaucoma. He threw himself immediately into an investigation of native conditions, especially as regards their susceptibility to disease, and he embodied his researches in the memorable Chadwick Lecture of April, 1932, which he came to London to deliver. He shattered the legend so comforting to an indolent Colonial Office that the African native in his primitive state is a superlatively healthy person. Sequeira demonstrated with copious documentation that in fact the average individual native suffered from a simultaneous invasion of a number of separate infections to a degree which occasioned the comment that he might be described as 'a walking zoo'. Child mortality, the surest indication of the health of a community, averaged, as he records, 400 per 1,000 in the native reserves. The conditions of the native population which he described sixteen years ago would seem to have undergone little essential change. In an article in *The Times* of Dec 1 its medical correspondent reproduces the statement by the B.M.A. Branch Council for Kenya that the health situation is so perilous that it may cause "regional and continental disaster within a few decades and presses the urgent need for the closest investigation of this position.

## Medical Notes in Parliament

### Remuneration

Sir ERNEST GRAHAM-LITTLE asked the Minister of Health if he knew that under the present statutory limitations a medical practitioner's income could not exceed £3 600 per annum gross whereas that of a dental practitioner could reach £4 800 per annum gross, and if in view of the fact that the period of professional training for the qualifying diploma in medicine was fifty-seven months, while the period of training for the dental qualifying diploma was forty-eight months he would review the position, which caused dissatisfaction among medical practitioners.

Mr BEVAN answered on Dec 15 that he could not accept many of the implications in this question, but was about to review the present scale of dental fees in consultation with the profession.

### Artificial Insemination

Sir HARTLEY SHAWCROSS declared on Dec 13 that difficult questions had arisen in regard to the legitimacy of a child born during wedlock in a case in which cohabitation existed at the time of conception but did not take place after the marriage. Further difficult questions had arisen where a child was conceived either by means of artificial insemination or in spite of the fact that there had been no complete intercourse. Such cases were very exceptional. He said the Lord Chancellor doubted whether special legislation was desirable, but the matter was being kept under review.

**Certificates**—Sir JOHN MELLOR on Dec 13 asked whether Mr Bevan would amend the National Health Service Regulations to reduce the administrative work of doctors and enable them to devote a larger proportion of their time to treatment. Mr J. EDWARDS replied that Mr Bevan was always ready to consider any specific suggestions to that end, so long as the intentions of the Act were safeguarded.

**Rations for Diabetics**—Persons who produce a medical certificate indicating that they suffer from diabetes retain all the ordinary rations except sugar. In addition they are allowed 12 oz of butter and margarine, 12 oz of cheese, and two rations of meat a week. Where the medical certificate classes a diabetic patient as in need of a special supply of milk, a priority allowance of 7 pints a week is also granted.

**Agenized Bread**—Mr STRACHEY states that nitrogen trichloride is still used in the manufacture of wheat flour. A scientific committee including Sir Edward Mellanby and Sir Wilson Jameson was reviewing its use. Mr Strachey will be guided by their conclusions. He added that Sir Edward Mellanby had done the most recent work on the question.

## Medico-Legal

### CRUELTY OF AN INVALID

[FROM OUR MEDICO LEGAL CORRESPONDENT]

The wife of an officer serving in India was a chronic invalid. Over a period of years she made very exacting demands on him. He had to bathe her and dress her and she systematically for nights on end prevented him from sleeping by demanding that he should read to her. If he showed signs of going to sleep she stripped the clothes from his bed, moved furniture about the room and switched on the lights. Ultimately his health broke down. When the couple returned home he left her and petitioned for divorce on the ground of cruelty. Mr Justice Finnemore dismissed the petition holding that her conduct was not cruelty in a legal sense as it was not deliberate, malignant or intended. The Court of Appeal however gave the husband his divorce holding that the judge was wrong in law.<sup>1</sup>

Lord Justice Tucker admitted that the state of health of the parties was a relevant matter to be taken into consideration, and that it was the duty of each spouse to care for and show forbearance towards the other in illness. On the other hand if certain conduct was legal cruelty it was not necessary

to inquire into the motives behind it. There was no need to prove malignity. Lord Justice Evershed added that some limit must be set to the obligation of a spouse to take the other in sickness and in health.

The wife's conduct had seriously injured the husband's health and rendered it impossible for him to continue to live with her, and this constituted cruelty. On the other hand Mr Justice Hodson, who has had long experience of the divorce court, disagreed with the opinion of the two Lords Justices on the ground that the judge at the trial did not find cruelty as a fact. He did not agree that the husband was at any time acting under compulsion, he had written to his wife during the events complained of asking her to join him, and he only alleged cruelty many years after the events because his wife would not divorce him for desertion. Cruelty (as Lord Justice Asquith said recently) must exceed in gravity such behaviour, vexatious and trying though it might be as every spouse bargained to endure when accepting the other for better or for worse. The ordinary wear and tear of conjugal life did not in itself suffice. He therefore was for disallowing the appeal.

The acceptance by the husband of the conduct he complained of later was of course, a strong point against him and unless the court had taken the view that he had to a large extent acted under compulsion it would probably have dismissed his appeal. This case also emphasized the distinction between violent and disorderly affections of the mind, as a judge once put it and disease of the mind sufficient to prevent the spouse from appreciating the nature and quality of her acts. The distinction may be easier for a lawyer than for a psychiatrist to make but the case of *Astle v Astle* (1939) clearly settled that if insanity is proved a petition on the ground of cruelty must fail.

## Universities and Colleges

### UNIVERSITY OF CAMBRIDGE

Matthew Bennett, M.D., D.M.R., Assistant Director of the Radio therapeutic Centre, has been recognized as a Lecturer in the Faculty of Medicine.

### UNIVERSITY OF EDINBURGH

Walter Mercer, M.B., F.R.C.S.Ed., has been appointed as the first incumbent of the recently established Chair of Orthopaedic Surgery in the University. Mr Mercer will hold the appointment conjointly with the post of Director of Orthopaedics for the South Eastern Region of Scotland to which office he has been appointed by the Scottish South Eastern Regional Hospital Board. Part of Mr Mercer's work in these complementary posts will be the organization of undergraduate and postgraduate instruction with a view to the establishment of an Edinburgh School of Orthopaedics.

### UNIVERSITY OF LONDON

The Governing Body of the British Postgraduate Medical Federation on behalf of the University of London have appointed Mr L. E. C. Norbury to be Regional Adviser in Postgraduate Medical Education for the North West Metropolitan Hospital Region.

Mr J. B. Hunter has been appointed a member of the Committee on Higher Education in the Colonies for the remainder of the session 1948-9 and as the second representative of the University on the Inter University Council for Higher Education in the Colonies for the period ending July 31, 1953.

Dr W. F. Harper has resigned the post of Reader in Anatomy at London Hospital Medical College from a date between Jan. 1 and April 1, 1949.

A detailed scheme of examination for the first examination for medical degrees at the University College of the West Indies has been approved. The examination is to be held for the first time in June, 1949.

### FACULTY OF RADIOLOGISTS

The following candidates satisfied the Fellowship Board at the recent examination for the Fellowship of the Faculty of Radiologists: **Radiodiagnosis**—E. P. Allen, M.B. Ch.B. J. H. Middlemiss, M.D., **Radiotherapy**—G. W. Boden, M.R.C.S. M.R.C.P., W. M. Court Brown, M.B., Ch.B. O. B. Millar, M.D.

<sup>1</sup> *Squire v Squire* (1948) 2 All E.R. 51

No 49

## INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec 4

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year for (a) England and Wales (London included) (b) London (administrative county) (c) Scotland (d) Eire (e) Northern Ireland

Figures of Births and Deaths and of Deaths recorded under each infectious disease are for (a) The 126 great towns in England and Wales (including London) (b) London (administrative county) (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases a blank space denotes disease not notifiable or no return available

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever Deaths	33	2	19	1	1	46	4	21	2	—
Diphtheria Deaths	131	10	42	6	4	205	21	38	28	8
Dysentery Deaths	64	10	44	2	2	93	11	34	1	—
Encephalitis lethargica, acute Deaths	—	—	—	—	—	—	—	—	—	—
Erysipelas Deaths	—	—	38	10	3	—	—	41	8	5
Infective enteritis or diarrhoea under 2 years Deaths	33	1	3	37	4	59	2	12	31	3
Measles* Deaths†	8 562	157	165	90	66	2 799	149	371	204	1
Ophthalmia neonatorum Deaths	47	—	8	—	—	45	4	10	—	—
Paratyphoid fever Deaths	10	2	1 (B)	—	—	8	—	—	—	—
Pneumonia influenzal Deaths (from influenza)‡	897	60	3	4	4	530	25	8	2	16
Pneumonia primary Deaths	25	3	3	1	1	19	3	1	—	2
Polio-encephalitis acute Deaths	316	73	337	28	11	—	38	340	16	17
Poliomyelitis acute Deaths§	9	1	—	—	—	6	—	—	—	—
Puerperal fever Deaths	51	—	4	1	—	70	3	11	4	—
Puerperal pyrexia   Deaths	108	11	9	—	—	112	12	9	1	—
Relapsing fever Deaths	—	—	—	—	—	—	—	—	—	—
Scarlet fever Deaths†	1 527	71	294	194	5	2 027	132	337	55	59
Smallpox Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever Deaths	4	—	—	2	—	—	—	2	2	1
Typhus fever Deaths	1	—	—	—	—	—	—	—	—	—
Whooping-cough* Deaths	2 562	141	132	58	11	1 488	102	51	48	7
Deaths (0-1 year) Infant mortality rate (per 1 000 live births)	341	36	35	17	11	373	49	66	27	19
Deaths (excluding still births) Annual death rate (per 1 000 persons living)	5 967	1019	698	198	119	5 563	861	722	205	155
Live births Annual rate per 1 000 persons living	7 607	1107	913	436	250	7 975	1327	962	304	212
Stillbirths Rate per 1 000 total births (including stillborn)	178	20	38	—	—	210	24	29	—	—

\* Measles and whooping-cough are not notifiable in Scotland and the returns are therefore an approximation only

† Deaths from measles and scarlet fever for England and Wales London (administrative county) will no longer be published

‡ Includes primary form for England and Wales London (administrative county) and Northern Ireland

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales London (administrative county) are combined

|| Includes puerperal fever for England and Wales and Eire

## EPIDEMIOLOGICAL NOTES

## Discussion of Table

In England and Wales there was an increase of 181 in the notifications of acute pneumonia and a decrease of 185 in the notifications of whooping-cough

Notifications of scarlet fever were 17 fewer than in the preceding week there was an increase of 34 in Yorkshire West Riding Although the total for the whole country only showed an increase of 15, there were large fluctuations in the incidence of measles increases in Durham 87, Yorkshire West Riding 52, Warwickshire 47, Yorkshire North Riding 43 and Gloucestershire 41, with decreases in Lincolnshire 105 Lancashire 63 and Derbyshire 58 The largest decreases in the notifications of whooping-cough were Lancashire 39 and Essex 30 and the largest rise was Yorkshire West Riding 55 The chief feature of the returns for diphtheria was a fall of 15 in Lancashire An increased incidence of acute pneumonia was noted throughout the country

The largest notifications of dysentery were London 10 and Lancashire 9 The largest returns of poliomyelitis were Southampton 5, Lancashire 5, Yorkshire West Riding 5, and Sussex 4 In Northumberland, Newcastle-upon-Tyne CB, 4 cases of cerebrospinal fever were notified

In Scotland the chief feature of the returns was a rise of 94 in the notifications of acute primary pneumonia Increases were recorded in the incidence of scarlet fever 13 and whooping cough 12, and there was a decrease of 32 in the notifications of measles In Glasgow the notifications of diphtheria rose from 14 to 21

In Eire an increase of 37 occurred in the notifications of measles and a rise of 29 in the notifications of scarlet fever A rise in the incidence of scarlet fever was general throughout the country An outbreak of measles, resulting in 29 notifications occurred in the rural district of Laoighis county

In Northern Ireland there was very little change in the trends of infectious diseases

## Week Ending December 11

The notifications of infectious diseases in England and Wales during the week included scarlet fever 1 410 whooping-cough 2,522, diphtheria 144 measles 10 094, acute pneumonia 1 027, cerebrospinal fever 39 acute poliomyelitis 35, dysentery 69 paratyphoid 3, and typhoid 4

## Medical News

## Help for Chronic Sick

The Duke of Gloucester, presiding at a meeting of the General Council of King Edward's Hospital Fund for London on Dec 14 referred to changes in the future work and organization of the Fund It seems clear that, besides helping the relatively few hospitals disclaimed by the Minister of Health, we may be able to make a contribution to one of the most pressing problems of the day—namely, the need of homes for those who do not require to be kept in hospital The powers of the King's Fund do not extend to helping the aged as such—that we must leave to our friends of the Nuffield Foundation But there are many people in hospitals mostly over 60 years of age, who need not stay there but who do need some degree of nursing care and medical supervision It is all but impossible to secure admission for these people to any other institution, but they are taking up beds which ought to be filled by the acute sick He announced that the Distribution Committee would be glad to help voluntary bodies with substantial grants He also said that they planned to establish at St Pancras Hospital a training centre for hospital catering Since 1943 the Fund had been deeply interested in hospital catering and had been instrumental in effecting improvements The old regime of one cooked meal a day was a thing of the past But the whole movement was held up and indeed in danger of slipping backwards for lack of properly trained caterers and other personnel They intended to have at St Pancras a model kitchen, and room for various subsidiary and educational activities

## Russian Discoveries

The State Medical Library in Moscow, claimed to be the largest of its kind in Europe is holding an exhibition of medical literature according to a Moscow Radio report The main section of the exhibition is called "The Superiority of Russian Medicine" and discloses several Russian medical discoveries One book on show for example, deals with the life of Nikolai Pirogov, the eminent Russian surgeon of last century, and claims that he was the first man

to use ether as an anaesthetic, in 1847. In the West the American dentist Morton is generally recognized as the first to have used it as an anaesthetic, in 1846. Pirogov is also named as the inventor of the plaster cast for fractures, and Pirogov was the father of modern field surgery, claims the report. Another monograph at the exhibition names Yanovich Chayinsky as the inventor of an original method of skin grafting in 1870. Years later, says the report, a U.S. scientist announced this as his own discovery. The report also claims that the discovery of insulin in the treatment of diabetes is wrongly attributed to Sir Frederick Banting. It was really discovered by Professor Sobolev, a Russian scientist. (*British United Press*)

#### Recognitions for Gallantry

The *London Gazette* has announced the appointment as M.B.E. (Civil Division) of EDMUND MONK HAMILTON, M.B., B.Ch., B.A.O., ship surgeon, m.v. *Reina del Pacifico*, Pacific Steam Navigation Company (Bangor, Co. Down) and the award of the B.E.M. (Civil Division) to Messrs S. BLAIR, R. G. CROTHERS, and F. WATT. The citation reads as follows:

While the m.v. *Reina del Pacifico* was undergoing sea trials a series of explosions occurred in the engine room as a result of which 28 persons lost their lives and 23 were injured. Conditions in the engine room immediately after the explosions were chaotic. All lights were extinguished and access was very difficult owing to smashed ladders, loose floor plates, and the obstruction offered by displaced crank-case doors. A number of fires broke out and escaping oil caused grave risks of further explosions or more serious fires. The ship surgeon Mr Hamilton immediately went to the engine room. The stairway to the main motor room was wrecked and despite the fact that the engine room was in complete darkness, full of smoke and that fires had started he jumped in and gave first aid assistance to save life and ease the sufferings of those who had been badly injured. These services were rendered under exceptionally difficult and dangerous conditions and for three hours he was the only medical man on board. Blair, Crothers, and Watt although fully aware of the danger did not hesitate to enter the wrecked engine room and showed courage and coolness in the work of rescue and in relieving the sufferings of their comrades.

#### Medical Golf

The Annual General Meeting of the Medical Golfing Society was held on Dec 9. Dr D. G. Halsted was elected president and Dr C. Carran Brown captain for the ensuing year.

#### Wills

Dr Charles Samson Thomson, late medical superintendent officer of health in Belfast, left £4,915. Dr Thomas Browne Bearder, of Ilkley, Yorks, left £11,993. Dr George Baynton Forge, of Handley, Dorset, £9,165. Dr James Ironside Hutcheson, of Edinburgh, £12,168. and Dr Eric Avery Gordon Goldie, of Richmond, £14,071.

### COMING EVENTS

#### British Association of Physical Medicine

A short course of lectures on the various aspects of physical medicine has been arranged on Tuesdays and Thursdays from Jan 4 to Feb 10, 1949, inclusive, at 5 p.m. The lectures will be suitable for candidates preparing for Part II of the Diploma in Physical Medicine. Further details can be obtained from the honorary secretary, British Association of Physical Medicine, 45, Lincoln's Inn Fields, London W.C.2.

#### Congress of Obstetrics and Gynaecology

The 12th British Congress of Obstetrics and Gynaecology will be held at Friends Meeting House, Euston Road, London N.W.1, on July 6-8, 1949, under the presidency of Sir Eardley Holland. The programme is as follows: *Wednesday July 6* 10 a.m. The Congress will be declared open by the Minister of Health. Modern Caesarean Section, introduced by Mr C. McIntosh Marshall (Liverpool) 2 p.m. (1) Endometriosis by Dr Joe Meigs (Boston, Mass.), (2) The Methods of Assay and Clinical Significance of Pregnenediol in the Urine introduced by Professor C. F. Marriner (Edinburgh) and Dr G. J. M. Swyer (London) 8.45 p.m. Reception by the President and Council of the Royal College of Obstetricians and Gynaecologists at the University of London, Bloomsbury, W.C.1. *Thursday July 7* 10 a.m. Essential Hypertension in Pregnancy introduced by Professor George W. Pickering (London) and Professor F. J. Browne (London) 2 p.m. (1) The Management of Pregnancy in Diabetics introduced by Mr John H. Peel (London) and Dr G. Douglas Matthew (Edinburgh) (2) Hernia of Pouch of Douglas, introduced by Mr Charles D. Read (London) 8-10.30 p.m. Reception by the President of the Congress at the Zoological Gardens, by courtesy of the Council of the Zoological Society of London. *Friday July 8*—10 a.m. 'Modern Concepts in Diagnosis, Treatment and Prognosis of Carcinoma of the Uterus' (1) The Diagnosis by Vaginal Smear by Dr J. E. Ayre (Montreal) (2) Precancerous Cellular Changes in Carcinoma of the Cervix, by Professor Gilbert I. Strachan (Cardiff) (3) 'Prognosis based on Biopsies' by Mr A. Glucksmann (Cambridge) (4) The Operation of Pelvic Exenteration by Dr Joe Meigs (Boston, Mass.) A discussion will follow each paper 2 p.m. Discussion on Maternal

Mortality, introduced by Sir William Gilliat (London) 7.45 p.m. Congress banquet in Guildhall. Those who hope to attend should apply as soon as possible to Mr A. J. Wrigley, Hon. Sec., 58, Queen Anne Street (Royal College of Obstetricians and Gynaecologists), London, W.1.

### SOCIETIES AND LECTURES

#### Tuesday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Dec 28, 5 p.m. *Histopathology of the Skin* by Dr I. Muende

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street, London, W.C. Dec 28 11 a.m. *Film and Cultural Diagnosis of Gonorrhoea* by Dr R. Thomson

#### Wednesday

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street, London, W.C., Dec 29 11 a.m. *The Complement Fixation Test in the Diagnosis of Gonorrhoea* by Dr R. Thomson

#### Thursday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Dec 30, 5 p.m. *Affections of the Lips and Mucous Membranes* by Dr Brian Russell

INSTITUTE OF UROLOGY—At St Paul's Hospital, Endell Street, London, W.C., Dec 30 11 a.m. *Local Complications of Gonorrhoea in the Male* by Dr A. H. Harkness

#### Friday

MAIDA VALE HOSPITAL MEDICAL SCHOOL, Maida Vale, London, W.—Dec 31, 5 p.m. Case demonstration by Mr H. E. Hobbs

### APPOINTMENTS

COLLINS, F. M. M.Chir. F.R.C.S. Deputy Chief Medical Officer, Ministry of National Insurance

CRABB, JOHN, M.R.C.S. L.R.C.P. Port Medical Officer of Health, Hartlepool, Port Health Authority

MORRISON, J. O.B.E. M.C. M.D. D.P.H. Medical Superintendent for Aberdeen Special Hospitals

NORTHAMPTONSHIRE COUNTY COUNCIL.—District Medical Officers of Health and Assistant County Medical Officers of Health: W. Aitchison, M.B. Ch.B. D.P.H. P. X. Birmingham, M.B. Ch.B. D.P.H. A. Lucas, L.R.C.P. & S. Ed. D.P.H. Assistant County Medical Officer of Health: Margaret M. F. Robinson, M.D. D.P.H.

OVEN, EVELYN, D. M.B. B.S. D.P.H. Whole-time Medical Officer of Health, Carlisle Urban District Council and Assistant County Medical Officer

RIGBY, J. P. V. B.M. B.Ch. Chest Physician, Deptford Area, London S.E.

WEBSTER, ROBERT, M.B. Ch.B. D.P.H. Medical Officer for Eastern District of Flintshire

### BIRTHS, MARRIAGES, AND DEATHS

#### BIRTHS

Bennett.—On Sept. 19, 1948, at Melbourne, Australia, to Christine (née Hudson of Cambridge) wife of Dr J. W. Bennett a son—David John.

Harvey.—On Dec. 8, 1948, at Hove, to Betty (née Woodward) the wife of Dr N. W. A. Harvey, twin sons.

#### MARRIAGE

Stowers-Alabaster.—On Dec. 10, 1948, at Haslemere, John M. Stowers, M.R.C.P. to Mary Alabaster, M.B. B.S.

#### DEATHS

Alford.—On Dec. 11, 1948, at Tyndale, Weston-super-Mare, Herbert Thomas Marmaduke Alford, M.R.C.S. L.R.C.P. aged 75.

Burles.—On Dec. 13, 1948, at Druid's Mead, Stoke Bishop, Bristol, Richard Burgess, M.R.C.S. L.R.C.P.

Cole.—On Dec. 9, 1948, at Seaford, Sussex, George Cole, M.R.C.S. L.R.C.P.

Dickson.—On Dec. 11, 1948, Jack Edgar Dickson, M.B. B.S. of 5 Grange Road, Bushey, Herts.

Frain.—Recently at Batley, Yorkshire, William John Frain, M.B. Ch.B. D.P.H. aged 46.

Green.—On Dec. 13, 1948, at The Limes, Lakenheath, Suffolk, Hugh Frederick Green, M.B. C.M.Ed. aged 80.

Jones.—Recently W. J. Bennett Jones, M.D. Ed. of Liverpool.

Leslie.—Recently at Birmingham, Peter Leslie, M.B. Ch.B. Aberd.

Milsons.—On Dec. 9, 1948, at Guildford House, Chertsey, Surrey, Harry Blunt Milson, M.B. Ch.B. aged 78.

Morphy.—Recently Richard Murphy, M.R.C.S. L.R.C.P. of 3 Halifax Road, Grenoside, Sheffield, aged 40.

Oliphant.—On Dec. 11, 1948, at Rydens, Bothenhampton, Bridport, Dorset, Frank Binfield Oliphant, M.B. C.M.Ed. aged 77.

Phillips.—On Dec. 4, 1948, at The Park House, Port Talbot, Glam., Evan William Monker Hubert Phillips, M.D. M.Ch. F.R.C.S. Ed. J.P.

Robertson.—On Dec. 14, 1948, at Radcliffe Infirmary, Oxford, William John Robertson, M.R.C.S. L.R.C.P. aged 85.

Stanton.—On Dec. 8, 1948, at Leeds, as the result of an accident, Frederick Ritchie Sinton, M.B. Ch.B. Ed.

Smalley.—On Dec. 11, 1948, at Torcross, Kingsbridge, Devon, James Smalley, M.B.

Wells.—On Dec. 6, 1948, at Duncan, Vancouver Island, B.C. Canada, Albert Primrose Wells, L.R.C.P. & S. Ed. and L.M. aged 94.

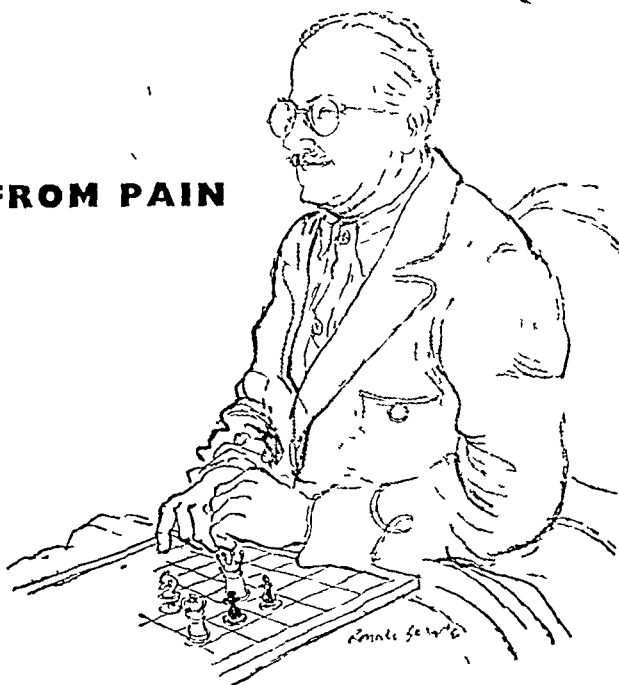
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B <sub>1</sub>	-	-	0.45 mg
B <sub>2</sub>			
(riboflavine)	-	0.3 mg	
nicotinic acid	-	1.7 mg	
B <sub>6</sub>	-	-	0.45 mg
E	-	-	8.0 mg

## PROTEIN, MINERALS etc.

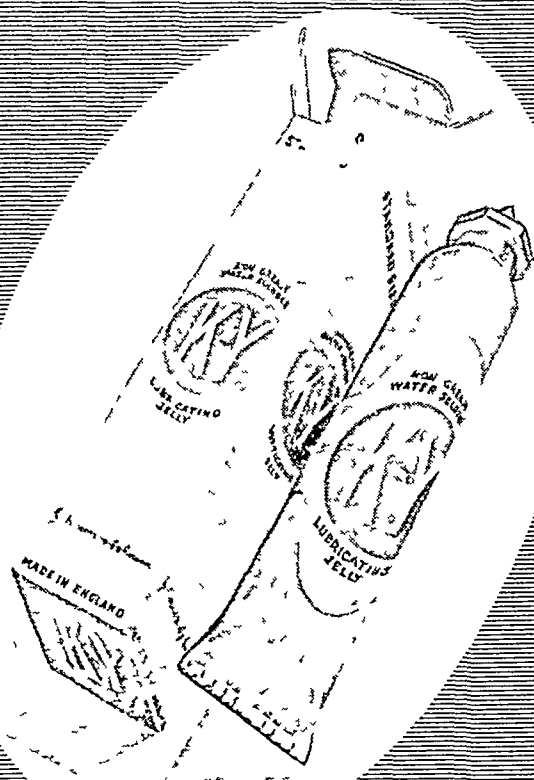
protein (first-class—see*)	-	30%
carbohydrate	-	39%
fat	-	8.5%
mineral salts	-	4.5%
water	-	5%
fibre	-	2%

## \* ESSENTIAL AMINO ACIDS

	fresh weight basis	16% N basis
arginine	2.5%	8.3%
histidine	0.9%	3.0%
lysine	1.8%	6.0%
tryptophane	0.3%	1.0%
phenylalanine	0.9%	3.0%
cystine	0.3%	1.0%
methionine	0.5%	1.6%
threonine	1.2%	4.0%
leucine	2.1%	7.0%
isoleucine	1.3%	4.3%
valine	1.6%	5.3%

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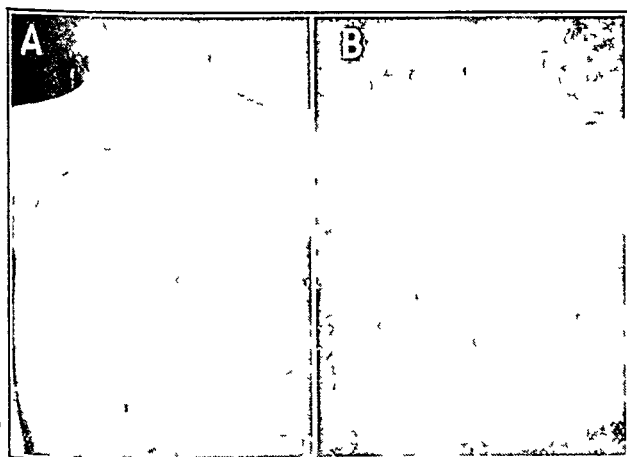
## Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

### Infra-red Photography

**Q**—Infra red photography is sometimes used to reveal dilated subcutaneous vessels—for example in cirrhosis of the liver. Where can details of the theoretical principles and technical processes be found?

**A**—The essential feature is the ability of a suitably sensitized photographic plate to record wavelengths outside the visible spectrum, both ultra-violet and infra-red. Emulsions can be sensitized as far as 13,000 Å, but the most generally useful infra-red plates respond from 7,000 to 9,000 Å. These radiations are less easily scattered than visible light (hence the long range landscape photographs published before the war) and therefore they can penetrate, among other things, the superficial layers of the skin. The clinical applications are limited but important. Superficial veins are clearly seen in cirrhosis and other conditions and also in the lactating breast. The



fundus oculi may be photographed even when the cornea is opaque. Skin lesions become visible through quite thick crusts and scabs, this may be valuable in the control of healing in lupus. The lesions in sections of silicotic lung are very clearly revealed by infra-red photography, whereas on panchromatic stock they are masked by the predominantly dark lung tissue.

The practical handling of the material is described in the manufacturer's data sheets and is not essentially difficult. The theory is well covered, with a good bibliography in *Photography by Infra-red* by Walter Clark (Chapman and Hall, 1946). The two pictures here reproduced—from a case of venous obstruction in mediastinal Hodgkin's disease—show the kind of result that may be obtained with infra-red photography. In Fig. A a local telangiectasis is seen over the sternum, in Fig. B the veins in the superficial fascia, dilated as collaterals, are demonstrated. The details are as follows: (A) Panchromatic emulsion, sensitive to 6,700 Å, 1/10 second at f/18, no filter. (B) Infra red emulsion, sensitive to 8,800 Å, 1/2 second at f/22. Wratten filter 88A. In both cases identical tungsten lighting was used.

### Kyphosis

**Q**—Would physiotherapy or any planned course of exercises rectify a mild kyphosis? The patient is a tall slim young man of 22 who attributes the deformity to bad posture associated with dyspnoea (asthmatic) during adolescence. He is now in excellent health.

**A**—The degree of 'straightening up' which can be expected is dependent to some extent on whether the kyphosis is purely postural or whether there is in addition some underlying condition such as Scheuermann's osteochondritis. This

could be determined by radiological examination. In either case a planned course of exercises, designed to build up the tone and power of the posterior spinal muscles, would be beneficial. But if there is some structural change of the dorsal vertebral bodies improvement is unlikely to progress to the point of complete correction of the deformity. It should be emphasized that the exercises must be carried out in an intensive manner over a prolonged period and must be practised frequently at home as well as in the physiotherapy department.

### Human and Bovine Tuberculosis

**Q**—Is pulmonary tuberculosis in the human ever caused by the bovine organism? Conversely is there any evidence that infection has been transmitted to the cow by a man suffering from pulmonary tuberculosis? If so is it inadvisable for a patient with known pulmonary tuberculosis to milk cows in a T.T. herd?

**A**—Pulmonary tuberculosis in the human can be caused by the bovine type of tubercle bacillus. A considerable number of cases have been reported by Sir William Savage, A. S. Griffith, and P. W. Edwards. In 1933 of all pulmonary cases examined the proportion of bovine type was 0.8% in England and 3.8% in Scotland. It is probable that further typing of bacilli found in sputum will reveal that pulmonary tuberculosis of bovine origin is not so infrequent as it was once thought to be.

The human type of tubercle bacillus can cause very mild infection in cattle, but it rarely gives rise to symptoms. The infected animal reacts to tuberculin but the sensitivity is often transient. Should a person working in contact with cattle suffer from pulmonary tuberculosis due to the bovine type of bacillus it is possible for the cattle to become infected from that source and develop active lesions. It is certainly inadvisable, and in fact can be illegal under the Milk and Dairies Order 1926 No. 821 (Ministry of Health and Ministry of Agriculture and Fisheries), for a patient with known active tuberculosis to milk cows in a T.T. herd, primarily because of the danger of infecting the milk. If the patient suffers from bovine tuberculosis there is the added risk of the cattle becoming infected and developing the disease.

### Taenia Saginata

**Q**—What is the accepted treatment for *Taenia saginata* infection? I would appreciate a detailed description, as I have several persistent cases.

**A**—Preliminary starvation for forty-eight hours, with a daily saline purge, is important. Following this on the third morning give, for adults, freshly prepared oleoresin of aspidium 0.6 to 1.2 ml in gelatin capsules, one capsule every half-hour for three doses. Follow in half an hour with a full dose of sodium or magnesium sulphate. Examine all stools until the head is found. Successful treatment may necessitate the introduction of the drug by duodenal intubation. In case of failure the treatment should not be repeated until a month or six weeks later. It is probable that neither this nor any other drug used for the treatment of intestinal cestode infections is capable of killing the parasite *in situ*. Such drugs appear to act by temporarily anaesthetizing, paralyzing or irritating the worms thus causing them to relax their hold on the gut wall. This failure to kill the parasite explains the importance of purgation after administering the drug and the need for subsequently searching the patient's faeces for the head of the tapeworm in order to establish the success or failure of the treatment.

### Suprarenal Extract and Obesity

**Q**—I should be glad of any information regarding the use of suprarenal gland for reducing obesity, especially in women at the menopause, also the dose and contraindications to its use in such cases.

**A**—There is no evidence whatsoever that extracts of the suprarenal gland or synthetic adrenal products, have any effect on adiposity although the latter have often been prescribed without rationale and without success. If anything the available adrenal products would tend to increase weight rather than diminish it, and in some cases to increase the water-salt retention that is sometimes associated with adiposity.

## Measles Prophylaxis

## Q—Is there any reliable prophylactic against measles?

A—There is as yet no prophylactic vaccine which can be used to give children an active immunity against measles. Normal adult serum may be used to modify an attack, and in this way the child obtains immunity to further infection without suffering any ill effects from the measles. In young children under 2 years of age convalescent measles serum or concentrated globulin fractions may be used to protect completely against infection but such protection being of a passive nature, lasts only for two or three weeks. Normal adult serum is obtainable through the Public Health Laboratory Service. The supply of convalescent serum is usually limited and localized and the small amount of concentrated globulin fractions prepared in this country is at present being utilized in controlled trials to test its efficiency.

## Reiter's Disease

Q—A patient recently had Reiter's disease with the usual arthritis conjunctivitis and urethritis. He was treated by sulphonamides and NAB intravenously and is now quite well. He is however worried over the dubious aetiology of his complaint and the fear of infecting his wife or future children. Are there any known facts of aetiology, treatment and infectivity in relation to marital relationship and future children?

A—There are one or two rare examples where Reiter's disease has occurred in a married couple and it has been suggested that the disease has been transmitted maritally. There is no evidence to suggest that the infection is transmitted from the parents to the children. The view that Reiter's disease is due to pleuropneumonia-like organisms is now gaining ground. To relieve his mind the patient should be examined to see that pleuropneumonia-like organisms are not present in the urethra. Streptomycin appears to act as a specific in Reiter's disease.

## Sea sickness

Q—A boy of 5 subject to severe attacks of cyclic vomiting is going to Australia. Attacks have occurred after long motor runs, yachting or nervous excitement and have frequently resulted in alarming collapse. Phenobarbitone seems to have prevented car or train sickness. What prophylactic measures are advised in case of bad weather at sea?

A—There seems to be a slight confusion of terminology in this question. Cyclic vomiting is surely a periodic phenomenon often cryptic in origin, but frequently tracked down essentially to recurrent infection in the type of nervous, excitable child who easily vomits. Presumably this is not meant in the question, since definite aetiological factors are mentioned. The problem posed is what can be done to prevent serious effects from sea-sickness in a presumably susceptible child. Sedatives should certainly be used and phenobarbitone is mentioned as effective in this small patient. The fluid intake should be kept at a high level, preferably before rough weather is encountered by means of sweetened fruit drinks. Rich fatty foods should be kept down to this country's present standards. Sweets, sweet biscuits and the like should be used freely to keep the liver well stocked with glycogen. The experience of the ship's doctor and nurse (if available) should be drawn upon at an early stage of the voyage so that the child has confidence in them should attention become necessary. The advantages of a low-pressure rectal drip might be remembered if dehydration should become serious.

## NOTES AND COMMENTS

**Sweating Hands**—Dr SAMUEL LOWY (London, W) writes in reply to a question it is suggested ("Any Questions?" Nov 27, p 967) that excessive sweating particularly affecting the hands in a 24 year old patient who suffered from this complaint all his life "is almost certainly emotional and may have a psychological cause amenable to psychiatric investigation and treatment. I should be glad to know the source of this encouraging statement. Certainly it is not in accordance with my own experience as well as that of my fellow psychiatrists engaged in the therapy of psychosomatic manifestations. I have tried it frequently during the early period of my career, and I can remember no case of palmar sweating existing from early childhood, or even from early adolescence, as the only nervous symptom yielding to hypnotic or analytic psychotherapy. Cases of hyperhidrosis may improve spontaneously later in life in the thirties. Sullivan and Bereston (*Amer J Psychiat* 1946, 103, 42), discussing psychogenic urticaria, pruritus, and hyperhidrosis think that the prognosis for military service is poor even on limited duty. They recognize the significance of predisposition, so prominent indeed in the vast majority of cases. On the other hand Gutheil in his *Psychotherapie des praktischen Arztes* (1934 Leipzig) takes a rather optimistic view in not too severe cases, though he does not indicate the type of patients he has in mind. I myself have attained success only in cases where the condition developed after adolescence and was associated with other symptoms fit for analytical therapy.

**Phosphaturia**—Dr L. DUNN (Hull) writes. The answer to the question, "What is the best treatment for phosphaturia?" ("Any Questions?" Dec 4, p 1006) misses the main point. It does not deal with phosphaturia but with the physiological excretion of phosphates. Phosphaturia is a well known abnormality in which the kidneys do not excrete the normal quantity of calcium (about 0.2-0.4 g CaO in 24 hours) but amounts of about 0.4 g up to 0.9 g CaO in the form of insoluble  $\text{Ca}_3(\text{PO}_4)_2$  instead of the soluble calcium phosphates. The phosphaturic urine is alkaline and turbid. On the other hand urine can be alkaline and turbid due to lack of acid, the content of calcium being normal. In this case insoluble  $\text{Ca}_3(\text{PO}_4)_2$  salts can be present as well. The diagnosis of phosphaturia must not be established upon the turbid appearance of the urine alone as some physicians are unfortunately used to doing. A chemical analysis of the urine has to show the amount of calcium to be abnormally high. As phosphaturia is thought to be a nervous disturbance and as the patients may offer signs and symptoms of nervousness treatment is that of nervousness. Apart from that it has been recommended to acidify the urine by diet and by taking diluted acids in order to counteract the formation of insoluble calcium salts and the formation of calculi which sometimes result from the deposited salts. Such treatment can at most alleviate some symptoms but does not remove the cause of the trouble. Phosphaturia (the term "calciuria" is more precise and not misleading) can occur in organic nerve diseases. I found it in two cases of polyneuritis.

## CHRISTMAS IN THE SURGERY



# SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 25 1948

## THE SECRETARY REPORTS

### IS SPENS BEING APPLIED TO GENERAL PRACTITIONERS?

Material is being collected to answer this all-important question. The first investigation conducted in a large northern county is now complete and others are proceeding in two counties, one very rural, and in two cities, one mainly industrial and the other mainly residential. It may be useful to indicate the methods followed in making the calculations.

One first needs to know the size of the quarterly cheque for general medical services received by each practitioner on the list of the local executive council in the area. There are then added any amounts received for the same quarter by each such practitioner from any other local executive council on whose list his name also appears. Where practitioners are in partnership an adjustment is needed to calculate the amount *actually* received by the individual practitioner. In the case of the first quarter an addition of 4/88ths is necessary because the first period was four days short of a full quarter, no such adjustment being necessary where the second quarter of the year is under consideration.

Having obtained the figure of public income for each practitioner for G.P. services for a quarter—let us call it £x—it is then necessary to base on this figure a calculation of the total professional income for the year. First, it is multiplied by four (£4x), because it is based on a quarterly payment. In all cases this figure is 5% short of the total because 5% has been retained in the central fund to be paid out in some form or other in the final cheque for the year.

#### Allowance for Superannuation

It is then necessary to allow for superannuation contributions. The Government's contribution is part of the practitioner's income for the purposes of the Spens calculation. It is deferred pay in that in some form or other it will be paid to practitioners or their dependants in the form of pension, injury allowance, widows' pension, etc. A deduction of 6% has already been made for the doctor's contribution, a contribution of 8% will be made for the Government's contribution. But both percentages are applied to the net income. In relation to gross income the 6% becomes 4% and the 8% rather more than 5%. There must be added to the annual income so far calculated an amount to allow for the 4% already deducted by local executive councils for the practitioner's contribution to superannuation, and to the result rather more than 5% in respect of the Government's contribution.

So far we have reached a sum £4x plus approximately 14%—that is, 5% for retained money and 9% for superannuation. There are other additions to be made of which an exact computation is not possible. The local executive council may have kept back money in respect of basic salaries which will not be paid. There is money to be paid in respect of maternity services. There are dispensing payments for rural practitioners. There are payments to be made for vaccination and immunization, no money has yet been paid out under this heading, for, as described at p. 236 the negotiations for these payments are not yet complete. For many there is money from other sources, such as private practice, local authority work, and so on. Adding all these items together a fair estimate of the average figure to be added to the quadrupled quarterly cheque is probably about 20%, though it will vary for individuals. Where appointments are held or private practice survives the right figure may be much higher where there is no other income at all the figure will be 14%. This calculation does *not* take into account mileage payments, which—on the present basis—will be twice the annual payment of pre-Act days.

### Spens

The total professional income of each practitioner on the list of the area under investigation having been calculated it then becomes necessary to examine the result in the light of Spens, the main recommendations of which related to practitioners between 41 and 50 years of age. The next stage, therefore, is to extract the practitioners in this age group from the main returns. According to Spens, of practitioners in this age group 75% should receive over £1,000 a year, 50% should receive £1,300 a year or more, 25% should receive over £1,600, slightly less than 10% should receive over £2,000, and a small proportion at least should receive £2,500 a year. These figures are pre-war and net. Assuming, though only for the purposes of this calculation, the Government's figures for betterment—namely, 20% to the net remuneration and 55% to the practice expenses—the betterment factor to be applied to the gross remuneration is approximately one-third. Thus, to convert the Spens figure into gross post-war remuneration on this basis, one should first convert the Spens figure to gross and then add a third. In this way, £1,000 becomes £2,010. Recast in modern form the Spens requirement means that 75% of practitioners should receive over £2,010, 50% over £2,613, 25% over £3,216, slightly less than 10% over £4,020, and a small proportion at least £5,025.

These are the recommended average figures for principals, whether or not they employ assistants. In order to see the picture at its clearest, what is being done is not only to select the practitioners between 41 and 50 but to divide them up into practitioners without an assistant, practitioners with one assistant, and practitioners with more than one assistant. Broadly speaking, this is the method now being followed in the investigations under way.

Even if it were found that Spens is being applied to the country as a whole, it would not follow that it was being applied in every part of the country. It would certainly not mean that there are not cases of severe hardship which must be remedied. Yet it is clearly necessary to provide a general answer to the question, Is Spens being applied? before putting forward a case for the radical reform of the remuneration arrangements. This general consideration, however, does not apply to the so called betterment factor. A betterment factor of one-third applied to the gross income and of one-fifth to the net income in no way represents the change in money values which has taken place. The Spens Report does not deal with the numbers on lists. Whether it is being applied or not, it is irrelevant to the question whether 4,000 is too high a maximum except in one regard. If a lowering of the permitted maximum means that a proportion of practitioners between 41 and 50 who receive the higher range of incomes is in excess of the figure recommended by Spens, then the two questions of Spens and numbers become together involved.

#### Present Hardship

Before these words appear, the Remuneration Subcommittee of the General Medical Services Committee will have met the Ministry again on the urgent question of the loss of income now being experienced by a substantial number of practitioners, including rural practitioners. They will have pressed for immediate attention to this problem, including an increase in the mileage fund, regardless of the general propositions to be put forward on the basis of the Spens investigation.

# National Health Service

## VACCINATION AND IMMUNIZATION

### FEE FOR SERVICES AND REPORT

The B.M.A. is contesting the view of the Ministry that every general practitioner in contract with the local executive council is required by his contract to vaccinate and immunize patients on his list without receiving remuneration from the local authority for this service. The views of the Association may be summarized as follows

(1) Vaccination and immunization form no part of a general medical practitioner's duties under his contract with the local executive council, but they are a statutory obligation of the local health authority

(2) Where a practitioner renders a service of this nature he should be entitled to a separate fee for the service and for any report made to the local health authority

Under Section 10 of the First Schedule to the General Medical and Pharmaceutical Services Regulations (SI 506) it is laid down that a practitioner is entitled to accept remuneration 'from any statutory body in respect of services rendered for the purpose of that body's statutory functions.' Section 26 of the National Health Service Act makes it a statutory function of local health authorities to 'make arrangements with general practitioners for the vaccination of persons in the area of the authorities against smallpox, and the immunization of such persons against diphtheria.' The Association's opinion is based on these enactments

Many doctors have already carried out a considerable number of these services and been promised that they will be paid retrospectively to July 5 as soon as agreement has been reached. The Association is urging that payment shall be speedy

## APPLICANTS SEEKING INCLUSION IN MEDICAL LIST

Many doctors applying on Form EC 16 to get on to the list of a local executive council have been worried by advertisements stating that applicants must have arranged accommodation by a certain date—sometimes only a fortnight or so after the advertisement first appears. They are also required to state on Form EC 16 the accommodation they have arranged. The Medical Practices Committee has now advised local executive councils that where an applicant is unable to furnish a surgery address at the time of completing Form EC 16 his application will be considered in the ordinary way and if granted will be subject to the practitioner sending particulars of his surgery and residence to the Committee by a prescribed date. If an applicant is unable to find a house before the required date, he should inform the Medical Practices Committee that he is still seeking accommodation, and his position will be considered in the light of the numbers of doctors then on the list. If he fails to give this information his application will be considered to have lapsed

## STANDING ADVISORY COMMITTEES THE MINISTER'S PROPOSALS

The Minister of Health has decided to set up on the recommendation of the Central Health Services Council the following standing advisory committees: Medical, Dental, Pharmaceutical, Ophthalmic, Nursing, Maternity and Midwifery, Tuberculosis, Mental Health and Cancer and Radiotherapy. The Medical, Dental, Pharmaceutical and Ophthalmic Committees will be professional in character; the others will include lay members

The Central Health Services Council (see *Journal* Aug 14 p 350) will itself set up two committees: (1) Health Centres—

To consider and make recommendations on the lines along which health centres should be developed under Section 21 of the National Health Service Act, 1946; and (2) Hospital Administration—To consider the administration and organization of the hospital services under the National Health Service Act 1946 and to make recommendations. The B.M.A. has

accepted an invitation to nominate four members from its Health Centre Committee to serve on the Council's Committee on Health Centres

Communications about the work of these committees should be sent to the Secretary of the Central Health Services Council, Ministry of Health, London, SW 1, until secretaries have been appointed to the individual committees

## G.P. CONSULTANTS

The General Medical Services Committee and the Central Consultants and Specialists Committee have appointed a joint committee to consider matters of special interest to general practitioner specialists

The following have been nominated by the General Medical Services Committee: H. S. Howie-Wood, A. Talbot Rogers, W. D. Steel. The following have been nominated by the Central Consultants and Specialists Committee: O. E. J. McOustra, A. M. A. Moore, R. L. Newell

The committee will make recommendations in connexion with the permanent contracts of specialists, special attention being paid to rural districts where much specialist work has previously been performed by general practitioners with higher qualifications or qualified by experience to give such services

## SUPPLEMENTARY OPHTHALMIC SERVICE

The Ophthalmic Section of the Negotiating Committee met officials of the Ministry on Dec 18. The working of the Supplementary Ophthalmic Service was reviewed and a number of anomalies and difficulties discussed

## CHAPLAINS FOR HOSPITALS

The Minister of Health has asked committees and boards in all hospitals to give special attention to providing for the spiritual needs of both patients and staff. In particular they should do everything possible to arrange the hours of duty of nurses and other staff (and of students at teaching hospitals) to enable them to attend the services of their own denomination. He suggests that wherever possible a room should be set apart for use as a hospital chapel, and whatever accessories of worship are required by each denomination should be provided, and office accommodation should be provided for chaplains where possible

Committees and boards have been asked to appoint a chaplain—or chaplains from more than one denomination—for every hospital for which they are responsible, and these appointments are always to be made in consultation with the appropriate Church authorities. In some areas one whole time chaplain may serve a number of hospitals; elsewhere a part time chaplain for each hospital may be appointed

## INCREASED PENSIONS FOR CERTAIN WIDOWS

Widows under the age of 60 who on July 5 were incapable of self-support because of some infirmity and are likely to remain so for a long time can claim 26s a week instead of their 10s a week contributory pensions. They must do so before Jan 5, 1949. Any widow who thinks she may be entitled to an increase of her pension in these circumstances but who has not made a claim should obtain the necessary form of application from her local National Insurance office without delay. The address of the local office can be got at the local post office

## INTERNATIONAL HOLIDAY EXCHANGES

This scheme (*Supplement* Dec 11 p 215) relates exclusively to holidays exchanged with doctors on the Continent, and is not intended to be a means of providing holiday locums. Doctors who participate in the scheme will exchange hospitality with Continental colleagues but the scheme will not enable the visiting doctor to practise

CENTRAL CONSULTANTS AND SPECIALISTS  
COMMITTEE

## MERIT AWARDS

A meeting of the Central Consultants and Specialists Committee was held at Association House on Dec 9, with Mr R L Newell in the chair. The death was announced of a member of the Committee, Dr F B Parsons, of Cambridge, and the members stood in silence as a token of regret.

A joint subcommittee to consider problems common to consultants and general practitioners has been proposed by the General Medical Services Committee, which has nominated three members. The Central Consultants and Specialists Committee was in accord with the proposal and nominated its chairman, together with Mr A M A Moore and Dr O E J McOustra.

Attention was drawn to the fact that the Ministry had not allowed the proposed terms of service of hospital, medical, and dental staff to be circulated to regions. It was said that the Ministry had no business to interfere with the normal working of the Committee, it was imperative that the Committee should get the instructions and ideas of those it represented. It was decided that a strong representation should be made to the Ministry that permission be given for the document to be circulated to the Regional Committees.

At a previous meeting the Committee instructed its Executive to examine the resolutions of the Regional Committees on the subject of merit awards as suggested by the Spens Committee. The Committee itself had decided by a narrow majority against the principle of such awards and had asked the Regional Committees for suggestions as to alternative methods. In the regions there was a slight preponderance of support—though not qualified—for the principle of such awards.

After discussion the Committee agreed to a series of recommendations from its Executive. These accepted the principle that awards should be made for merit, subject to a satisfactory method of implementation. It was considered that the selection of 4% of the profession for awards of the highest grade should be made by a National Committee, that the National Committee should include representatives of the universities and the Medical Research Council nominated by those bodies, that it should have a lay chairman appointed in agreement with the bodies to be consulted in the formation of the committee and in consultation with the Central Consultants and Specialists Committee, and that it should from time to time publish a report of the awards made, together with the names and positions of the recipients.

It was also considered that in each region there should be established after due consultation, a committee of distinguished medical practitioners of consultant status which would select for recommendation to the National Committee specialists in the area for awards of the second and third category upon applications received from individual specialists and from other bodies.

Mr N Ross Smith placed a memorandum on this subject before the Committee and moved a resolution in which, while approval was expressed of higher remuneration for a proportion of consultants and specialists in recognition of greater ability or responsibility in the medical working of the National Health Service, the proposed method of special distinction awards was not considered to be appropriate. Mr Ross Smith preferred an establishment method with grading of appointments as to salary, and with allowances for the difference between the specialties, and for automatic annual increments of salary according to seniority within each grade. This was not agreed by the Committee.

The Committee then turned to consider the proposed terms and conditions of service of hospital, medical and dental staff on the basis of the private document already referred to which has not been allowed to be circulated to the regions. This discussion which occupied some hours, must for the time being be considered private also.

The Health Services Superannuation Division moves on Dec 29 from 28, Prince's Gate London SW7, to Government Buildings, Horsepost Lane, Sinnamon, Middlesex. The new telephone number will be EDGware 2311.

## HEARD AT HEADQUARTERS

## That Extra Work

One or two opinions have been gathered informally from practitioners in the provinces on the attitude of patients to the new Service. One doctor in the West Riding said that the Service so far 'has realized neither our worst fears nor our highest hopes'. All of them spoke of busy surgeries, but on the whole they paid a tribute to their patients which it is refreshing to hear. One of them noted the hesitating approach of some patients, like the housewife who said "It doesn't seem right to get all this for nothing". But, of course, the practitioner's work is multiplied by the family. As one doctor put it: "The mother comes along pushing one child in front of her and dragging another behind, and when you have looked into the first one's throat trouble you are asked to stop the second one's cough, and finally the mother says, 'And while you are about it, doctor, you might just look at this elbow of mine'". No doubt treatment of trivial ills is being asked for on an unprecedented scale. From this small inquiry—concerning not more than a dozen provincial doctors in busy practices—it seems that patients are very often considerate, patient, and careful of the doctor's time.

## Doctors' Handwriting

The badness of doctors' handwriting is an old joke, and Mr Chuter Ede, the Home Secretary, brought it out again when distributing prizes to commercial students the other evening at the Albert Hall. Some of the prizes were for excellence in handwriting and Mr Ede remarked that quite clearly the prize-winners would never be doctors.

## Dental Priorities

The fantastic situation in dentistry is worrying the London County Council. The priority service for expectant and nursing mothers and children is jeopardized by the resignation of dental surgeons in the public service to take up more lucrative private practice. The total strength of the LCC dental service has been reduced by nearly one-third, and twenty dental centres have been closed wholly or in part, while there is little immediate prospect of staffing 20 new centres which are ready or almost ready for use. Such a loss of dental surgeons appears to be higher in London than in the rest of the country, and other local authorities have intimated that they would not object if the LCC finds it necessary to meet the situation by an increase in the salary scale over and above the small percentage increase now being granted generally in the country. It is therefore proposed to raise the maximum of the scale for LCC dentists to £1,250 as from the beginning of December. The maximum to which a dentist can rise at present, with the recent Askwith percentage increase, is £1,050.

## Equal Pay

An inquiry has been made of medical officers of health about the question of equal pay for men and women medical officers, and also the consolidation addition or bonus payable. So far replies have been received from 144 county borough, and metropolitan borough councils. Of this number 27 employ no women medical officers, 73 have a system of equal pay, 14 of unequal consolidated addition, and 20 of unequal bonus. Of 96 municipal boroughs which have so far replied 71 have no women medical officers and 20 of the remainder have a system of equal pay. A further letter calling attention to the BMA equal-pay policy has been sent to all local authorities now known to be differentiating between men and women medical officers as regards payment of consolidation addition.

## Report on Nutrition

Another interesting BMA report is being drafted. The Nutrition Committee set up by the Council appointed a clinical subcommittee, which has prepared a report examining critically the information available on the state of health of the community and the effect of wartime diet on health. The subcommittee's conclusions must not be given before they are endorsed in their final form, but in general after allowing for the sparseness of information in some fields, and the difficulty of collecting clinical data for certain groups, our food policy



seems to be justified by such statistics as can be applied. The subcommittee has been unable to express an opinion on whether or not the nutrition of the industrial worker is or has been sufficient to enable him to respond to all the calls made upon him.

## Questions Answered

We publish here the answers to a selection of questions that seem to be of general interest

### Specialists Spens Report

**Q**—I have heard that the Government has issued its proposals for interpreting the *Specialists Spens Report* and for the conditions of service of specialists and consultants. If this is true, why have you not published them?

**A**—The proposals have been issued, but the Ministry of Health will not allow them to be published.

### University Employee and Superannuation

**Q**—I am employed on a yearly contract by the university as registrar and tutor and the greater part of my work is carried on in the out-patient department of a teaching hospital. Am I liable for NHS superannuation payments?

**A**—A practitioner employed by a university is not subject to the NHS superannuation scheme.

### Assistantship with View

**Q**—I have recently been offered an assistantship with view. The question which occurs to me is whether or not the existing partners who are taking part in the NHS are in a position to offer a view. Or is the successor to a position of the partnership a matter to be decided entirely by the local executive council? If they are in a position to offer a view, what is the nature of the usual type of contract?

**A**—An assistantship with a view is for practical purposes a partnership with a period of preliminary assistantship on a probationary basis. To employ an assistant for more than three months the consent of the local executive council is required. To secure inclusion in the medical list of an executive council the consent of the Medical Practices Committee is required. The only ground on which the Medical Practices Committee can refuse admission to the list is that there are already enough general practitioners in the area.

The Minister has given the following assurances: (a) All will be free to choose colleagues, partners, and assistants unless the area requires no more (on the decision of the Medical Practices Committee) or the regulations on the employment of assistants are contravened. Where more than one doctor wishes to be the partner or assistant in question, the Medical Practices Committee will be asked to observe the wishes of the doctors concerned. (b) Doctors will be free to decide when an additional partner or assistant is necessary subject to the cases where the Medical Practices Committee decides that no additional doctor at all is needed in the area and subject to the conditions about assistants. (c) Except in areas which have been declared 'closed' by the Medical Practices Committee the consent of the Medical Practices Committee will be given automatically to applicants seeking inclusion in the list.

In areas which have not been declared 'closed' by the Medical Practices Committee a practitioner or a partnership is in a position to offer an assistantship with a view. In an area which has been declared 'closed' this will depend upon the attitude of the Medical Practices Committee after consultation with the local executive council, which in turn consults the local medical committee. It would be reasonable to expect that even in a closed area the Medical Practices Committee would approve the application for inclusion in the list of an assistant who was taking over from an outgoing principal or partner. Where the executive council and the local medical committee are of the opinion that a practitioner is the natural successor, a block transfer of the outgoing practitioner's patients may be made to him.

Agreements vary according to the wishes of the practitioners concerned and the principal or partner and the assistant would be well advised to seek the advice of a solicitor with experience in medical agreements.

## Correspondence

### Drugs Stocked by Doctors

**SIR**—I note that the discrimination between English and Scottish practitioners over the use of Forms EC 10 and EC 10A has been the subject of a Parliamentary question, and that the Minister has replied that he sees no reason for altering the present arrangements. He is hardly likely to see reason for this or any other reform unless it is forcibly put before him, but if the reasons for the present arrangement were explained to the profession they might find it less irksome.

The arrangement in force in Scotland allows doctors in the NHS to order on a special Form EC 10A stocks of such drugs and appliances as are required (a) for immediate administration or (b) for use before a supply can be obtained by means of a prescription and (c) any other drugs which are administered by them in person. How are English practitioners to obtain such supplies? In theory they are apparently expected to buy them with their own money, and are allowed for this purpose 2s 6d per 100 persons on their list—£5 per year for the man with 4 000 patients. As this is manifestly absurdly inadequate to cover all supplies coming under the three categories, and as most of us are probably a bit hazy as to what the 2s 6d per 100 is actually supposed to pay for, we presumably most of us try to keep up our stocks by over-prescribing for one patient so as to have stock available for the next.

Obviously under either arrangement there has always been a possibility of using public supplies for private patients, but now that private practice is so largely obsolete there would seem to be no excuse for continuing this untidy effort to keep English doctors as honest as their Scottish colleagues are assumed to be. To regularize the bulk ordering of an adequate stock of the supplies concerned would be a real help to the already overburdened doctor. But it would also ease the burden on the chemist and the patient. With all dispensing in urban practices suddenly shifted to the chemist he is often unable to give the urgent prescription the priority it needs and treatment may be delayed for hours or even days. Much more of this urgent dispensing could be done at the doctor's surgery as of old with advantage to all concerned. But unless the use of form EC 10A is conceded to English doctors no doctor can be expected to provide more than the niggardly minimum which can be assumed to be covered by the 2s 6d per 100 per year. And we shall all continue to try to keep up our stocks by such unsatisfactory methods as those indicated above, never sure whether we are robbing ourselves or the State. Is there any reason why the Minister should not regularize the position at once? If there is, is it too much to ask to have it explained?

—I am, etc.,

Chelmsford Essex

IVOR BEAUCHAMP

### Value of Money and Compensation

**SIR**—With reference to the sum of £66 million the agreed figure to compensate for all general practices I have seen no mention in the *Journal* of any adjustment which in equity, must be made in this figure for the changed value of money since the original negotiations. If compensation is not to be made with reference to the market value of practices it should surely be adjusted to the current value of money.—I am, etc.,

Wimborne Dorset

K B CLARKE

### Earnings of Specialists

**SIR**—A faint flicker of hope was raised in my despondent bosom by Dr S Balfour-Lynn's letter (*Supplement* Nov 6, p 166) and the letter from Mr Deitch (*Lancet* Nov 6, p 747). One began to think that at last a few specialists were realizing the desperate plight in which we have been landed. However, from the lack of comment since, I have relapsed into despair.

To console would-be specialists I can summarize most of the Spens Report for them. After the postgraduate years of study mentioned by Dr Balfour-Lynn they will be employed, if fortunate, on a salary equivalent to that of a clerk to the management committee and rather more than half of what their general practitioner colleagues receive. After eight years they will rise to a maximum of somewhat less than a general

practitioner might receive. This maximum, for two-thirds of them, will be permanent. In addition they will be taxed on this salary under Schedule E, which means that their net income will be very considerably less than a general practitioner, who gets his professional expenses allowed under Schedule D—I am, etc.,

Dartford Kent

G DALLEY

### Large Lists

SIR,—In letters of late scorn has been poured on those doctors who through good fortune or merit have neared or attained the maximum number of patients. Such epithets as "swollen lists," "head hunters" etc., have been bandied about. I would remind these writers that these patients required medical attention before the Health Service and received this for small fees and often for nothing. Naturally they have wished to continue with their own doctors, and they have come of their own free will without pressure or inducement. Was it wrong of us to treat all these patients before July 5, or has it only become an offence since then?

To penalize such doctors a sliding capitation fee is proposed. The Representative Body of the B.M.A. has always voted against differential rates of payment. In my opinion such a system would be illogical, unfair, and unwise. If it is wrong for a doctor to treat more than a given number of patients for a fixed capitation fee, how can it be right for him to treat the same patients for a lesser capitation fee? It would be unfair, for I do not know of any worker who is paid less for more work done. It would be unwise because, once the principle of a variable capitation fee were established, it might be put to other uses. For instance, practices in beauty spots or health resorts amid pleasant surroundings with clear skies and pure air might be rated at  $\frac{1}{2}$  to  $\frac{3}{4}$  the basic fee, while practices in the grimy hearts of our industrial cities might be rated at  $1\frac{1}{2}$  to 2 times the basic fee. Several other interesting variations can be worked out.

The suggested maximum of 2,000 is impossible at present. Taking into account sparsely populated areas, over-doctored areas, and the practices of doctors who through age, ill health, or for private reasons have small lists, the average elsewhere will be over 3,000. In any case there would be anomalies. How should the numbers on the lists of two doctors compare? One devotes himself entirely to his practice, does not apply for inclusion on the special midwifery list and has no outside posts, and the other is on the special midwifery list and has various outside posts—hospital, industrial medical officer, pension boards, police surgeon, medical boards, etc.

The foregoing is not an attempt to excuse the inadequacy of the present capitation fee but a plea that future writers consider this on its merits and not attempt to penalize or defame a hard working section of the medical profession—I am, etc.,

Birkenhead Cheshire

A V RUSSELL

### Threaten to Resign

SIR,—I heartily endorse the sentiments expressed by Dr William R Mackie (*Supplement* Dec 4, p 209). The situation is intolerable, and if not immediately remedied calls for a 90% resignation. To work a seven day week with numerous night calls and 24 hours on duty and find at the end of the quarter that one's cheque is exactly half the monthly cheque of a dental colleague is more than human flesh can bear. The complacency of the recent B.M.A. circular merely fanned the flames of indignation—I am, etc.,

Inverleithen Peeblesshire

G NEIL FLETT

### Resign or Emigrate

SIR,—I heartily endorse Dr William R Mackie's letter (*Supplement* Dec 4, p 209) with regard to the plight in which doctors are at the present time. The remuneration for a practitioner with a small practice is totally inadequate, and doctors of experience who have to work longer hours in days of rising costs and where the pound has only the purchasing power of 5s if that as compared with pre-war should be properly compensated to enable them to give of their best to their patients. The alternative to a refusal by the Ministry to give adequate living facilities to men who have spent a lot of time and expense in acquiring their skill and experience seems to be a wholesale resignation from the scheme and a return to private practice, or alternatively emigration—I am, etc.

Croydon Surrey

J A H SYKES

### Details of Service

SIR,—I cannot help feeling that we ourselves are mainly to blame for the burden of Atlas which is now laid on our shoulders. While I consider that the B.M.A. was right to suggest we joined the Service, I think that the Negotiating Committee was wrong not to have discussed details of service, and I wrote a letter to that effect which was published in the *Supplement* (Nov 29, 1947, p 127) while negotiations were going on, but not one letter was written in support, though now many of your correspondents are complaining about this very matter. I know the committee said they had no mandate to go into details of service, but this hardly seems a far-sighted or realistic policy.

The B.M.A. has some able and hard-working men in its ranks who are distributed and dissipated among its all-too-numerous committees and subcommittees. What we now need is a much more ruthless and realistic organization, a trade union, with only one committee consisting of some very hard-faced men whose foremost task is to better the conditions and pay of the medical profession, which we are all agreed are most unsatisfactory—I am, etc.,

Worsborough Dale Yorks

D W MAYMAN

### Remuneration

SIR—I wish to add my protests about the National Health Service in its present form to those of other correspondents on this subject. Like many another I entered the scheme in July with many misgivings but determined to do my best to make it work. I state at once that I entered the Service because I could not afford the loss of capital which failure to join would have entailed—capital which I had invested in the purchase of the practice originally, and increased by dint of hard labour and the giving of good service to all patients whatever the patients could afford to pay. As a result of these efforts the capital value of my practice doubled itself in as many years. With a stroke of the pen and the passage of five months my efforts are nullified and my financial position is at the stage it was four years ago. Not only is this a bitter pill to swallow but in addition the deterioration in the standards of practice which the present system has brought about is depressing and makes it impossible to tackle the problem of the sick without the carking care of financial insecurity.

I have maintained from the very outset that, while the dignities and freedoms of our great profession required every effort to safeguard them, the fundamental principle of proper remuneration was never given its proper place or perspective in the discussions which dragged on interminably until we were advised to take service. No man—with the best will in the world, and filled with the desire to give of his best—can do so with the wolf howling at the door its cries becoming louder and louder as the end of the quarter draws nigh.

I have no doubt that those practitioners who enjoy—if that be the word—huge lists of patients will at once refute the charge, but I am quite convinced that no man can possibly look after 4,000 patients adequately or properly. It is a complete fallacy to pay to a man, who by virtue of numbers can devote some ninety seconds to each patient in his surgery, the same amount as is paid to a man with smaller numbers, especially when his patients expect more attention and demand the same detailed examination and service as when they paid 10s 6d or more for it. This point, in my view is not stressed sufficiently, but is of great importance when the question of remuneration is under review.

The cost of living—in spite of the denials of the present Government—rises steadily and inexorably to maintain a medical establishment in what is known as a residential area costs far more than in an industrial or country area. At the same time it is impossible to attract the grotesque numbers found in industrial areas or even the sop of increased mileage allowance in rural areas—for what that is worth.

I am afraid that the wretched attempts made during the pre-July-5 period are being and will be continued unless some definite plan or decision is made. No other body of men would have allowed themselves to be manoeuvred into our present position. No other body of men will make less effort to get out of the mess unless forthright methods are adopted—this in spite of our tremendous powers, for without us the entire Service must collapse.

I suggest (1) that the B.M.A. notify all Branches of the Association to hold emergency meetings during the next month with the specific purpose of ascertaining the temper of its

members, (2) that at these meetings the only subject to be discussed is the pay of doctors, (3) that the BMA propose through each Branch chairman to recommend full resignation from the Service unless the capitation fee is at once raised to £2 per caput, and voting take place on this motion without delay, (4) if the BMA is not prepared to do this, that we form local groups who are prepared to act independently.

Surely the spectre of the vicar or curate striving to save souls on a miserable pittance with the liability of a huge unworkable house and a wife and family to keep is a sufficiently dreadful example of what inadequate payment can produce. I hold the view that, while duty to medicine and one's patients is a grave responsibility, yet the duty to one's wife and family is even greater. Charged with these responsibilities, it is a wretched man indeed who will not take up the cudgels in a warlike mood. Let us stop at once our representations, suggestions, and recommendations and begin our demands. Until we are prepared to act in this way I am convinced that worry, misery and over-drafts will be our lot—I am, etc.,

Beckenham Kent

R E NEWMAN

### Payment for Work Done

SIR,—The recent decision of the Minister of Health to alter the payments to dentists has no doubt been noted with some foreboding, by the majority of your readers. This action involves the use of two new and reprehensible principles: first, that a man should no longer be paid for the work he does but be paid for that work in relation to an arbitrarily fixed income level. The old trade union standard of 'the rate for the job' has been abandoned. Secondly, as far as we of the sister profession know, this action has been taken with little or no pretence of consultation with the workmen involved.

Add this new departure to the practice already established of asking men to do a job first and 'discuss' the rates of pay later, as has happened to consultants and specialists in the hospital service, and to the first denial of the promise that a citizen may use all or any part of the Service, for which he pays, at will, and one can then build up a picture of the 'no foul rules' in this game with the Minister that the Association so rashly hurled us into. Note too, Sir, that there is no referee in this game, no half-time, and no final whistle. The crowd may boo, but they cannot get their money back—I am, etc.,

London SE 15

P G McGRATH

### Solid Work at Periphery

SIR,—We are a strange profession indeed. On reading the belated blarneyings in the *BMJ* one would think that many are surprised at what are really logical sequels in a service the control of which we have almost entirely lost. The BMA has made obvious blunders—e.g., discussion (provisionally) of compensation terms at far too early a date, allowing a panic second plebiscite before the profession had time to consider it, a futile effort to retain goodwill of practice and so on, but had the bulk of the profession had the foresight and the courage of the Chairman of Council we would not be enslaved as we are to day. Let us therefore accept once and for all that the profession caused its own downfall by not giving its leaders a clear mandate proved by a weak response to the Defence Fund.

A recent correspondent states that we were forced to sell our practices. May I ask who forced us? I cannot but wonder how many who were so lukewarm in their support for retention of goodwill now feel that freedom of movement was a principle worth fighting for and how many weary members of local medical and executive council committees consider that the mythical problem of distribution of doctors has in any way been solved. Do the new applicants for practices feel that the new system is an improvement on the old? It is depressing to think that even now we do not realize that had we won the principles we could not have lost on the regulations and detail.

Let us not dissipate our strength on recriminations and selfish arguments about sliding capitation fees etc., but stick to the principle that a capitation fee must be adequate per person no matter the numbers on a list otherwise we are playing into the Minister's hands to cheapen an already cheapened

service. We can expect no help from the politicians of any party. We know that all parties agree that it is a good thing for the Minister of Health to buy and sell our patients, but two parties only believe that it is a moral crime to nationalize steel.

I write in the hope that we cease our internal bickerings and direct our every effort through the BMA as our only hope of salvation. It is not reorganization of representative election of our leaders that we need but solid work at the periphery—the groups, the non attenders, and non talkers at meetings. There is only one answer to any Ministerial argument, and that is mass resignation and I feel and hope the call will come to find us united and add fuel to the beacon Lord Horder has kindled—I am, etc.

Sheffield

ANDREW STEPHEN

### Unemployment

SIR,—Being a potential general practitioner under 35 years old I should like to draw the attention of the BMA to some of our difficulties in seeking work.

(1) The replies I have received from general practices in the area in which I seek work point to the fact that although overworked they cannot take on extra commitments due to financial insecurity.

(2) Trainee assistantships under the NHS appear to be the main source of work and they are not open to me due to previous experience in general practice.

(3) The advertisements for vacancies in general practice from the local executive councils average two to three a week, and these exceed from the applicants more than should be asked. For example, from the *BMJ* of Nov 27 (a) Stornoway—applications and testimonials by Dec 11, and for a potential panel of 3 500 one is expected by the authority to provide an extra surgery, and an assistant may also be needed, (b) Newcastle upon Tyne—applicants are expected to apply on a special form and arrange provisional accommodation all by Dec 4.

Thus are we faced with unemployment in a new NHS scheme the advocates of which said that it would aid those setting up practice for the first time, so do we have to suffer under a scheme for which so many of us did not vote.

It is up to the BMA to set these things right with all possible speed, but how are they able to bring any pressure to bear in the 'negotiations' with the Minister now that he has us all in it whether we like it or not? In fact do they really represent fairly the position of the general practitioners? The new arrangements about the basic salary point to the fact that they do not—I am, etc.

Greenhithe Kent

MARGARET DUDLEY-BROWN

\*\* The Association has established a special organization—the Medical Practices Advisory Bureau, BMA House, Tavistock Square London, WC1—to provide information and advice on available opportunities and openings in general practice—ED *BMJ*

### Remuneration an Urgent Problem

SIR,—The BMA prior to the final plebiscite would have us believe that, unlike the leopard Bevan had changed his spots, and that henceforth he was going to beam benevolently on the BMA and the profession in general if only the former would persuade the latter to sign on the dotted line. The dentists were a little more resistant, especially as compensation for goodwill did not arise in their case and they had been told outright that no amending Act could be expected. However, the inevitability of the implementation of the Act, in its original form virtually, after the surrender of the BMA, and perhaps the glittering financial prospects persuaded the vast majority of dentists into the scheme like us against their better judgment and conscience. Now comes their rude awakening. However, their 'ceiling' of £4 800 still leaves them comparatively well off. I would willingly forfeit 100% in excess of a much lower figure were there any possibility of attaining it.

I enclose a cutting from the *Daily Telegraph* (Dec 7) under the heading 'Doctors' New Fees Demand'. In this I learn that the General Medical Services Committee of the BMA has under consideration the recommendations of the Conference of Local Medical

Committees, which met in London on Nov 25, on the subject of remuneration. After the next "interim", cheque the B.M.A. (the article goes on to state) will then survey the doctors' financial position. Sir, the financial position of the bulk of the doctors is only too evident and, unless the B.M.A. is more out of touch with its members even than I suspect, it must be moderately clear to them.

The article further states that Mr Bevan, through his officials (he no longer deems the courtesy of a personal appearance necessary), met a deputation on the subject two weeks ago. And here I quote, "He is not likely to make any final decisions until the winter is over. It is an urgent matter to put a stop to the dentists' high earnings, but to raise the doctors' miserable pittance can wait until the stress and strains of the winter epidemics are over. Then he thinks he will no longer need us for a spell, except to issue an occasional optical certificate, which does not matter anyway, since he is short of lenses."

Sir, the subject of remuneration is urgent. Dr Cockshut says so, and, what's more produced evidence. And feeling must be running strong if the Chairman of Council can go so near to the mention of "strike" as "withdrawal of service" on this issue. We do not want to subsist on charity as exemplified by basic salaries and special inducement payments. All we ask in return for a more than honest day's work is the fulfilment of a promise of a liberal interpretation of the Spens recommendations. Otherwise, from the depths of the Slough of Despond into which many of us are rapidly descending we cannot possibly "deliver the goods"—I am, etc.,

Penn Wolverhampton

A E ROBERTS

### Betterment Factor

SIR—According to your note in the *Supplement* of Nov 27 (p 192) the Ministry is using a betterment factor of 20% applied to net remuneration. Practice expenses have increased by much more than 20%, perhaps by more than 66%. No allowance appears to have been made for this increase in expenditure. In a practice where expenses were one-third of the gross income 5s of the Spens 1939 15s represent overhead charges and should carry an increase of say 66%. 10s, the net remuneration portion of the capitation fee, carries the betterment factor of 20%. So that at 1948 values of money a capitation fee worth 15s in 1939 should amount to £1 0s 4d if it is properly to show a betterment of 20% on net remuneration.

By comparison the present capitation fee after deduction of amounts for the mileage pool and basic salaries, may amount to 17s 3d. When expenses, properly weighted for the increased costs, are deducted a net remuneration of less than 9s remains. This shows that a "worsening factor" of some 10% has been applied. That these figures are not purely theoretical is shown by my own and no doubt many other practices.

By its reference to other middle-class incomes the Spens Report may not entitle us to demand that our remuneration should carry a betterment factor equal to the whole of the rise in the cost of living. At least we must insist that the whole of the increased costs of running our practices are added to the capitation fee and that then an adequate figure to cover increased cost of living is added to net remuneration—I am etc.

Clevedon Somerset

W H HYLTON

### Time Spent on Committees

SIR—The amount of time spent by medical practitioners at committee meetings is giving rise to considerable misgivings. The type of man likely to possess those qualities of most value in committee is frequently he who is most successful and sought after in his own practice. It will include the senior members of the profession. He may serve on an area hospital management committee and on the medical board of one or more particular hospitals. These are likely to meet at least once a fortnight. Such a man must attend an important committee meeting once a week which may last three hours. Furthermore for one who takes a serious view of the proceedings and studies the agenda beforehand those three hours may be considerably less than the time spent on this matter out of committee. The times of the meetings must be fixed out of "ordinary" working hours, so that these men are often out after midnight in bad weather having already completed a heavy day's work.

I have not been able to follow all the correspondence in this *Journal* but I have not seen this problem seriously raised

I feel it is time that someone proposed a vote of thanks to those members of the profession who have been called upon to plan the local medical services of this country at the expense of the already rapidly diminishing time they are able to spend at home with their families—I am, etc.

London SW 1

P F LUCAS

### Implement Spens Report

SIR—I was interested to read to-day the basis of remuneration of our dental colleagues in the N.H.S. I quote from the *Daily Express* of Dec 6 "A Ministry of Health official said. It was provisionally agreed that the gross income on the basis of a 33-hour week should be £3 800 a year, but because there is a shortage of dentists the figure now taken is £4,800."

I appreciate that, say, a dental extraction is a much more highly skilled procedure than completion of a certificate for glasses or for a truss, but I still feel that some degree of parity of remuneration would appear to be indicated. My own 70+-hour week would then produce an income in the region of £8,000 per annum. A small step towards this goal would be immediate Governmental implementation of the Spens Committee Report.—I am, etc.,

Woodbridge Suffolk

P DAWNEY

### Estimate of Income

SIR,—Dr A S Morton Palmer (*Supplement*, Dec 11 p 223) questions Dr Charles Hill's assertion, repeated in your leading article entitled "N.H.S." (*Journal* Nov 13, p 864) that the total pre-war income of general practitioners amounted to £28 million. There is a further assertion in the same leading article which seemed worthy of investigation—I e

"In an industrial country such as Britain the majority of general practitioners will receive the greater part of their income from what were formerly described as 'panel patients'."

For this purpose I decided to ascertain the incomes of practices (and their respective panels) advertised for sale at a pre-war date. To secure a "random selection" I obtained several *B.M.J.s* of the spring of 1938 from the B.M.A. Library and chose the first that I picked up. I made a note of (a) the annual income of "mixed" panel and private practices (b) the number of panel patients associated with each, and (c) the annual income of practices advertised as either without panel or with a number of panel patients unspecified (which can reasonably be assumed to be not very great).

The figures arrived at, in round numbers, are (a) Total income of "mixed" practices £148,000 (b) Total number of panel patients 105 000 (c) Total income of mainly non-panel practices £23 000. Number of "mixed" practices 89. Number of mainly private practices 16. Hence in these 105 practices the total income was £171,000, with total number of panel patients about 110 000.

Having regard to the capitation fee paid in 1938 it appears that this assertion has no foundation in fact and that the inference drawn from it is unwarranted—I am, etc.,

London SW 3

—MORRIS CUTNER

\*\* The figure of "rather more than £28 million" is not the Secretary's "assertion" but a mathematical computation based on several thousand statements of doctors' incomes used by the statistician, Professor Bradford Hill, in the preparation of the Tables submitted to the Spens Committee—ED *B.M.J.*

### Shift of Income

SIR—No doctor can attend a full list and do his work well without breaking down in health. Thus all those doctors who are interested in maintaining a high standard of medicine should press for a reduction in the lists. The clock puts a limit on the amount of work a doctor can do. It takes an equal amount of time to care for 1 000 patients in the country or 2 000 patients in a residential area or 4 000 patients in a slum industrial area. Unfortunately these three different types of practices do not bring in equal incomes. Remuneration in the National Health Service bears no relation to work done. There has been a "shift" in medical incomes and a new aristocracy has arisen. The successful doctor of yesterday with a large private practice and a modicum of panel patients

who has to give way to the doctor who used to have a large hotel and club practice. It used to be the ambition of every doctor to pass from the latter class to the former, now the process is reversed. It is not a struggle between the "haves" and the "have nots," as Dr J M Bellamy (*Supplement* Dec 11, p 220) suggests but a struggle of those who used "to have" and now "have not" any longer. These men are in a tragic plight and have to seriously lower their standard of living. Their only offence is that they have been accustomed to 'good doctoring'—I am etc

Newcastle upon Tyne

H H GOODMAN

## POINTS FROM LETTERS

### Unreasonable Deductions

An ENGLISH DOCTOR writes: In my opinion the only reasonable deduction allowable from a medical practitioner's remuneration is the 6% for superannuation. Now that 98% of private practice has gone the vast majority of practitioners have sustained a very severe reduction in their incomes, and in some unhappy circumstances many of our colleagues have been reduced to a state bordering on bankruptcy. It is absolutely absurd that from a common pool there should be a deduction for mileage, this is simply taking from one hand to put into the other, or robbing Peter to pay Paul. What this simply means is that one section of the practitioners' community has this amount of mileage money deducted from their legitimate fees in order that their country brethren be paid the mileage scale. Another deduction is the £300 per annum basic salary. It is odious for the unfortunate doctors in receipt of this beggarly sum to know that it is being deducted from the salary of their perhaps slightly more fortunate brothers, and it is grossly unfair that this sum should be deducted from the capitation fee, it should be paid in an honest straightforward manner by the Treasury. In exactly the same way all expenses of medical committees, local or national, which are doing work for the State and the State doctors, should be paid from the Treasury. These expenses should not have to be met out of the pockets of the underpaid penalized doctors.

Personally I am perhaps slightly more fortunate than a lot of my colleagues in having some 3,000 odd patients on my list, but even so with this number of patients I have been compelled to take my 16-year old daughter away from school because I simply cannot afford £250 per annum for her education as well as for my son's. The girl's career has suffered, as she would have stayed on at school until 18 and then gone up to the university, but I cannot do it for both my children. It seems to me fantastic that the B.M.A. should have allowed such a state of affairs to come to pass and must go to show the gross incompetence and lack of business experience of our negotiators. I also cannot understand why Branch and Divisional meetings are not being held all over the country in order to agitate and make known publicly through the Press in the strongest possible terms the disapproval of the profession to the scheme as at present constituted.

### Ichabod

Dr A R STUART WARDEN (Brighton) writes: A few days ago a young woman came into my surgery and asked for a form to have her eyes examined. I asked her if she was registered with a doctor, and she replied, "Yes, but I don't know who the heck he is, and any doctor will do for this."

## Association Notices

### SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award:

1 The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice, it includes a money award of the value of 50 guineas.

2 Any member of the Association who is engaged in general practice is eligible to compete for the prize.

3 The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.

4 Essays, or whatever form the candidate desires his work to take must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec 31, 1948. The prize will be awarded at the Annual General Meeting of the Association to be held in 1949.

5 No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize.

6 If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final.

7 Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

8 The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association.

9 Inquiries relative to the prize should be addressed to the Secretary.

### KATHERINE BISHOP HARMAN PRIZE

The Council of the B.M.A. is prepared to consider an award of the Katherine Bishop Harman Prize of the value of £75 in 1949. The purpose of the prize, which was founded in 1926, is to encourage study and research directed to the diminution and avoidance of the risks to health and life that are apt to arise in pregnancy and child bearing. It will be awarded for the best essay submitted in open competition, competitors being left free to select the work they wish to present, provided this falls within the scope of the prize. Any medical practitioner registered in the British Empire is eligible to compete.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1949, but will be offered again in the year next following this decision and in this event the money value of the prize on the occasion in question will be such proportion of the accumulated income as the Council shall determine.

The decision of the Council will be final.

Each essay must be typewritten or printed in the English language must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address. Essays must be forwarded so as to reach the Secretary, to whom all inquiries should be addressed at B.M.A. House, Tavistock Square, London, W.C.1, not later than Dec 31, 1948.

### MIDDLEMORE PRIZE

The Middlemore Prize consists of a cheque for £50 and an illuminated certificate, and was founded in 1880 by the late Richard Middlemore, F.R.C.S., of Birmingham, to be awarded for the best essay or work on any subject which the Council of the British Medical Association may from time to time select in any department of ophthalmic medicine or surgery. The Council is prepared to consider the award of the prize in the year 1949 to the author of the best essay on "The Value of Orthoptics in the Treatment of Squint." Essays submitted in competition must reach the Secretary, British Medical Association B.M.A. House, Tavistock Square, London, W.C.1, on or before Dec 31, 1948. Each essay must be signed with a motto and accompanied by a sealed envelope marked on the outside with the motto and containing the name and address of the author. In the event of no essay being of sufficient merit the prize will not be awarded in 1949.

### Diary of Central Meetings

JANUARY

12 Wed Council, 10 a.m.

### TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils—Fulham, Hackney, Poplar  
Non-County Borough Councils—Dartford, Radcliffe (limited to future appointments), WallSEND

Urban District Councils—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley

# BRITISH MEDICAL JOURNAL

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